



Lime Down

Solar Park

EIA Scoping Report

Main Report

July 2024

Planning Inspectorate Reference: EN010168



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1 Introduction

1.1 Background

- 1.1.1 Lime Down Solar Park Limited ('the Applicant') has commissioned this Environmental Impact Assessment (EIA) Scoping Report (the 'Scoping Report'), in respect of the proposed Lime Down Solar Park. Lime Down Solar Park (hereafter referred to as the 'Scheme') consists of an electricity generating station with a capacity of over 50 megawatts (MW) comprising of ground mounted solar array sites and 'Associated Development' comprising of Battery Energy Storage System (BESS), grid connection infrastructure and other infrastructure integral to the construction, operation and maintenance, and decommissioning of the Scheme.
- 1.1.2 The 'Sites' comprise six land parcels referred to as Lime Down A, B, C, D and E, and Land at Melksham Substation and are shown on shown on **Figure 3.1.1** to **Figure 3.1.6**. The Sites are described in more detail in **Chapter 3**. The Sites are located within the administrative boundary of Wiltshire Council. Five of the parcels are located to the north of the village of Hullavington, approximately 800m to the north of the village at the closest location. The sixth parcel, Land at Melksham Substation is located approximately 160m north of the village of Whitley, near the town of Melksham.
- 1.1.3 The Cable Route Search Corridor represents the area of search for the cable route that will connect the Solar Arrays to Melksham Substation. The Cable Route Search Corridor is subject to refinement to a preferred Cable Route Corridor prior to the submission of an application seeking development consent. The Cable Route Search Corridor is shown in **Figure 3.2.1** to **Figure 3.2.3**.
- 1.1.4 The Sites and the Cable Route Search Corridor are shown in **Figure 3.1**. This shows the proposed maximum extent of land that would be included within the application for a Development Consent Order (DCO) and includes all land currently being considered for the purposes of the Scheme. **Figure 3.1** provides a 'plan sufficient to identify the land' for the purposes of this Scoping Report (in accordance with regulation 10(3) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations')) (**Ref 1**).
- 1.1.5 The Applicant will undertake an EIA and provide an Environmental Statement (ES) in respect of the Scheme as part of the application for development consent. This EIA Scoping Report sets out the proposed scope of the EIA and forms a formal request for a Scoping Opinion under Regulation 10(1) of the EIA Regulations.

1.2 The EIA Regulations

- 1.2.1 As the Scheme comprises the construction of a generating station with a capacity of over 50MW, it is defined as a Nationally Significant Infrastructure Project (NSIP) under 14(1)(a) and 15(2) of the Planning Act 2008 ('the Act') (**Ref 2**) and therefore must be consented by way of a DCO.
- 1.2.2 The EIA Regulations stipulate that developments listed under Schedule 1 must be subject to EIA, while Schedule 2 lists development which will be subject to EIA if considered "*likely to have significant effects on the environment by virtue of factors such as its nature, size or location*". The criteria on which this judgement should be made are set out in Schedule 3.
- 1.2.3 The Scheme is a Schedule 2 development under Paragraph 3(a) as it constitutes 'Industrial installations for the production of electricity, steam, water and hot water'.

1.2.4 The Applicant confirms that it will be providing an ES to accompany the DCO application, and this Scoping Report therefore constitutes notice under Regulation 8(1)(b) of the EIA Regulations.

1.3 Purpose of the EIA Scoping Report

1.3.1 In accordance with Regulation 10(1) of the EIA Regulations, a person who is minded to make an application for a DCO may ask the Secretary of State to state in writing their opinion as to the information to be provided in the ES (a 'scoping opinion').

1.3.2 Regulation 10(3) of the EIA Regulations states that a scoping request must be accompanied by:

- A plan sufficient to identify the land (**Figure 3.1**);
- A description of the Scheme, including its location and technical capacity (**Chapter 3** and **Chapter 4**);
- An explanation of the likely significant effects of the development on the environment (**Chapter 6** to **Chapter 21**); and
- Such other information or representations as the person making the request may wish to provide or make.

1.3.3 This Scoping Report has also taken into account the guidance highlighted in the Planning Inspectorate Advice Note 7: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (Version 7, republished June 2020) (**Ref 3**).

1.3.4 **Table 1.1** sets out the topics that are considered in this Scoping Report. The Applicant is advised by a team of experienced environmental consultants who have addressed each topic. The consultants are also identified. A statement of competence for all authors of the technical chapters will be provided with the ES, in accordance with regulation 14(4)(b) of the EIA Regulations.

Table 1.1: EIA Topics and Scheme Consultants

Chapter	Consultant
Chapter 1: Introduction	Lanpro/AECOM
Chapter 2: Methodology	Lanpro
Chapter 3: The Scheme and its Wider Context	Lanpro
Chapter 4: Scheme Description	Lanpro/AECOM
Chapter 5: Legislative Context and Energy Policy	Lanpro/AECOM
Chapter 6: Climate Change	Bureau Veritas
Chapter 7: Landscape and Visual	Lanpro
Chapter 8: Ecology and Biodiversity	Clarkson and Woods
Chapter 9: Arboriculture	Lanpro

Chapter	Consultant
Chapter 10: Hydrology, Flood Risk and Drainage	Arcadis
Chapter 11: Ground Conditions and Contamination	Delta Simons
Chapter 12: Cultural Heritage	Lanpro
Chapter 13: Transport and Access	TPA
Chapter 14: Noise and Vibration	Tetra Tech
Chapter 15: Glint and Glare	Pager Power
Chapter 16: Electromagnetic Fields	Pager Power
Chapter 17: Air Quality	Arcadis
Chapter 18: Socio-Economics, Tourism and Recreation	Lanpro
Chapter 19: Human Health and Wellbeing	Lanpro
Chapter 20: Soils and Agriculture	Reading Agricultural Consultants
Chapter 21: Other Environmental Matters	Lanpro, AECOM, Clover Planning
Chapter 22: Summary	As above technical chapters

1.4 The Applicant

- 1.4.1 The Scheme is being developed by Lime Down Solar Park Ltd (the Applicant), part of Island Green Power Limited (IGP), a leading international developer of renewable energy projects, established in 2013.
- 1.4.2 IGP has delivered 34 solar projects worldwide totalling more than 1GW of capacity. This includes 17 solar projects in the UK and Republic of Ireland. Their mission is to increase solar energy usage, making more renewable energy possible whilst drastically reducing carbon emissions. Recently, IGP have taken two NSIP solar projects (Cottam and West Burton) through the examination stage of the DCO process.

1.5 Consultation and Engagement

- 1.5.1 The Applicant has sought to engage with key stakeholders from an early stage to brief them on the Scheme, focus the environmental studies and to identify specific issues to be considered. A number of meetings have been carried out with statutory consultees to introduce the Scheme and commence discussions on detailed matters:
- Wiltshire Council (Officers and Members);
 - Environment Agency;
 - Historic England;

- Natural England;
- Wiltshire Council (as Lead Local Flood Authority);
- Wiltshire Wildlife Trust;
- Network Rail;
- Dorset and Wiltshire Fire Service;
- Cotswold National Landscape Board; and
- Parish Councils.

1.5.2 The Applicant will undertake on-going engagement with Wiltshire Council, as the host authority, the stakeholders identified above and other relevant consultees and stakeholders, throughout the duration of the Scheme development and preparation of the ES. This will include complying with the consultation requirements set out in the Act and associated regulations and guidance.

1.5.3 In respect of the local communities affected by the development, the Applicant has undertaken a first stage of (non-statutory) public consultation throughout March – April 2024. Consultation and engagement is on-going with local communities and individual property owners where appropriate.

1.5.4 Further (statutory) consultation is anticipated to take place in Q1 2025. Prior to the statutory consultation the Applicant will prepare the Statement of Community Consultation and consult with Wiltshire Council, as the host authority, as required by Section 47 of the Act. A consultation report will also be prepared as part of the DCO application, which will document the Pre-Application consultation and engagement undertaken, and how it has shaped the Applicant's proposals for the Scheme.

2 Methodology

2.1 Introduction

- 2.1.1 EIA is the process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to mitigate or manage any likely significant adverse effects. The EIA should be informed by consultation and engagement with statutory consultees, other interested bodies, and members of the public. The purpose of identifying likely significant effects is to ensure decision makers can make an informed judgement on the proposal, whilst understanding the likely environmental impacts.
- 2.1.2 This chapter of the Scoping Report explains the approach that will be taken to assess and understand the likely significant effects of the Scheme. The Scoping Report sets out the relevant methodologies that will be used in the EIA. As part of the statutory consultation process, a Preliminary Environmental Information Report (PEIR) will be produced to allow stakeholders and the local community to develop an informed view of the impacts of the Scheme prior to the production of an ES, and to provide feedback that will help to shape the Applicant's proposals.
- 2.1.3 The ES must contain the information specified in Regulation 14(2) of the EIA Regulations (**Ref 1**) and must meet the requirements of Regulation 14(3) of the EIA Regulations. It must also include any additional information specified in Schedule 4 to the EIA Regulations which is relevant to the specific characteristics of the particular development or type of development and the environmental features likely to be significantly affected.
- 2.1.4 The following Advice Notes have been taken into account in the preparation of this Report, and will be considered as the EIA progresses:
- Planning Inspectorate Advice Note 3: EIA Consultation and Notification (May 2024, Version 7) (**Ref 4**);
 - Planning Inspectorate Advice Note 7: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (June 2020, Version 7) (**Ref 3**);
 - Planning Inspectorate Advice Note 9: Rochdale Envelope (July 2018, Version 3) (**Ref 5**);
 - Planning Inspectorate Advice Note 11: Working with Public Bodies in the Infrastructure Planning Process (May 2024, Version 4) (**Ref 6**); and
 - Planning Inspectorate Advice Note 17: Cumulative Effects Assessment (August 2019, Version 2) (**Ref 7**).
- 2.1.5 The main objective of the EIA process is to present a clear, impartial assessment of the likely significant beneficial and adverse environmental impacts of a proposed development, including direct and indirect effects.

2.2 Assessment of Impacts

- 2.2.1 Each environmental topic considered in the ES will be covered in separate sections or chapters. Several environmental issues identified during the preparation of this Scoping Report can be addressed relatively briefly, without needing individual standalone chapters. For clarity, these topics are not scoped out of the EIA. Instead, they will be included in the Other Environmental Matters Chapter in the ES, but with a proportionate, streamlined assessment.

2.2.2 Where appropriate, each of the Scoping Report assessments for the environmental topics will take the following approach:

- Introduction;
- Study Area;
- Legislation, Policy and Guidance;
- Preliminary Baseline Conditions;
- Potential Effects and Mitigation;
- Assessment Methodology; and
- Conclusions on Scoping;

Baseline Conditions

2.2.3 To evaluate likely significant environmental effects, existing baseline conditions will be identified through a combination of desktop and physical surveys, and monitoring of the Sites and the surrounding area. Once the baseline conditions are established, this information is used to identify and assess the sensitivity of receptors on and near the Sites as well as changes that may take place during the construction, operation and maintenance, and decommissioning of the Scheme. Any identified potential effects on these receptors will be assessed in the ES.

2.2.4 The data collected to establish the baseline conditions for the purposes of this Scoping Report has been gathered from a variety of sources, including the following:

- Physical surveys and monitoring;
- Publicly accessible records and databases; and
- Environmental survey information that has been submitted for other developments in the area.

2.2.5 The methods of data collection have been and will continue to be discussed with the relevant statutory and non-statutory consultees where appropriate. These discussions will be on-going through to submission of the DCO application, as the EIA progresses.

Spatial Scope

2.2.6 The individual topic chapters in this Scoping Report (**Chapter 6 to Chapter 21**) describe and identify Study Areas, within which that assessment is focussed. The Study Areas are in most cases defined by the nature of potential impacts and the locations of potentially affected environmental resources or receptors.

Temporal Scope: Assessment Years

2.2.7 The topic chapters within the ES will assess the impacts over specific time periods as set out below and will consider effects during the construction, operation and decommissioning phases.

2.2.8 *Construction Phase.* These are effects that result from activities during site preparation/enabling works, construction, and commissioning activities e.g. effects such as construction traffic, noise and vibration from construction activities, dust generation, site runoff, mud on roads, and the visual intrusion of plant and machinery on site. Some

aspects of construction, and any associated environmental effects, will last longer than others.

2.2.9 *Operation phase.* These are effects associated with operation and maintenance activities during the generating lifetime of the Scheme e.g. the effects of the physical presence of the Solar Arrays, BESS and substations, and their use and maintenance. Timescales associated with these effects are as follows:

- Short term – endures for up to 12 months after commissioning;
- Medium Term – ensures for 1-5 years;
- Long term – endures for more than 5 years;
- Reversible long-term effects – long-term effects which last for the lifetime of the Scheme but which cease once it has been decommissioned; and
- Permanent – those which cannot be reversed following decommissioning.

2.2.10 *Decommissioning Phase.* These are effects arising from activities for the duration of the decommissioning stage and will likely be short term e.g. site traffic, noise and vibration from decommissioning activities, dust generation, site runoff.

Assessment Years

2.2.11 The EIA will consider the environmental impacts of the Scheme during all three phases described above. The operation phase of the Scheme is estimated to be up to 60 years and this time period will be assessed in the ES. The 'existing baseline' for assessment will be 2023-2024 as this is the date on which baseline studies have been undertaken. A future baseline will also be considered within the ES for certain assessments. The future baseline is defined as the likely evolution of current baseline conditions without implementation of the Scheme.

2.2.12 The assessment scenarios that will be considered for the purposes of the EIA are:

- Existing Baseline: 2023 - 2024.
- Construction: 2027 – 2029.
- Operation Year 1: 2029. It has been assumed for the purposes of the EIA that the Scheme will be operational by the start of Q3 2029.
- Decommissioning: 2089. This would be the year when decommissioning of the Scheme is anticipated to commence, based on an up to 60-year operational lifetime for the Scheme. It has therefore been assumed for the purposes of the EIA that the Scheme will be decommissioned no later than 2089.
- A future year of 2044 (15 years post commissioning of the Scheme) will be considered for the landscape and visual assessment i.e. 15 years after commissioning, which is the typical period for the maturation of landscape planting.

Assessment of Likely Effects

2.2.13 The methodology for determining sensitivity will be assessed using the following criteria as shown in **Table 2.1**.

Table 2.1: Sensitivity Methodology

Sensitivity	Definition
High	The receptor or resource has little ability to absorb the change without fundamentally altering its present character or it is of international or national importance.
Medium	The receptor or resource has moderate capacity to absorb the change without significantly altering its present character or is of high and more than local (but not national or international) importance.
Low	The receptor or resource is tolerant of change without detrimental effect, is of low or local importance.
Negligible	The receptor or resource can accommodate change without material effect, is of limited importance.

2.2.14 The methodology for determining the magnitude will be assessed using the following criteria shown in **Table 2.2**.

Table 2.2: Magnitude Criteria

Magnitude	Definition
High	The total loss or major change/substantial alteration to key elements/features of the baseline (pre-development) conditions, such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more key elements/features of the baseline conditions, such that post development character/composition/attributes of the baseline will be materially changed.
Low	A minor shift away from baseline condition. As change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation.
Negligible	Very little change from baseline conditions. The change will be barely distinguishable and approximating to a non-change situation.
Neutral	No change from baseline conditions.

2.2.15 Significance will be characterised as adverse, beneficial, or neutral, and the scale of significance determined by reference to the general matrix in **Table 2.3**.

Table 2.3: Degrees of Significance

Magnitude of Impact	Sensitivity of Receptor			
	High	Medium	Low	Very Low
High	Major	Major/Moderate	Moderate	Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

2.2.16 Following the classification of an effect, clear statements will be made within the topic chapters as to whether that effect is significant or not significant. As a general rule, major and moderate effects are considered to be significant whilst minor and negligible effects are considered to be not significant. However, professional judgement will be applied, including taking account of whether the effect is permanent or temporary, its duration/frequency, whether it is reversible, and/or its likelihood of occurrence.

2.2.17 Generic definitions for the classification of effects are provided below.

- **Major:** these effects may represent key factors in the decision making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated;
- **Moderate:** these effects, if adverse, are likely to be important at a local scale and on their own or in combination of other effects, could have a material influence on decision making;
- **Minor:** these effects may be raised as local issues and may be of relevance in the detailed design of the project, but are unlikely to be critical in the decision making process;
- **Negligible:** effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.

2.2.18 Where mitigation measures are identified to eliminate, mitigate or reduce adverse impacts, these have either been incorporated into the design of the Scheme; translated into construction commitments; or operational or managerial standards/procedures. The ES will highlight 'residual' effects, which remain following the implementation of suitable mitigation measures, and classify these in accordance with the effect classification terminology given above.

2.2.19 It should be noted that some technical disciplines may utilise different criteria when undertaking assessments due to differences in industry accepted guidelines and specifications. Where this is the case, the technical topic will discuss how the assessment methodology or classification of effects differs for the general EIA methodology as described in this section and provide justification.

Cumulative and In-Combination Effects

- 2.2.20 Schedule 4, paragraph (5)(e) of the EIA Regulations states that the ES should include *“a description of the likely significant effects of the development on the environment resulting from... (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”*.
- 2.2.21 Planning Inspectorate Advice Note 17 (**Ref 7**) sets out relevant guidance for practitioners. The staged approach detailed in Planning Inspectorate Advice Note 17 considers the level of certainty of surrounding projects and the need to assess development plans and future development consents; acknowledging that there will be limited information available on the relevant proposals to base such assessment on.
- 2.2.22 Cumulative effects occur as a result of several impacts on an environmental receptor which may overlap or act together. The following types of cumulative effects will be considered in accordance with the EIA Regulations (**Ref 1**) and best practice guidance:
- In-combination effects – the interaction and combination of different environmental residual (post-additional mitigation) effects from within the Scheme affecting a single receptor; and
 - Inter-project cumulative effects – the combined residual (post additional mitigation) effects of the Scheme and another project or projects on a single receptor.
- 2.2.23 There is no widely accepted methodology for assessing cumulative effects, although various best practice and guidance documents exist. However, relevant guidance has been considered, including from the Institute of Environmental Management and Assessment (IEMA) and the assessment guidance set out in Planning Inspectorate Advice Note Seventeen.
- 2.2.24 The following approach will be adopted for the assessment of cumulative effects, based on previous experience, the types of receptors being assessed, the nature of the Scheme, the other developments under consideration and the information available to inform the assessment.

In-Combination Effects

- 2.2.25 The approach to the assessment of interactions of environmental effects (In-combination effects) will consider the changes in baseline conditions at common sensitive receptors (i.e. those receptors that have been identified as experiencing likely significant environmental effects due to the Scheme). The assessment will be based upon residual (post-additional mitigation) effects of ‘minor’ or greater significance only (‘negligible’ residual effects will not be considered). The assessment will also include consideration of where multiple minor effects could combine to become significant. The Study Area for the assessment of in-combination effects will be informed by the Study Areas for the technical chapters.
- 2.2.26 The assessment of the in-combination effects will be undertaken using a two-stage approach:

Stage 1 – Screening

- 2.2.27 Screening will be undertaken to determine whether a sensitive receptor is exposed to more than one type of residual (post-additional mitigation) effect during the construction, operation and decommissioning phases of the Scheme. Those sensitive receptors that

could experience two or more types of residual (post-additional mitigation) effects, with significance of 'minor' or greater, will be taken forward to Stage 2 of the assessment.

- 2.2.28 If there is only one type of effect on a sensitive receptor (i.e., only one technical chapter has identified effects on that sensitive receptor), then it will be considered that there are no potential in-combination effects and the sensitive receptor will not be taken forward to Stage 2 of the assessment. This screening assessment will be reported in the ES.

Stage 2 – Assessment of Intra-Project Combined Effects

- 2.2.29 A quantitative assessment of the overall significance of the cumulative effects on common sensitive receptors identified at Stage 1 will be undertaken, based on technical information provided in the technical chapters and supporting appendices. Given that the types of effects may be very different in some cases, a quantitative assessment may not be possible, and it may be necessary to apply professional judgement in determining the significance of each individual effect.
- 2.2.30 The evaluation at the receptor level will consider: the magnitude of change at the common receptor; previously identified sensitivity; duration and reversibility of interaction. The focus will be on determining a change in the level of effect likely to be experienced and whether this is significant or not.

Cumulative Effects

- 2.2.31 The staged approach detailed in Planning Inspectorate Advice Note 17 considers the level of certainty of surrounding projects and the need to assess development plans and future development consents; acknowledging that there will be limited information available on the relevant proposals to base such assessment on.
- 2.2.32 Cumulative effects occur as a result of several actions on an environmental receptor which may overlap or act together.
- 2.2.33 The Planning Inspectorate Advice Note 17 on the assessment of cumulative effects identifies a four-stage approach as follows:

Stage 1 – Establishing the Long List of 'Other Existing Development and/or Approved Development'

- 2.2.34 Details of the cumulative schemes to be considered within the detailed assessment will be identified based on information available on Wiltshire Council's planning register and on Planning Inspectorate website and discussed during the consultation stages.
- 2.2.35 **Table 2.4** sets out the information that will be used to determine the cumulative schemes to be assessed further.

Table 2.4: Categories of Certainty for Existing/Approved Development

Tier 1 (most certain)	<ul style="list-style-type: none"> Under construction; Permitted application(s), whether under the Act or other regimes, but not yet implemented; Submitted application(s) whether under the Act or other regimes but not yet determined.
Tier 2	<ul style="list-style-type: none"> Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted.

Tier 3 (least certain)	<ul style="list-style-type: none"> • Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted. • Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information available on the relevant proposals; • Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.
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2.2.36 It should be recognised that many of the projects that will fall within the Tier 3 categories and may be so small that cumulative effects would be highly unlikely. An example of this would be a home extension or minor commercial development. Using professional judgement, projects will therefore be screened for their potential to result in inter-project effects with the Scheme, with only those where such potential exists will be considered further. This screening exercise will be detailed within the ES and will also be consulted upon as part of pre-application discussions with Wiltshire Council.

2.2.37 A Zone of Influence (Zol) will be identified for each technical chapter within the ES. This will be used to identify the long list of developments to be considered within the cumulative assessment as set out in Planning Inspectorate Advice Note 17.

Stage 2 – Establishing a Shortlist of 'Other Existing Development and/or Approved Development'

2.2.38 At Stage 2, any developments of a nature or scale without the potential to result in cumulative impacts will be excluded, following discussion with the local planning authorities and consideration of the likely Zol for each environmental topic. The justification for including or excluding developments from the long list will be provided in a matrix, modelled on the example given within Matrix 1 (Appendix 1) of the Planning Inspectorate's Advice Note 17 (**Ref 7**).

2.2.39 The assessment will be proportionate and that only developments which are likely to result in significant cumulative effects are taken forward into the assessment.

2.2.40 The criteria will address the following:

- Temporal Scope;
- Scale and nature of development;
- Documentation; and
- Other factors such as nature and capacity of the environment, as well as any need for a pathway receptor approach to inform assessment.

2.2.41 Use will be made of preapplication discussions with stakeholders, to help identify developments forming part of the shortlist.

Stage 3 – Information Gathering

2.2.42 It is proposed to gather information on each of the other existing development and/or approved developments shortlisted within the earlier stage. Detailed information is required to be compiled to inform the stage 4 assessment, including, but not limited to:-

- Proposed design and location information;

- Proposed programme of construction, operation and decommissioning; and
- Environmental assessments that set out baseline data and effects arising from the 'other existing development and/or approved development'.

Stage 4 – Assessment

- 2.2.43 The assessment will include a list of those developments considered to have the potential to generate a cumulative effect together with the Scheme, and this will be documented in a matrix, in line with Appendix 2 of the Planning Inspectorate's Advice Note 17 (**Ref 7**) which includes the following:
- A brief description of the development;
 - An assessment of the cumulative effect with the Scheme;
 - Proposed mitigation applicable to the Scheme including any apportionment; and
 - The likely residual cumulative effect.
- 2.2.44 The criteria for determining the significance of any cumulative effect will be based upon:
- The duration of effect, i.e. will it be temporary or permanent;
 - The extent of effect, e.g. the geographical area of an effect;
 - The type of effect, e.g. whether additive or synergistic;
 - The frequency of the effect;
 - The 'value' and resilience of the receptor affected; and
 - The likely success of mitigation.
- 2.2.45 In reporting the overall significance of cumulative effects, it is appropriate to also acknowledge the relative contributions different projects make to a cumulative effect and carefully consider whether the cumulative effect is significant. For example, where a large-scale project is predicted to result in significant effects and a smaller proposed development would not have significant effects, the cumulative assessment should only conclude there is a significant cumulative effect if effects from both projects together are of greater significance than the larger project in isolation. Consequently, care will be taken to not simply define such effects as being cumulative, but rather to focus on the nature and scale to which genuine cumulative effects might result.
- 2.2.46 Where significant cumulative effects are identified, the assessment will identify measures to reduce or avoid these, as well as any necessary monitoring arrangements. If the opportunity arises, the potential to work with other developers to mutually mitigate any cumulative impacts will be explored.
- 2.2.47 All Tier 1 and 2 other existing development and/or approved development will be assessed where possible. Tier 3 development will be assessed where possible though this will be high level given its nature.

Summary

- 2.2.48 The cumulative assessment will be presented in the ES. The significance criteria will be clearly set out in the ES and outcomes of the cumulative assessment will be identified.
- 2.2.49 The ES will identify mitigation and monitoring measures to address any significant cumulative effects, with an explanation of how these measures will be secured.

2.2.50 **Table 2.5** summarises how cumulative and in-combination effects will be reported in the ES.

Table 2.5: Summary of How Cumulative and In-Combination Effects will be Reported in the Environmental Statement

In-Combination Effects	The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor. For example, noise and visual effects on a single heritage receptor, or noise and air quality effects on a single residential receptor.	Will be identified in the technical chapter with a summary of effects provided in a separate cumulative chapter supported by a cross discipline effect interaction matrix.
Cumulative Effects	The combined residual (post additional mitigation) effects of the Scheme and another project or projects on a single receptor	Will be assessed within the technical chapter with a summary of effects provided in a separate cumulative chapter of the ES.

2.3 Mitigation Measures

2.3.1 Paragraph 7 of Schedule 4 of the EIA Regulations notes that an ES should include “a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset and should cover both the construction and operation phases.”

2.3.2 The mitigation measures specified can relate to both methods of construction or particular design elements that are to be incorporated within the completed Scheme. Many mitigation measures are accepted good practice during the construction and operation of schemes such as this, and the current regulatory context, and will be integral to the design of the Scheme (and are referred to as ‘embedded mitigation’). These measures will be described within the ES, but taken account of as part of the assessment of likely effects of the Scheme.

2.3.3 Where the EIA identifies any potential adverse impacts, and those impacts cannot be avoided, additional mitigation measures will be identified to reduce these effects to acceptable levels where practicable. Any effects that endure following the implementation of additional mitigation measures are defined as ‘residual effects’.

2.3.4 Embedded mitigation measures are measures incorporated into the design of the Scheme and are taken into account as part of the Scheme's design in assessing the likely significant effects of the Scheme. This could include, for example:

- Sustainable Drainage Systems (SuDS);
- Incorporation of buffer distances from environmental receptors;
- Designing the layout of the Scheme to minimise impacts on sensitive receptors;
- Amendments to the size and scale of the Scheme, taking into account particular receptors and the potential impacts to them;
- Provision of and compliance with environmental management plans.

2.3.5 The following management plans will be submitted part of the DCO application, and secure the implementation of embedded mitigation measures:

- Outline Construction Environmental Management Plan (CEMP);
- Outline Operational Environmental Management Plan (OEMP);
- Outline Decommissioning Statement;
- Outline Landscape Ecological Management Plan (LEMP);
- Outline Battery Storage Safety Management Plan (BSMP);
- Outline Soil Management Plan (SMP);
- Outline Ecological Protection and Mitigation Strategy;
- Outline Construction Traffic Management Plan (CTMP); and
- Outline Public Rights of Way (PRoW) Management Plan.

2.3.6 Additional mitigation measures are measures introduced to reduce likely significant impacts resulting from the Scheme. This could include for example:

- Provision of bunding to reduce noise impacts;
- Fencing to reduce glint and glare impacts; and
- Additional planting and hedgerow improvements to reduce visual impacts.

Residual Effects

2.3.7 Each technical chapter of the ES will have a residual effects section that will outline the significance of each environmental effect resulting after the implementation of the mitigation measures.

Transboundary Effects

2.3.8 No impacts are likely to extend beyond the jurisdiction of the UK, with the exception of potential greenhouse gas emissions (GHG). GHG emissions will be minimal given the nature of the Scheme, which will not emit GHG emissions during its operation except for limited emissions associated with maintenance vehicles and repair works. A Transboundary Effects Screening Matrix is provided at **Appendix 2.1**.

2.4 Consideration of Alternatives

2.4.1 Section 14(2)(d) of the EIA regulations states that the environmental statement should include *“a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment.”*

2.4.2 Moreover, paragraph 2 of Schedule 4 of the EIA Regulations notes that an ES should include: *“a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”*

2.4.3 To ensure compliance with the policy and legal requirements as identified above, the ES will include a chapter setting out the alternatives considered and the main reasons for selecting the chosen option. The chapter will focus on the following aspects of option selection:

- Site selection;
- Alternative technologies;
- The layout of the Scheme;
- Cable route options; and
- The location of supporting infrastructure.

2.4.4 The consideration of 'no development' as an alternative to the Scheme will not be explored in the ES. This is because 'no development' is not considered to be a viable alternative to the Scheme, as it would not deliver the generation of renewable electrical power and the BESS proposed, which is supported by national government policy.

2.5 Rochdale Envelope

2.5.1 Planning Inspectorate Advice Note 9 sets out guidance on the use of the 'Rochdale Envelope' as a way of assessing a proposed development comprising EIA development where uncertainty exists and necessary flexibility is sought. The note sets out that there are key points and documents required where the implications of seeking that flexibility need to be addressed:

- During pre-application consultation process;
- Within the ES; and
- Within the description of the project in the application documents, particularly the DCO but also other application documents identified elsewhere in this note.

2.5.2 The Applicant will seek to utilise developments in technology as this becomes available, and as such will utilise flexibility within the DCO where this is possible.

3 The Scheme and its Wider Context

3.1 Introduction

- 3.1.1 This chapter describes the Scheme and its wider context and is supported by plans contained in **Appendix 3.1**.
- 3.1.2 The Scheme has been split into Sites for ease of reference, as follows:
- Lime Down A (shown in **Figure 3.1.1**);
 - Lime Down B (shown in **Figure 3.1.2**);
 - Lime Down C (shown in **Figure 3.1.3**);
 - Lime Down D (shown in **Figure 3.1.4**);
 - Lime Down E (shown in **Figure 3.1.5**); and
 - Land at Melksham Substation (shown in **Figure 3.1.6**).
- 3.1.3 Field boundaries and numbering within the Sites are set out within **Figure 3.3.1** to **Figure 3.3.6**.
- 3.1.4 In addition to the Sites, the Cable Route Search Corridor (**Figures 3.2.1 to 3.2.3**) represents the area of search for the cable route that will connect the Solar Arrays to Melksham Substation. This area will be refined and narrowed down as the design of the Scheme is developed and additional technical work and surveys of the Cable Route Search Corridor are carried out. An alignment within Cable Route Search Corridor will be identified for the Cable Route Corridor and its construction. Temporary construction compounds will also be located within these areas.
- 3.1.5 The BESS is proposed to be sited either on the Land at Melksham Substation, or within land at Lime Down D, as shown on the hatched land on **Figure 3.4**. Ongoing technical studies will determine which location is most appropriate.

3.2 Wider Context

- 3.2.1 The Scheme lies wholly within the administrative boundary of Wiltshire Council. The Sites (which excludes the Cable Route Search Corridor) cover an area of approximately 901 hectares (ha). The five of Solar Array sites are located near to the village of Hullavington, approximately 800m to the north of the village in the closest location. The sixth Site, Land at Melksham Substation is located approximately 160m north of the village of Whitley near the town of Melksham.
- 3.2.2 The Solar Arrays are located approximately 1.7km north of the M4 motorway, with Junction 17 of the M4 approximately 1.7km to the south of Lime Down E. The Solar Arrays lie approximately 7.7km east of the A46 classified road. The A429 runs north of Junction 17 of the M4 between Lime Down E to the east and Lime Down A-D to the west, and passes through the villages of Burton Hill, Corston and Lower Stanton St. Quintin. The B4040 is located approximately 450m to the north-West of Lime Down A.
- 3.2.3 The surrounding area is primarily rural agricultural land with a number of smaller villages within 1km of the Sites. These include:
- Sherston is located approximately 400m to the north-west of Lime Down A;
 - Luckington is located some 660m to the west of Lime Down C;

- Alderton is located around 140m west of Lime Down C;
- Norton is located centrally between Lime Down B and Lime Down D, situated approximately 300m south of Lime Down B and some 860m northeast of Lime Down D;
- Lower Stanton St. Quintin is located approximately 500m south west of Lime Down E;
- Startley is located around 700m to the east of Lime Down E;
- Upper Seagry is located approximately 780m south east of Lime Down E;
- Rodbourne is located approximately 150m to the north east of Lime Down E; and
- Rodbourne Bottom is located circa 400m to the north east of Lime Down E.

3.2.4 There are a number of individual farm holdings, rural dwellings and small commercial business properties in the vicinity of the Scheme.

3.2.5 The Great Western Railway South Wales Main Line runs east to west to the south of Lime Down D and intersects Lime Down C and Lime Down E.

3.2.6 The northern boundary of Lime Down A and the western boundary of Lime Down C are adjacent to the boundary of the Cotswold National Landscape. None of the Sites lie within the Cotswold National Landscape.

3.3 Sites for Built Development

3.3.1 The Sites identified for built development, namely, solar panels, substations and BESS for the Scheme are located within a 20km radius of the grid connection at National Grid Melksham 400kV Substation.

3.3.2 This section should be read in conjunction with the figures in **Appendix 3.1**.

Lime Down A

3.3.3 The area of Lime Down A is approximately 94ha and is entirely in agricultural use. Lime Down A consists of parcels of farmland either side of the road running between Sherston and Fosse Way. The land broadly slopes upwards from east to west from 105m to 115m in elevation. The land is characterised by agricultural fields separated by hedgerows and scattered trees.

3.3.4 There are no major settlements in the area. The nearest village is Sherston which is located approximately 400m northwest of Lime Down A. There are several small farm holdings located around Lime Down A, including Widley's Farm (approximately 360m west at the nearest point), Commonwood Farm (approximately 560m west at the nearest point), Lord's Wood Farm (approximately 135m east at its nearest point), and Ladywood Farm (approximately 225m east at its nearest point).

3.3.5 The B4080 road runs to the west of Lime Down A, passing approximately 500m north-west at its nearest point, before running through the village of Sherston.

3.3.6 There are a number of minor roads running between and through Lime Down A. Lime Down A is divided by an unnamed road running from Fosse Way to Sherston. An unnamed road also runs across the northern part of Lime Down A.

3.3.7 There are four PRoW located within or adjacent to Lime Down A. Bridleway SHER14 runs north to south, and bridleway SHER 16 runs north to south intersecting Lime Down

A. Footpath SHER15 runs east to west cutting into Lime Down A. Footpath SHER17 runs east to west and is located approximately 55m south of t Lime Down A at its closest point.

- 3.3.8 Buckley Barracks, a British Army site lies approximately 4.1km south east of Lime Down A. RAF operations on the site ceased in 1992 and the site was transferred to the British Army and is still in active use as an army training base. Part of Hullavington airfield was used for RAF gliding operations until 2016.
- 3.3.9 There is an unnamed watercourse that runs in close proximity to the southern extent of Lime Down A and extends into Lime Down A for a distance of approximately 10m. The watercourse is circa 160m long and runs through Lime Down A on a northwest southeast axis.

Historic Designations

- 3.3.10 Sherston Conservation Area is located approximately 300m north-west of Lime Down A.
- 3.3.11 There are several listed buildings in the village of Sherston, which is located approximately 280m north-west of Lime Down A, including the Grade I listed Church of the Holy Cross, Grade II* listed 1 and 3 Cliff Road, Court House, Old Swan House, and 19 and 21 High Street.
- 3.3.12 An earthwork (Scheduled Monument) is located approximately 880m to the north-west of Lime Down A.
- 3.3.13 The extent of historic environment designations in the vicinity of Lime Down A are shown on figures within **Appendix 12.1**.

Landscape Designations

- 3.3.14 The northern boundary of Lime Down A is located immediately adjacent to the Cotswold National Landscape. The boundaries are within 3.5m at the nearest point.
- 3.3.15 The extent of landscape designations in the vicinity of Lime Down A are shown in the figures within **Appendix 7.1**.

Ecological Designations

- 3.3.16 There are no Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA) within Lime Down A or within 2km of Lime Down A.
- 3.3.17 There are seven Local Wildlife Sites (LWS) have been identified around Lime Down A, as follows:
- Bybrook Meadow LWS is an unimproved neutral grassland habitat located approximately 140m north of Lime Down A;
 - The Bristol Avon River LWS designated for its Riverine habitat with important drainage functions is located some 230m north of Lime Down A;
 - Lower Easton Town Farm Meadows LWS is a herb-rich unimproved grassland habitat situated approximately 270m north of Lime Down A.
 - Lower Farm Meadows, Sherston LWS is a calcareous grassland habitat located circa 220m north of Lime Down A.

- The New House Farm Meadows LWS designated for its Species-rich limestone and neutral grasslands, and old oak woodland is located 290m north west of Lime Down A.
- Manor Farm Meadows, Sherston LWS is a floodplain grassland, including areas of unimproved grassland and limestone banks established 610m north west of Lime Down A.
- Carrier's Farm Meadows, Sherston LWS is an unimproved calcareous grassland habitat found 740m west of Lime Down A.

3.3.18 There are a number of priority habitats within a 2km search area of the boundaries to Lime Down A, including lowland calcareous grassland and deciduous woodland.

3.3.19 The extent of ecological designations in the vicinity of the Scheme are shown in the figures within **Appendix 8.1**.

Geological Designations

3.3.20 Sherston Local Geological Site (LGS) is sited 0.7km north-west of Lime Down A. There are no minerals safeguarding areas covering Lime Down A.

Hydrology, Flood Risk and Drainage Designations

3.3.21 Lime Down A is wholly within Flood Zone 1, which indicates a less than 0.1% annual probability of flooding from rivers and the sea.

3.3.22 The location of hydrology, flood risk and drainage designations in relation to Lime Down A is shown in the figures within **Appendix 10.1**.

Lime Down B

3.3.23 The area of Lime Down B is approximately 114ha and is entirely in agricultural use. Lime Down B consists of parcels of farmland located to the east of Fosse Way. The western part of the Site is relatively flat at a height of approximately 100m, with the eastern part sloping away to the east to a height of approximately 85m. The land is characterised by agricultural fields separated by hedgerows, with some woodland in the wider area.

3.3.24 Lime Down B is located approximately 300m to the north of the village of Norton, and approximately 180m to the south of Foxley, where there are some residential properties. Lime Down B is located approximately 1.3km from the hamlet of Easton Grey. Malmesbury is the nearest major settlement and is located approximately 3.4km to the north-east of Lime Down B.

3.3.25 Foxley Road runs east to west approximately 180m north of Lime Down B at its nearest point. Honey Lane bounds part of the south-east of Lime Down B. The south-west boundary of Lime Down B is bounded by an unnamed road.

3.3.26 There are seven PRoW located on Lime Down B comprising five footpaths (SHER11, SHER13, SHER15, NORT1 and NORT5), a byway (SHER37), and a bridleway (NORT11). SHER37 is part of the Fosse Way. Footpaths SHER11, SHER13, SHER15 are located north west of the Fosse Way ending where they junction with it. NORT1 runs north to south intersecting Lime Down B. NORT5 is located south of the Fosse Way and runs along the southern boundary before heading towards the village of Norton.

3.3.27 Buckley Barracks is located 3.5km south west of Lime Down B.

- 3.3.28 There is a network of drains in the vicinity of Lime Down B, which run across the northern boundary, east of Baker's Gorse and west, to the north-east of Lime Down B adjacent to the boundary, and south of Honey Lane to the north of Norton.

Historic Designations

- 3.3.29 There are no conservation areas within or near to Lime Down B. The closest conservation area is Easton Grey, located approximately 1.2km north of the Site.
- 3.3.30 There is a cluster of listed buildings at Foxley, approximately 360m to the north-east of Lime Down B. This comprises a grade I listed Parish Church, Grade II listed Foxley House and two Grade II unidentified monuments in the churchyard. Foxley Manor is a Grade II listed building some 210m north of Lime Down B.
- 3.3.31 There is a cluster of listed buildings at Norton, approximately 260m south of Lime Down B, including Grade II* listed Norton Manor and 10 other Grade II listings.
- 3.3.32 A Romano British Settlement (Scheduled Monument) is located approximately 840m north of Lime Down B.
- 3.3.33 An early medieval settlement (Scheduled Monument) is located approximately 960m east of Lime Down B.
- 3.3.34 The extent of historic environment designations in the vicinity of Lime Down B are shown on in the figures within **Appendix 12.1**.

Landscape Designations

- 3.3.35 At its nearest point the northern boundary of Lime Down B is located approximately 200m from the Cotswold National Landscape.
- 3.3.36 The extent of landscape designations in the vicinity of Lime Down B are shown in the figures within **Appendix 7.1**.

Ecological Designations

- 3.3.37 There are no SSSI, SAC, SPA or LWS within Lime Down B itself or within 2km proximity of Lime Down B.
- 3.3.38 There are six LWS within and in close proximity to Lime Down B:
- Foxley Green LWS is located circa 230m north east of Lime Down B, designated for its calcareous and damp neutral communities.
 - Easton Grey Meadow 1 and 2 LWS are located approximately 400m and 420m north of Lime Down B respectively.
 - Cowage Grove LWS is located approximately 640m east of Lime Down B and is recognised for its Oak Woodland habitat.
 - Foxley Grove LWS is a part ancient woodland habitat situated some 900m north of Lime Down B.
 - Foxley Estate – Riverside Pastures LWS is a limestone grassland habitat with ponds above derelict water-meadow located circa 1.1km north of Lime Down B.
 - Hyam Wood LWS is an ancient, semi-natural broadleaved woodland habitat located approximately 1.4km north east of Lime Down B.

3.3.39 There are a number of priority habitats within a 2km search area of the boundaries to Lime Down B, including deciduous woodland.

3.3.40 The extent of ecological designations in the vicinity of the Scheme are shown in the figures within **Appendix 8.1**.

Geological Designations

3.3.41 There are no LGS in the vicinity of Lime Down B. There are no minerals safeguarding areas covering Lime Down B.

Hydrology, Flood Risk and Drainage Designations

3.3.42 The majority of Lime Down B is within Flood Zone 1. However, there is a small sliver of land located which is designated as Flood Zone 2 and 3. Flood Zone 1 designates the lowest risk, indicating a less than 0.1% annual probability of flooding from rivers and seas. Zone 2 denotes medium risk, with a 1% chance from rivers or 0.5% from the sea. Zone 3 has the highest risk, with a 1% or higher chance from rivers or 0.5% from the sea, often underpinned by historical flood records.

3.3.43 The location of hydrology, flood risk and drainage designations in relation to Lime Down B is shown in the figures within **Appendix 10.1**.

Lime Down C

3.3.44 The area of Lime Down C is approximately 318ha and is entirely within agricultural use. Lime Down C consists of parcels of land both to the west and east of Fosse Way. The land is relatively flat at a height of approximately 120m elevation though slopes down to the east. There are hedgerows and some woodland blocks scattered outside Lime Down C. Gauze Brook, a tributary of the River Avon, runs through Lime Down C.

3.3.45 There are no major settlements in the area. Lime Down C is located approximately 140m east of the hamlet of Alderton.

3.3.46 The Great Western Railway runs across Lime Down C. This serves a variety of East-West routes from London to the West of England and Wales.

3.3.47 Several PRoW are located on, adjacent to or are near Lime Down C. These comprise a byway (SHER35), which runs north to south intersecting Lime Down C. Footpath HULL26 intersect the easts of Lime Down C and joins HULL 25, which runs along the south eastern boundary, before joining footpath SHER18 which pass through the centre of the Site. Footpath HULL23 passes through the south east of the site. Further PRoW in the vicinity of Lime Down C include: SHER17, SHER18, HULL20, HULL25, HULL26, LUCK35, LUCK41, LUCK42, LUCK43, LUCK 44, LUCK45 and LUCK57.

3.3.48 Buckley Barracks is located approximately 3.3km south east of Lime Down C.

Historic Designations

3.3.49 Alderton Conservation Area is located approximately 135m to the west of Lime Down C, comprising the Church of St. Giles (Grade II*) and 17 other Grade II listed buildings. Luckington Conservation Area is located approximately 650m to the west of Lime Down C containing the Church of St Mary (Grade I), Luckington Court (Grade II*) and 28 further Grade II listed buildings.

3.3.50 Fosse Lodge, immediately to the south of Lime Down C is a Grade II listed building. Farleaze Farmhouse to the east of Lime Down C is a Grade II listed building located 142m at its nearest point.

- 3.3.51 There is a cluster of Grade II listed buildings at Surrendell Farmhouse approximately 570m to the south-east of Lime Down C. Moreover, East Dunley Farmhouse is Grade II listed and located approximately 450m to the south of Lime Down C.
- 3.3.52 A pillow mound (Scheduled Monument) is located approximately 580m south of Lime Down C.
- 3.3.53 The extent of historic environment designations in the vicinity of Lime Down C are shown in the figures within **Appendix 12.1**.

Landscape Designations

- 3.3.54 The western boundary of Lime Down C bounds the Cotswold National Landscape.
- 3.3.55 The extent of landscape designations in the vicinity of Lime Down C are shown in the figures within **Appendix 7.1**.

Ecological Designations

- 3.3.56 There are no SSSI, SAC, or SPA designations within Lime Down C itself or within 2km proximity of Lime Down C.
- 3.3.57 There are nine LWS within a 2km radius of Lime Down C.
- Lord's Wood LWS designated ancient broadleaved woodland habitat located immediately adjacent to the boundary of Lime Down C, south of the boundary.
 - Surrendell Wood LWS is an ancient, semi-natural broadleaved habitat situated immediately adjacent to Lime Down C, south of the boundary.
 - Townfield Farm Meadows LWS is a calcareous hay meadow habitat located approximately 560m west of Lime Down C.
 - Brook House Meadow, Luckington LWS is designated for its pasture and floodplain habitat is located approximately 600m north west of Lime Down C.
 - The Tynning and Tanhouse Meadows LWS is a limestone grassland habitat situated approximately 710m west of Lime Down C.
 - Luckington Meadows LWS known for its meadow habitat is located approximately 860m west of Lime Down C.
 - Cranhill Wood LWS is an ancient woodland habitat with ponds and springs situated approximately 1.2km south west of Lime Down C.
 - Littleton Drew Verge is a protected road verge located approximately 1.7km south west of Lime Down C.
 - Oldland's Wood LWS designated for its woodland habitat and network of ditches is found 1.92km south west of Lime Down C.
- 3.3.58 There are a number of priority habitats bounding Lime Down C, including deciduous woodland, and good quality semi-improved grassland.
- 3.3.59 The extent of ecological designations in the vicinity of the Scheme are shown in the figures within **Appendix 8.1**.

Geological Designations

- 3.3.60 The Old Quarries SSE of Luckington (North) LGS is designated for its important geological features is located approximately 840m west of Lime Down C.
- 3.3.61 Old Quarries SSE of Luckington (South) LGS is also designated for its important geological features is located circa 870m west of Lime Down C.
- 3.3.62 There are no minerals safeguarding areas covering Lime Down C.

Hydrology, Flood Risk and Drainage Designations

- 3.3.63 The majority of Lime Down C is within Flood Zone 1. However, there is a small corner of land within Flood Zone 2 and 3. Flood Zone 1 designates the lowest risk, indicating a less than 0.1% annual probability of flooding from rivers and seas. Zone 2 denotes medium risk, with a 1% chance from rivers or 0.5% from the sea. Zone 3 has the highest risk, with a 1% or higher chance from rivers or 0.5% from the sea, often underpinned by historical flood records.
- 3.3.64 The location of hydrology, flood risk and drainage designations in relation to Lime Down C are shown on in the figures within **Appendix 10.1**.

Lime Down D

- 3.3.65 The area of Lime Down D is approximately 212ha and is entirely within agricultural use. The land slopes from an elevation of 100m to the west to 75m to the east and is immediately north of the Great Western railway line, north of Hullavington and Buckley Barracks, and south of Bradfield Wood.
- 3.3.66 There are few major settlements in the area. There are a small number of residential properties in the vicinity with isolated farms such as Bradfield Manor Farm, West Park Farm and Gorsey Leaze Farm. The village of Norton Lime Down D is located 860m northeast of Lime Down D. Lime Down D is also located 640m north of the village of Hullavington.
- 3.3.67 Norton Road passes north-south through Lime Down D, connecting Norton and Hullavington. An unnamed road also runs north west from Hullavington approximately 110m south west of Lime Down D.
- 3.3.68 There are several PRoW located near Lime Down D including one bridleway and eight footpaths. The bridleway HULL7 runs east to west and following the southern boundary towards the village of Corston. Footpath HULL1 runs from north to south dissecting Lime Down D. Footpath HULL2 runs north east from Norton Road along the northern boundary of Lime Down D. Footpaths HULL4 and HULL5 run north to south through Lime Down D from Norton Road. HULL6 follows the Gauze Brook south west to north east through Lime Down D, connecting to MALW49 which routes north east to Common Road.
- 3.3.69 Buckley Barracks, a British Army site lies approximately 1km south of Lime Down D. Part of Hullavington Airfield, located approximately 1.3km south of Lime Down D was used for RAF gliding operations until 2016.
- 3.3.70 Gauze Brook, which is a tributary of the River Avon, runs south west to north east through Lime Down D, passing to the north of Hullavington. The stream then passes underneath the railway line and runs through the village of Corston. It joins the River Avon approximately 1.9km to the east of Lime Down D.

Historic Designations

- 3.3.71 Hullavington Airfield Conservation Area is located approximately 670m to the south of Lime Down D, including the Grade I listed Church of St. Mary, and 21 Grade II listed buildings. These are approximately 750m at their nearest point.
- 3.3.72 There is a cluster of listed buildings at Bradfield Manor, including the Grade I listed Bradfield Manor Farmhouse. These are approximately 150m south of Lime Down D.
- 3.3.73 There are no Scheduled Monuments in the vicinity of Lime Down D.
- 3.3.74 The extent of historic environment designations in the vicinity of Lime Down D are shown in the figures within **Appendix 12.1**.

Landscape Designations

- 3.3.75 Lime Down D is approximately 1.8km south of the Cotswolds National Landscape.
- 3.3.76 The extent of landscape designations in the vicinity of Lime Down D are shown in the figures within **Appendix 7.1**.

Ecological designations

- 3.3.77 There are no SSSI, SAC, SPA within Lime Down D itself or within close proximity of Lime Down D. However, Corston Quarry and Pond LNR is located 950m north-west of Lime Down D.
- 3.3.78 There are four LWS within a 2km radius of Lime Down D:
- The Bradfield Wood LWS is immediately adjacent to Lime Down D, designated for its semi-natural broadleaved woodland habitat.
 - The West Park Wood – East and West LWS are ancient, semi-natural broadleaved woodland habitats located approximately 240m north east of Lime Down D.
 - The Corston Quarry and Pond LWS is a disused limestone quarry with mesotrophic standing water and calcareous grassland habitats is found approximately 1km north east of Lime Down D.
 - Stock Wood LWS designated for its ancient, semi-natural broadleaved woodland habitat is found circa 1.8km south of Lime Down D.
- 3.3.79 There are a number of priority habitats bounding Lime Down D, comprising deciduous woodland. Approximately 700m to the south-east of Lime Down D there are lowland meadows and lowland calcareous grassland.
- 3.3.80 The extent of ecological designations in the vicinity of the Scheme are shown in the figures within **Appendix 8.1**.

Geological Designations

- 3.3.81 There are no LGS in the vicinity of Lime Down D. There are no minerals safeguarding areas covering Lime Down D.

Hydrology, Flood Risk and Drainage Designations

- 3.3.82 The majority of Lime Down D is within Flood Zone 1. However, part of the Site contains areas of Flood Zone 2 and 3. Flood Zone 1 designates the lowest risk, indicating a less than 0.1% annual probability of flooding from rivers and seas. Zone 2 denotes medium

risk, with a 1% chance from rivers or 0.5% from the sea. Zone 3 has the highest risk, with a 1% or higher chance from rivers or 0.5% from the sea, often underpinned by historical flood records.

- 3.3.83 The location of hydrology, flood risk and drainage designations in relation to Lime Down D are shown on in the figures within **Appendix 10.1**.

Lime Down E

- 3.3.84 The area of Lime Down E is approximately 145ha and is entirely in agricultural use. It is bounded by Bincombe Wood to the north, Rowden Wood adjacent to the west and Seagry Wood adjacent to the east. The land broadly slopes towards the centre of the site towards a tributary of the River Avon, and from west to east, varying from approximately 70m to 90m in elevation
- 3.3.85 There are a number of farms located in the vicinity such as Hangar Farm, Haresfield Farm and Avil's Farm. Rodbourne is located approximately 150m to the north east of Lime Down E, while Rodbourne Bottom is located circa 400m to the north east. The village of Corston is located approximately 550m north of Lime Down E. Lime Down E is located approximately 500m north east of the village of Lower Stanton St Quintin and 780m north west of the village of Upper Seagry.
- 3.3.86 The Great Western Railway runs through Lime Down E.
- 3.3.87 There are 13 PRoW in the vicinity of Lime Down E comprising four bridleways (MALW54, MALW59, MALW61 and GSOM9) and nine footpaths (MALW53, MALW55, MALW60, MALW62, MALW63, MALW64, MALW65, MALW68 and SEAG23). MALW54 passes through the north of Lime Down E and from the A429 to Bincombe Wood and connect to MALW60. MALW59 also passes through Lime Down E south west to north east from the A429. MALW61 routes north to south through the centre of Lime Down E, parallel to MALW62 located to the north west. MALW68 routes east west from Pound Hill road through the north of Lime Down E. Other PRoW are located mainly to the east of Lime Down E, but do not intersect it.
- 3.3.88 Buckley Barracks is located approximately 780m west of Lime Down E.
- 3.3.89 Two streams forming a tributary of the River Avon flow west to east through Lime Down E in south west of the Site.

Historic Designations

- 3.3.90 Rodbourne Conservation Area is located approximately 110m north-east of Lime Down E and Hullavington Airfield Conservation Area is located approximately 750m to the west of Lime Down E.
- 3.3.91 There is a cluster of Grade II listed buildings in Rodbourne, and the Grade II* listed Church of Holy Rood. These are located 150m north-east of Lime Down E. There is a cluster of Grade II listed buildings in Corston and the Grade II* listed Church of All Saints. These are approximately 600m north of Lime Down E. Avil's Farmhouse and Barn are Grade II listed and located approximately 220m south of Lime Down E. Glebe Farmhouse and Lower Stanton Farmhouse are Grade II listed and located approximately 480m south-west of Lime Down E. There are a larger number of listed buildings on the western side of the A429 close to Hullavington Airfield.
- 3.3.92 There is a moated site (Scheduled Monument) approximately 700m south of Lime Down E.

- 3.3.93 The extent of historic environment designations in the vicinity of Lime Down E is shown in the figures within **Appendix 12.1**.

Landscape Designations

- 3.3.94 Lime Down E is approximately 3.5 km south of the Cotswolds National Landscape
- 3.3.95 The extent of landscape designations in the vicinity of Lime Down E are shown in the figures within **Appendix 7.1**.

Ecological Designations

- 3.3.96 There are no SAC or SPA designations within Lime Down E or within 2km of its boundaries. There are two ecological SSSIs within the vicinity of Lime Down E:
- Harries Ground SSSI, designated for its species rich lowland neutral grassland and population of nationally scarce butterfly species (*Eurodryas aurinia*, Marsh Fritillary), is located adjacent to the northern boundary of Lime Down E.
 - Sutton Lane Meadows SSSI, designated for its Lowland neutral grassland habitat is located circa 3.6km south of Lime Down E.
- 3.3.97 There are nine LWS within and in close proximity to Lime Down E.
- Chalkenhams LWS is an unimproved, species-rich neutral grassland and woodland habitat within boundary of Lime Down E.
 - Brickyard Scrub LWS is a species-rich neutral grassland and pond habitat which is partly within Lime Down E.
 - Bincombe Wood LWS is an ancient, semi-natural broadleaved woodland habitat immediately adjacent to Lime Down E.
 - The Rodbourne Plantation LWS is a broadleaved woodland habitat is immediately adjacent to Lime Down E.
 - Seagry Wood and Oak Hill LWS is a mixed plantation on an ancient woodland site located immediately adjacent to Lime Down E.
 - Kingway Barn Meadows LWS is a neutral meadow with a ridge and furrow located approximately 0.5km west of Lime Down E.
 - Gauzebrook Meadows LWS is an unimproved limestone grassland along the banks of the Gauze Brook located circa 950m north of Lime Down E.
 - Eli Wood LWS is an ancient, semi-natural broadleaved woodland located approximately 1.0km south of Lime Down E.
 - North Draycot Park LWS is an old parkland with frequent old oak trees located approximately 1.2km south of Lime Down E.
- 3.3.98 Two fields comprise lowland meadow priority habitats and there are a number of priority habitats adjacent to Lime Down E, comprising deciduous woodland and lowland meadows. Approximately 500m to the north-west of Lime Down E there is lowland calcareous grassland.
- 3.3.99 The extent of ecological designations in the vicinity of the Scheme are shown in the figures within **Appendix 8.1**.

Geological Designations

- 3.3.100 The Stanton St Quinton Motorway Cutting SSSI, recognised for its important geological features is located approximately 1.7km south of Lime Down E.
- 3.3.101 There are no LGS in the vicinity of Lime Down E. There are no minerals safeguarding areas covering Lime Down E.

Hydrology, Flood Risk and Drainage Designations

- 3.3.102 The majority of Lime Down E is designated as Flood Zone 1. However, some fields contain smaller areas of Flood Zone level 2 and 3 and two fields contain larger areas of Flood Zone 2 and 3. Flood Zone 1 designates the lowest risk, indicating a less than 0.1% annual probability of flooding from rivers and seas. Zone 2 denotes medium risk, with a 1% chance from rivers or 0.5% from the sea. Zone 3 has the highest risk, with a 1% or higher chance from rivers or 0.5% from the sea, often underpinned by historical flood records.
- 3.3.103 The location of hydrology, flood risk and drainage designations in relation to Lime Down E are shown in the figures within **Appendix 10.1**.

Land at Melksham Substation

- 3.3.104 The area of Land at Melksham Substation is approximately 18ha and entirely in agricultural use.
- 3.3.105 The Land at Melksham Substation is located 160m north of the village of Whitley, approximately 850m north-west of Melksham Substation, west of Westlands Farm and east of Brittle Wood; and approximately 1.6km north-west of the town of Melksham.
- 3.3.106 Immediately adjacent to the north-east boundary of the Land at Melksham Substation is the B3353 (Goodes Hill/Corsham Road).
- 3.3.107 The PRoW located in close proximity to the Land at Melksham Substation consist of MELW68, located adjacent to the western boundary, MELW70 which follows a north to south axis approximately 20m south west of the Land at Melksham Substation, and MELW77 which is located circa 105m east of Land at Melksham Substation.

Historic Designations

- 3.3.108 The nearest conservation area is at Gastard, some 1km north of the Land at Melksham Substation.
- 3.3.109 There are Grade II listed buildings at Whitley House, Whitley House Barn, Northey's Farm and Pear Tree Inn all located on Top Lane in Whitley, a distance of between 150-260m from the nearest part of the Land at Melksham Substation boundary. Westlands Farmhouse is Grade II listed and located approximately 700m east of the Site.
- 3.3.110 There are no Scheduled Monuments in the vicinity of the Land at Melksham Substation.
- 3.3.111 The extent of historic environment designations in the vicinity of Land at Melksham Substation are shown in the figures within **Appendix 12.1**.

Landscape Designations

- 3.3.112 The Land at Melksham Substation is located approximately 4.2km east of the Cotswold National Landscape.

- 3.3.113 The extent of landscape designations in the vicinity of Land at Melksham Substation are shown in the figures within **Appendix 7.1**.

Ecological Designations

- 3.3.114 There are no SSSI, SAC, SPA or LWS within the Land at Melksham Substation itself or within 2km proximity of the boundaries.
- 3.3.115 Daniel's Wood LWS is located approximately 900m east of the Land at Melksham Substation. The LWS is designated based on the broadleaved woodland habitat present.
- 3.3.116 The extent of ecological designations in the vicinity of the Scheme are shown in the figures within **Appendix 8.1**.

Geological Designations

- 3.3.117 The Land at Melksham Substation is located within a limestone Minerals Safeguarding Area. The extent of the Minerals Safeguarding designations in the vicinity of the Land at Melksham Substation are shown in **Figure 21.3.1**.

Hydrology, Flood Risk and Drainage Designations

- 3.3.118 The Land at Melksham Substation is wholly designated as Flood Zone level 1. Flood Zone 1 designates the lowest risk, indicating a less than 0.1% annual probability of flooding from rivers and seas.
- 3.3.119 The location of hydrology, flood risk and drainage designations in relation to Land at Melksham Substation are shown on in the figures within **Appendix 10.1**.

Cable Route Search Corridor

- 3.3.120 The Cable Route Search Corridor represents the area of search for the 400kV cable route to connect the Solar Arrays to Melksham Grid Substation. The Cable Route Search Corridor also includes the interconnecting cables between the Solar Arrays.
- 3.3.121 The Cable Route Search Corridor will be refined as the design of the Scheme is developed and additional technical and environmental surveys are carried out. The Cable Route Search Corridor is shown in **Figure 3.2.1** to **Figure 3.2.3** within **Appendix 3.1**. A reduced width within these corridors will be required for the cable route and its construction. Temporary construction compounds will also be required.
- 3.3.122 The Cable Route Search Corridor consists of three options for the 400 kV cable alignment:
- South from the 400kV substation, south Across the M4 near Sevington then east of Yatton Keynell. Then running south across the A420, then west of Gastard and east of Corsham until it reaches Melksham substation.
 - South from the 400kV substation, south across the M4 near Leigh Delamere then west of Kington St. Michael, across the A420 road, east of Gastard and West of Notton.
 - A route that broadly follows the A350 road having run south from M4 Junction 17.
- 3.3.123 At this stage, the exact grid connection bay has not been agreed with National Grid. Therefore, to retain flexibility, the Cable Route Search Corridor extends to cover the northern part of Melksham Substation, where all high voltage connections are connected to the National Grid.

- 3.3.124 Based on ongoing consultation together with technical and environmental survey and constraints identification, the Cable Route Search Corridor will be refined to a preferred route, which will be presented in the PEIR.

4 Scheme Description

4.1 Scheme Summary

- 4.1.1 This chapter provides a description of the Scheme and the anticipated programme for construction. The key activities that will be undertaken during construction, operation and maintenance, and decommissioning are included in this chapter and inform the approaches to technical assessments included in this Scoping Report.
- 4.1.2 The operational life of the Scheme is anticipated to be up to 60 years. Once the Scheme ceases to operate, it will be decommissioned. A 60-year period for the operation phase of the Scheme will be assessed in the EIA and reported in the ES accompanying the DCO application.
- 4.1.3 The Scheme comprises of a series of Solar Arrays within Lime Down A to E, a number of 33kV and 132kV substations located within the Solar Array sites, a BESS, up to two 400kV substations, and interconnecting cables.
- 4.1.4 The point of connection for the Scheme to the National Grid is at the existing 400kV Melksham Substation located approximately 600m the north of the village of Melksham. The Scheme will be linked to Melksham Substation via underground cables within a Cable Route Corridor. The proposed location of the Cable Route Corridor within the Cable Route Search Corridor is under consideration and will be refined through environmental assessments, landowner negotiations and consultation input.
- 4.1.5 The BESS will be sited either on the Land at Melksham Substation, or within land at Lime Down D, as shown on the hatched land on **Figure 3.4**. Ongoing technical studies will determine which location is most appropriate. If the BESS is located at Lime Down D, a single 400kV substation also located at Lime Down D will be installed which will be directly connected to the existing 400kV Melksham Substation via underground cable. If the BESS is located at the Land at Melksham Substation, a further 400kV substation will also be located at the Land at Melksham Substation, which will be linked by separate 400kV cables to the Melksham Substation.
- 4.1.6 The substations, cabling and BESS will be required for the duration of the Scheme. The substations and BESS will be removed as part of the decommissioning of the Scheme. The underground cable ducts will be decommissioned in accordance with the applicable guidance and regulations at the time, but are currently anticipated to be decommissioned in situ to minimise environmental impacts.

Maximum Design Parameters

- 4.1.7 The DCO application will incorporate flexibility into the design of the Scheme to allow the latest technology to be installed at the time of construction. This approach is supported by the National Policy Statements for Energy, and in the Planning Inspectorate's Advice Note 9 Rochdale Envelope (**Ref 5**). The ES will consider two different design options for the Solar Arrays, namely tracker and fixed panels.
- 4.1.8 The ES will adopt a maximum design scenario approach, assessing the Scheme on the basis of the maximum project design parameters relevant to the technical discipline i.e. the worst-case scenario for impacts (known as the 'Rochdale Envelope'. This ensures that all potentially significant effects (beneficial or adverse) of the Scheme have been assessed, providing the flexibility required to take advantage of technological improvements that may occur between the application being submitted and construction being commenced.

4.1.9 As the design evolves in response to the environmental assessment and consultation processes (which run in parallel), the maximum (or minimum) parameters may be further developed from those set out in this Scoping Report in order to deliver the best environmental outcomes for the Scheme. The maximum (or minimum) parameters assessed in the ES will be set out in a concept design parameters and principles document submitted with the DCO application and secured in the DCO.

4.1.10 **Table 4.1** sets out the parameters that have been used for assessment by each of the technical topics in the Scoping Report to explain the likely significant effects of the Scheme on the environment and set out the proposed approach and methodology for further assessment.

Table 4.1: Design Parameters Used for the Scoping Report

Scheme Component	Parameter Type	Maximum Design Parameter
Solar Arrays		
Option A Tracking Panels	Maximum height of solar panels above ground level	4.5m when at greatest inclination 2.5m when horizontal
	Minimum height of the lowest part of the solar panel above the ground level	0.4m
	Indicative orientation	Solar panels aligned in north-south rows. The panels will rotate to the east and west and tilt up to a maximum inclination of 60° from horizontal.
	Photovoltaic (PV) mounting structure	Metal frames that hold solar panels in rows, either secured via metal posts driven into ground to a depth of 1.5-3.5m (dependant on ground conditions) or, in areas where archaeological protection is required, weighed down using concrete feet or other non-ground penetrative techniques.
	Solar panel type	Bifacial monocrystalline panels
	Separation distance between rows	Separation distance between rows of tracking panels will be a minimum of 2.5m at the closest point, and there will be a maximum distance of 15m between solar module centrelines.
Option B Fixed Panels	Maximum height of solar panels above ground level	3.5m
	Minimum height of the lowest part of the solar panel above the ground level	0.4m

Scheme Component	Parameter Type	Maximum Design Parameter
	Indicative slope and orientation	Solar panels aligned in east-west rows with panels facing south at a fixed tilt angle of between +10 to 35° from horizontal.
	PV mounting structure	Metal frames that hold solar panels in rows, either secured via metal posts driven into ground to a depth of 1.5-3.5m (dependant on ground conditions) or, in areas where archaeological protection is required, weighed down using concrete feet or other non-ground penetrative techniques.
	Solar panel type	Bifacial monocrystalline panels
	Separation distance between rows	Separation distance between rows of fixed panels will be a minimum of 2.5m at the closest point, and there will be a maximum distance of 14m between solar module centrelines.
Conversion Units/Inverters	Maximum dimensions	15m by 5m with a maximum height of 3.5m Electrical infrastructure associated with the panels will be elevated by the mounting structures so that it is no less than 0.6 m above the 0.1% Annual Exceedance Probability (AEP) flood level or where this is not possible as high as practicable).
	Materials	Units are housed in a container sitting on a concrete base or concrete feet.
Security	Compound Fencing	Palisade fencing around the compound with a maximum height of 3m.
	Perimeter Fencing	Deer type wire and mesh and wooden post fencing with a maximum height of 2.5m.
	Security	CCTV camera poles with a maximum height of 3m. Poles to be galvanized steel painted green
Substations		
400kV Substations	Maximum compound area	3.5ha
	Maximum height	13m to the top of the busbars
	Compound perimeter	3m high palisade fencing around the compound 2.5m high deer type wire mesh and wooden post fencing outside of the palisade fencing
	Access	Max 6m wide constructed of hardcore or gravel over a levelling layer of substrate

Scheme Component	Parameter Type	Maximum Design Parameter
	Relay and Control Rooms – maximum dimensions	Maximum dimensions of 7m by 19m and maximum height of 4m
	132kV Switch Room – maximum dimensions	Maximum dimensions of 6m by 13m and maximum height of 4m
	33kV Switch Room	Maximum dimensions of 7m by 19m and maximum height of 4m
	Housing	Maximum height 6m
132kV Substations	Maximum compound area	0.5ha
	Maximum height	7m to the top of the busbars
	Compound perimeter	3m high palisade fencing around the compound 2.5m high deer type wire mesh and wooden post fencing outside of the palisade fencing
	Relay and Control Rooms – maximum dimensions	Maximum dimensions of 6m by 11m and maximum height of 4m
	33kV Switchgear	Maximum dimensions of 5m by 9m and maximum height of 4m
33kV Substations	Maximum compound area	Maximum dimensions of 4m by 14m and maximum height of 4m
	Maximum height	4m
	Compound perimeter	3m high palisade fencing around the compound 2.5m high deer type wire mesh and wooden post fencing outside of the palisade fencing
BESS	Maximum compound area	10.5ha (this is the overall BESS compound area, this could be split over multiple locations)
	BESS Units	16m by 3m and maximum height of 3.2m
	Compound perimeter	3m high palisade fencing around the compound CCTV cameras will be installed (number to be confirmed)
	Access	Maximum 6m wide constructed of hardcore or gravel over a levelling layer of substrate. Parking bays will be provided (number to be confirmed).

Scheme Component	Parameter Type	Maximum Design Parameter
Cable Route Corridor		
Cable Route Corridor	Cable route working corridor – Maximum width	50m
	Cable trench – maximum width	Individual trenches typically up to 1.2m width. Multiple trenches typically 1-7m width. This includes separation distances where multiple cables are running in parallel within the same trench or within multiple trenches.
	Cable trench – maximum depth	Typically up to 2m subject to design and ground conditions
Point of Connection	Point of Connection	Melksham Substation.

4.2 Description of the Scheme

- 4.2.1 The Scheme will consist of the infrastructure as described above and in further detail below. Given the nature of the Scheme being made up of different Sites, there are variations to the proposed built development across the Sites to reflect the individual site constraints, topography and context. These variations are set out below.

Solar Arrays

- 4.2.2 The solar photovoltaic (PV) panels will convert sunlight into electrical current. They are made up of a series of photovoltaic cells beneath a layer of toughened glass.

Option A (Tracking Panels)

Plate 4.1: Typical tracking panels



- 4.2.3 At this stage it is considered likely that the Option A panels will be used for all Solar Arrays unless there are constraints at an individual field level that would make it necessary, in terms of practicality or in order to minimise environmental impacts, to use Option B for those fields.

Option B (Fixed Panels)

Plate 4.2: Typical Fixed Panels (with Conversion Unit/Inverter)



- 4.2.4 At this stage it is considered likely that the Option B panels will be used where it is not practical to locate Option A panels, or where this is necessary to mitigate environmental impacts e.g. topography and glint and glare.

Solar PV Mounting Structure

- 4.2.5 The mounting structure for the panels will be a metal frame securely fixed to the ground on mounting posts, other than where 'feet' may be required for archaeological protection, rather than intrusive works. Mounting posts will be pile-driven approximately 1.5 – 3.5m into the ground, dependent on ground conditions.

Conversion Units/Inverters

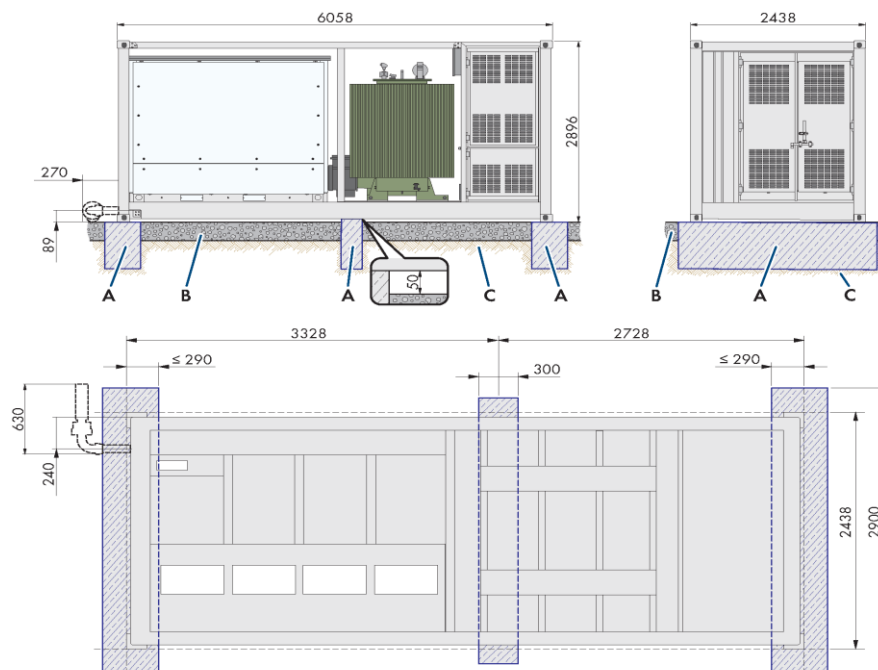
- 4.2.6 Conversion units contain the inverters, transformers and associated equipment to convert the Direct Current (DC) electricity produced by the arrays into Alternating Current (AC) electricity required for export on to the national grid. **Plate 4.3** below provides an image of typical central inverter unit, while **Plate 4.4** provide typical dimensions.

Plate 4.3: Typical central inverter unit



Plate 4.4: Dimensions of Typical inverter unit

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Position	Designation
A	Strip foundation
B	Pea gravel ground
C	Solid ground, e.g., gravel

Substations

4.2.7

There are different types of substations required across the Scheme as noted in **Table 4.1**.

400kV Substation

4.2.8 There will be up to two 400kV substations depending on the final design. These substations are to be located within Lime Down D or the Land at Melksham Substation:

- **Option 1 BESS located at Lime Down D.** A single 400kV substation located at Lime Down D will be required.
- **Option 2 BESS located at Land at Melksham Substation.** A single 400kV substation located at Lime Down D, along with a further 400kV substation located at the Land at Melksham Substation.

4.2.9 The preferred option will be refined through the design process, environmental assessment and consultation and will be presented in the PEIR.

4.2.10 400kV substations will either be air insulated switchgear (AIS) or gas insulated switchgear substations. An example of an AIS substation is shown in **Plate 4.5**.

Photo 4.5: Typical (large 400kV) power transformer



33 to 132kV Substations

4.2.11 Four substations each up to 132kV will be located at each Lime Down A to C and Lime Down E Site. The voltages and substation design will be defined as the design progresses. An example of a 132kV substation is shown in **Plate 4.6**.

Plate 4.6: Typical 132kV Substation Compound



Battery Energy Storage System

- 4.2.12 The Scheme will include a BESS. This is designed to provide peak generation and grid balancing services to the electricity grid. It will allow excess electricity generated from the solar PV panels to be stored in the batteries and exported to the grid when required. Excess energy from the grid can also be imported to the batteries. The BESS will therefore provide flexibility and enhance grid reliability.
- 4.2.13 The BESS will incorporate heating, ventilation, and cooling systems to ensure the efficiency of the technology. These features are integrated into the units within which they are housed. The battery system will comprise DC/AC converters to control the charge of the batteries from the solar PV energy output or the charge of the batteries when drawing energy from the grid.
- 4.2.14 **Plate 4.7** shows an example image of a BESS arrangement with associated infrastructure.

Plate 4.7: Typical Battery Energy Storage System Units



Fencing and Security

- 4.2.15 During operation, perimeter fencing will be in place on the Sites, though the location of the fencing will be identified as the design develops so that it can be assessed within the ES and finalised as part of the detailed design of the Scheme post-consent. The design principles of the fencing will be deer wire mesh and wooden post fencing with a maximum height of 2.5m as illustrated in **Plate 4.8**.

Plate 4.8: Typical Deer Fencing



- 4.2.16 There will be palisade fencing around the substations and BESS compound which will have a maximum height of 3m.
- 4.2.17 Pole mounted internal facing CCTV systems will be used around the perimeter of the operational elements of the Sites. It is anticipated that these will be galvanised steel painted green poles with a maximum height of 3m.

Lighting

- 4.2.18 Lighting is not required within the Solar Arrays for the operational period of the Scheme. Motion sensing security lighting will be provided within substations and within the BESS to be used only for maintenance and security purposes.
- 4.2.19 Temporary site lighting during construction will be required to enable safe working during construction in hours of darkness will be designed as far as reasonably practical so as not to cause nuisance outside the Site. Standard good practice measures (would be employed to minimise light spill, including glare during construction).

Cable Route Corridor

- 4.2.20 The electricity generated by the Solar Arrays from the Scheme will be exported via the primary cable route, which will comprise of new underground 400kV cables to the National Grid at the existing Point of Connection. These underground cables will also import and export energy between the BESS and the National Grid.
- 4.2.21 The final route and extent of the primary cable route to be proposed in the DCO application will be refined through further environmental assessments, landowner negotiations and consultation and engagement input from other stakeholders, including the local authority.
- 4.2.22 The voltage of the cables and the number of circuits will affect the width and number of cable trenches required. The range of typical cable trench widths is from 1.2m to 1.7m, with either one or two trenches anticipated to be required along the majority of the cable route. 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).
- 4.2.23 In addition to the trenches, land will be required in the corridor for access and soil and cable 'lay down'. Temporary construction compounds along the route will also be required. The typical working area for the cable route installation is anticipated to be 25m to 35m wide but a wider area may be required in some locations such as utility or road and rail crossings. Following installation of the cable the construction working area would be reinstated.

Interconnecting Cables

- 4.2.24 The Solar Arrays will be connected to the Collector Substations at 33 to 132kV via Interconnecting Cables. The voltage of the interconnecting cables will be between 33 to 132kV and will be determined through further electrical design.

District Network Operater Connections

- 4.2.25 It is envisaged that a local grid connections to the distribution network (operated by National Grid Electricity Distribution) will be made for the 400kV substation.
- 4.2.26 These will allow the generating station to connect to the local grid network to obtain short-term auxiliary power to the substations to maintain operation in the event that there is a technical problem with the connection to the National Grid. Consideration is being given to the best place for these connections for each Site.
- 4.2.27 If auxiliary power supplies cannot be gained through the local grid network, then back-up generators will be considered.

Site Access

- 4.2.28 The access points into the individual Sites will be designed to accommodate an articulated HGV with a maximum length of 16.5m. Existing access points are proposed to be used wherever possible with visibility splays of 2.4m x 215m. There may be some variation on visibility splays based on site specific conditions.
- 4.2.29 The transformers will be classified as an Abnormal Indivisible Load (AIL) and therefore an additional assessment will be undertaken by an Abnormal and Indivisible Load's specialist to identify suitable routes. The routing and access points for these will be determined through the design process and in consultation with the appropriate statutory consultees.

Ecological Mitigation and Enhancement

- 4.2.30 The Sites currently comprise of arable and pastoral fields. There are features within the Sites such as hedgerows, field margins, ditches and watercourses which are considered to have some ecological value.
- 4.2.31 A Preliminary Ecological Appraisal (PEA) has been undertaken on the Sites along with protected species surveys which have been carried out at the seasonally appropriate time of year. There will be further surveys carried out in the 2024 ecological survey window, namely breeding bird surveys, bat surveys, Great Crested Newt surveys and water vole surveys. Once the full suite of species surveys has been carried out any new habitat land and/or mitigation that is appropriate will be identified and included in the DCO application. Further detail is provided in **Chapter 8** of this Scoping Report.
- 4.2.32 As a general principle the following ecological mitigation and enhancement measures are used on solar projects:
- Land between and under the arrays to be sown as grassland and meadow management with limited cutting and a mix of some areas being grazed and others not;
 - Gaps within existing hedgerows will be filled with additional native species to increase diversity, and hedgerows will be managed on a rotational basis to enable wildlife to benefit from them year-round;
 - Appropriate vegetated buffers will be maintained comprising native planting; and
 - Installation of bird nest and bat boxes on trees will be located around the Sites to provide opportunities for a range of species recorded within the local area.
- 4.2.33 Prior to the commencement of any phase of development, a LEMP will be prepared and submitted to and approved by the relevant planning authority, and this will be secured by a Requirement in the DCO. This will ensure the potential construction and operational impacts are minimised and that, where possible, opportunities for beneficial effects are secured as part of the Scheme. The LEMP will be in accordance with the Outline LEMP which will be submitted as part of the DCO application.

Surface Water Drainage

- 4.2.34 A Flood Risk Assessment and a Drainage Strategy are being developed as part of the design process for the Scheme. The assessments will identify how the Scheme will manage surface water across the Sites and not increase flood risk. The Drainage Strategy will detail the measures to manage the surface water drainage from the Scheme and any required changes needed to existing land drainage.

Landscaping

- 4.2.35 As a general principle the following landscape enhancements and mitigation are used on solar projects:
- The creation of new woodland blocks and belts;
 - Planting new hedgerows;
 - Reinforcing existing boundary hedgerows; and
 - New tree planting.
- 4.2.36 The proposed Landscape and Ecological Mitigation Plan will seek to increase the green infrastructure and link up ecological networks. This may include enhancing PRoW to improve access to the countryside or the creation of new permissive paths.

4.3 Construction, Operation and Decommissioning

Construction and Phasing

- 4.3.1 The Scheme has a grid connection date of 2029. The construction of the Scheme is proposed to be undertaken over a two-year period and subject to the DCO consenting process, the earliest construction may start is 2027.
- 4.3.2 The construction period will vary across the Sites and for the larger Sites there will be opportunities for having multiple construction crews working at the same time. It is estimated that the Scheme will take approximately 24 months to construct.
- 4.3.3 There will be temporary construction compounds required for the Sites and the grid connection works (installation of the cable route). The temporary construction compounds will comprise:
- Temporary portacabins for construction operatives (the dimension of the portacabins would vary and the maximum size for individual units is expected to be 10m by 3m with a typical maximum height of 3m);
 - Perimeter security fencing with a typical maximum height of 3m;
 - Parking area for construction and workers vehicles;
 - Secure compound for storage;
 - Temporary hardstanding;
 - Wheel washing facilities;
 - Storage bins for recyclables and other waste; and
 - Lighting will be required during construction periods but will be temporary in nature and normal working hours will be adhered to except in specified circumstances (as set out below).
- 4.3.4 Construction activities are likely to be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays. However, some activities may be required outside of these times (such as the delivery of abnormal loads, concrete pours for foundations, night time working for cable construction works in public highways or horizontal direction drilling activities). Where possible, construction deliveries will be

coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

Construction Environmental Management Plan

- 4.3.5 Prior to the commencement of any part of development a CEMP will be submitted to and approved by the relevant planning authority, and this will be secured by a Requirement in the DCO. The CEMP for each phase will be in accordance with the Outline CEMP which will be submitted as part of the DCO application. This will ensure the potential construction impacts are minimised.
- 4.3.6 The CEMP will outline the allocated responsibilities, procedures and requirements for environmental management of the construction sites. It will include relevant site-specific method statements, operating practices, and arrangements for monitoring and liaison with local authorities and stakeholders.
- 4.3.7 The main contractors undertaking the construction of the Scheme will need to adopt and comply with the CEMP, allocate environmental management responsibilities to a site manager and ensure that all sub-contractors' activities are effectively managed in accordance with the CEMP.

Operation

- 4.3.8 Once the Scheme is operational, traffic generated by it will be limited to that associated with maintenance work and the replacement of panels and batteries.
- 4.3.9 The Scheme will operate for up to 60 years. The components of the Scheme are anticipated to have the following lifespan:
- Photovoltaic Panels – 25-40 years
 - Batteries – 15 - 20 years
- 4.3.10 It is therefore estimated that the solar panels could require replacement one or two times and the batteries two times during the operation of the Scheme. The replacement of these will be considered within the assessment of operational impacts of the Scheme in the ES.
- 4.3.11 For routine maintenance purposes, movement within the Sites is likely to be by way of quad bike or small, farm utility vehicle. Personnel will visit the Sites from time to time to check the apparatus. No on-site staff will be required to operate the Scheme but there will be limited staff facilities located in the control rooms associated with the 400kV and 33 to 132 kV substations. Some permanent equipment for monitoring the Sites will be located in the Relay and Control Room. Whilst this would typically be accessed remotely, it would be available for occasional physical access during routine visits.
- 4.3.12 There would be a small amount of noise generated by the vehicle movements across the Site coupled with the installation of equipment. There will be some noise transmitted from the transformers, substations, the motors used for the tracking panels and BESS but these levels are predicted to be low. This will be confirmed through further design work and reported and assessed within the ES. Further detail is provided in **Chapter 14** of this Scoping Report.

Decommissioning

- 4.3.13 The decommissioning of the Scheme is expected to take 12-24 months and is anticipated to be undertaken incrementally. A Decommissioning Statement will be prepared and will

be submitted to and approved by the relevant planning authority prior to decommissioning, and this will be secured by a Requirement in the DCO. The Decommissioning Statement for each part of the Scheme will be in accordance with the Outline Decommissioning Statement which will be submitted as part of the DCO application. This will ensure the potential decommissioning impacts are minimised.

- 4.3.14 The Solar Arrays and related built infrastructure, ancillary infrastructure, substations, and BESS will be removed and recycled or disposed of in accordance with good practice and market conditions at that time.
- 4.3.15 The underground ducting within the Cable Route Corridor will be decommissioned in accordance with the latest regulations and good practice at that time but are anticipated to be left in-situ to minimise adverse environmental effects. It is possible to remove the cable itself by extracting it at the joint bays from within the ducting, so that the cable can be recycled. This will be considered further in the ES.
- 4.3.16 The effects of decommissioning are likely to be similar to, and are often of a lesser magnitude than, construction effects and are considered in the relevant sections of this Report. However, there can be a high degree of uncertainty regarding decommissioning as legal and policy requirements, engineering approaches and technologies are likely to change over the operational life of the Scheme.

Site Reinstatement

- 4.3.17 The land within the Scheme will be restored and returned to its original use as far as possible after decommissioning. This will include removal of the substations, converter units/inverters and BESS.
- 4.3.18 As noted above, underground ducting within the Cable Route Corridor will be decommissioned but left in-situ to avoid unnecessary impacts. The cable itself can be removed by extracting it at the joint bays from within the ducting, so that the cable can be recycled.

Waste

- 4.3.19 Waste will be generated during all phases of the Scheme. Solid waste materials generated during construction and decommissioning will be segregated and stored on site prior to transport to an approved, licensed third party landfill and recycling facility. Waste arisings will be assessed as appropriate in the ES. Further detail is provided in **Chapter 21** of this Scoping Report.

5 Legislative Context and Energy Policy

5.1 Introduction

- 5.1.1 The ES will contain a Legislative Context and Energy Policy chapter. Regard will be had to primary legislation and energy policy, national planning policies and guidance, and local planning policies in establishing receptors, likely effects and potential mitigation.
- 5.1.2 A summary of key legislative and policy provisions is provided below and considered in further detail in **Appendix 5.1**.

5.2 Primary Legislation

- 5.2.1 The Act sets out the process for the consenting of NSIPs and the basis for the decision whether to grant development consent.

5.3 Energy Policy

- 5.3.1 National Policy Statements (NPS) set out the policy basis for NSIPs. They form the basis for determination of decisions on DCO applications by the Secretary of State. In accordance with section 104 of the Act, where an NPS has effect in relation to development of the description to which the application relates, a DCO application must be decided in accordance with that relevant NPS. The NPSs that are relevant to the Scheme are:
- Overarching National Policy Statement for Energy (EN-1);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3); and
 - National Policy Statement for Electricity Networks Infrastructure (EN-5).
- 5.3.2 These NPSs were designated by the Secretary of State in January 2024. Compared to the previous NPSs that were designated in 2011, these NPSs set out a new category of 'critical national policy infrastructure' for the provision of nationally significant low carbon infrastructure (which includes ground mounted solar, as a type of onshore generation that does not involve fossil fuel combustion – see paragraph 4.2.5 of EN-1). They also address provision for Biodiversity Net Gain (BNG) (see section 4.6 of EN-1).
- 5.3.3 In addition to the NPS's, the following government publications are also considered to be relevant:
- Energy White Paper 2020: Powering our Net Zero Future (**Ref 10**);
 - Government Net Zero Strategy 2022 (**Ref 11**);
 - British Energy Security Strategy 2022 (**Ref 12**); and
 - Powering Up Britain 2023 (**Ref 13**).
- 5.3.4 Section 2.10 of NPS EN-3 sets out national policy in relation to solar photovoltaic generation. This notes the following relevant site selection considerations for solar photovoltaic development:
- Agricultural land classification and land type;
 - Accessibility;
 - PRoW;

- Security and lighting;
- Proximity of a site to dwellings;
- Site layout design, and appearance;
- Project Lifetime;
- Decommissioning;
- Flexibility in the project details;
- Irradiance and site topography;
- Network connection;
- Capacity of a site;
- Biodiversity, ecological, geological conservation and water management;
- Landscape, visual and residential amenity;
- Glint and glare;
- Cultural Heritage; and
- Construction including traffic and transport noise and vibration.

5.3.5 NPS EN-5 sets out specific considerations that should be taken into account when considering infrastructure such as a cable route. These are:

- Biodiversity and Geological Consideration;
- Landscape and Visual Impact;
- Undergrounding;
- Noise and Vibration;
- Electric and Magnetic Fields (EMF); and
- Sulphur Hexafluoride.

5.4 National Planning Policy

5.4.1 The national planning policies considered relevant to the Scheme are identified below and will be considered as part of the assessment.

- National Planning Policy Framework (NPPF) (as amended December 2023) (**Ref 14**).
- Planning Practice Guidance (PPG) (as amended March 2015): (**Ref 15**)
- Paragraph 013 ID: 5-013-20150327 – Renewable and low carbon energy: What are the particular planning considerations that relate to large scale ground-mounted solar photovoltaic farms?

5.5 Local Planning Policy

5.5.1 The local planning policies considered relevant to the Scheme are identified below, and will be considered as part of the assessment:

- Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**);
- Wiltshire and Swindon Minerals Core Strategy 2006 to 2026 (adopted June 2009) (**Ref 17**);
- Wiltshire and Swindon Waste Core Strategy 2006 to 2026 (adopted July 2009) (**Ref 18**);
- Neighbourhood Plans:
 - Hullavington Neighbourhood Development Plan 2016 to 2026 (September 2019) (**Ref 19**);
 - Sherston Neighbourhood Plan 2006 to 2026 (May 2019) (**Ref 20**);
 - Malmesbury Neighbourhood Plan Volumes 1 and 2 (February 2015) (**Ref 21**); and
 - Melksham Neighbourhood Plan 2020 to 2026 (July 2021) (**Ref 22**).

5.5.2 A review of the Wiltshire Local Plan is currently underway with adoption expected in autumn 2025. The Regulation 19 consultation was undertaken in autumn 2023.

5.5.3 Wiltshire Council declared a Climate Emergency and resolved to make the county carbon neutral by 2030.

5.6 Other Relevant Documents

5.6.1 The following documents are not formally part of the development plan (though may form part of the evidence base), and are relevant to the Scheme:

- Cotswold AONB Management Plan (**Ref 23**)
- Wiltshire Landscape Character Assessment (**Ref 24**)
- Wiltshire Biodiversity Action Plan (**Ref 25**)
- Wiltshire Local Flood Risk Management Strategy (**Ref 26**)
- Wiltshire Local Transport Plan (**Ref 27**)
- Wiltshire Joint Strategic Needs Assessment (**Ref 28**)
- Swindon and Wiltshire Strategic Economic Plan (**Ref 29**)

6 Climate Change

6.1 Introduction

6.1.1 In accordance with the requirements of the EIA Regulations (**Ref 30**) and IEMA Guidance for assessing climate mitigation and adaptation (**Ref 31**), this chapter of the scoping report considers effects arising as a result of the Scheme, including prior to and post mitigation, in relation to:

- Greenhouse gas emissions (GHG);
- In-combination climate change impact (ICCI) assessment; and
- Climate Change resilience.

6.2 Legislation, Policy and Guidance

6.2.1 The assessment will include references to the following policies and guidelines:

- United Nations Kyoto Protocol (**Ref 32**);
- National Policy Statements for Energy (which came into effect on 17 January 2024): NPS EN-1 (**Ref 33**); NPS EN-3 (**Ref 34**); NPS EN-5 (**Ref 35**);
- NPPF (December 2023) (**Ref 36**);
- PPG (**Ref 37**);
- Climate Change Act 2008; inclusive of Climate Change Act 2008 (2050 target amendment) Order 2019 (**Ref 38**);
- Carbon Budgets Order 2021 and previous iterations thereof (**Ref 39**);
- Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022) (**Ref 40**);
- Climate Change Adaption Practitioner Guidance (2022) (**Ref 41**);
- Wiltshire Council Climate Strategy 2022-2027 (2022) (**Ref 42**); and
- Wiltshire Carbon Neutral Council Plan 2022-2024 (2022) (**Ref 207**).

6.3 Preliminary Baseline Conditions

The Scheme and Context

6.3.1 The current use of the Sites, which are described in more detail in **Chapter 3** of this Scoping Report, predominantly consists of arable land and managed trees and hedgerows. The baseline agricultural greenhouse gas (GHG) emissions are dependent on the soil and vegetation types present and the fuel used for the operation of any plant and machinery on the Sites.

6.3.2 The Scheme is expected to provide a substantial source of renewable electricity for the country. Compared to a conventional gas-fired power station, this will reduce overall energy generation of greenhouse gas emissions. This will be assessed by the change in emissions of Carbon Dioxide and equivalent gases (CO₂e).

- 6.3.3 Consideration will be given to the wider impacts of the Scheme including the carbon budget targets developed for the United Kingdom, and the Scheme's overall contribution to climate change.
- 6.3.4 There has been no formal consultation on the scope of the climate change chapter and consultation will be undertaken with statutory bodies (for example, local planning authorities) on climate change targets that impact on or contribute to baseline data, as well as cumulative development.
- 6.3.5 The GHG emissions produced over the Scheme's lifecycle will be assessed by comparing estimated GHG emissions against reduction targets and carbon budgets implemented by The Climate Change Act (2008) (**Ref 38**), including climate commitments made by the district of Wiltshire Council (**Ref 42, Ref 43**).

In-Combination Climate Change Impact Assessment

- 6.3.6 The in-combination climate change impact (ICCI) receptors are those receptors that are within the surrounding environment that will be impacted by the Scheme in combination with future climatic conditions. Baseline conditions for the ICCI assessment will be determined using the climate change projections data.
- 6.3.7 An initial review of UK Climate Projections 2018 (UKCP18) data (**Ref 44**) for the 12km grid square (X: 390000, Y: 186000, nearby postcode: SN16 0JH) within which the Sites are located suggests that, on average across the Sites, by the 2050s time period, the area could experience:
- The hottest summer day temperature of around 36.5°C if global warming increases by 2°C. If global temperatures rise by 4°C it could increase to around 40.7°C. The hottest summer day of the last 30 years has been 34.4°C (**Ref 45**).
 - The warmest winter day temperature it could be around 17.8°C if global warming increases by 2°C. If global temperatures rise by 4°C it could increase to around 19.6°C. The warmest winter day of the last 30 years has been 18°C (**Ref 45**).

6.4 Assessment Methodology

- 6.4.1 It is anticipated that the climate change assessment will include three aspects:
- Lifecycle GHG impact assessment: the impact of the Scheme by considering all GHG emissions associated with its entire lifecycle;
 - ICCI assessment: combined effects of the Scheme contributing to climate change, considering their interactions and cumulative impact on the environment; and
 - Climate Change Resilience: the resilience of the Scheme to climate change impacts.

Lifecycle GHG Impact Assessment

- 6.4.2 The assessment will establish the baseline scenario and then consider the GHG emissions over the Scheme lifetime. For the baseline scenario, the GHG emissions from the land use, current methods of generating power (emissions savings due to the Scheme), and available baseline information will be considered. For the Scheme scenario, direct GHG emissions arising from activities involved during construction, operation (inclusive of replacement of panels and batteries), and decommissioning, inclusive of embedded GHG in the construction materials, and emissions from transport of materials, waste and workers are considered.

- 6.4.3 The assessment will include activities that might be prevented or changed due to the Scheme, such as existing power production methods. The assessment will also consider the emissions avoided as a result of the Scheme, for example, the soil not being cultivated through arable processes and the reduction in national reliance on coal and gas fired peaking plants.
- 6.4.4 With reference to the GHG Kyoto Protocol guidelines (**Ref 32**), the following GHG emissions will be considered within the assessment over the Scheme's lifecycle:
- Carbon dioxide (CO₂);
 - Methane (CH₄);
 - Nitrous oxide (N₂O);
 - Sulphur hexafluoride (SF₆);
 - Hydrofluorocarbons (HFCs);
 - Perfluorocarbons (PFCs); and
 - Nitrogen trifluoride (NF₃).
- 6.4.5 In line with good industry practice, GHG emissions created over the Scheme's lifecycle will be calculated using an appropriate assessment method which is aligned with the GHG protocol. The method of assessment is still yet to be finalised pending confirmation with stakeholders.
- 6.4.6 It is anticipated that the potential sources of GHG emissions in **Table 6.1** will be scoped in as part of each stage of the development:

Table 6.1: Possible Sources of GHG Emissions

Lifecycle Stage	Activity	Primary emission sources
Construction Stage	The extraction of raw materials and manufacturing of products necessary to make equipment.	GHG emissions that are embodied within the product.
	Materials that contain high levels of embodied carbon, complex manufacturing processes, and equipment design.	GHGs that are produced during manufacturing
	Construction materials transported and not integrated in embodied GHG emission. Equipment requiring shipment due to overseas origin.	Transportation of materials to the Sites and the amount of fuel consumed.
	Construction workers that would need transportation to the Sites.	Transportation of workers to the Sites and resulting GHG emissions.
	Construction activity on-site.	Energy consumption on-site. Commuting construction workers.

Lifecycle Stage	Activity	Primary emission sources
	Waste produced during the construction process that needs to be disposed.	GHG emissions produced from the transportation and removal of waste materials
	Water use	Treatment of wastewater and supply of potable water
Operation Stage	Scheme operation	Emissions from routine maintenance are expected to be negligible. However, the periodic replacement of components has the potential to have significant impacts given the complexity of the equipment involved.
	Scheme maintenance	
	Replacement materials (i.e. batteries and replacement panels)	
	Water use on-site for fire suppression and cleaning panels	
Decommissioning Stage	Decommissioning activity occurring on-site	Energy consumption of on-site vehicles and generators.
	Removal and transportation of any waste materials	GHG emissions generated from the transportation and disposal of waste materials. This has the potential to be significant given the complexity of the design of the equipment, and the use of materials with high associated waste treatment emissions.
	Workers that would need to be transported to the site	Transportation of workers to Site and resulting GHG emissions

- 6.4.7 The receptor for the GHG assessment is the global climate. This will be defined as ‘high’ sensitivity as any additional GHG impacts could compromise the UK’s ability to reduce its GHG emissions and therefore meet its future 5-year carbon budgets and Net Zero by 2050 target. The extreme importance of limiting global warming to below 2°C this century is broadly asserted by the International Paris Agreement, the United Nations Climate Change Conferences (COP27) and the climate science community.
- 6.4.8 Standard GHG accounting and reporting practices have been followed to assess the effect of the Scheme. The IEMA guidance (**Ref 40**) states that ‘it is up to the GHG practitioner’s professional judgement to decide which tool is most appropriate for the project at hand with regard to assessing the magnitude of GHG impacts’. The GHG accounting method is deemed most appropriate for this part of the assessment.
- 6.4.9 The significance of the Scheme’s GHG emissions and potential impact to the climate can be investigated with reference to national carbon budgets. Local carbon budgets and climate action strategies will also be reviewed in determining the likely potential significance of impact from the Scheme.
- 6.4.10 Emission sources that are <1% of a given emissions inventory will be excluded through the concept of ‘de minimis’ contribution. This has been supported by both the Department

for Business, Energy and Industrial Strategy and Publicly Available Specification PAS:2050.

- 6.4.11 It is expected that the construction stage of the Scheme will occur spanning the 4th (2023-2027) and 5th (2028-2032) national carbon budgets. The operation phase of the Scheme will occur during the 5th (2028-2032) and 6th (2033-2037) carbon budgets. As the current carbon budgets are only available up to 2037 and the Scheme is expected to be operational past that year, all assumptions beyond 2037 will use the 6th carbon budget. Using professional judgement, the significance of the impacts associated with GHG emissions produced by the Scheme will be determined.
- 6.4.12 Emissions will be assessed from all relevant elements of the proposals including the Solar PV Sites, Cable Route Search Corridor, and Land at Melksham Substation.

In-Combination Climate Change Impact Assessment

- 6.4.13 An ICCI assessment identifies how identified receptors in the surrounding environment is affected by the Scheme in combination with future climate change conditions. It is proposed to scope this out of this chapter because climate change impacts relevant to the Scheme will be assessed through the other relevant topics of the ES. For example, how an increase in rainfall may lead to a higher risk of flooding, will be covered in the Hydrology, Flood Risk and Drainage chapter.
- 6.4.14 At this stage, it is not possible to say conclusively which environmental topics will cover which factors as there is insufficient data available on likely effects. However, the factors in **Table 6.2** are likely to be considered under the following environmental topic chapters. The approach to this will be reviewed throughout the iterative design process.

Table 6.2: Climate Change Factors for ICCI Assessment

Factor	Scoped In/Out	Justification
Temperature Change	In	The anticipated increase in temperature will be summarised within the locality, and any impacts from the Scheme discussed within the Climate Change chapter with regards to the effect of localised heat island effects
Precipitation Change	In	This will be considered in the Hydrology, Flood Risk and Drainage chapter and summarised within the climate change assessment
Extreme weather conditions (wind)	In	The anticipated increase in extreme wind/hailstorm and other events within the locality will be summarised and any impacts on the Scheme discussed within the Climate Change chapter
Sea level rise	Out	The Scheme is not located in an area that is susceptible to sea level rise

Climate Change Resilience Assessment

- 6.4.15 A Climate Change Resilience Assessment will be undertaken to inform the ES. The assessment will consider future climate conditions and the impact this will have on the Scheme. The following factors will be included in the assessment of the Scheme's resilience to climate change:

- Increased average temperatures and incidence of heatwaves;
- Increased frequency of heavy precipitation events; and
- Increased in strong wind events.

6.4.16 These are relevant factors for consideration and with particular regard to data from the UKCP18 (**Ref 44**), (which considers future climate change conditions). Some of these matters are considered in detail in other technical topics within the ES, such as flood risk and the findings from these other chapters will be placed within the context of the Climate Change chapter of the ES.

6.4.17 The assessment will be carried out in conjunction with the other environmental disciplines by considering climate projections for the geographical area and the operational lifetime of the Scheme.

6.4.18 The Climate Change chapter will describe how the Scheme has been designed to be as resilient as is reasonably practicable to future climate change. As with the ICCI Assessment, **Table 6.3** below factors have been scoped in or out of the Climate Change Resilience Assessment.

Table 6.3: Climate Change Factors for Climate Change Resilience Assessment

Factor	Scoped In/Out	Justification
Temperature Change	In	Assessed as part of the design process for any potential for heat to damage materials
Precipitation Change	In	Assessed as part of the design process with reference to Hydrology, Flood Risk and Drainage chapter.
Extreme weather conditions (wind)	In	Assessed as part of the design process to protect the Scheme from extreme winds
Sea level rise	Out	The Scheme is not located in an area that is susceptible to sea level rise.

Cumulative Effects

6.4.19 The cumulative effects chapter of the ES will consider the additional impacts of the Scheme that arise cumulatively with other developments and future climate conditions.

6.4.20 It should be noted that there are limitations in considering localised cumulative effects with regards to a development's effect on climate change, as any effects would generally apply at a national and international level rather than specific localised effects.

6.5 Assumptions and Limitations

6.5.1 Every endeavour will be made to calculate proposed GHG emissions from products and activities associated with the development. However, due to the assessment being completed at the early design stages it is likely that some assumptions will have to be made around, for example, transport of materials, exact product types to be used etc.

6.5.2 Climate change projections are subject to uncertainties due to the complexity of the climate system and uncertainty over future greenhouse gas emission levels, and modelling uncertainties used to develop the Met Office's predictions.

6.5.3 To address these uncertainties, UKCP18 (**Ref 44**) provides a range of likely climate changes to give a lower and upper estimate. This allows for provision of a greater level of confidence for the magnitude and impact of climate change effects.

6.6 Conclusions on Scoping

6.6.1 GHG emissions will be created over the lifetime of the Scheme (from production to decommissioning) and therefore are scoped in. Any amount of GHG emissions produced will result in impacts to both the local microclimate and global climate. To comply with the UK's carbon budgets, it is necessary to scope GHG emissions in, as this is important for reaching net-zero emissions by 2050. There will be negative effects, including from construction, movement, import of materials etc. Notwithstanding, given the nature of solar farm developments, the carbon impact will be offset by the overall beneficial impacts of the Scheme. It is anticipated that effects are likely to be beneficial in this regard. Emissions will be assessed from all relevant elements of the proposals including the Solar PV Sites, Cable Route Search Corridor, and Land at Melksham Substation.

6.6.2 In terms of climate change resilience of the Scheme, increased average temperatures and incidence of heatwaves, increased frequency of heavy precipitation events and increase in strong wind events will need to be scoped in. The Scheme is vulnerable to extreme weather events, including heatwaves, flooding events and strong winds, as these factors have the potential to damage the Scheme and reduce its efficiency. Therefore, adaptation measures using projections from UKCP18 (**Ref 44**) will be further addressed in the ES. Sea Level rise has been scoped out of the assessment due to the distance of the Scheme from the coast.

6.6.3 The ES will include a proportionate Climate Change chapter given that it is unlikely the Scheme in-combination with projected changes, will cause significant adverse impacts. Overall, the Scheme's contribution to climate change is likely to be a positive one.

6.6.4 **Table 6.4** below summarises the proposed scope of the Climate Change Assessment which lists those elements that have been scoped in and out.

Table 6.4: Summary of Climate Change Scoping

Assessment	Sub-Element	Scoped In/Out
GHG Emissions	Construction emissions	In
	Operational emissions	In
	Decommissioning emissions	In
ICCI Assessment	Temperature change	In
	Precipitation change	In
	Extreme weather conditions (wind)	In
	Sea level rise	Out
Climate Change Resilience	Temperature change	In

Assessment	Sub-Element	Scoped In/Out
	Precipitation change	In
	Extreme weather conditions (wind)	In
	Sea level rise	Out

7 Landscape and Visual

7.1 Introduction

- 7.1.1 The Landscape and Visual chapter of the ES will consider the likely significant effects of the Scheme on landscape and visual receptors during the associated construction, operation and decommissioning phases. The chapter will describe the methodology used in the Landscape and Visual Impact Assessment (LVIA), the existing baseline scenario within a defined Study Area, and the nature of change. It will identify the effects upon receptors arising as a result of the Scheme and the significance associated with identified effects based on the sensitivity of these receptors to change and the magnitude of any change that will likely occur. It also defines whether an effect is beneficial, adverse or neutral.
- 7.1.2 The LVIA will be undertaken in accordance with the Guidelines for LVIA, Third Edition (GLVIA3) 2013 which defines the meaning of landscape and visual effects as:
- **Assessment of landscape effects:** assessing effects on the landscape as a resource in its own right; and
 - **Assessment of visual effects:** assessing effects on specific views and on the general visual amenity experienced by people.
- 7.1.3 The Site is located in Wiltshire, in southwest England. After Swindon, the largest settlements are the city of Salisbury and the towns of Chippenham and Trowbridge. The county is mostly rural and is characterised by undulating chalk downlands; the North Wessex Downs in the east, Salisbury Plain in the centre, Cranbourne Chase in the south; and the limestone area of the Cotswolds to the northwest. The North Wessex Downs, to the southeast of the Scheme and the Cotswolds to the west are designated National Landscapes (until November 2023 an Areas of Outstanding Beauty (AONB)).
- 7.1.4 Despite being one Site, due to the large scale of the Scheme, the Site will firstly be considered as one large entity in entirety, before being broken down into smaller/individual Sites. These individual Sites are referred to as:
- Lime Down A;
 - Lime Down B;
 - Lime Down C;
 - Lime Down D;
 - Lime Down E;
 - Cable Route Search Corridor (see paragraph 7.1.5 below); and
 - Land at Melksham Substation.
- 7.1.5 At this stage, the exact route of the Cable Route Corridor is yet to be determined but it will be routed within the Cable Route Search Corridor (refer to **Figure 3.2.1** to **Figure 3.2.3**). The Cable Route Search Corridor will be refined during the design process to a preferred route, which will be presented in the PEIR.
- 7.1.6 This chapter is supported by the following Figures and Appendices.

Appendix 7.1 LVIA Figure 7.1 to Figure 7.9

- Figure 7.1 Study Area

- Figure 7.1.1 Study Area Lime Down A
- Figure 7.1.2 Study Area Lime Down B
- Figure 7.1.3 Study Area Lime Down C
- Figure 7.1.4 Study Area Lime Down D
- Figure 7.1.5 Study Area Lime Down E
- Figure 7.1.6 Study Area Land at Melksham Substation
- Figure 7.1.7 Study Area Cable Route Seach Corridor
- Figure 7.1.8 Study Area Cable Route Seach Corridor
- Figure 7.2 Aerial Photography
- Figure 7.3 Landform
- Figure 7.4 Agricultural Land Class
- Figure 7.5 Landscape Character Areas
- Figure 7.6 Landscape Receptors
 - Figure 7.6.1 Landscape Receptors Lime Down A
 - Figure 7.6.2 Landscape Receptors Lime Down B
 - Figure 7.6.3 Landscape Receptors Lime Down C
 - Figure 7.6.4 Landscape Receptors Lime Down D
 - Figure 7.6.5 Landscape Receptors Lime Down E
 - Figure 7.6.6 Landscape Receptors Land at Melksham Substation
 - Figure 7.6.7 Landscape Receptors Cable Route Seach Corridor
 - Figure 7.6.8 Landscape Receptors Cable Route Seach Corridor
- Figure 7.7 Visual Receptors and Viewpoint Locations
 - Figure 7.7.1 Visual Receptors Lime Down A
 - Figure 7.7.2 Visual Receptors Lime Down B
 - Figure 7.7.3 Visual Receptors Lime Down C
 - Figure 7.7.4 Visual Receptors Lime Down D
 - Figure 7.7.5 Visual Receptors Lime Down E
 - Figure 7.7.6 Visual Receptors Land at Melksham Substation
 - Figure 7.7.7 Visual Receptors Land Cable Route Seach Corridor
 - Figure 7.7.8 Visual Receptors Land Cable Route Seach Corridor
- Figure 7.8 Bare Earth Zone of Theoretical Visibility (ZTV)
 - Figure 7.8.1 Bare Earth ZTV Lime Down A
 - Figure 7.8.2 Bare Earth ZTV Lime Down B
 - Figure 7.8.3 Bare Earth ZTV Lime Down C

- Figure 7.8.4 Bare Earth ZTV Lime Down D
- Figure 7.8.5 Bare Earth ZTV Lime Down E
- Figure 7.8.6 Bare Earth ZTV Land at Melksham Substation
- Figure 7.9 Augmented ZTV
 - Figure 7.9.1 Augmented ZTV Lime Down A
 - Figure 7.9.2 Augmented ZTV Lime Down B
 - Figure 7.9.3 Augmented ZTV Lime Down C
 - Figure 7.9.4 Augmented ZTV Lime Down D
 - Figure 7.9.5 Augmented ZTV Lime Down E
 - Figure 7.9.6 Augmented ZTV Land at Melksham Substation

Appendix 7.2 LVIA Methodology

- Appendix 7.2.1 LVIA Methodology
- Appendix 7.2.2 Cumulative Assessment Methodology
- Appendix 7.2.3 Residential Visual Amenity Assessment Methodology
- Appendix 7.2.4 Zone of Theoretical Visibility Methodology

Appendix 7.3 Viewpoint Photography

Appendix 7.4 Landscape Receptor Scoping Sheets

- 7.4.1 Landscape Character Areas

Appendix 7.5 Visual Receptor Scoping Sheets

- 7.5.1 Residential Receptors
- 7.5.2 Transport Receptors
- 7.5.3 PRow Receptors

Appendix 7.6 LVIA Visual Receptors Figure 7.10 to Figure 7.13

- Figure 7.10 Residential Receptors
 - Figure 7.10.1 Residential receptors Lime Down A
 - Figure 7.10.2 Residential receptors Lime Down B
 - Figure 7.10.3 Residential receptors Lime Down C
 - Figure 7.10.4 Residential receptors Lime Down D
 - Figure 7.10.5 Residential receptors Lime Down E
 - Figure 7.10.6 Residential receptors Land at Melksham Substation
- Figure 7.11 Residential Receptors
 - Figure 7.11.1 Residential receptors Lime Down A

- Figure 7.11.2 Residential receptors Lime Down B
- Figure 7.11.3 Residential receptors Lime Down C
- Figure 7.11.4 Residential receptors Lime Down D
- Figure 7.11.5 Residential receptors Lime Down E
- Figure 7.11.6 Residential receptors Land at Melksham Substation
- Figure 7.12 Transport Receptors
 - Figure 7.12.1 Transport receptors Lime Down A
 - Figure 7.12.2 Transport receptors Lime Down B
 - Figure 7.12.3 Transport receptors Lime Down C
 - Figure 7.12.4 Transport receptors Lime Down D
 - Figure 7.12.5 Transport receptors Lime Down E
 - Figure 7.12.6 Transport receptors Land at Melksham Substation
- Figure 7.13 PRoW receptors
 - Figure 7.13.1 PRoW receptors Lime Down A
 - Figure 7.13.2 PRoW receptors Lime Down B
 - Figure 7.13.3 PRoW receptors Lime Down C
 - Figure 7.13.4 PRoW receptors Lime Down D
 - Figure 7.13.5 PRoW receptors Lime Down E
 - Figure 7.13.6 PRoW receptors Land at Melksham Substation

7.2 Study Area

- 7.2.1 GLIVA3 states that the Study Area must be reasonable and proportionate and must ensure that the focus when defining the appropriate Study Area is on where likely significant effects upon landscape and visual receptors may occur, together with likely significant cumulative effects. The preliminary Study Area will be further assessed as part of the iterative design process and through consultation with the Local Planning Authority's Landscape officers and consultants at Wiltshire Council.
- 7.2.2 The Study Areas have been informed through a combination of desktop study, as well as professional judgement on similar scale projects. They have been established through consideration of the existing landform and vegetation, as well as the scale of the Scheme and heights of the proposed infrastructure and focus on significant effects. The Study Areas consider the depleting nature of visual perception which diminishes as distance from visual receptors increases. As a result, the proposed Study Areas for visual receptors are less than the proposed Landscape Study Areas, which considers the interconnectivity of the wider landscape context.
- 7.2.3 Four Study Areas have been defined, presented in **Figure 7.1**, and **Figure 7.1.1** to **Figure 7.1.8** and are described below:

The 0.5km Study Area for the Cable Route Corridor (The Cable Route Corridor Study Area)

- 7.2.4 At this stage, the exact route of the Cable Route Corridor is yet to be determined but it will be within the Cable Route Search Corridor (refer to **Figure 3.2.1** to **Figure 3.2.3**). The Cable Route Search Corridor will be refined during the design process to a preferred route, which will be presented in the PEIR.
- 7.2.5 A 0.5km Study Area is proposed from the outer boundary of the Cable Route Corridor. The 0.5km radius is considered appropriate for the Cable Route Corridor, since this involves the construction phase only, which is short term and temporary. Beyond this distance, even with good visibility it is deemed that this element of the Scheme would be barely perceptible. Within the assessment, this parameter is referred to as the '0.5km Study Area'.
- 7.2.6 All Landscape and Visual receptors within this Study Area would be scoped into the LVIA.

The 1km Study Area (The Local Study Area)

- 7.2.7 This is the 1km area extending as a radius from the outer boundary of the main solar Sites that is considered appropriate as the Local Study Area for the LVIA.
- 7.2.8 The Local Study Area focuses on impacts upon both landscape and visual receptors.
- 7.2.9 All Landscape Receptors within the Local 1km Study Area would be included In the LVIA. This includes the landscape fabric of the Site and the local landscape character (Informed by all relevant landscape character assessments).
- 7.2.10 All Visual Receptors within the 1km Study Area would be included within the LVIA. However, Visual receptors within the 1km Study Area with no intervisibility of the main solar Sites would be scoped out of the LVIA.
- 7.2.11 Within the assessment, this parameter is referred to as 'the Local 1km Study Area'.

The 2km Study Area (The Wider Study Area)

- 7.2.12 This is the 2km area extending as a radius from the outer boundary of the main solar Sites that is considered appropriate as the Wider Study Area for the LVIA.
- 7.2.13 The Wider Study Area focuses on impacts upon both landscape and visual receptors.
- 7.2.14 Effects to landscape character within the Wider 2km Study Area will be included within the LVIA (Informed by all relevant landscape character assessments).
- 7.2.15 Visual receptors located outside of the Local 1km Study Area that are identified with direct, extensive and/or open views towards the Scheme (particularly larger and taller elements or large open expanses of PV arrays) would be separately identified and included within this 2km Study Area and included within the LVIA. Otherwise, all other Visual receptors located beyond the Local 1km Study Area would be scoped out of the LVIA.
- 7.2.16 Visual receptors outside the Local 1km Study Area that do not have direct, extensive and/or open views towards the Scheme are to be Scoped Out of the LVIA.
- 7.2.17 Within the assessment, this parameter is referred to as 'the Wider 2km Study Area'.

The 5km Study Area (The Outer Study Area)

- 7.2.18 This is for the area extending as a radius from the outer boundary of the main solar Sites that is considered appropriate as the extent of the Outer Study Area for the LVIA. Any Landscape or Visual receptors beyond the Outer 5km Study Area are not included within the LVIA.
- 7.2.19 Effects to landscape character within the Outer 5km Study Area will be included within the LVIA (informed by all relevant landscape character assessments).
- 7.2.20 The Outer Study Area focuses on impacts upon landscape receptors only, with all visual receptors beyond the Wider 2km Study Area scoped out of the LVIA.
- 7.2.21 It is considered that within the Outer Study Area, even with excellent visibility it is deemed that the Scheme would be barely perceptible and that it would not lead to any significant Visual effects, either independently or cumulatively.
- 7.2.22 Within the assessment, this parameter is referred to as 'the Outer 5km Study Area'.

7.3 Assessment Methodology

LVIA Methodology

- 7.3.1 The LVIA will be undertaken in line with the following guidance which represents the standard approach and guidance relevant to LVIA for renewable energy developments within the UK:
- Landscape Institute and Institute of Environmental Management and Assessment 'Guidelines for Landscape and Visual Effect Assessment', 2013 (GLVA3) (**Ref 46**);
 - An Approach to Landscape Character Assessment (October 2014) (**Ref 47**);
 - Landscape Institute Technical Guidance Note 06/19, Visual Representation of Development Proposals (17 September 2019) (**Ref 48**);
 - Landscape Institute Technical Guidance Note 02/19, Residential Visual Amenity Assessment (RVAA) (March 2019) (**Ref 49**); and
 - Landscape Institute Technical Guidance Note 02/21, Assessing landscape value outside national designations (May 2021) (**Ref 50**).
- 7.3.2 The LVIA would include the following stages:
- A desk study would be undertaken to assess the landscape and visual baseline including a review of published landscape character assessments identified above. This process would be supported by a suite of landscape figures similar to those listed in the appendices. This process helps to identify the landscape and visual receptors to be assessed and subject to approval by the LPA;
 - Detailed fieldwork would also be undertaken to confirm aspects of the desk study and to ground truth proposed viewpoint locations;
 - An assessment of the sensitivity (nature of the receptor) of landscape and visual receptors will be undertaken. This is defined through a combination of their value and susceptibility to change;
 - An assessment of the magnitude of impact (nature of effect) of the Scheme during the construction period (winter), operation at year 1 (winter) and operation at year

15 summer) and at decommissioning phase (winter). The magnitude of impact will be assessed in relation to the size, scale, duration and reversibility of the effect;

- An assessment of the significance of the effect to the landscape and visual receptors for the three stages of the Scheme (construction, operation and decommissioning) would be undertaken. This process systematically and transparently assesses the likely significant effects;
- Mitigation proposals would be produced to prevent/avoid, reduce, and where possible offset/compensate any significant adverse landscape and visual effects;
- Re-evaluation of the significance of effect would be undertaken based on the mitigation approach to identify any residual landscape and visual effects; and
- Preparation of a Landscape and Biodiversity Management Plan which would be produced and would prescribe how the mitigation measures identified and proposed can be implemented and managed for the lifetime of the Scheme to ensure the effectiveness and certainty in achieving the objectives of the mitigation strategy. This would be undertaken in conjunction with the ecology and arboricultural consultant.

7.3.3 The proposed LVIA Methodology is set out in **Appendix 7.2**.

Residential Visual Amenity Assessment

7.3.4 Current guidance on Residential Visual Amenity Assessment (RVAA) is contained within the Landscape Institute's Technical Guidance Note (TGN) 2/19.

7.3.5 Steps 1-3 of RVAA guidance align with the standard LVIA based approach defined in GLVIA3 to assess the effects on residential amenity as follows:

- Step 1 – Definition of Study Area and scope of the assessment;
- Step 2 – Evaluation of Baseline Visual Amenity;
- Step 3 – Assessment of likely change to visual amenity of properties; and
- Step 4 – Forming the RVAA judgement.

7.3.6 Stage 4 of the RVAA is defined as being required as follows:

"In this final step, and only for those properties where the largest magnitude of effect has been identified, a further judgement is required."

7.3.7 It is therefore proposed to undertake steps 1 to 3 as part of the LVIA for the Scheme and if following assessment of affects upon residential properties at year 15 there remain significant effects at the highest magnitude of significance (major) then a full RVAA would be undertaken for those properties affected.

Glint and Glare

7.3.8 The LVIA will consider the conclusions of the Glint and Glare Assessment in association with an assessment of the magnitude of landscape and visual impacts using the methodology prescribed above.

Lighting

- 7.3.9 The LVIA will consider the construction, operational and decommissioning lighting strategy for the Scheme including details of directionality, intermittent lighting. It will also describe any landscape measures necessary to avoid or mitigate lighting effects.
- 7.3.10 Construction lighting would be of a temporary nature and lighting associated with the Scheme would be based on a passive infrared (PIR) system and sensory lighting associated with the BESS. Embedded design would be considered to minimise light pollution and there are no lighting designations in the Study Area such as dark sky areas.

Cultural Heritage

- 7.3.11 The LVIA will consider the findings of the cultural heritage chapter of the EIA. The LVIA will focus on likely significant effects of views from heritage assets (where accessible) but would not comment upon the setting of such assets. This would be undertaken as part of the cultural heritage chapter of the EIA; however, consultation would be undertaken with the cultural heritage consultant through the LVIA process to help inform landscape character.

Arboriculture

- 7.3.12 The LVIA will consider the findings of any tree surveys undertaken and consider any effects upon landscape and visual receptors should vegetation removal be required as part of the Scheme. Due to the nature of the Scheme, it is considered that existing vegetation on site would be retained and any removal to accommodate elements associated with construction or access would be subject to a BS5837:2012 tree survey and associated Arboricultural Impact Assessment which would inform the LVIA. Mitigation associated with any such tree loss associated with the Scheme would be included in the landscape mitigation plans forming part of the LVIA. We would work closely with the arboricultural consultant throughout the application process to ensure local arboreal assets and character inform the LVIA and associated mitigation plans.

Ecology

- 7.3.13 The LVIA will consider the findings of the ecological reports and close liaison with the ecology consultant would form a key part of the LVIA mitigation strategy. Whilst ecological effects would be dealt with wholly in the Ecological and Biodiversity chapter of the ES. This approach will ensure that the landscape mitigation proposed for landscape and visual requirements is considered holistically in conjunction with ecological requirements to maximise the benefits of the Scheme. This will also ensure the green infrastructure scale interventions will be in line with the Biodiversity Opportunity Mapping Study undertaken by the Greater Lincolnshire Nature Partnership, in order to maximise habitat creation and ecological mitigation as well as landscape and visual mitigation.

In-Combination and Cumulative Effects

- 7.3.14 Due to the dispersed nature of the Sites within the Scheme, an assessment of the in-combination landscape and visual effects of Lime Down A to E will be undertaken to determine the effects of the Scheme as a whole.
- 7.3.15 A cumulative assessment will be undertaken, assessing both the cumulative landscape and visual effects of the Scheme in conjunction with other local developments.
- 7.3.16 This will be provided within the Cumulative Effects chapter of the ES.

7.3.17 Cumulative landscape effects, are either additional or combined (as agreed in scoping), and are likely to include effects on:

- the fabric of the landscape;
- the aesthetic aspects of the landscape; and
- the overall character of the landscape.

7.3.18 Cumulative visual effects can be caused by combined visibility, which “occurs where the observer is able to see two or more developments from one viewpoint and/or sequential effects which occur when the observer has to move to another viewpoint to see different developments” as set out in GLVIA3 (Table 7.1) which states ‘Combined’ visual effects are:

“Where two or more developments are or would be within the observer’s arc of vision at the same time without moving her/his head”.

7.3.19 The full methodology is set out in **Appendix 7.2.2**.

7.4 Legislation, Policy and Guidance

7.4.1 The following policy provisions are relevant to the Landscape and Visual Assessment:

National Planning Policy

National Policy Statements

7.4.2 NPS for Nationally Significant Infrastructure Projects (NSIPs) are produced by government. They provide the framework for assessment and decision making by the Secretary of State. A suite of energy NPSs were designated on 17 January 2024. The following NPSs are relevant to the proposals:

- Overarching NPS for energy (EN-1);
- NPS for renewable energy infrastructure (EN-3); and
- NPS for electricity networks infrastructure (EN-5).

NPS EN-1 Overarching NPS for Energy

7.4.3 NPS EN-1 (**Ref 51**) specifically refers to effects on population, human health, biodiversity, land, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them.

7.4.4 Section 5.10 of NPS EN-1 considers Landscape and Visual and states:

“The landscape and visual effects of energy projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development. In this context, references to landscape should be taken as covering seascape and townscape where appropriate.

Landscape effects arise not only from the sensitivity of the landscape but also the nature and magnitude of change proposed by the development, whose specific siting and design make the assessment a case-by-case judgement.

Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation.

Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.

National Parks, the Broads and AONBs have been confirmed by the government as having the highest status of protection in relation to landscape and natural beauty. Each of these designated areas has specific statutory purposes. Projects should be designed sensitively given the various siting, operational, and other relevant constraints. For development proposals located within designated landscapes the Secretary of State should be satisfied that measures which seek to further purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development.

Outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.

All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites.

The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.” (Ref 52).

NPS EN-3 for Renewable Energy Infrastructure

7.4.5 On ‘Consideration of good design for energy infrastructure’ NPS EN-3 states:

“Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine and terrestrial uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage.” (Ref 53).

7.4.6 On ‘Landscape and Visual Impacts’ NPS EN-3 states:

“An assessment of the landscape and visual effects of the proposed infrastructure should be undertaken in accordance with the guidance set out in 5.10 of EN-1” (Ref 54).

7.4.7 Chapter 10 of NPS EN-3 considers Solar Photovoltaic Generation in detail.

7.4.8 On PRoW, NPS EN-3 states:

“Proposed developments may affect the provision of public rights of way networks (including footpaths, bridleways, byways, restricted byways, Nature Trails and other rights of access to land).

Public rights of way may need to be temporarily closed or diverted to enable construction, however, applicants should keep, as far as is practicable and safe, all public rights of way that cross the proposed development site open during construction and protect users where a public right of way borders or crosses the site.

Applicants are encouraged to design the layout and appearance of the site to ensure continued recreational use of public rights of way where possible during construction, and in particular during operation of the site.

Applicants are encouraged where possible to minimise the visual impacts of the development for those using existing public rights of way, considering the impacts this may have on any other visual amenities in the surrounding landscape. (For example, screening along public right-of-way networks to minimise the outlook into the Solar Park may, impact on the ability of users to appreciate the surrounding landscapes).

Applicants should consider and maximise opportunities to facilitate enhancements to the public rights of way and the inclusion, through site layout and design of access, of new opportunities for the public to access and cross proposed solar development sites (whether via the adoption of new public rights of way or the creation of permissive paths), taking into account, where appropriate, the views of landowners” (Ref 55).

7.4.9 On ‘Proximity of a site to dwellings’ Chapter 10 of NPS EN-3 states:

“Utility-scale solar farms are large sites that may have a significant zone of visual influence. The two main impact issues that determine distances to sensitive receptors are therefore likely to be visual amenity and glint and glare”. These are considered in Landscape, Visual and Residential Amenity (paragraphs 2.10.93-2.10.101) and Glint and Glare (paragraphs 2.10.102 – 2.10.106) impact sections below.

7.4.10 On impacts on ‘Landscape, visual and residential amenity’ Chapter 10 of NPS EN-3 states:

“Generic landscape and visual impacts are covered in Section 5.10 of EN-1. 2.10.94 The approach to assessing cumulative landscape and visual impact of large-scale solar farms is likely to be the same as assessing other onshore energy infrastructure. Solar farms are likely to be in low lying areas of good exposure and as such may have a wider zone of visual influence than other types of onshore energy infrastructure.

However, whilst it may be the case that the development covers a significant surface area, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography, the area of a zone of visual influence could be appropriately minimised

Landscape and visual impacts should be considered carefully pre-application. Potential impacts on the statutory purposes of nationally designated landscapes should form a part of the preapplication process.

Applicants should carry out a landscape and visual assessment and report it in the ES. Visualisations may be required to demonstrate the effects of a proposed solar farm on the setting of heritage assets and any nearby residential areas or viewpoints.

Applicants should follow the criteria for good design set out in Section 4.7 of EN-1 when developing projects and will be expected to direct considerable effort towards minimising the landscape and visual impact of solar PV arrays especially within nationally designated landscapes.

Whilst there is an acknowledged need to ensure solar PV installations are adequately secured, required security measures such as fencing should consider the need to minimise the impact on the landscape and visual impact (see paragraphs 2.10.46 – 2.10.48 above).

‘The applicant should consider as part of the design, layout, construction, and future maintenance plans how to protect and retain, wherever possible, the growth of vegetation on site boundaries, as well as the growth of existing hedges, established vegetation, including mature trees within boundaries. Applicants should also consider opportunities for individual trees within the boundaries to grow on to maturity.

The impact of the proposed development on established trees and hedges should be informed by a tree survey and arboricultural/hedge assessment as appropriate” (Ref 53).

7.4.11 On ‘Glint and glare’ Chapter 10 of NPS EN-3 states:

“Solar panels are specifically designed to absorb, not reflect, irradiation.⁹³ However, solar panels may reflect the sun’s rays at certain angles, causing glint and glare. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. Glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor.

Applicants should map receptors qualitatively to identify potential glint and glare issues and determine if a glint and glare assessment is necessary as part of the application.

When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors, and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the intensity of the reflection.

The extent of reflectivity analysis required to assess potential impacts will depend on the specific project site and design. This may need to account for ‘tracking’ panels if they are proposed as these may cause differential diurnal and/or seasonal impacts.

When a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels” (Ref 57).

NPS EN-5 for Electricity Networks Infrastructure

7.4.12 NPS EN-5 contains additional policy on factors influencing site selection and design; biodiversity and geological conservation; and landscape and visual in relation to electricity networks infrastructure.

7.4.13 On Landscape and Visual Impact, NPS EN-5 states:

“While the government does not believe that the development of overhead lines is incompatible in principle with applicants’ statutory duty under Schedule 9 to the Electricity Act 1989, to have regard to visual and landscape amenity and to reasonably mitigate possible impacts thereon, in practice new overhead lines can give rise to adverse landscape and visual impacts.”

7.4.14 On Undergrounding and subsea cables NPS EN-5 states:

“Although it is the government’s position that overhead lines should be the strong starting presumption for electricity networks developments in general, this presumption is reversed when proposed developments will cross part of a nationally designated landscape (i.e. National Park, The Broads, or Area of Outstanding Natural Beauty).

In these areas, and where harm to the landscape, visual amenity and natural beauty of these areas cannot feasibly be avoided by rerouting overhead lines, the strong starting presumption will be that the applicant should underground the relevant section of the line. However, undergrounding will not be required where it is infeasible in engineering terms, or where the harm that it causes (see section 2.11.4) is not outweighed by its corresponding landscape, visual amenity and natural beauty benefits. Regardless of the option, the scheme through its design, delivery, and operation, should seek to further the

statutory purposes of the designated landscape. These enhancements may go beyond the mitigation measures needed to minimise the adverse effects of the scheme” (Ref 58).

National Planning Policy Framework

7.4.15 The NPPF (Ref 14) was last updated in December 2023. Key policies relating to landscape and visual issues include:

- Paragraph 104 in respect of protecting and enhancing PRoW and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails;
- Paragraph 135 which requires development to be b) visually attractive as a result of good architecture, layout and appropriate and effective landscaping and c);sympathetic to local character and setting;
- Paragraph 136 which recognises the important contribution trees make to the character and quality of the environment, that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible;
- Paragraph 180a in relation to protecting and enhancing valued landscapes, sites of biodiversity or geological value;
- Paragraph 180b) to recognise the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Paragraph 182 which states that great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks: and
- Paragraph 186c in relation to the principle of development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons (for example, infrastructure projects (including nationally significant infrastructure projects), where the public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.

Planning Practice Guidance

- PPG (Ref 15), Natural Environment (Landscape), paragraph 036 Reference ID: 8-036-20190721; and
- Planning Practice Guidance, Renewable and Low Carbon Energy (as amended March 2015) Paragraph 013 ID: 5-013-20150327 – Impacts of Solar Farms.

Local Planning Policy

7.4.16 The five solar Sites and the Land at Melksham Substation are located within the administrative boundary of Wiltshire Council and are bordered to the west by South Gloucestershire Council and to the north by Gloucestershire County Council.

Wiltshire Core Strategy

- 7.4.17 In Wiltshire, the current Local Plan is the Wiltshire Core Strategy (WCS), adopted in 2015. This incorporates Saved policies from former District Local Plans, that were not replaced by the WCS, and will continue to be saved until replaced as part of the Local Plan Review process.
- 7.4.18 The following planning policy documents collectively form the Development Plan in Wiltshire:
- Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**);
 - Wiltshire and Swindon Minerals Core Strategy 2006 to 2026 (adopted June 2009) (**Ref 17**); and
 - Wiltshire and Swindon Waste Core Strategy 2006 to 2026 (adopted July 2009) (**Ref 18**).
 - The made Neighbourhood Plans:
 - Hullavington Neighbourhood Development Plan (made September 2019) (**Ref 19**);
 - Sherston Neighbourhood Plan 2006 to 2026 (made May 2019) (**Ref 20**);
 - Malmesbury Neighbourhood Plan Volumes 1 and 2 (made February 2015) (**Ref 21**); and
 - Melksham Neighbourhood Plan 2020 to 2026 (made July 2021) (**Ref 22**).

Emerging Local Plan Policy

- 7.4.19 Wiltshire Council has published a draft Wiltshire Local Plan, with adoption expected in late 2025. The Wiltshire Local Plan Regulation 19 consultation was undertaken in autumn 2023. The following policies from the Pre-Submission Draft 2020-2038 (Regulation 19), are of relevance:
- Policy 85 Sustainable construction and low carbon energy;
 - Policy 89 Biodiversity net gain;
 - Policy 90 Woodland, hedgerows, and trees;
 - Policy 91 Conserving and enhancing Wiltshire's landscapes; and
 - Policy 93 Green and blue infrastructure.

Cotswold National Landscape Management Plan

- 7.4.20 Although the Scheme is situated outside of the Cotswold National Landscape (previously known as the Cotswolds AONB) it does adjoin the Scheme and an understanding of the policy context of the National Landscape is considered due to the potential for the Scheme to impact on its setting.
- 7.4.21 The Cotswolds National Landscape Board has a statutory duty to prepare a management plan for the Cotswolds National Landscape. The Cotswolds National Landscape Management Plan 2023-2025 was adopted in February 2023.
- 7.4.22 The 'special qualities' of a National Landscape are 'those aspects of the area's natural beauty which make the area distinctive, and which are considered valuable, especially

at a national scale. They are the key attributes on which the priorities for its conservation, enhancement and management are based. They bring out the essence of the National Landscape as an evocative description of the area rather than as a statistical account’.

7.4.23 The special qualities of the Cotswolds National Landscape are described in Section 4 of the Plan and provides a statement of significance. It states:

“The Cotswolds is a rich mosaic of historical, social, economic, cultural, geological, geomorphological and ecological features. The special qualities of the Cotswolds National Landscape are:

- The unifying character of the limestone geology – its visible presence in the landscape and use as a building material;
- The Cotswold escarpment, including views from and to the National Landscape;
- The high wolds – a large open, elevated predominately arable landscape with commons, ‘big’ skies and long-distance views;
- Distinctive dry stone walls;
- River valleys, the majority forming the headwaters of the Thames, with high-quality water;
- Flower-rich grasslands particularly limestone grasslands;
- Ancient broadleaved woodland particularly along the crest of the escarpment;
- Variations in the colour of the stone from one part of the National Landscape to another which add a vital element of local distinctiveness;
- The tranquillity of the area, away from major sources of inappropriate noise, development, visual clutter and pollution;
- Extensive dark sky areas;
- Distinctive settlements, developed in the Cotswold vernacular with high architectural quality and integrity;
- An accessible landscape for quiet recreation for both rural and urban users, with numerous walking and riding routes, including the Cotswold Way National Trail;
- Significant archaeological, prehistoric and historic associations dating back 6,000 years, including Neolithic stone monuments, ancient drove roads, Iron Age forts, Roman villas, ridge and furrow fields, medieval wool churches and country estates and parks; and
- A vibrant heritage of cultural associations, including the Arts and Crafts movement of the 19th and 20th centuries, famous composers and authors and traditional events such as the Cotswolds Olympics, cheese rolling and woolsack races.”

Landscape Planning Designations

7.4.24 Designations within the 5km Study Area are identified below and a description has been included to provide a more rounded assessment of designations within the wider landscape. The exception is the listed buildings. Due to the high number of listed buildings within the 2km Study Area, only those closest have been described within each land parcel (Lime Down A to E and the land at Melksham Substation).

- 7.4.25 All designations have been recorded on **Figure 7.6** and in detailed area **Figure 7.6.1** to **Figure 7.6.8**.

National Landscapes

- 7.4.26 The Cotswolds National Landscape is situated within the 5km Study Area of the Scheme. The North Wessex Downs National Landscape is situated to the east of the Land at Melksham Substation is outside of the 5km Study Area.
- 7.4.27 The Cotswolds National Landscape is situated to the west and north of Lime Down A to E Sites. The National Landscape boundary follows Foxley Road from Malmesbury westwards to the north of Lime Down B at a distance of 245m. To the south of Sherston it follows the northern boundary of Lime Down A for a distance of approximately 1100m, before heading southwards on unnamed lanes towards Alderton where it adjoins the boundary of Lime Down C for a distance of 2200m.

Registered Parks and Gardens

- 7.4.28 There are two Registered Parks and Gardens within the 5km Study Area of the Scheme. These include:
- Grade I Westonbirt, List entry number: 1000457 is situated to the north and is within the 2-5km Study Area and is closest to Lime Down B; and
 - Grade II* Corsham Court, List entry number: 1,000,470 is situated to the north of Land at Melksham Substation.

Crow Access Land

- 7.4.29 Foxley Green is situated to the south of Foxley Road approximately 0.2km from Lime Down B.

Cycleways

- 7.4.30 National Cycle Network Route Section 16 – Corsham to Bradford-on-Avon is situated 3-4 km to the east of the Land at Melksham substation.
- 7.4.31 The Wiltshire Cycleway crosses the Study Area from Malmesbury to Yatton Keynell (Section 14 which is 17km) and from Yatton Keynell to Corsham (Section 15 which is 7.5km). From Malmesbury it follows Foxley Road westwards to the north of Lime Down B. To the south of Sherston it follows the northern boundary of Lime Down A before heading southwards on unnamed lanes towards Alderton where it adjoins the boundary of Lime Down C. The route also follows the boundary of the Cotswold National Landscape.
- 7.4.32 South Gloucestershire cycle route (Route 17) is situated to the south of the M4 from Pucklechurch in the east and joins the Wiltshire Cycleway near Grittleton.

Long Distance Footpaths

- 7.4.33 **The Fosse Way** was a Roman road constructed in Britain during the first and second centuries AD. It spans approximately 370km from Lincoln to Ilchester in Somerset, the road never deviates more than 10km from a straight line. While many sections of the Fosse Way now form parts of modern roads and lanes, some segments are accessible only on foot. The Fosse Way remains a fascinating historical feature, blending ancient heritage with the modern landscape. The Fosse Way runs diagonally through the centre of the Study Area and comprises of either a road, or a Byway open to all traffic (BOAT).

7.4.34 **The Macmillan Way** is a long-distance footpath in England that stretches from Boston, Lincolnshire to Abbotsbury in Dorset. Covering a distance of 470 km, this scenic trail is designed and promoted to raise funds for the Macmillan Cancer Relief charity. It winds through picturesque landscapes, connecting the heart of England to the stunning Jurassic Coast. In the vicinity of the Scheme, it follows the eastern bank of the River Avon to the west of Lime Down A, crossing the river and heading northwards through the village of Sherston. The route is just within the 1km Study Area, to the east of the Scheme.

7.4.35 **The Cotswold Way** is 102 mile (164km) publicised long distance walk through the Cotswolds Area of Outstanding Natural Beauty from Chipping Campden to Bath. It passes through honey-coloured villages and quintessential rolling English countryside with amazing views from the Cotswold escarpment. The route follows the escarpment on the western side of the Cotswolds National Landscape and views are predominantly to the west.

7.4.36 **The White Walls Way** starts from the historic market town of Malmesbury and is a twenty-mile circular trail consisting of 7 stages. Stage 3 is between Norton and Sherston and passes through Lime Down B and the boundaries of Lime Down A. Stages 6 and 7 are to the north of Foxley and Lime Down B.

Conservation Areas

7.4.37 There are 138 Conservation Areas within the 5km Study Area. Those within the 2km landscape Study Areas are shown below and are ordered with reference to the distance from the nearest site.

- Alderton Conservation Area;
- Rodbourne Conservation Area;
- Sherston Conservation Area;
- Lukington Conservation Area;
- Hullavington Airbase Conservation Area;
- Malmesbury Conservation Area;
- Gastard;
- Easton Grey;
- Grittleton;
- Atworth;
- Neston;
- Broughton Gifford; and
- Stanton St Quintin.

Listed Buildings

7.4.38 All listed buildings are shown on **Figure 7.6** and in detailed area **Figures 7.6.1 to Figure 7.6.8**.

Ancient Woodland

7.4.39 There are 70 Ancient Woodlands within the 5km Landscape Study Area. Those adjoining Lime Down A to E include:

- Bradfield Wood – to the north of Lime Down D;
- Bincombe Wood – to the west of Lime Down E;
- North Bincombe Wood – within Lime Down E;
- Seagry Wood - to the east of Lime Down E;
- Surrendell Wood – to the south of Lime Down C; and
- Lord's Wood - to the north of Lime Down C.

7.5 Preliminary Landscape Baseline

7.5.1 The character of the landscape evolves over time as a result of the interaction of human activity and the natural environment (people and place). Attributes used to assess landscape character include:

- Physical – geology, landform, climate, soils, landcover;
- Cultural and Social – land use, settlement, enclosure and history; and
- Aesthetics – colour, texture, pattern, form and perception.

7.5.2 The Scheme covers an area of 901 hectares and is located wholly within the administrative boundary of Wiltshire Council. The Scheme is situated approximately 800m to the north of Hullavington and lies to the south and east of the Cotswold National Landscape. The Scheme is spread over a large land area. Refer to **Figure 7.1**.

7.5.3 The Scheme is located approximately 1.7km north of the M4 motorway, with Junction 17 of the M4 approximately 1.7km to the south of Lime Down E. The Scheme lies approximately 7.7km east of the A46 classified road. The A429 runs north of junction 17 of the M4 between Lime Down E to the east and Lime Down A-D to the west. The A429 passes through the villages of Burton Hill, Corston and Lower Stanton St. Quintin. The B4040 is located approximately 450m to the north-West of Lime Down A.

7.5.4 The surrounding area is primarily rural agricultural land with a number of smaller villages within 1km. These include:

- Sherston is located approximately 400m to the north-west of Lime Down A;
- Luckington is located some 660m to the west of Lime Down C;
- Alderton is located around 140m west of Lime Down C;
- Norton is located centrally between Lime Down B and Lime Down D, situated roughly 300m south of Lime Down B and some 860 northeast of Lime Down D;
- Lower Stanton St. Quintin is located approximately 500m south-west of Lime Down E;
- Startley is located around 700m to the east of Lime Down E;
- Upper Seagry is located roughly 780m south-east of Lime Down E;
- Rodbourne is located approximately 150m to the north-east of Lime Down E; and

- Rodbourne Bottom is located circa 400m to the north east of Lime Down E.

7.5.5 There are a number of individual farm holdings, rural dwellings and small commercial business properties in the vicinity of the Scheme.

7.5.6 The Great Western Railway South Wales Main Line runs east to west to the south of Lime Down D and intersects Lime Down C and Lime Down E.

7.5.7 None of the Sites lie within the Cotswold National Landscape. However, the northern boundary of Lime Down A and the western boundary of Lime Down C, are adjacent to the boundary of the Cotswold National Landscape.

Published Landscape Character Assessments

7.5.8 With reference to **Figure 7.5**, an overview of the published Landscape Character Assessments within the 5km Study Area from National to District is provided below:

National - Natural England National Character Areas

- NCA Profile: 107- Cotswolds (NE 420), to the west of the study Area;
- NCA Profile: 117- Avon Vales (NE 522), in the centre of the Study Area; and
- NCA Profile: 108 - Upper Thames Clay Vales (NE 570), to the east of the Study Area.

County Landscape Character - Wiltshire Landscape Character Assessment (Ref 24)

- RLCT Profile: Type 16: Limestone Lowland; and
- RLCA Profile: 16A: Malmesbury-Corsham Limestone Lowlands.

Landscape Character of the Cotswold National Landscape

- Dip slope Lowland LCT 11 and South and Mid Cotswolds Lowlands LCA 11A; and
- Cornbrash Lowlands LCT14 and West Malmesbury Lowland Farmland LCA 14B.

Local - North Wiltshire Landscape Character Assessment (June 2004) (Ref 24)

- Settled Farmland Valley LCT.
 - Upper Avon Valley LCA 6.
- Lowland Limestone (Forest Marble) Farmland LCT.
 - Sherston Dipslope Lowland LCA 7; and
 - Hullavington Rolling Lowland LCA 8.

7.5.9 The published Landscape Character Types (LCT) and Landscape Character Areas (LCA) within the Study Area from National to District level are described below and are shown on **Figure 7.5**:

National Landscape Character

7.5.10 There are three National Character Areas (NCA) (**Ref 60**) as defined by Natural England within the 5km Study Area. These include:

- NCA Profile: 107- Cotswolds (NE 420), to the west of the study Area;
- NCA Profile: 108 -Upper Thames Clay Vales (NE 570), to the east of the Study Area; and
- NCA Profile: 117- Avon Vales (NE 522), in the centre of the Study Area.

7.5.11 Lime Down A and C and the western part of Lime Down B are within the Cotswolds NCA. Lime Down D and E and the eastern part of Lime Down B are within the Avon Vales NCA. The majority of the Land at Melksham Substation falls within Cotswolds NCA. However, the southwestern field parcels closest to Whitley fall within Avon Vales NCA.

7.5.12 NCA 108 is located within the eastern edge of the 5km Study Area but is not within the 2km Study Area. As such, none of the Sites fall within this Character Area. An overview of the two relevant NCAs is provided below:

NCA 117-The Avon Vales

7.5.13 The Avon Vales form a low-lying, clay-dominated open landscape, with the higher ground of the Salisbury Plain and West Wiltshire Downs NCA to the south, Berkshire and Marlborough Downs NCA to the east, and the Cotswolds NCA to the west. In the south and north there is a gradual merging with the clay of the Blackmore Vale and Vale of Wardour NCA and the Upper Thames Clay Vales NCA respectively. The town of Frome forms a 'gateway' to the eastern tip of the Mendip Hills NCA.

7.5.14 Key characteristics of the Cotswolds include:

- An undulating clay vale with a mix of arable and pasture;
- Small- and medium-sized fields with mostly hedgerow boundaries with few hedgerow trees, varying in shape from irregular piecemeal enclosure to rectilinear planned enclosure;
- Numerous low ridges with local views over towns and villages;
- Wide River Avon corridor, with an ancient pattern of flood meadows and closely associated settlements and more recent development;
- Transport corridors along roads and watercourses, heavily influential on all development in the NCA;
- Large historic parks and mansions, often established from former monastic establishments;
- Attractive stone-built centres to market towns that reflect the former agricultural productivity and wealth of the area; and
- Wide views across whole area from higher areas of surrounding chalk downs.

NCA 107-The Cotswold

7.5.15 The Cotswold scarp, rising to 330 m, provides long, expansive views westwards over the Severn and Avon Vales to the Forest of Dean and Wales, to the Malvern and Shropshire hills and the nearby outliers such as Bredon Hill. From the dip slope, long easterly views

can still be seen across the Vale of the White Horse to the North Wessex Downs and the Chilterns. Unlike the scarp, the eastern side of the NCA merges gently with the neighbouring NCAs. The scarp forms the backdrop to the Severn and Avon Vales and in particular the setting for Cheltenham, Gloucester, Stroud and Bath, a World Heritage Site (WHS).

7.5.16 Key characteristics of the Cotswolds include:

- Defined by its underlying geology: a dramatic limestone scarp rising above adjacent lowlands with steep combs, and outliers illustrating the slow erosion of escarpments. The limestone geology has formed the scarp and dip slope of the landscape, which in turn has influenced drainage, soils, vegetation, land use and settlement;
- Open and expansive scarp and high wold dipping gently to the south-east, dissected by river valleys;
- Arable farming dominates the high wold and dip slope while permanent pasture prevails on the steep slopes of the scarp and river valleys with pockets of internationally important limestone grassland;
- Drystone walls define the pattern of fields of the high wold and dip slope. On the deeper soils and river valleys, hedgerows form the main field boundaries;
- Ancient beech hangers line stretches of the upper slopes of the scarp, while oak/ash woodlands are characteristic of the river valleys. Regular blocks of coniferous and mixed plantations are scattered across the open high wold and dip slope;
- Large areas of common land, important for unimproved calcareous grassland, are characteristic of the scarp and high wold around the Stroud valleys and along the crest of the scarp to Cleeve Hill;
- The majority of the principal rivers flow south-eastwards forming the headwaters of the Thames with the exception of rivers in the west which flow into the River Avon and then the Severn Estuary;
- Rich history from Neolithic barrows, iron-age hill forts and Roman roads and villas to deserted medieval villages, grand country houses, cloth mills and Second World War airfields. The field patterns largely reflect both the medieval open field system, with fossilised areas of ridge and furrow, and later planned enclosures;
- Locally quarried limestone brings a harmony to the built environment of scattered villages and drystone walls, giving the area a strong sense of unity for which the Cotswolds are renowned. Bath stone is also famous and has been used for building since Roman times, both locally in the principal buildings and streets of Bath and more widely, for example for Buckingham Palace in London. Parkland, gardens and historic designed landscapes are features particularly of the dip slope and broad lowland, such as Lawrence Johnston's garden at Hidcote, and Heather Muir's garden at Kiftsgate, parkland at Stanway, Chastleton and Blenheim Palace; and
- Prominent natural and built features in the landscape include the City of Bath WHS, Brailes Hill, Broadway Tower, Cleeve Hill, the Tyndale monument, Freezing Hill, Kelston Round Hill and Blenheim Palace WHS.

- 7.5.17 This is a high-level assessment, which provides general characteristics over a large geographical area. A finer grain of detail is provided by the Wiltshire County landscape character assessment.

County Landscape Character

- 7.5.18 The Scheme is located within the County Landscape Character Area as defined by the Wiltshire Landscape Character Assessment.
- 7.5.19 The Study area is situated within:
- RLCT Profile: Type 16: Limestone Lowland.
 - RLCA Profile: 16A: Malmesbury-Corsham Limestone Lowlands.

Type 16: Limestone Lowland

- 7.5.20 The Limestone Lowland Landscape Type covers a large swathe of northwest Wiltshire. The area extends from Bradford-on-Avon in the south to the Kemble Airfield in the far north. The county border constrains the area to the north and west. The boundary to the east is a less distinct transition, occurring with the change in underlying geology from limestone to clay. There is only one character area within the Limestone Lowland Landscape Type, 16A: Malmesbury-Corsham Limestone Lowlands. The western edge of the Limestone Lowlands Landscape Type forms part of the Cotswolds National Landscape.

LCA 16A: Malmesbury-Corsham Limestone Lowlands

- 7.5.21 Malmesbury-Corsham Limestone Lowlands is the only area within the Limestone Lowlands Landscape Type. It covers a large area of northwest Wiltshire occurring between areas of limestone valleys and higher limestone wold to the west (outside the county) and clay to the east.
- 7.5.22 The area is predominantly rolling mixed pastoral and arable farmland, in a pattern of large fields bounded by hedgerows with hedgerow trees. The hedgerows vary in condition with some gappy and low flailed hedges in evidence for example around Grittleton.
- 7.5.23 In terms of Positive Landscape Features of Significance and Inherent Landscape Sensitivities which are fundamental to the character of the landscape, the assessment includes:
- Peaceful rural landscape;
 - Panoramic views from higher ground;
 - Strong network of hedgerows, hedgerow trees and occasional woodland copses;
 - Dry stone walls;
 - Remaining areas with medieval field pattern;
 - Historic parklands;
 - Remaining areas of ancient woodland, chalk grassland and other areas of ecological diversity;
 - Distinctive traditional limestone villages; and

- Network of rural roads.

Landscape Character of the Cotswolds National Landscape

- 7.5.24 As the Sites adjoins the Cotswolds National Landscape boundary it is also worth considering the Landscape Character Assessment of the National Landscape (**Ref 61**).
- 7.5.25 Fields C1, C2, C8, C9 and C10 (**Figure 3.3.3**) and Field A1 (**Figure 3.3.1**) adjoins the Dip slope Lowland LCT 11 and the South and Mid Cotswolds Lowlands LCA 11A.
- 7.5.26 Fields A11 and A12 (Figure 3.3.1) adjoin Cornbrash Lowlands LCT14 and West Malmesbury Lowland Farmland LCA 14B. Fields B6 and B12 (Figure 3.3.2) are approximately 200m away from the boundary of this LCT and LCA within the National Landscape.
- 7.5.27 These Landscape Types and Character Areas are described below:

Dip slope Lowland LCT 11

- 7.5.28 *“The Dip-Slope Lowland comprises a broad tract of land that forms the transition between the High Wold Dip-Slope to the north-west, and the lower lying and flatter Thames Basin to the south-east. The principal section of this landscape type extends north of Bath near Marshfield and North Wraxall and then sweeps first northwards, and then north-eastwards along the south-eastern perimeter of the AONB as far as Burford. In contrast to this large and almost continuous tract of land, broken only by the valleys of the Churn and Coln, there are a number of much smaller and fragmented sections of this landscape type. These principally occur in the extreme south of the AONB, forming small sections of a larger area of Dip-Slope Lowland that extends to the east of the Limpley Stoke section of the Avon Valley, and beyond the designated area, encompassing land extending up to the settlements of Bradford-on-Avon, Melksham and Corsham” (Ref 62).*

South and Mid Cotswolds Lowlands LCA 11A

- 7.5.29 *“The South Cotswolds Lowlands forms an almost continuous area of Dip-Slope Lowland along the eastern and south-eastern side of the Cotswolds, broken only by the valley of the River Churn at Cirencester. Despite the linear extent of the area, there is a strong in its character principally relating to the landform.*
- 7.5.30 *Generally below the 160m AOD levels, the area has a gently sloping mainly south-easterly grain with more subtle undulations and shallower slope profiles than in the adjacent Dip-Slope Character Type. In the eastern part of the South Cotswolds Lowlands, however, small, often tree lined tributary watercourses and dry valleys systems have dissected the otherwise gentle terrain. There is a consistent pattern of well-managed, productive mixed arable and pastoral landscape across this lower tract of land enclosed by both stone walls and hedgerows with hedgerow trees being a common feature”.*

Cornbrash Lowlands LCT14

- 7.5.31 *“The Cornbrash Lowlands landscape type extends beyond the eastern perimeter of the Cotswolds Dip-Slope Lowland. Within the boundary of the AONB, the areas of land classified as Cornbrash Lowland is very limited, and confined to two separate sections in the vicinity of Biddestone and immediately to the west of Malmesbury. An examination of the wider context of the landscape that adjoins the Cotswolds AONB provides a better understanding of the setting of the designated area and the potential effects arising from landscape change and development within these adjacent landscapes. Therefore, the*

descriptions below apply to areas of Cornbrash Lowland Landscape Character Type within the AONB but consider their wider landscape setting.

- 7.5.32 *The Cornbrash Lowlands form a transition from the South Cotswolds Lowlands area of Dip-Slope Lowland to the flatter and more open landscapes to the south-east, beyond the AONB. The area forms part of the catchment of the upper River Avon and its tributaries, which have dissected the area to form a subdued, gently undulating topography with occasional very low hillocks rising above the general landform. The rich and fertile soils derived from the underlying Cornbrash Formation that extends across the area, support a land use focused on arable cultivation, together with more limited pastoral areas, principally utilising wetter areas of land bordering water courses. The area has a predominantly rural character derived from the expanse of cultivated arable fields, and a dispersed pattern of small villages, hamlets and farms. Intermittent woodlands, mainly geometric in form, and comprising both broadleaved, and mixed coniferous and broadleaf trees, extend across the area. These provide local enclosure and landmarks within an otherwise undistinguished agricultural landscape” (Ref 61).*

West Malmesbury Lowland Farmland LCA 14B

- 7.5.33 *“This character area, to the west of Malmesbury, comprises part of the valley of the upper reaches of the River Avon, into which flow a number of small tributaries. Slope orientation and the general grain of the gently undulating or shallow falls of the landform have been largely determined by this drainage pattern. Thus to the north and south of the river, there is a general fall to the south-east and north-east, respectively. This is a quiet rural area dominated by arable farming although improved permanent pastures are prevalent in low lying areas bordering river channels. Fields are generally medium to large scale enclosed by hedgerows with hedgerow trees. These provide strong vertical elements within an otherwise flat landscape. A number of woodlands extend across the southern side of the River Avon and comprise a mix of small geometric coniferous farm plantations, and broadleaved woodland in the vicinity of the River Avon. A number of these are ancient in origin. Parkland trees and shelter belts contribute significantly to woodland cover in the character area, with three parks located in close proximity to each other bordering the Sherston section of the Avon valley”.*

Local Landscape Character Assessment

- 7.5.34 Local level Landscape Character is defined in the North Wiltshire Landscape Character Assessment (June 2004) (Ref 24) as shown on **Figure 7.5**. The assessment identifies 16 separate LCT within North Wiltshire which are divided into thirty-eight LCA. The Land at Melksham Substation is not located in this or any of the other local level Landscape Character Assessments in Wiltshire.
- 7.5.35 There are 5 LCT and 7 LCA within the 5km Study Area. These include:
- Lowland Clay Lowland LCT.
 - Minety and Malmesbury Rolling Lowland LCA 5.
 - Settled Farmland Valley LCT.
 - Upper Avon Valley LCA 6.
 - Lowland Limestone (Forest Marble) Farmland LCT.
 - Sherston Dipslope Lowland LCA 7.
 - Hullavington Rolling Lowland LCA 8.

- Wooded Lowland Valley LCT.
 - By Brook Valley LCA 9.
- Lowland River Farmland LCT.
 - Avon Valley Lowland LCA 11.

7.5.36 All of the Sites are situated within LCA 8 - Hullavington Rolling Lowland. However, parts of Lime Down A and C adjoin boundaries with LCA 7 -Sherston Dipslope to the west and LCA 6 - Upper Avon Valley to the north. Lime Down B has a visual relationship with LCA 6 - Upper Avon Valley. A description of these Landscape Character Areas is provided below.

LCA 8 - Hullavington Rolling Lowland

7.5.37 This is large area which lies between Malmesbury in the north and Chippenham in the south. It is a rural area of gently rolling hills and shallow valleys, based on a number of geological formations, predominantly Forest Marble limestone, Oxford Clay and Cornbrash. The landform rises from approximately 60mAOD in the east of the area close to the Avon valley, to over 120m with some localised high points of up to 139m AOD.

7.5.38 The main characteristics of the area are defined as follows:

- Rolling or lowland hills between 60-120m AOD, on Forest Marble limestone, Oxford Clay and Cornbrash;
- Patchwork of irregular, medium sized fields, mainly pasture, and larger more recent enclosures used for arable, especially in on the richer soils;
- Continuous hedges with many mature oaks;
- Medium sized woodlands and deciduous copses;
- Fine stone villages with muted colours and dispersed farms;
- Historic Corsham Park;
- Use of undressed limestone to walls, ashlar quoins, lintels and mullions, and stone slates; and
- Detractors of the M4, the edge of Chippenham and Hullavington airfield.

LCA 7 -Sherston Dipslope

7.5.39 This area lies on gently undulating land underlain by the Forest Marble limestone. The land rises from an average of around 90m to 125m AOD towards the Cotswolds in the west, with some localised higher ground. There are a number of shallow river valleys and associated alluvial soils, and some dry valleys especially towards the south. Some of the river valleys have locally steeper and more enclosed valley forms. Towards the south of the area the area becomes segmented, divided by steep valleys.

7.5.40 Main characteristics of the area are defined as follows:

- The main characteristics of the area can be defined as follows:
- Gently undulating, broad low hills and shallow river valleys;
- Locally steeper and more enclosed valley forms;

- Rich heritage of human settlement and archaeological sites;
- Broad panoramas and distant views;
- Continuity of hedgerows and veteran oak trees;
- Dry stone walls as field boundaries and in relation to larger properties and village houses;
- Variation in field sizes and shapes, from small irregular medieval, to larger fields enclosed or amalgamated in the modern period;
- Variation in woodland cover, with many areas devoid of woodland cover, and other areas with small woods or copses;
- Small areas of unimproved calcareous grassland;
- Dispersed settlement and few villages;
- Fine stone buildings, and use of undressed limestone to walls, ashlar quoins, lintels and mullions, and stone slates;
- Long distance footpaths; and
- Localised developments such as Castle Combe circuit and Colerne airfield.

LCA 6 - Upper Avon Valley

- 7.5.41 This small area lies to the west of Malmesbury, focused on the Sherston branch of the River Avon. The area is defined by two roads – the B4040 which runs between Malmesbury and Chipping Sodbury, and an unclassified road to the south. The river runs eastwards on a convoluted course, in a valley which is in places steep sided, and in other locations more open and shallow. The topography lies at between 85-110m AOD, and sits on a complex geology of Oxford Clay, Cornbrash, Forest Marble and alluvial deposits.
- 7.5.42 Small blocks of woodland and copses are a feature of the area, in particular on the steeper slopes and where closely related to the estates at Pinkney Park and Easton Grey. They comprise both deciduous woodland dominated by oak with hazel coppice, some of which is ancient woodland, as well as softwood plantations. Mature oak trees are also a feature of the agricultural land, some in hedgerows and some singly in larger fields. Adjacent to the river and tributaries, there are also characteristic groups of mature willow and lines of alder. In places in winter, the orangey colour of the stems of Crack willow stands out brightly and complements the lighter brown of the ploughed fields. The river and bank side is also an important habitat for wildlife, particularly the brown trout, bullhead and rare and protected native white-clawed crayfish.
- 7.5.43 The main characteristics of the area can be defined as follows:
- Steep and intimate or more open, shallower valley;
 - Complex geology and resulting variation in fertility and agriculture, from riverside meadows to arable;
 - Variation in field sizes and shapes, from small irregular medieval, to larger fields enclosed or amalgamated in the modern period;
 - Continuity of settlement and richness of archaeological sites;

- Important river ecology;
- Small blocks of woodland and copses, both deciduous and coniferous;
- Mature oaks on drier land, and willow and alder by stream-sides;
- Bright winter colours of crack willow and soils on the cornbrash;
- Fine stone buildings, and use of undressed limestone to walls, ashlar quoins, lintels and mullions, and stone slates;
- Dry stone walls as field boundaries; and
- Quiet and unspoilt character, with a strong sense of time depth.

Site Character

7.5.44 The Sites are situated within a series of land parcels across a large geographic area. Lime Down A to E and the Land at Melksham Substation are separated by varying distances and therefore from a landscape and visual perspective each land parcel is considered to have varying interconnecting effects on the local landscape. The areas within the Study Area are shown on **Figure 7.1** and the associated landscape baseline for the individual Sites are shown in **Figure 7.6**, Landscape Receptors are described below.

Lime Down A

- 7.5.45 Lime Down A is located approximately 240m to the southeast of the small village of Sherston which is situated on the eastern edge of the Cotswolds National Landscape. The village is situated approximately 8km west of main town of Malmesbury.
- 7.5.46 The area of Lime Down A is 94ha and the area is entirely in agricultural use. The area consists of parcels of farmland either side of the road running between Sherston and the Fosse Way (Roman Road) to the east and Commonwood Lane, a no through road to the west.
- 7.5.47 The land broadly slopes up from east to west from 105m to 115m elevation. The nearest properties are located at Lordswood Farm, Ladyswood Farm and Southfields. The land is characterised by agricultural fields separated by hedgerows and scattered trees. To the south blocks of woodland surrounding Lordswood House provide separation between Areas A and C.
- 7.5.48 The topography to the north of the area falls steeply towards the River Avon (Sherston Branch) before rising towards the village of Sherston which has a designated Conservation Area.
- 7.5.49 There are four PRoW located on the boundary or within Lime Down A.
- 7.5.50 Landscape designations in and around Lime Down A are shown on **Figure 7.6.1** and are described below:

Scheduled Monuments

- 7.5.51 There are no Scheduled Monuments within Lime Down A. In the wider landscape there is one scheduled monument. This is Earthwork (180m) W of Sherson parish church, List entry number 1004703.

Conservation Area

- 7.5.52 Sherston Conservation Area covers the historic core of the village to the north of Lime Down A.

Listed Buildings

- 7.5.53 There are no listed buildings within Lime Down A. Those in closest proximity include:
- Widley's Farmhouse Grade II to the west List entry number: 1,199,103;
 - New Barn at Widley's Farmhouse, to the west, List entry number: 1,356,005; and
 - 15 Thompson's Hill, List entry number 1,199,883.
- 7.5.54 There is a concentration of listed buildings within Sherston Conservation Area (nearest distance-580m to the north west) and in the village of Norton (nearest distance 1800m to the east).
- 7.5.55 In Sherston the Grade 1 Listed Church of the Holy Cross, List entry number 1,023,223 is a locally prominent feature of the landscape. In Norton the Grade II* Norton Manor: List entry number 1,023,215 is noted. All listed buildings in Norton are visually separated from Lime Down A by woodland.

Ancient Woodlands

- 7.5.56 There are no Ancient Woodlands within Lime Down A. However, Lord's Wood to the south of Lime Down A is Ancient Replanted Woodland.

Ecological Designations

- 7.5.57 There are no Ecological Designations associated with Lime Down A.

Lime Down B

- 7.5.58 Lime Down B consists of parcels of farmland located to the east of Fosse Way; located approximately 300m to the north and west of the village of Norton, and approximately 180m to the south of Foxley to the north, where there are some isolated residential properties. The western part of the Site is relatively flat at a height of approximately 100m, with the eastern part sloping away to the east to a height of approximately 85m.
- 7.5.59 Malmesbury is the nearest major settlement and is located approximately 3.4km to the north-east of Lime Down B. Sherston lies to the west and the hamlet of Easton Grey. is sited approximately 1.3km to the north.
- 7.5.60 Foxley Road runs east to west approximately 180m north of Lime Down B at its nearest point. Honey Lane bounds part of the south-east of Lime Down B. The south-west boundary is bounded by an unnamed road between Norton to the south and Easton Grey to the north. The Fosse Way forms a distinctively straight boundary to the west of the area. Including the Fosse way (SHER 37) there are seven PRow located on Lime Down B.
- 7.5.61 The area of Lime Down B is 114ha and the area is entirely in agricultural use. The land is characterised by agricultural fields separated by hedgerows, with small irregular blocks of woodland in the wider area.
- 7.5.62 Landscape designations in and around Lime Down B are shown on **Figure 7.6.2** and are described below:

Scheduled Monuments

7.5.63 There are no Scheduled Monuments within Lime Down B. In the wider area there is one Scheduled Monument:

- Early medieval settlement, palace, church and Bronze Age ring ditches 340m east of Cowage Farm, List entry number 1,018,389 situated 995m to the east of Lime Down B

Listed Buildings

7.5.64 There are no listed buildings within Lime Down B. Those in closest proximity include two clusters in Foxley Green to the north of the area and in the village of Norton to the south as follows:

- Grade I Parish Church List entry number 1023219;
- Two unidentified monuments in the churchyard, 2 to 3 metres south of the tower, Parish Church List entry number 1199088;
- Grade II Foxley House List entry number 1199062;
- Foxley Manor List entry number 1023221; and
- In Norton the Grade II* Norton Manor: List entry number 1,023,215 is noted. All the listed buildings in Norton are visually separated from Lime Down B by woodland.

Conservation Area

7.5.65 Sherston Conservation is located approximately 2350m to the north west of Lime Down B.

Ancient Woodlands

7.5.66 There are two ancient woodlands within the wider landscape of Lime Down B. These include:

- Cowage Grove to the east of Lime Down B, designated as Ancient and Semi-Natural Woodland; and
- Bradfield Wood to the to the southeast of Lime Down B, designated as Ancient and Semi-Natural Woodland.

Ecological Designations

7.5.67 There are no Ecological Designations associated with Lime Down B.

Lime Down C

7.5.68 Lime Down C consists of parcels of land both to the east and west of Fosse Way, which lies to the east of the village of Alderton. Its church spire within the Conservation area is visible in some views within Lime Down C. The boundary of the Cotswolds National Landscape follows the southwestern parcels of land. To the south the Great Western railway line runs through the area.

7.5.69 The land is relatively flat at a height of approximately 120m elevation though it predominantly slopes down to the east. Gauze Brook, a tributary of the River Avon runs east west through the area giving rise to gently sloping land in its vicinity.

7.5.70 The area of Lime Down C is 318ha and the area is entirely in agricultural use. There are hedgerows and some woodland blocks scattered outside Lime Down C.

7.5.71 Landscape designations in and around Lime Down C are shown on **Figure 7.6.3** and are described below:

Scheduled Monuments

7.5.72 There are no Scheduled Monuments in the vicinity of Lime Down C.

Listed Buildings

7.5.73 There are no listed buildings within Lime Down C. Those in closest proximity include a cluster in the village of Alderton to the east of the area as follows:

- Grade II* Church of St Giles List entry number 1,022,362 and four Grade II monuments with the churchyard;
- Grade II The Old Vicarage List entry number 1,363,841;
- Grade II Hughes Farmhouse List entry number 1,022,367;
- Grade II Fosse Lodge at the southern corner of Lime Down C (Field C10 (**Figure 3.3.3**)), List entry number 1,198,366;
- Grade II Farleaze Farmhouse to the south of Field C25 and to the north of Field C14 (**Figure 3.3.3**), List entry number 1,251,985; and
- Grade II Surrendell Farmhouse List entry number 1,198,980; Barn List entry number 1,023,212 and Shelter Barn List entry number 1,283,578 to the south of Lime Down C (Field C15 (**Figure 3.3.3**)).

Conservation Area

7.5.74 Alderton Conservation Area is located 185m to the west of Lime Down C (Field C6 (**Figure 3.3.3**)). The spire of St Giles Church in Alderton is a visible feature of the landscape.

Ancient Woodlands

7.5.75 There are two ancient woodlands within the wider landscape of Lime Down C. These include:

- Surrendel Wood Ancient and Semi-Natural Woodland; and
- Ancient Replanted Woodland.

Ecological Designations

7.5.76 There are no Ecological Designations associated with Lime Down C.

Lime Down D

7.5.77 Lime Down D lies within the centre of the Study Area immediately north of the Great Western railway line, 640m north of Hullavington and Hullavington Airfield, and south of Bradfield Wood. The area extends along the Gauze Brook towards the village of Corston to the east. The area is situated to the east and west of the Hullavington to Norton Road and the wester parcels adjoins the Great Western railway line. Refer to **Figure 7.1.4**.

- 7.5.78 There are relatively few residential properties in the vicinity with isolated farms such as Bradfield Manor Farm, West Park Farm and Gorsey Leaze Farm.
- 7.5.79 The land slopes from an elevation of 100m to the west to 75m to the east and Gauze Brook, a tributary of the River Avon, runs west-east through the area giving rise to gently sloping land on either side of the Brook.
- 7.5.80 The area of Lime Down D is 212ha and the area is entirely in agricultural use. Large fields are bounded by hedgerows and mature trees with little woodland except Bradfield Wood (Ancient and Semi-Natural Woodland) to the north of the area.
- 7.5.81 Buckley Barracks, a British Army site lies approximately 1km south of Lime Down D. RAF operations on the site ceased in 1992 and the site was transferred to the British Army and is still in active use as an army training base. Part of Hullavington airfield was used for RAF gliding operations until 2016.
- 7.5.82 There are several PRoW located within Lime Down D. These are described fully in the Visual Baseline. In general footpaths dissect fields and Bridleways form treed corridors on the boundaries of fields.
- 7.5.83 Landscape designations in and around Lime Down D are shown on **Figure 7.6.4** and are described below:

Scheduled Monuments

- 7.5.84 There are no Scheduled Monuments within or in the vicinity of Lime Down D.

Conservation Area

- 7.5.85 There are no Conservations Area in the vicinity of Lime Down D.

Listed Buildings

- 7.5.86 There are no listed buildings within Lime Down D. Those in closest proximity is a cluster associated with Bradfield Manor Farmhouse to the east of the area as follows:
- Grade I Bradfield Manor Farmhouse, List entry number 1,198,808;
 - Grade II Barn in Courtyard to the south east of Bradfield Manor Farmhouse, List entry number 1,023,202;
 - Grade II Barn to east of Bradfield Manor Farmhouse, List entry number 1,356,036; and
 - Grade II BARN to the southwest of Bradfield Manor Farmhouse, List entry number 1,198,869.

Ancient Woodlands

- 7.5.87 There are two ancient woodlands within the wider landscape of Lime Down B. These include:
- Bradfield Wood to the northern boundary of Lime Down D, designated as Ancient and Semi-Natural Woodland; and
 - West Park Wood to the north east of Lime Down B, designated as Ancient and Semi-Natural Woodland.

Ecological Designations

7.5.88 There are no Ecological Designations associated with Lime Down D.

Lime Down E

7.5.89 Lime Down E is located 500m to the to the south of Corston and to the south of the village of Rodbourne which is located on higher ground. A white, water tower on the hill forms a prominent feature of the landscape which is visible in many views from the wider landscape. The area extends southwards beyond the Great Western railway line and forms an intrusive feature of the landscape as it runs on an embankment in this location. The area extends towards Stanton St Quintin to the south and is partially enclosed by Seagry Wood to the east and Bincombe Wood to the west. Refer to **Figure 7.1.5**.

7.5.90 There are no roads within the area itself although it is criss-crossed by bridleways and footpaths. A number of farms located in the vicinity such as Hangar Farm (approx. 160m south west of Field E18 (**Figure 3.3.5**)), Haresfield Farm (approx. 180m south east of Field E27 and Avil's Farm (approximately 270m south of Field E32 (**Figure 3.3.5**)). Buckley Barracks is located approximately 780m west of Lime Down E.

7.5.91 Gabriel's Well, another tributary to the River Avon, is a stream which runs west-east through the Area and forms the base of a distinct valley. Rodbourne sits at the top of the valley slope and Rodbourne Bottom, as its name suggests, sits at the bottom of the valley. The topography in Area E is more complex than areas A-D which gives rise to smaller scale field pattern and a more intimate landscape character.

7.5.92 The area of Lime Down E is 145ha and the area is also entirely in agricultural use, However, the more intimate pattern of sloping fields enclosed by hedgerows and trees provides quite a different character to the landscape.

7.5.93 Lime Down E contains a significant number of PRoW comprising four bridleways and nine footpaths which are described in detail in the Visual Baseline.

7.5.94 Landscape designations in and around Lime Down E are shown on **Figure 7.6.5** and are described below:

Scheduled Monuments

7.5.95 There are no Scheduled Monuments in the vicinity of Lime Down D.

Conservation Area

7.5.96 There are two Conservations Areas associated with Lime Down E. These include:

- Rodbourne Conservation Area is situated approximately 170m (at the nearest measurement) to the north east of Lime Down E; and
- Hullavington Airbase Conservation Area is situated approximately 750 m (at the nearest distance) to the south west of Lime Down E.

Listed Buildings

7.5.97 There are no listed buildings within Lime Down E. Those in closest proximity is a cluster within the Rodbourne Conservation to the northeast of the area as follows:

- Grade II* Church of Holy Rood, List entry number 1,363,874;
- Grade II Dower Tower, List entry number 1,022,279;
- Grade II Outbuildings to the north east of the Dower House, List entry number 1,284,642;

- Grade II The Village Cross, List entry number 1,182,242;
- Grade II The Old School, List entry number 1,022,280 and
- Grade II Trinity Farmhouse, List entry number 1,284,644.

7.5.98 In the wider landscape there are a number of isolated listed farm houses. These include:

- Grade II Barn at Kingway Farm, List entry number 1,022,268 to the west of the area;
- Grade II Milestone at NGR ST 9179 8312, List entry number 1,284,671 to the west of the area;
- Grade II Avil's Farmhouse, List entry number 1,022,396 to the south of the area; and
- Grade II Barn at Avil's Farmhouse, List entry number 1,022,397 to the south of the area.

7.5.99 There is also a cluster of Grade 11 listed buildings within Hullavington Airbase Conservation Area to the south west of Lime Down E.

Ancient Woodlands

7.5.100 There are three ancient woodlands which adjoin boundaries of Lime Down E. These include:

- Bincombe Wood on the north east boundary of the area is classified as Ancient and Semi-Natural Woodland;
- North Bincombe Wood adjacent to Fields E6, E3 and E1 (**Figure 3.3.5**) is classified as Ancient and Semi-Natural Woodland; and
- Part of Seagry Wood to the east of the area is classified as Ancient Replanted Woodland.

Ecological Designations

7.5.101 Harries Ground, Rodbourne SSSI is situated to the north of Field E33 (**Figure 3.3.5**).

Land at Melksham Substation

7.5.102 The Land at Melksham Substation is located within the Parish of Melksham within the unitary authority of Wiltshire district. The Site is located approximately 3.2km northwest of the town of Melksham and 7.3km south west of the town of Chippenham, the small village of Whitley lies approximately 250m to the south. Refer to **Figure 7.1**.

7.5.103 The area of Land at Melksham Substation is 18ha. The Site comprises four arable fields on rising land approximately 250m to the north of the small settlement of Whitley. The landform rises from approximately 62m AOD along the southern edge of the Site, to approximately 80m AOD along the northern edge. The northern edge of the Site is marked by a historic Roman Road that due to the change in elevation, forms a prominent step feature between the Site and the fields to the north. In places the step is reinforced with sections of dry-stone walling or exposed limestone. Mature trees climb out of the step and form notable features along this boundary. The Roman Road forms the northern Parish Boundary and follows the course of Wansdyke, a large linear earthwork.

7.5.104 Hedgerows within the Site are concentrated towards the boundaries of the individual field parcels and provide separation between field parcels but have frequent and large gaps within them. The section of hedgerow along the northern boundary of the Site runs along the top of the 'step'. It is generally well established and mature and provides a linear link from Buttonhole Woods to B3353 Goodes Hill.

7.5.105 Landscape designations in and around the Land at Melksham Substation are shown on **Figure 7.6.6** and are described below:

Scheduled Monuments

7.5.106 There are no Scheduled Monuments within the boundary of the Land at Melksham Substation or within the 2km Study Area. The locations of the scheduled monuments within the 5km Study Area are focused within the settlement of Hawthorn. The closest scheduled monument to the Land at Melksham Substation is:

- MoD Corsham Tunnel Quarry, List Entry Number: 1409857, located approximately 3.6 km northwest of the Site. Refer to **Figure 7.6.6**.

Listed Buildings

7.5.107 There are no Listed Buildings within the boundary of the Melksham Substation Site. The locations of the Listed Buildings within the 2km Study Area are focused within the small settlements of Whitley, Atworth and The Ridge. The closest listed building to the Site are:

- Grade II Listed barn to the rear of Whitley House, List Entry Number: 1285548, located approximately 200m southeast of the Site;
- Grade II listed building Northey's Farm, List Entry Number: 1285547, located approximately 200m south of the Site; and
- Grade II listed building Pear Tree Inn, List Entry Number: 1364121, located approximately 290m south of the western boundary of the Site.

Conservation Area

7.5.108 There are no Conservation Areas within the boundary of the Melksham Substation Site. The closest conservation area is located within the Settlement of Gastard approximately 1.1km to the north of the Site following Goodes Hill Road.

Ancient Woodlands

7.5.109 There are no ancient woodlands directly associated with the Melksham Substation Site. There is an area of Ancient and Semi - Natural Woodland within the wider landscape of the Land at Melksham Substation:

- Daniels Wood, designated as Ancient and Semi-Natural Woodland, located approximately 1km east of the Site.

Registered Parks and Gardens

There are no Registered Parks and Gardens associated with the of the Melksham Substation Site.

Ecological Designations

7.5.110 There are no ecological designations associated with the Melksham Substation Site.

Cable Route Search Corridor

- 7.5.111 The Cable Route Search Corridor is described in **Section 3.4** of this report.
- 7.5.112 Landscape designations in and around the Cable Route Search Corridor are shown on **Figure 7.6.8** and **Figure 7.6.9** and are summarised below:

Scheduled Monuments

- 7.5.113 There are a small number of Scheduled Monuments located within and in proximity to the Cable Route Search Corridor:
- Lanhill Barrow: a long barrow 300m south of Sparrow Farm, List entry number 1,010,908 located approximately 60m west of the Cable Route Search Corridor to the south of the A420;
 - Bowl barrow 340m east of Holly Bush Farm, List entry number 1,018,418 situated within the Cable Route Search Corridor;
 - Roman site at Manor Farm, List Entry Number 1,425,267, located approximately 110m north of the Cable Route Search Corridor and the A350;
 - Medieval settlement of Sheldon, List entry number 1,018,428, located immediately north of the Cable Route Search Corridor in the Parish of Chippenham Without;
 - Pillow mound 280m south west of Surrendell Farm, List entry number 1,018,610 situated within the Cable Route Search Corridor;
 - Dovecote at The Manor, List entry number 1,018,612, located approximately 204m north of the Cable Route Search Corridor within the village of Stanton Saint Quintin;
 - Dovecote at Biddestone Manor, List entry number 1,018,614, located on the eastern edge of Biddestone approximately 249.5m west of the Cable Route Search Corridor.

Conservation Areas

- 7.5.114 The Cable Route Search Corridor has been identified to avoid passing directly through any Conservation Areas. It passes immediately alongside and in proximity to the following Conservation Areas:
- Hullavington Airbase;
 - Grittleton;
 - Stanton St Quintin;
 - Leigh Delamere;
 - Sevington;
 - Kington St Michael;
 - Yatton Keynell;
 - Allington;
 - Biddestone;
 - Corsham;

- Easton;
- Lacock;
- Gastard.

Listed Buildings

7.5.115 Due to the length of the Cable Route Search Corridor, it passes by numerous Listed Buildings. The Cable Route Search Area will be refined during the design process which will be presented in the PEIR and refined further for the ES. Notable (Grade 1) Listed Buildings include:

- Bradfield Manor Farmhouse, List entry number 1,198,808;
- Church of St Mary (Hullavington), List entry number 1,356,040;
- Church of St Margaret of Antioch (Yatton Keynell), List entry number 1,356,103;
- Sheldon Manor, List entry number 1,022,907;
- Church of St Nicholas (Biddestone), List entry number 1,198,839;
- Tithe Barn at Manor Farm, List entry number 1,198,376;
- Church of St Cyriac (Lacock), List entry number 1,198,216;
- Congregational Chapel (Monks Lane), List entry number 1,363,968;
- Beanacre Old Manor (Beanacre), List entry number 1,021,755.

Ancient Woodlands

7.5.116 There are no Ancient Woodlands within the Cable Route Search Corridor. Due to the length of the Cable Route Search Area, it passes by numerous Ancient Woodlands, all of which are outside of the Cable Route Search Corridor itself.

Ecological Designations

7.5.117 There are no Ecological Designations associated with the Cable Route Search Corridor. Due to the length of the Cable Route Search Area, it passes by the following Ecological Designations, both of which are outside of the Cable Route Search Corridor itself:

- SSSI - Harries Ground, Rodbourne located approximately 250m south of the Cable Route Search Corridor at Lime Down E;
- SSSI - Stanton St. Quintin Quarry and Motorway Cutting, located approximately 50m east of the Cable Route Search Corridor.

7.6 Preliminary Visual Baseline

7.6.1 The following section examines the visibility of the site from the surrounding area. A site visit was undertaken over a number of days, between 31st January and 14th February 2024. The weather was variable with some clear days with good visibility and some cloudy and misty days with poor visibility. Trees were predominantly not in leaf representing a worst-case scenario in terms of the screening afforded by vegetation.

7.6.2 General visual amenity is experienced by people and notably the views that people have and their visual amenity, can be defined as the overall pleasantness or attractiveness of

a place and the views they enjoy of their surroundings. Amenity is something considered to benefit a location, contribute to its enjoyment, and thereby increase its value.

- 7.6.3 The visual amenity experienced by people (visual receptors) in the locality of the Site differs according to many factors. Visual receptors of higher sensitivity with limited susceptibility to change include residents at home (private viewpoints), people engaged in outdoor recreation (including use of PRow), visitors to heritage assets and other attractions, travellers on recognised scenic routes (public viewpoints) and people at their workplace where views are an important contributor to the setting and quality of their working life.

Visual Character

- 7.6.4 The Scheme is visible from the network of minor roads, byways, bridleways and footpaths within the Study Area. Most of the Study Area is relatively flat although there are gently sloping areas predominantly associated with water courses.
- 7.6.5 The landscape consists of an irregular pattern of fields of varying scales which are enclosed by predominantly low chipped hedgerows with occasional mature trees. Blocks of woodland provide further enclosure in some places. Views from roads, byways and bridleways are generally short distance from the boundaries of the individual field parcels where hedgerows form strong boundaries along these routes. Footpaths tend to follow internal field margins or cross individual fields where views are more open. Field boundary hedgerows tend to limit views from these footpaths where the land is flat, whilst longer distance views are afforded where field are sloping.
- 7.6.6 The visual character for Lime Down A to E, the Land at Melksham Substation, and Cable Route Seach Corridor are described below.

Lime Down A

Visual Amenity

- 7.6.7 Lime Down A is located to the south of Sherston which sits on high ground to the north of the River Avon Sherston Branch. The river here is in a steep sided valley which then rises to approximately 124m AOD to the west of Field A1 (**Figure 3.3.1**). The Holy Cross church tower in Sherston is visible from the higher ground at the north west corner of Field A1 (**Figure 3.3.1**). The topography then falls southwards towards a small stream near the boundary of Lime Down C.
- 7.6.8 The majority of Lime Down A is situated between Commonwood Lane to the west and Sherston Road to the East and is dissected north south by Bridleway (BW) SHER 16 between Sherston and Lordswood Farm. Footpath (FP SHER 17 is situated to the south of the area. Fields A11 and A12 (**Figure 3.3.1**) are situated to the east of Sherston Road and are bounded by Foxley Road to the north and FP SHER 14 to the west. These two field parcels slope to the north and north east.
- 7.6.9 There are varying views from all of the surrounding lanes, bridleway and footpaths of Lime Down A. From FP SHER 17 in the south of the area, both Lime Down A and C are visible.
- 7.6.10 PRow and representative viewpoints of Lime Down A are shown on **Figure 7.7.1**.

Visual relationship to National Landscape

- 7.6.11 The northern boundary of three field parcels (Fields A1, A11 and A12 (**Figure 3.3.1**)) adjoin the boundary of the Cotswold National Landscape to the south of Sherston. The

River Avon forms a distinct west-east valley with steep sided slopes between the village and the Site. The lanes of Bustlers Hill and Thompsons Hill climb up the valley side from the village to meet Foxley Road beyond its crest. The topography of the transitional dip slope limits views towards the Site from Sherston and the wider National Landscape. However, where the valley sides are less steep to the east there are cross valley views to Pinkney Wood and Old Wood and Lime Down A beyond, in views from the urban edge of Sherston.

Public Rights of Way

- 7.6.12 There are four PRow located on or in close proximity to Lime Down A:
- Bridleway SHER16 runs north to south intersecting Lime Down A from Sherston to the Fosse Way;
 - Bridleway SHER14 runs north to south, on the eastern boundary of the area;
 - Footpath SHER15 runs east to west running through the centre of the area; and
 - Footpath SHER17 runs east to west and is located approximately 55m south of Lime Down A at its closest point. The Footpath is also situated to the north of Lime Down C.
- 7.6.13 In the wider landscape Footpath SHER 13 and 11 run broadly east -west between Foxley Road and the Fosse Way to the northeast of the area and the Fosse Way- BOAT 37 is to the southeast of the area. BOAT SHER 35 extends south from Commonwood Lane to the south west of the Site.
- 7.6.14 Footpath SHER 26 is situated on higher ground to the north of Lime Down A and follows the urban edge of Sherston.

Highways

- 7.6.15 There are a number of small lanes which surround and pass through Lime Down A. These include:
- Commonwood Lane to the west of the Site – a no through road which connects to BOAT 35;
 - Sherston Road runs north-south through the centre of the area;
 - Foxley Road adjoins the northern boundary of the area; and
 - An unnamed lane provides a link between Sherston Road and Foxley Road through the area.

Cycleways

- 7.6.16 The Wiltshire Cycleway follows Foxley Road along the northern boundary of Lime Down A before heading southwards on unnamed lanes towards Alderton. The route also follows the boundary of the Cotswold National Landscape.

Settlements

- 7.6.17 Lime Down A is situated to the south of Sherston and to the north west of Norton.
- 7.6.18 Sherston is a village and civil parish about 8 km west of Malmesbury. The parish is bounded to the north by the county boundary with Gloucestershire, and to the southeast by the Fosse Way. The parish includes the hamlets of Easton Town, immediately east

of Sherston; Pinkney, further east along the Malmesbury road; The infant River Avon passes Sherston, Easton Town and Pinkney, on its way to Malmesbury. The parish lies within the Cotswolds National Landscape.

- 7.6.19 Norton is a small settlement about 5.6 km south-west of Malmesbury. The parish includes the hamlets of Foxley and Bremilham (also known as Cowage). The Sherston branch of the Bristol River Avon forms the north boundary of the parish.

Residential Properties

- 7.6.20 Properties in close proximity to Lime Down A include:

- The Stables on Commonwood Lane to the east of Lime Down A;
- Lordswood House accessed from Commonwood Lane to the south of Lime Down A; and
- Lordswood Farm to the southeast of Lime Down A.

Lime Down B

Visual Amenity

- 7.6.21 Lime Down B is located between Foxley to the north and Norton to the south and extends to the east to meet the Fosse Way. To the east it adjoins Kennelfield Cottage Lane and to the south by Honey Lane. The topography is relatively flat but is dissected by a series of streams/ditches. Which generally flow from the southwest to the north east towards the River Avon. A small stream/ditch runs north to the south and east of Baker's Gorse to the west of Foxley Manor. Another stream runs west to east through Norton to the south of Honey Lane. This gives rise to some gently sloping topography within the area.
- 7.6.22 There are views of Lime Down B from the minor roads within the Area, The Fosse Way (BOAT 37) and from FP NORT 1 between Norton and Foxley. Views from a number of footpaths to the west of the Fosse Way are limited as the topography slopes north westwards away from the Site. The Fosse Way is a long-distance path which is often lined with vegetation. Due to the topography, there are some longer distance views across the landscape of Lime Down B.
- 7.6.23 Rights of Way and representative viewpoints of Lime Down B are shown on **Figure 7.7.2**.

Visual relationship to AONB

- 7.6.24 The boundary of the AONB follows Foxley Road to the north of Lime Down B. A combination of gently undulating topography associated with intervening watercourses and strong hedgerows limits intervisibility between Lime Down B and the Cotswold National Landscape.

PRoW

- 7.6.25 There are four PRoW located within or on the boundary of Lime Down B comprising the Fosse Way BOAT, one bridleway, and five footpaths as follows:
- BOAT SHER 37 is the Fosse way which forms the northwest boundary of Lime Down B;
 - Bridleway NORT 11 adjoins the eastern corner of Lime Down and heads northeast to Cowage;

- Footpath NORT 1 runs north -south through the centre of Lime Down B from Foxley in the north to Norton in the south; and
- Footpath NORT 5 runs east -west from Norton to join the Fosse Way to the west.

7.6.26 In the wider landscape to the west of Lime Down B, Footpaths SHER 11, SHER 13, SHER 15 run westwards away from the Site and the Fosse Way.

Highways

7.6.27 There are a number of small lanes which surround and pass through Lime Down B. These include:

- Foxley Road situated to the north of Lime Down B. It is generally one field away from the boundary;
- Kennelfield Cottage Lane from Norton to Easton Grey cutting diagonally through Lime Down B;
- Honey Lane from Norton to Foxley Green on the south easterly boundary of Lime Down B; and
- Sherston Road, between Sherston and Norton adjoining the southern boundary of Lime Down B (Field B1 (**Figure 3.3.2**)).

Cycleways

7.6.28 The Wiltshire Cycleway follows Foxley Road along the northern boundary of Lime Down A before heading southwards on unnamed lanes towards Alderton. The route also follows the boundary of the Cotswold AONB.

Settlements

7.6.29 The small village of Foxley lies to the north of the Site with dispersed stone properties including the listed parish church, Foxley House and Foxley Manor Farm.

7.6.30 Norton is a small village about 5.6 km south-west of Malmesbury. The parish includes the hamlets of Foxley and Bremilham (also known as Cowage). The Sherston branch of the Bristol River Avon forms the north boundary of the parish. Norton is situated to the south.

Residential Properties

7.6.31 Properties in close proximity to Lime Down B include:

- Foxley Manor Farm;
- Garden Cottage;
- 1 and 2 Lime Tree Cottages, Foxley Road;
- Kennel Field Cottage, Foxley Road;
- Honey Lane Cottage, Honey Lane;
- Vine tree Cottage, Honey Lane;
- Fosse Farm;
- Lordswood Cottage; and

- Ladyswood Farm.

Lime Down C

Visual Amenity

- 7.6.32 Visual amenity within Lime Down C is varied. The eastern part of the Site is relatively enclosed by irregular blocks of woodland on either side of the Fosse Way which diagonally crosses the area and connects to a number of footpaths which heads west to join Commonwood Lane and its extending byway. To the east of Common Wood Lane and byway the landscape is more open. The topography here consists of gently rising slopes to either side of an indistinct valley. Fields C1 to C3 (**Figure 3.3.3**) are situated on a north facing slope and are visible from the north. The spire of St Giles Church in Alderton is also a visible feature of the landscape from here.
- 7.6.33 Fields C6 to C10 (**Figure 3.3.3**) are located on flatter higher ground with the railway line cutting through the area. It is tunnelled under the unnamed road to Alderton and has limited visibility in this location. There are no PRoW in this part of Lime Down C and views are limited to the adjoining unnamed road which is also the AONB boundary. Strong hedgerows predominantly screen views although there are occasional views through hedgerow gaps and field entrances.
- 7.6.34 Rights of Way and representative viewpoints of Lime Down C are shown on **Figure 7.7.3**.

Visual relationship to Cotswold National Landscape

- 7.6.35 The National Landscape boundary adjoins the western edge of Lime Down C at Fields C1, C6, C8 and C10 (**Figure 3.3.3**) along an unnamed road to the east of Alderton. Field C6 (**Figure 3.3.3**) is located on relatively flat land on a low ridge sloping down to the north and west. Fields C1, C2 and C3 (**Figure 3.3.3**) slope north are clearly visible from FP LUCK 35 which runs parallel to these parcels to the north. The topography also slopes down towards LUCK 41 to the west which follows a stream/ditch to Alderton. The rising landform of the transitional dip slope and strong hedgerows to the intervening field boundaries limit views from these nearby footpaths within the AONB.

Public Rights of Way

- 7.6.36 Several PRoW are located on, adjacent to or are near Lime Down C. These include:
- Byway/BOAT (SHER 35) runs north to south as a continuation of Commonwood Lane, intersecting Lime Down C between Fields C19 and C21. The byway continues into the parish of Luckington and therefore is referenced as LUCK 57, where it follows adjacent to the west and south of Field C12 (**Figure 3.3.3**);
 - Footpath SHER 17 is situated approximately 80m north of Fields C20 and C22 and traverses Lord's Wood House (**Figure 3.3.3**);
 - Footpath SHER 18/Luck 35 is located within Fields C23 and C20/21 and it extends westwards as LUCK 35 to the north of Fields C1 and C2 (**Figure 3.3.3**);
 - Footpath HULL 20 is located south of Lime Down C and is approximately 340m south west of Field C10 (**Figure 3.3.3**);
 - Footpath HULL 25, runs along the southern boundary of Fields C25 and C26 (**Figure 3.3.3**);

- Footpath HULL 26, intersects Field C24 running north to south and then follows the western boundary of Field C25 (**Figure 3.3.3**); and
- LUCK 41, LUCK 42, and LUCK 43 form a triangle to the west of the Site which connect to the village of Alderton.

7.6.37 In the wider landscape LUCK45 is situated to the southwest of the area. The closest point of proximity between Lime Down C and LUCK 45 is approximately 60m south of Field C8 (**Figure 3.3.3**).

Highways

7.6.38 There are a number of small lanes which surround and pass through Lime Down C. These include:

- The Fosse Way is the primary route diagonally crossing through Lime Down;
- Unnamed Lane follows the western boundary of Lime Down C and there are two further lanes running west connecting to Alderton;
- Commonwood Lane to the north of the Site is a no through road which connects to BOAT 35 as described above;
- Pig Lane adjoins the eastern edge of the Site (Field C24) near Lordswood Farm and heads south crossing the great western railway line between Fields C13 and C18 (**Figure 3.3.3**); and
- Hill Hayers Lane, off Pig Lane runs south across the great western railway line near Field C18 (**Figure 3.3.3**).

Railway

7.6.39 The Great Western Railway South Wales Main Line runs east to west through Lime Down C.

Cycleway

7.6.40 The Fosse Way Roman Road forms part of a publicised and waymarked cycleway through the county which intersects Lime Down C.

7.6.41 The Wiltshire Cycleway follows Foxley Road to the north of Lime Down A before heading southwards on unnamed lanes towards Alderton. The route also follows the boundary of the Cotswold AONB. The route adjoins Fields C1, C6, C8, C9 and C10 (**Figure 3.3.3**).

Settlements

7.6.42 Lime Down C is fairly remote from settlements. In closest proximity are the villages of:

- Alderton approximately 190m to the west; and
- Sherston approximately 2 km to the north.

Residential Properties

7.6.43 Properties in close proximity to Lime Down C include:

- Racecourse Barn on PRoW LUCK 35;
- Commonwood Farm to the north of Field C3 (**Figure 3.3.3**);

- Lords Wood House to the north of Field C20 (**Figure 3.3.3**);
- Lords Wood Farm to the north east of the area near Field C22 (and Field A9) (**Figure 3.3.1** and **Figure 3.3.3**);
- 1-4 Farleaze Cottages on Pig Lane to the east of the area near Field C25 (**Figure 3.3.3**); and
- Farleaze Farm to the south east of the Site near Fields C26 and C25 (**Figure 3.3.3**).

Lime Down D

Visual Amenity

- 7.6.44 The Gauze Brook runs through Lime Down D from the south west to the north east giving rise to gently sloping valley sides. The land rises towards Bradfield Wood to the north where another stream/ditch runs between Fields D9 and D10 (**Figure 3.3.4**). To the south the valley slope is more distinct where Field D18 adjoins a low ridgeline which visually separates Lime Down D from the landscape to the south east associated with Corston. From this ridgeline there are views to Lime Down D and in the opposite direction there are cross valley long distance views to Lime Down E (Fields E1 to E5 (**Figure 3.3.5**)). The water tower on high ground at Rodbourne is visible in this view and in some views from footpaths within the Site.
- 7.6.45 Lime Down D is fairly remote from roads and is criss-crossed by a network of footpaths and bridleways. Bradfield Cottages Lane crosses the area to the west between Fields D4, D5 and D6, D7 (**Figure 3.3.4**). The lane is lined with clipped hedgerows which restrict views. The area to the west of this lane is relatively flat with a gentle fall to the south west towards the railway line.
- 7.6.46 Rights of Way and representative viewpoints of Lime Down D are shown on **Figure 7.7.4**.

Visual relationship to AONB

- 7.6.47 Lime Down D has no visual relationship with the Cotswold National Landscape.

Public Rights of Way

- 7.6.48 There are several PRoW located within Lime Down D comprising one bridleway and eight footpaths. These include:
- Bridleway HULL 7/MALW 51 runs east to west intersecting Field D18 and following along the southern boundary of Field D14 (**Figure 3.3.4**) towards the village of Corston;
 - Footpath HULL 1/NORT 10 runs from north to south dissecting Lime Down D entering through the northern boundary of Field D4 and continuing along the field boundary between Field D3 and D5 (**Figure 3.3.4**);
 - Footpath HULL 2 runs adjacent to the northern boundary of Fields D6 and D9, intersecting Field D10 heading northwards along the western side of Bradfield Wood (**Figure 3.3.4**);
 - Footpath HULL 4 runs north to south spanning from Bradfield Wood to Bradfield Manor Farm;

- Footpath HULL5, runs north to south along the eastern edge of Bradfield Wood through Field D11 to Bradfield Manor Farm (**Figure 3.3.4**);
- Footpath HULL6 runs east to west along the Gauze Brook through Fields D13, D16 and D17. A Branch south adjoins Bridleway HULL 7 (**Figure 3.3.4**);
- Footpath HULL 7/MALW 51 follows the boundary of Field D15 towards Coston (**Figure 3.3.4**);
- Footpath HULL8, follows a ridgeline to the southeast of Lime Down D adjoining the southern boundary of Field D18 where it adjoins Footpath HULL 7 (**Figure 3.3.4**); and
- Footpath MALW 8 continues along the ridgeline from HULL 8 and runs parallel to HULL 7/MALW 51 towards Coston.

7.6.49 In the wider landscape there are a number of PRow which extend away from Lime Down D. These include:

- Footpath MALW49 to the north east of the area runs from the Gauze Brook and connects to HULL 6; and
- MALW 50 is located north of Field D12 running north to south connecting Field D12 to a byway (MALW46) approximately 640m north of Field C12 (**Figure 3.3.3** and **Figure 3.3.4**).

Highways

7.6.50 There are limited roads within Lime Down D. The only road which runs through the area is:

- Bradfield Cottages Lane from Hullavington in the south to the village of Norton to the north east.

Railway

7.6.51 The Great Western Railway South Wales Main Line runs east west, to the south of Lime Down D.

Settlements

7.6.52 There are two settlements associated with Lime Down D. These include:

- The village of Norton to the north west; and
- The village of Hullavington to the south.

Residential Properties

7.6.53 There are no residential properties within the core area of Lime Down D. In the wider landscape residential properties include:

- West Park Farm to the north east of the area;
- Bradfield Manor Farm to the south west;
- Bradfield Bungalow to the south west;
- 1 and 2 Bradfield Cottages to the south west; and

- Station Masters House and 1 and 2 Station cottages which are located along the railway line to the south of Lime Down D.

Lime Down E

Visual Amenity

- 7.6.54 Lime Down E is located on more complex topography than the other Sites. Fields E1 to E4 (**Figure 3.3.5**) are located on rising land which forms a north west facing slope with cross valley views overlooking the village of Corston. The south eastern boundary of these parcels forms a ridgeline and the rest of Lime Down E is not visually associated with Corston. The village of Rodbourne is located on this ridge and a water tower in this elevated location provides a landmark feature which is visible in many views from the wider landscape.
- 7.6.55 Fields E6 to E18 (**Figure 3.3.5**) are located on a south eastern slope below Bincombe Wood. The railway line cuts through the rising topography to the west of the railway bridge (to the north of Field E9 (**Figure 3.3.5**)) and sits on a high embankment on the edge of the valley near Rodbourne Bottom to the east.
- 7.6.56 The topography rises again to the south of Rodbourne Bottom to large arable fields on high ground within Fields E33 and E34 (**Figure 3.3.5**). The railway embankment is visually prominent in views from a footpath which crosses the valley side to the south of the railway line. The valley sweeps southwards towards Lower Stanton through Fields E19 to E27 (**Figure 3.3.5**). Fields E28 to E31 (**Figure 3.3.5**) are situated on rising land which forms a west facing slope.
- 7.6.57 The topography and small, scale field pattern provides an intimate visual character which is experienced from the network of footpaths and bridleways within Lime Down E. Blocks of woodland within the landscape provide a sense of enclosure to the area and here are limited roads which gives rise to a strong sense of tranquillity especially away from the railway line.
- 7.6.58 Rights of Way and representative viewpoints of Lime Down E are shown on **Figure 7.7.5**.

Visual relationship to Cotswold National Landscape

- 7.6.59 Lime Down E has no visual relationship with the Cotswold National Landscape.

Public Rights of Way

- 7.6.60 Lime Down E has 10 PRoW comprising four bridleways and six footpaths which share a boundary with a land parcel within Lime Down E. These include:
- Bridleway MALW 54, connects the A429 and Bincombe Wood running along a north west to south east axis, intersecting Field E1 and following between Fields E1 and E2 (**Figure 3.3.5**);
 - Bridleway MALW 59, travels along a south west to north east axis following the southern boundary of Fields E18, E17, E15, E14, E13 and E12 (**Figure 3.3.5**);
 - Bridleway MALW61 runs through the centre of Lime Down E along the western boundaries of Fields E23, E24, E25 and E27 (**Figure 3.3.5**);
 - Bridleway GSOM9/SEAG23 runs north to south through Seagry Wood and comes into close proximity with Field E34 (**Figure 3.3.5**), located approximately 35m at its closest point;

- Footpath MALW 55 runs along a south west to north east axis approximately 70m north east of Fields E2, E3, E4 and E5 (**Figure 3.3.5**);
- Footpath MALW 60, is on an east to west axis following the railway line, the footpath intersects Field E1 (**Figure 3.3.5**) through the western boundary before cutting across the middle of the field to connect with a track to Rodbourne;
- Footpath MALW 62 connects from the main bridleway through the centre of the Site heads south west to Lower Stanton Farm adjoining parcels 26 and 27;
- Footpath MALW 63 runs east to west up and over a hill to Rodbourne Bottom and is located approximately 175m west of Field E12 (**Figure 3.3.5**);
- Footpath MALW 64 runs along a similar route between the bridleway (MALW61) to Cleeve End, along this route the footpath is adjacent to the northern boundary of Field E33 (**Figure 3.3.5**); and
- Footpath MALW 68 runs along an east to west axis, connecting Pond Hill to an unmarked track which crosses the railway line. The footpath diagonally crosses the slope of Field E8 (**Figure 3.3.5**).

7.6.61 There are also a number of PRoW within the wider landscape. These include:

- Footpath MALW 63 connects from the main bridleway through the centre of the and heads eastwards on the valley side to Rodbourne Bottom;
- Footpath MALW65 is further north on lower lying land which follows a stream to Bottom Farm;
- Footpath MALW 53, is to the west of the area and provides a connection between MALW 60 along the railway line and Bridleway MALW 54 and the A429. It located approximately 480m west of Field E1 (**Figure 3.3.5**); and
- To the east there are a number of PRoW which have limited connectivity to Lime Down E. These include Footpath GSOM 11, Footpath GSOM 15, Bridleway GSOM 10 and Bridleway GSOM 9 which connects to SEAG 23 through Seagry Wood.

Highways

7.6.62 There are no roads within the core area of Lime Down E and there are limited roads within the wider area too. These include:

- The A429 main road from Junction 17 of the M4, through Stanton St Quintin and Corston to Malmesbury is situated to the west and north west of the Site;
- A minor unnamed Lane runs between Corston to Rodbourne which sits on higher ground to the north east of the area;
- Pound Hill heads south from Rodbourne to Rodbourne Bottom and provides access to Cleve House. It is a no through road; and
- Avil's Lane is a minor road providing access to Avil's Farm from Lower Stanton Farm to the south of Lime Down E. It is also a no through road.

Railway

7.6.63 The Great Western Railway South Wales Main Line runs east to west through Lime Down E. In this location it runs on a high embankment.

Settlements

7.6.64 There are four settlements associated with Lime Down D. These include:

- Rodbourne;
- Rodbourne Bottom;
- Stanton St Quintin; and
- Corston.

Residential Properties

7.6.65 There are no residential properties within the core area of Lime Down E. In the wider landscape residential properties include:

- Glebe Farmhouse to the south west of the Site;
- Lower Stanton Farm to the south west of the Site;
- Properties on the edge of Buckley Barracks;
- Hanger Farm to the south west;
- Kingsway Barn Farm on A429 near crossing with railway line to the west;
- 1-4 Kingsway Bungalows on A429 near crossing with railway line to the west;
- Properties on Corston Road to the north;
- Properties 6-12 Southside Close, to the south of Corston Road to the north;
- Properties on Rodbourne Road off unnamed lane to the north;
- Plough House off unnamed lane to Rodbourne to the north;
- Properties on the edge of Rodbourne to the north east;
- Pound Hill Cottage to the north east;
- Bottom Farm, Rodbourne Bottom to the east;
- Godwins Farmhouse and Cottage, Rodbourne Bottom to the east;
- Briar Cottage, Rodbourne Bottom;
- Cleeve Hill Cottage to the east;
- Cleeve House (Childrens Home) to the east; and
- Avil's Farm to the south.

Land at Melksham Substation

Visual Amenity

7.6.66 Field study has provided a refined understanding of the likely extent of visibility for the proposed array. Current field work has established an area of search of approximately 2km, based on the following factors:

- Rising landform to the north of the Site;

- Woodlands and copses such as Cottles Wood, Withy Bed, New Wood and Inwood providing screening to the east and west of the Site;
- Built form associated with settlements such as Corsham to the north and Melksham to the southeast; and
- Intervening hedgerows, trees and scrub vegetation to the immediate surroundings of the Site.

7.6.67 Overall, due to the rising landform on which the Site is located combined with the lack of existing vegetation along the southern edge of the Site, there is the potential for development to be visible across the countryside to the south, especially from the adjacent northern edge of Whitley. Within the wider landscape, the rising landform to the south of Whitley and Shaw allows for views back above the settlement to the Site. There are numerous pylons and transmission lines crossing the horizon and contrasts heavily with the rural nature of the landscape. The rural rolling countryside can be appreciated from most locations in the landscape that offer any form of wider panoramic view. In views back towards Whitley from the south, the Site often forms the rising arable farmland above the settlement.

7.6.68 Field work, with the assistance of the desktop study has helped to identify a number of receptors that have the potential to be affected by the development.

7.6.69 Rights of Way and representative viewpoints of Land at Melksham Substation are shown on **Figure 7.7.6**.

Visual relationship to Cotswold National Landscape

The Land at Melksham Substation has no visual relationship with the Cotswold National Landscape.

Public Rights of Way

7.6.70 The Land at Melksham Substation is not dissected by any PRoW. However, there are numerous PRoW within close proximity to the Site, notably across the farmland to the east and west. These include:

7.6.71 To the west of the Site:

- PRoW Footpath WT/MELW/70 stems north from Top Lane, Whitley, and links in with numerous PRoW footpaths such as WT/CORM/23, WT/CORM/25, WT/CORM/28 at a point to the northwest of the Site behind a Buttonhole Wood. The connecting footpaths fan out to the north towards various other footpaths that connect to Green Road and cross the surrounding countryside.

7.6.72 To the east of the Site, PRoW Footpath WT/MELW/77 runs approximately 100m parallel to the Land at Melksham Substation's eastern boundary, connecting Top Lane in Whitley to Goodes Hill Road.

- PRoW to the west of the Site crossing the farmland and open countryside;
- PRoW to the east of the Site on the northern edge of Whitley; and
- PRoW to the north of the Site on the more elevated farmland.
 - PRoW to the south of Whitley on the northern edge of Shaw; and
 - PRoW to the west of Melksham.

Highways

- The following road users are likely to have intervisibility with the Land at Melksham Substation;
- Users of the B3353 to the east of the Site;
- Users of Top Lane in Whitley;
- Users of Littleworth Lane in Whitley; and
- Users of Folly Lane/Bath Road/Purlpit to the east of Atworth.

Settlements

- 7.6.73 The main settlement in the vicinity of the Land at Melksham Substation is the village of Whitley to the south.

Residential Properties

- 7.6.74 There are no residential properties within the Land at Melksham Substation. In the wider landscape residential properties include:
- Residential Properties on the northern edge of Whitley to the south of the Site;
 - Residential properties on Littleworth Lane;
 - Isolated properties on the B3353 (Goodes Hill); and
 - Properties within the wider countryside, including those on Purlpit/Bath Road on the eastern edge of Atworth and those within Shaw.

Cable Route Search Corridor

- 7.6.75 The Cable Route Search Corridor is described in **Section 3.4** of this report.
- 7.6.76 Visual Receptors in and around the Cable Route Search Corridor are shown on **Figure 7.7.7** and **Figure 7.7.8** and are summarised below. Following refinement of the Cable Search Route Corridor to a preferred route, the methodology set out within **Appendix 7.2** will be followed to identify detailed baseline information, which will be presented in the PEIR.

Visual relationship to Cotswold National Landscape

- 7.6.77 The boundary of the Cotswold National Landscape roughly follows the western extent of the Cable Route Search Corridor, at times being contiguous with it, as it passes the villages of Grittleton, Yatton Keynell and Biddestone. At Biddestone, the Cable Route Search Corridor turns east towards Chippenham before continuing south towards Melksham. Here the settlement of Corsham separates the Cable Route Search Corridor from the National Landscape.

Public Rights of Way

- 7.6.78 Numerous PRow are located within and directly cross the Cable Route Search Corridor. These typically run east to west across the arable landscape connecting the small rural settlements. The Cable Route Search Corridor avoids any Recreational Routes or National Trails.

Highways

- 7.6.79 There are a number of small lanes which surround and pass through the Cable Route Search Corridor. These are typically local unnamed roads and minor roads.
- 7.6.80 The Cable Route Search Corridor also passes across the following A roads and Motorways:
- A429 (between Lime Down D and E);
 - Alongside the A350 (and within the 0.5km area of search);
 - The M4;
 - A420;
 - A4;
 - A365 (within the 0.5km area of search).

Cycleways

- 7.6.81 The Wiltshire Cycleway follows the western extent of the Cable Route Search Corridor. The route also follows the boundary of the Cotswold AONB. To the south of the M4, Route 17 of the South Gloucestershire Regional Cycleway leads west from the Wiltshire Cycleway along local lanes towards Nettleton Shrub.

Settlements

- 7.6.82 The Cable Route Search Corridor passes alongside a number of small rural settlements including the villages of Hullavington, Grittleton, Stanton Saint Quintin, Kington Saint Michael, Easton Piercy, Yatton Keynell, Biddlestone, Reybridge, Lacock, Gastard, and Whitley. It also passes the larger settlements of Chippenham, Corsham and Melksham.

Residential Properties

- 7.6.83 Due to the length of the Cable Route Search Corridor, it passes by numerous rural residential properties and groups of properties.
- 7.6.84 The Cable Route Search Area will be refined during the design process which will be presented in the PEIR and refined further for the ES. Once determined, all Residential Properties within this Study Area will be scoped into the LVIA during the construction phase.

Viewpoints and Visualisations

- 7.6.85 A suite of potential viewpoints has been identified through desk studies which have been ground-truthed through fieldwork. Their positions would be subject to consultation with the Local Planning Authority (LPA) and fixed prior to verified photography being undertaken. Viewpoint selection would follow good practice guidance and in particular paragraphs 6.18 to 6.20 of GLVIA3 and in line with LI TGN 06/19. The viewpoints proposed will be used to aid the description of effects on both landscape and visual resources and would be utilised for visual assessment purposes.
- 7.6.86 The selection of viewpoints is made on the basis of the following types of publicly accessible viewpoints, as follows:
- Representative viewpoints (representative of views from a particular PRoW);

- Specific viewpoints (such as key views from a specific visitor attraction);
- Illustrative viewpoints (chosen to demonstrate a particular effect/specific issue);
- Any important sequential views, for example, along key recreational or transport routes; and
- Any additional agreed viewpoints that have been requested by consultees and the LPA.

- 7.6.87 For the purposes of the LVIA, all of the viewpoints are proposed to be taken from publicly accessible land and once photography has been agreed these would be undertaken in both summer and winter to ensure a worst-case scenario is assessed and illustrated.
- 7.6.88 In order to assist with viewpoint selection and to appreciate the potential influence of the Scheme in the wider landscape, preliminary ZTV figures are used to illustrate the area from where it may be theoretically possible to view all, or part, of the Scheme. The ZTV's produced are both Bare Earth (landform only) to illustrate a worst-case scenario and augmented ZTV figures which illustrate the effects of landform, built form and vegetation.
- 7.6.89 The ZTVs provide a starting point in the assessment process and therefore provide a 'worst case' illustration of theoretical visibility and assume that if any part of the Scheme is visible it will be shown on the ZTV.
- 7.6.90 The ZTV's would be refined through the iterative design process to help understand the impacts of changes to the designs. The ZTV are produced using ArcGIS Pro 2.1 software, and the calculations were based on the Scheme at 4.5m above ground level (AOD). Separate ZTVs will be provided for the substations once locations have been established.
- 7.6.91 Augmented ZTV's would also be produced through the iterative design process to illustrate with greater accuracy the theoretical visibility of the Scheme. A ZTV would also be run to illustrate the screening effects of vegetation at year 15 (summer).
- 7.6.92 A series of photomontages are proposed to be produced to show the effects of the Scheme at locations where significant effects are considered likely to occur. Locations of the required photomontages and AVR level would be agreed with the Local Planning Authority. At locations where significant effects are predicted it is proposed to undertake LI TGN 06/19 Type 4 photomontages to AVR Level 3 (Actual Visual Representation) in both winter and summer months. This ensures that the effects of reduced vegetation are. Such montages are also proposed to be utilised if required at the time of assessment for cumulative photography where the effects of the Scheme would be seen in combination with another scheme. At present no cumulative photography has been defined and it is proposed that this would be accessed and agreed in consultation with the LPA.
- 7.6.93 There are numerous PRow located within the 5km Study Area of the Scheme. The initial visual appraisal has identified a number of viewpoints which represent views from users of these PRow (visual receptors). Representative views are presented in **Appendix 7.3**. The viewpoint locations are shown on **Figure 7.7** and **Figure 7.7.1** to **Figure 7.7.6**.
- 7.6.94 The following tables list the proposed viewpoint locations that will be used in the LVIA assessment. The distances have been calculated in relation to field boundaries as shown on **Figure 3.3.1** to **Figure 3.3.6**.

Lime Down A to E

Table 7.1: Proposed Viewpoint Locations - Lime Down A

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
1	Sherston Road	Walkers, Motorists	5m to A5 and A6
2	Junction of Unnamed Road and FP SHER 17	Walkers, Motorists	5m to A11
3	Junction of Foxley Road and FP SHER 14	Walkers, Motorists,	5m to A12
4	FP SHER 12	Walkers, Residents	480m to A12
5	PF SHER 26	Residents, Walkers	650m to A11
6	Unnamed Lane	Walkers; Motorists	5m to A1
7	BW SHER 16	Walkers, Horse riders	Adjacent to A2 A3 A7
8a and 8b	FP SHER 17	Walkers,	140m to A8 and 150m to C22
9	Commonwood Lane	Walkers, Motorists; residents	310m to A2

Table 7.2: Proposed Viewpoint Location - Lime Down B

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
10	Honey Lane	Walkers, Motorists; Residents	63m to B12
11	Honey Lane	Walkers, Motorists,	5m to B9 B10
12	FP NORT 1	Walkers	Adjacent to B9 B11
13	Common Lane	Walkers Motorists	5m to B9
14	Fosse Way near FP SHER 13	Walkers, Horse riders, cyclists	Adjacent to B5 B4
15	Fosse Way near FP SHER 15	Walkers; Horse riders; cyclists	Adjacent to B2
16	Unnamed Lane--	Walkers, Motorists, Residents	Adjacent to B1
17	FP WT NORT 5	Walkers	230m to B2

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
18	Foxley Road	Walkers, Motorists, Residents	250m to B12

Table 7.3: Proposed Viewpoint Location - Lime Down C

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
19	FP HULL 23	Walkers,	Within C17 C18
20	Pig Lane	Walkers, Motorists,	5m to C14 and 5m to C17
21	FP HULL 25 and HULL 26	Walkers,	33m to C25
22	Fosse Way and Hull26	Walkers, Motorists Cyclists	Adjacent to C24
23	Fosse Way	Walkers, Motorists, Cyclists	Adjacent to C22 C24 C25
24	Fosse Way and BOAT LUCK 57	Walkers, Motorists Horse riders	Adjacent to C12
25	Fosse Way and Unnamed Lane near Fosse Lodge	Walkers, Motorists	Adjacent to C10
26	Unnamed lane	Walkers; Motorists	Adjacent to C14
27 a/b	BOAT LUCK 57 and FP SHER 18	Walkers; Horse Riders	Adjacent to C19 C20 C21
28	BOAT LUCK 57 (LUCK 57)	Walkers; Horse Riders	300m to C20
29	Pig Lane and FP WT HULL 26/2	Walkers, Motorists and Residents	10m to C28
30	FP WT LUCK 35	Walkers and residents	140m to C2
31	FP WT LUCK 35	Walkers	310m to C1
32	FP WT LUCK 41	Walkers	165m to C1
33	FP WT LUCK 45	Walkers	225m to C6
34	FP WT HULL 20	Walkers	305m to C10

Table 7.4: Proposed Viewpoint Location - Lime Down D

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
35	Junction of Bradfield Cottages Lane and FP HULL 2	Walkers; Motorists	Adjacent to D4 D6
36	FP NORT 4	Walkers; Motorists	128m to D19
37	FP NORT 10	Walkers	Adjacent to D2 D3 D4 D5
38	FP HULL 4 near Bradfield Wood	Walkers	Adjacent to D10
39	FP HULL 4 near Bradfield Manor	Walkers, Residents	210m to D5
40	FP HULL 6	Walkers	Within D13
41	FP MALW 8	Walkers	130m to D14
42	Track to BW HULL 7	Walkers; Horse riders	Adjacent to D17
43	FP HULL 6	Walkers	Adjacent to D17
44	Unnamed Lane	Walkers, Motorists	560m to D22
45	FP WT NORT 10	Walkers	Adjacent to D20
46	FP WT MALW 49	Walkers	330m to D14

Table 7.5: Proposed Viewpoint Location - Lime Down E

Viewpoint No	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
47	FP MALW 55	Walkers,	120m to E4
48	Track over Railway line	Walkers; Horse riders; trains	Adjacent to E9
49	Junction of track and BW MALW 59	Walkers; Horse riders	Adjacent to E12
50	BW MALW 59	Walkers, Horse riders	Adjacent to E18 E19
51	FP SSTQ 5	Walkers	Adjacent to E26 E27
52	BW MALW 61	Walkers, Horse riders	Adjacent to E27

Viewpoint No	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
53	FP MALW 64	Walkers	10m to E33
54	Junction of FP GSOM 15 and FP GSOM 11	Walkers	210m to E33
55	FP MALW 63	Walkers	375m to E8
56	Bridleway WT MALW 47	Walkers, Horse riders and motorists	1.45 km to E4
57	FP MALW 52	Walkers	976m to E2

Cable Route Search Corridor

7.6.95 The extent of the Cable Route Corridor has not yet been defined. Therefore, Viewpoints have not been proposed at this stage. The Cable Route Search Corridor will be refined during the design process to a preferred route, which will be presented in the PEIR. Viewpoints will be identified within the PEIR and their positions subject to consultation with the Local Planning Authority (LPA).

Land at Melksham Substation

Table 7.6: Proposed Viewpoint Location – Land at Melksham Substation

Viewpoint No	Visual Receptors	Receptor Represented by the Viewpoint	Distance to nearest Field Boundary
58	FP WT MELW 70	Walkers	105
59	FP WT CORM 23	Walkers	200m
60	Littleworth Lane	Walkers; Motorists	130m
61	West Hill and Littleworth Lane	Walkers, Motorists	280m
62	B3353 Goodes Hill	Motorists	35m
63	Top Lane	Motorists	220m
64	FP WT MELW 79	Walkers	960m
65	Junction of FP WT MELW 94A and MELW 93	Walkers	1.69km

7.7 Potential Effects and Mitigation

Landscape Effects

- 7.7.1 A development of this scale is expected to have some potential landscape effects. This will depend on the final design of the Scheme which will be assessed in full as part of the LVIA. The final design of the Scheme will include measures to design out potential adverse landscape effects, reduce potential effects and/or mitigate potential adverse effects. These embedded mitigation measures are described below.

Visual Effects

- 7.7.2 A development of this scale is expected to have some potential visual effects. This will depend on the final design of the Scheme which will be assessed in full as part of the LVIA. The final design of the Scheme will include measures to design out potential adverse visual effects, reduce potential visual effects and/or mitigate potential adverse effects. These embedded mitigation measures are described below.

Embedded Mitigation

- 7.7.3 The following mitigation measures outlined in **Table 7.7** will be embedded into the design of the Scheme to protect the landscape fabric of the Sites.

Table 7.7: Proposed Embedded Mitigation Measures to Protect Landscape Fabric of the Sites

Criteria where Buffer Applied	Buffer Size
Ecological Buffers	
All hedgerows and woodland	15m
A ditch or watercourse of any kind	8m
At least one of: Signs of Otter or abundant evidence of Water Vole in the ditch or Watercourse Outlier badger setts	10m
Individual Trees and groups of trees	10m (unless Arb survey indicates greater RPA)
Ancient Woodland	15m
Some minor watercourses (depending on Ecological Value)	15m
Ponds (with no Great Crested Newts)	10m
At least one of: Major watercourses Main badger setts	30m

Criteria where Buffer Applied	Buffer Size
Ponds containing Great Crested Newts	50m
Bat roosts	Case by Case
Schedule 1 bird nests (Barn Owl, hobby etc)	Case by Case
Other Buffers	
Curtilage of Residential Properties	50m
PRoW (Public Footpath, Bridleway etc..)	15m
Internal Drainage Board (IDB) drain	9m
Services	6m minimum
Red Line Boundary	5m
Internal offset from fence to panel	4m minimum

- 7.7.4 In accordance with the EIA Regulations, the approach to mitigation sets out measures proposed to prevent/avoid, reduce and where possible offset or remedy (or compensate for) any significant adverse landscape and visual effects, refer to LVIA Methodology in Section 7.5 (and **Appendix 7.2**).

Cumulative and In-Combination Effects

In-Combination Effects

- 7.7.5 In-combination Landscape and Visual effects will be considered for the Scheme as a whole. This will encompass the individual Lime Down A to E and the Land at Melksham Substation in-combination.

Cumulative Effects

- 7.7.6 A cumulative assessment will be undertaken, assessing both the cumulative landscape and visual effects of the Scheme in conjunction with other local developments. Other local developments are currently not defined.

7.8 Conclusions on Scoping

- 7.8.1 A table of receptors which are proposed to be scoped 'In' and 'Out' of the LVIA have been included in **Appendix 7.4** and **Appendix 7.5**. The tables have been informed by the proposed Study Areas included in **Section 7.2** as well as the methodology in **Appendix 7.2** and are subject to consultation with the LPA.
- 7.8.2 All Landscape Receptors within the Local 1km Study Area would be included in the LVIA. This includes the landscape fabric of the site and the local landscape character (informed by all relevant landscape character assessments).
- 7.8.3 All Visual Receptors within the 1km Study Area would be included within the LVIA. However, Visual receptors within the 1km Study Area with no intervisibility of the main solar Sites would be scoped out of the LVIA.

Table 7.8: Landscape and Visual Receptors Scoping Table

Study Area	Scoped In	Scoped Out
0.5km Cable Route Study Area	Landscape and Visual	-
1km Local Study Area	Landscape and Visual	-
2km Wider Study Area	Landscape and Visual (Visual receptors identified with direct, extensive and/or open views towards the Scheme)	Visual (Visual receptors identified with no direct, extensive and/or open views towards the Scheme)
5km Outer Study Area	Landscape	Visual

Landscape Receptors

7.8.4 All Landscape Receptors within the 5km Study Area have been 'Scoped In' and will be assessed in full. These include:

- Cotswolds National Landscape including its special qualities as set out in the Cotswolds AONB Management Plan in Section 7.3.9 of this report;
- Landscape Character Areas as defined in the Cotswolds AONB Landscape Character Assessment including:
 - The South and Mid Cotswolds Lowlands Landscape Character Area 11A (Field C1, C2, C8, C9 and C10 and Field A1 (**Figure 3.3.1** and **Figure 3.3.3**) adjoin the boundary of this Character Area)
 - West Malmesbury Lowland Farmland Landscape Character Area 14B (Fields A11 and A12 (**Figure 3.3.1**) adjoin the boundary of the Landscape Character Area. Fields B6 and B12 (**Figure 3.3.2**) are approximately 200m away from the boundary of this LCA.
- Landscape Character Area 8 - Hullavington Rolling Lowland (Lime Down A to E are situated within this Character Area);
- Landscape Character Area 7 - Sherston Dipslope (Lime Down A and C adjoin the boundary of this Landscape Character Area to the west; and
- Landscape Character Area 6 - Upper Avon Valley (Lime Down B has a visual relationship with this Landscape Character Area to the north.
- The Landscape fabric including:
 - Ancient Woodland and Woodland;
 - Veteran Trees, Trees and Hedgerows; and
 - Land use.

7.8.5 The following cycleways and long-distance footpaths are also considered Landscape Receptors as they are part of the landscape fabric and are 'scoped IN':

- National Cycle Route 16 Corsham to Bradford-on-Avon;

- The Wiltshire Cycleway;
- South Gloucestershire cycle route (Route 17);
- The Fosse Way;
- The Macmillan Way;
- The Cotswold Way; and
- The White Walls Way.

7.8.6 The following Landscape Receptors have been ‘scoped OUT’ of the LVIA:

- Grade 1 Badminton House Registered Park and Garden, List entry number: 1000561 is situated to the west and is outside of the 5 km Study Area; and
- Grade I Westonbirt Registered Park and Garden List entry number: 1000457 is situated to the north and is within the 2-5km Study Area. However, there is no physical or visual relationship with the Site.

7.8.7 In relation to heritage assets including Conservation Areas and Listed Buildings, reference is made to **Chapter 11**. The same Study Area will be used as defined below:

“For all records of Designated Heritage Assets and Conservation Areas within the Scheme and 2km from its boundary will be collated to inform an assessment of the potential indirect (setting) impacts of the Scheme upon these. Designated heritage assets beyond the 2km Study Area may also be assessed if identified and may be potentially affected by the Scheme by the relevant consultees, and the EIA technical team. It is considered that this Study Area is appropriate as it is considered unlikely that there would be significant effects upon settings at distance of greater than 2km, but nevertheless offers the flexibility of extending the Study Area if this is considered to be appropriate.

Records of non-designated heritage assets, archaeological finds and previous archaeological investigations will be collated for within the Scheme and 1km from its boundary, allowing the archaeological potential of the Scheme to be assessed together with potential (direct) impacts on any archaeological remains or heritage assets. The Study Area is considered to be appropriate as it is a standard sized Study Area for assessments of this type in rural areas of England and aligns with common professional practice.”

Visual Receptors

7.8.8 The location of the identified visual receptors within the 5km Study Area are shown in **Appendix 7.1**.

7.8.9 Visual receptors scoped in/out of the LVIA within the 1km Study Area from the outer boundary of Lime Down A to E are considered appropriate for the LVIA include:

Residential Receptors as shown on **Figure 7.11** Residential Receptors, including:

- Groups of Residential Properties;
- Individual Residential Properties; and
- Settlements.

Transport Receptors as shown on **Figure 7.12** Transport Receptors, including:

- A Roads;
- B Roads;
- Classified Unnumbered Roads;
- Motorway;
- Non -Classified Roads;
- Railway;
- Unclassified Roads; and
- Unknown Roads.

PRoW as shown on **Figure 7.13** PROW Receptors, including:

- Byways open to All traffic (BOAT);
- Restricted Byways;
- Bridleways; and
- Footpaths.

7.8.10 The following cycleways and long-distance footpaths are also Visual Receptors and are 'scoped IN':

- National Cycle Route 16 Corsham to Bradford-on-Avon;
- The Wiltshire Cycleway;
- South Gloucestershire cycle route (Route 17);
- The Fosse Way;
- The Macmillan Way;
- The Cotswold Way; and
- The White Walls Way.

7.9 Assumptions and Limitations

7.9.1 The Scheme has the potential to affect landscape and visual receptors across a large area which has been assessed based on the application boundary, including ZTV's produced in **Appendix 7.8** and **Appendix 7.9**. The preliminary Study Areas proposed would be further refined through the LVIA process. The following elements are proposed for consideration at scoping stage as follows:

- A 0.5km Study Area is proposed for the Cable Route Corridor. The 0.5km radius is considered appropriate for the Cable Route Corridor, since this involves the construction phase only, it is short term and temporary. Beyond this distance, even with good visibility it is deemed that this element of the Scheme would be barely perceptible. Within the assessment, this parameter is referred to as the '0.5km Study Area';
- It is proposed that a series of Study Areas are used to assess the landscape and visual effects of the solar array and associated infrastructure excluding the cable

route. These include a Local 1km Study Area, a Wider 2km Study Area and an Outer 5km Study Area;

- The Outer 5km Study Area focuses on impacts upon landscape receptors only. Landscape receptors beyond the Outer 5km Study Area are proposed to be scoped out of the assessment;
- The Wider 2km Study Area proposed will focus on impacts upon both landscape and visual receptors. Effects to landscape character within the wider 2km Study Area will be included within the LVIA (Informed by all relevant landscape character assessments);
- All visual receptors beyond the wider 2km Study Area will be scoped out of the LVIA. It is considered that within the Outer Study Area, even with excellent visibility it is deemed that the Scheme would be barely perceptible and that it would not lead to any significant Visual effects, either independently or cumulatively;
- A Local 1km Study Area will focus on impacts upon both landscape and visual receptors; and
- Visual receptors located outside of the 1km Study Area that are identified with direct, extensive and/or open views towards the Scheme (particularly larger and taller elements or large open expanses of PV arrays) would be separately identified and Included within this wider 2km Study Area and included within the LVIA. Otherwise, all other Visual receptors located beyond the 1km Study Area would be scoped out of the LVIA. Effects to landscape character within the Local 1km Study Area will be included within the LVIA (Informed by all relevant landscape character assessments).

7.9.2 The following limitations within the LVIA are proposed:

- The LVIA will consider the construction, operational and decommissioning lighting strategy for the Scheme including details of directionality, intermittent lighting. It will also describe any landscape measures necessary to avoid or mitigate lighting effects;
- Fieldwork within the Study Area would be undertaken from publicly accessible locations only; and
- Assessment of effects upon residential properties would be undertaken from the curtilage of residential properties where publicly accessible unless other arrangements are agreed with individual residents to gain access to their property. Professional judgement would be used to assess views from residential properties aided by the ZTV, aerial photography and LVIA figures.

7.9.3 Effects of duration in relation to magnitude of change assessment would be based on the following:

- Short-term: between 0-2 years;
- Medium-term: between 2-10 years; and
- Long-term: more than 10 years.

7.9.4 Agreement of viewpoints would be based on those set out in **Table 7.1** to **Table 7.6**. and shown in **Figure 7.7**. Visual receptors and any additional ones proposed by the LPA and other stakeholders based on consultation through the LVIA process.

- 7.9.5 Photography would be verifiable in line with TGN 06/19 and would be captured in both winter and summer months.
- 7.9.6 Photomontages are proposed to be produced to show the effects of the Scheme at locations where significant effects are predicted.
- 7.9.7 Assessment of effects at construction, operation and decommissioning will be assessed as follows:
- Construction – Assessment would be based on the construction of Lime Down A to E and Land at Melksham Substation and associated infrastructure including energy storage, substation and Cable Route Corridor as set out in **Chapter 4** of this Scoping Report, and assessment would be undertaken in winter to assess a worst-case scenario;
 - Operation (Year 1) - Assessment would be based on Lime Down A to E and Land at Melksham Substation and associated infrastructure being operational at the same time and assessed in winter without the benefit of full vegetation in order to assess a worst-case scenario;
 - Operation (Year 15) - Assessment would be based on Lime Down A to E and Land at Melksham Substation and associated infrastructure being operational at the same time and assessed in summer with vegetation in leaf offering maximum screening potential. This would assume a uniform growth of trees, shelterbelts and woodland mitigation planting of 5m since operation at year 1 representing uniform growth of 1m every 3 years for proposed trees, shelterbelts and woodland. This would also assume a uniform growth of hedgerow mitigation planting of 4m since operation at year 1 representing uniform growth of 1m every 3.75 years. Existing hedgerows would be assumed to have reached their prescribed management height by year 15 of between 3 to 5m. It is also assumed that panels will be replaced on a continuous basis throughout the operation phase of the Scheme; and
 - Decommissioning – Assessment would be based on a similar process to that of construction with the Scheme being no longer operational. It would assess the Scheme in winter but would assume retention of existing and mitigating green infrastructure on site.
- 7.9.8 Effects of the Scheme are assumed to be adverse unless stated otherwise (neutral/beneficial).
- 7.9.9 The following ZTV's are proposed to be produced: Lime Down A to E and the Land at Melksham Substation.
- Bare earth ZTV (Year 1 of operation and a 5 km Study Area);
 - Augmented ZTV - (Year 1 of operation and a 2 km Study Area); and
 - Cumulative Augmented ZTV (Year 1 of operation and a 2 km Study Area).
- 7.9.10 The full extent of the Scheme within the application site is not yet known and would be developed through the LVIA assessment in an iterative way in line with GLVIA3.
- 7.9.11 The assessment process includes iterative design and re-assessment of any remaining, residual effects that could not otherwise be mitigated or 'designed out'. The type of effect is also considered and may be direct or indirect; temporary or permanent (reversible); cumulative. The landscape and visual assessment unavoidably involves a combination of both quantitative and qualitative assessment and wherever possible a consensus of

professional opinion would be sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

8 Ecology and Biodiversity

8.1 Introduction

- 8.1.1 The Ecology and Biodiversity chapter of the ES will consider the likely effects of the Scheme on ecological features during its construction, operation and decommissioning phases.
- 8.1.2 Ecological features that will form the basis of the assessment will include:
- Statutory and non-statutory sites designated for nature conservation at international, national and local levels;
 - Habitats and species of principal importance for the conservation of biodiversity; and
 - Other legally protected, red-listed or notable species of conservation interest.
- 8.1.3 This chapter of the Scoping Report will describe an ecological baseline derived from extensive site and desk-based surveys and assess the relative level of effects likely to arise, together with any avoidance, mitigation and compensation measures necessary to reduce these effects in accordance with nature conservation legislation and planning policy. Proposals for ecological enhancement to contribute to local conservation priorities and delivery of Biodiversity Net Gain (BNG) in line with the Environment Act 2021 (**Ref 63**) and national and local policies will also be presented.
- 8.1.4 This chapter is supported by the following figures and appendices:
- Appendix 8.1 Figures
 - Figure 8.1 International Statutorily Designated Sites within 10km/30km (with Qualifying Mobile Species) of Lime Down A to E
 - Figure 8.2 International Statutorily Designated Sites within 10km/30km (with Qualifying Mobile Species) of the Land at Melksham Substation
 - Figure 8.3 International Statutorily Designated Sites within 10km/30km (with Qualifying Mobile Species) of the Cable Route Search Corridor
 - Figure 8.4 National Statutorily Designated Sites within 5km of Lime Down A to E
 - Figure 8.5 National Statutorily Designated Sites within 5km of the Land at Melksham Substation
 - Figure 8.6 National Statutorily Designated Sites within 5km of the Cable Route Search Corridor
 - Figure 8.7 Non-Statutorily Designated Sites within 2km of Lime Down A to E
 - Figure 8.8 Non-Statutorily Designated Sites within 2km of the Land at Melksham Substation
 - Figure 8.9 Non-Statutorily Designated Sites within 2km of the Cable Route Search Corridor
 - Figure 8.10 Priority Habitats within 2km of Lime Down A to E
 - Figure 8.11 Priority Habitats within 2km of the Land at Melksham Substation

- Figure 8.12 Priority Habitats within 2km of the Cable Route Search Corridor
- Appendix 8.2 Reference Tables for Figures

8.2 Legislation, Policy and Guidance

Legislation

8.2.1 Key national legislation relevant to biodiversity and nature conservation which will inform the assessment process includes:

- The Environment Act 2021 (**Ref 63**);
- The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (the 'Habitats Regulations') (**Ref 83**);
- The Wildlife and Countryside Act 1981 (as amended) (**Ref 80**);
- The Natural Environment and Rural Communities (NERC) Act 2006 (**Ref 78**);
- The Countryside Rights of Way Act 2000 (**Ref 85**);
- The Protection of Badgers Act 1992 (**Ref 86**); and
- The Hedgerows Regulations 1997 (**Ref 87**).

National Planning Policy

8.2.2 Key national planning policies relevant to biodiversity and nature conservation which will inform the assessment process includes:

- Overarching National Policy Statement for Energy (EN-1) Sections 4.2, 4.5 and 5.4 (**Ref 89**); and
- National Policy Statement for Renewable Energy Infrastructure (EN-3) Section 3.10 (**Ref 90**).
- The National Planning Policy Framework Section 15 (**Ref 88**).

Local Planning Policy

8.2.3 Local planning policies relevant to biodiversity and nature conservation which will inform the assessment process include:

- The Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**).

Other Guidance

8.2.4 Other guidance documents relevant to biodiversity and nature conservation which will inform the assessment process include:

- Natural England Standing Advice regarding Protected Species (**Ref 91**);
- Wiltshire Biodiversity Action Plan 2011 (**Ref 25**);
- Wiltshire's Landscape Biodiversity Areas 2012 (**Ref 92**);
- Wiltshire Green Blue Infrastructure Strategy (adopted February 2022) (**Ref 93**); and

- Natural England Biodiversity Net Gain Statutory Metric (and associated documents) (**Ref 71**).

8.3 Preliminary Baseline Conditions

- 8.3.1 This section aims to provide a summary of desk study and preliminary survey information, to identify ecological features within and relevant to the Sites.

The Scheme and Ecological Context

- 8.3.2 The Sites predominantly comprise large, open and relatively flat arable fields of varying crop types with some, generally smaller, fields of permanent pasture including limited areas of botanically diverse grassland. Fields within the Sites are bounded by an extensive network of hedgerows, largely species-rich in composition, and agricultural drainage ditches with typically narrow field margins, where present. A large number of mature trees are present within hedgerows, as well as a small number of individual trees within fields. The habitats within the Sites are generally contiguous with the surrounding landscape, which is agricultural in character. The land to the north and west of the Sites rises gently to form the hills and valleys associated with the Cotswolds National Landscape, part of which lies adjacent to Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.
- 8.3.3 A small number of woodland parcels are present within the Sites, forming part of a network of woodland habitat in the surrounding landscape, with several parcels located immediately adjacent Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor. Several ponds are present within the Sites, also constituting part of a wider pond network, with a relatively high number of ponds within the surrounding land. Ditches within the Sites are largely dry, with wet ditch features generally concentrated within Lime Down D. The watercourses known as Gauze Brook and Gabriel's Well run through the Sites, in Lime Down D and E respectively.
- 8.3.4 Land at Melksham Substation is sited within a similar landscape, with surrounding fields of mixed agricultural use, and settlements of Whitley and Melksham located to the south. The Site comprises four arable fields bounded predominantly by hedgerows and dry ditch features, with a single pond present on Site and a small woodland block forming the north-west boundary. Several mature, individual trees are present within the fields.
- 8.3.5 The Cable Route Search Corridor comprises a swathe of land running between the Sites and Melksham Substation within which the underground transmission cable could be located. Preliminary desktop ecological studies have been undertaken for the Cable Route Search Corridor although precise habitats present are not known at this stage. However, from a desk-based review, the land within the Cable Route Search Corridor largely comprises mixed farmland, rural and semi-rural settlements, and major transport infrastructure including the M4 Motorway and two railway lines. The Cable Route Search Corridor will be refined during the design process to a preferred route, which will be presented in the PEIR.

Baseline Survey Effort and Scope

Overview

- 8.3.6 Baseline data collection commenced in June 2023, comprising both comprehensive desk studies to determine the context of the local area and field surveys to supplement and ground-truth desk study findings. The desk study and field survey methodologies implemented are fully detailed below.

- 8.3.7 Baseline conditions surveys are ongoing and will continue through 2024 and 2025 to determine the baseline ecological conditions. Where available, the results of the ongoing surveys will be presented in the PEIR. Complete survey results will be presented as part of the ES DCO submission.

Desk Study

- 8.3.8 A desk study and data search was undertaken as follows:

- A search for 'International' designated sites for nature conservation within 10km of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor using the Multi-Agency Geographic Information for the Countryside (MAGIC) website (**Ref 64**). International sites included SAC, SPA, and Ramsar sites, as well as proposed or potential SACs, SPAs and Ramsar sites. The search area was extended to 30km for International designated sites for which migratory birds or bats are listed as a qualifying feature.
- A search for 'National' designated sites for nature conservation within 5km of the Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor using the MAGIC website. National designated sites included SSSI, National Nature Reserves (NNR) and Local Nature Reserves (LNR).
- Information on 'Local' designated sites for nature conservation within 2km of Sites of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor was obtained from the Wiltshire and Swindon Biological Records Centre (WSBRC) (**Ref 94**). Locally designated sites included LWS and Protected Road Verges.
- A search for Habitats of Principal Importance (also known as Priority Habitats) and registered Ancient Woodland within 2km of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor was undertaken using the Natural England 'Priority Habitats Inventory' (**Ref 65**) and 'Ancient Woodland Inventory' (**Ref 66**) datasets respectively.
- Information pertaining to existing records on legally protected species and species of conservation concern within 2km of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor was obtained from WSBRC.
- The MAGIC website (**Ref 64**) was consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2km of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.
- The National Fish Populations Database (NFPD), held by the Environment Agency (EA) and accessed through the EA's Ecology and Fish Data Explorer (**Ref 67**), was consulted for freshwater fish monitoring data within the relevant river catchment (Rural Bristol Avon).

- 8.3.9 The distances used in the search radii outlined above are industry standard 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. The chosen, standard, search radii are considered to remain appropriate when considering the potential for cumulative impacts from other development proposals.

Field Surveys

- 8.3.10 A suite of baseline ecological surveys have been undertaken since June 2023 and will continue into 2024/2025. The field survey effort and scope presented in **Table 8.1** and **Table 8.2** below reflects what is believed at the time of writing to be appropriate and proportionate to inform the evaluation of baseline conditions for this Scheme based on Chartered Institute of Ecology and Environmental Management (CIEEM) guidance and our professional judgement. As Ecological Impact Assessment and scoping are iterative processes, the scope may be extended or modified in due course as influenced by emerging survey results, as well as through consultation with stakeholders, local planning authorities and nature conservation organisations.
- 8.3.11 All land at Lime Down A to E (the Sites) will be subject to the same survey scope. However, at the time of writing, a lesser degree of survey work has been completed at land within Lime Down C and D added in February 2024, and no survey work has yet been completed at land within Lime Down C added in June 2024. Survey effort across all Sites will be equalised at the point of submission of the application. **Table 8.1** summarises the survey scope and schedule for Lime Down A to E.
- 8.3.12 The survey scope proposed for Lime Down A to E differs slightly from the survey scope proposed for Land at Melksham Substation, on the basis that the ecological constraints associated with the Sites vary given the distance (~15km) and intervening landscape between the Sites, with no ecologically-connected pathways or functional relationship for ecological features between the two. Land at Melksham Substation is also considerably smaller in area than Lime Down A to E which also influences the survey effort and scope deemed necessary. Land at Melksham Substation lies within 500m of the consultation zone associated with Bath and Bradford on Avon Bats SAC, and a detailed bat survey scope has been proposed to reflect this. **Table 8.2** summarises the survey scope and schedule for Land at Melksham Substation.

Table 8.1: Field Survey Scope and Schedule – Lime Down A to E

Survey Type	Methodology	Date/Status (Lime Down A to E Excluding Additional Land)	Date/Status (Additional Land at Lime Down C and D added February 2024)	Date/Status (Additional Land at Lime Down C added June 2024)
Extended UKHabitat Classification (UKHabs) Survey	Habitat survey and condition assessment of all Sites. Follows JNCC (2010) (Ref 68), IEA (1995) (Ref 69), UKHab (Ref 70) and Natural England (Ref 71) guidance.	Completed June-September 2023	Completed May 2024	Scheduled July/August 2024
Badger Walkover Survey	Walkover survey to search for badger setts and field signs in	Completed June-	Completed May 2024	Scheduled July/August 2024

Survey Type	Methodology	Date/Status (Lime Down A to E Excluding Additional Land)	Date/Status (Additional Land at Lime Down C and D added February 2024)	Date/Status (Additional Land at Lime Down C added June 2024)
	conjunction with Extended UKHabs survey.	September 2023		
Ground Level Tree Assessments for Roosting Bats	Daytime ground-based assessment of all trees within the Site for potential to support roosting bats. Follows Bat Conservation Trust (BCT) Good Practice Guidelines (Ref 72) as informed by the Bat Tree Habitat Key.	Completed June-September 2023	Completed May 2024	Scheduled July/August 2024
Building Inspections for Roosting Bats	Daytime inspections of all buildings within the Site for potential to support roosting bats. Follows BCT Good Practice Guidelines (Ref 72).	Completed June-September 2023	Completed May 2024	Scheduled July/August 2024
Breeding Bird Surveys	Six breeding bird survey visits of all land within the Site. Method adapted from British Trust for Ornithology (BTO) Common Bird Census techniques (Ref 74) as informed by (Ref 95).	6x visits completed June 2023–May 2024	6 visits completed April – June 2024	6 visits scheduled July 2024 – June 2025
Automated Bat Activity Surveys	Monthly static bat detector surveys of all land within	7x deployments completed	3 x deployments completed April - June 2024	7 x deployments scheduled July 2024 – June 2025

Survey Type	Methodology	Date/Status (Lime Down A to E Excluding Additional Land)	Date/Status (Additional Land at Lime Down C and D added February 2024)	Date/Status (Additional Land at Lime Down C added June 2024)
	the Site utilising 32 detector locations in total. Follows BCT Good Practice Guidelines (Ref 72).	June 2023 – May 2024	4 x deployments scheduled July - October 2024	
Great Crested Newt eDNA Surveys	Environmental DNA (eDNA) surveys of all accessible ponds within 250m of the Site. Follows Freshwater Habitats Trust eDNA survey guidance (Ref 73).	Accessible ponds within the Sites and within 250m completed June 2023 – June 2024 Remaining ponds scheduled April – June 2025	Accessible ponds within the Sites and within 250m completed June 2023 – June 2024 Remaining ponds scheduled April – June 2025	Accessible ponds within the Sites and within 250m completed June 2023 – June 2024 Remaining ponds scheduled April – June 2025
Water Vole and Otter Surveys	Late Summer/Autumn and Spring/Early Summer surveys of all suitable watercourses and ditches within the Site for water vole and otters. Follows Mammal Society survey guidance (Ref 75).	Late Summer survey completed September 2023 Spring survey completed May 2024	Spring survey completed May 2024 Late Summer survey scheduled August/September 2024	Late Summer survey scheduled August/September 2024 Spring survey scheduled April/May 2025
Wintering Bird Surveys	Four wintering bird survey visits of all land within the Site. Method adapted from British Trust for Ornithology (BTO) Common Bird Census techniques (Ref 74) as informed by (Ref 95).	4 x visits completed November 2023 – February 2024	4 x visits scheduled November 2024 – February 2025	4 x visits scheduled November 2024 – February 2025

Survey Type	Methodology	Date/Status (Lime Down A to E Excluding Additional Land)	Date/Status (Additional Land at Lime Down C and D added February 2024)	Date/Status (Additional Land at Lime Down C added June 2024)
Modular River Physical (MoRPh) Survey and River Condition Assessment	MoRPh surveys of all watercourses within the Site. Follows MoRPh field survey methodology and the River Type desk-based exercise (Ref 76) (Ref 77).	October – November 2023	May 2024	N/A – No watercourses present

Table 8.2: Field Survey Scope and Schedule – Land at Melksham Substation

Survey Type	Methodology	Date/Status
Extended UKHabitat Classification (UKHabs) Survey	Habitat survey and condition assessment of all Sites. Follows JNCC (2010) (Ref 68), IEA (1995) (Ref 69), UKHab (Ref 70) and Natural England (Ref 71) guidance.	Completed July 2023
Badger Walkover Survey	Walkover survey to search for badger setts and field signs in conjunction with Extended UKHabs survey.	Completed July 2023
Ground Level Tree Assessments for Roosting Bats	Daytime ground-based assessment of all trees within the Site for potential to support roosting bats. Follows Bat Conservation Trust (BCT) Good Practice Guidelines (Ref 72) as informed by the Bat Tree Habitat Key.	Completed July 2023
Breeding Bird Surveys	Six breeding bird survey visits of all land within the Site. Method adapted from British Trust for Ornithology (BTO) Common Bird Census techniques (Ref 74) as informed by (Ref 95).	6x visits completed June 2023– May 2024

Survey Type	Methodology	Date/Status
Wintering Bird Surveys	<p>Two 'scoping' wintering bird survey visits. Method adapted from British Trust for Ornithology (BTO) Common Bird Census techniques (Ref 74) as informed by (Ref 95).</p> <p>A reduced scope of bird survey was considered appropriate for this Site, based on the considerably smaller area it comprises and on the findings of the initial bird survey visits.</p> <p>The initial scoping visits did not record significant flocks of wintering farmland birds or species of conservation concern, or waterfowl/wading species which could be associated with designated sites, all of which would be considered to trigger the need for extending the survey effort. Furthermore, the visits also identified the habitats within the site to be suboptimal for the above species and no further survey was considered necessary on this basis.</p>	Completed November – December 2023
Automated Bat Activity Surveys	Monthly static bat detector surveys of all land within the Site utilising 4 detector locations in total. Follows BCT Good Practice Guidelines (Ref 72).	7x deployments completed July 2023 – June 2024
Bat Activity Transect Surveys	Monthly bat activity transects within the Site, commencing at sunset and continuing for three hours. Follows BCT Good Practice Guidelines (Ref 72).	7x transects completed July 2023– June 2024
Great Crested Newt eDNA Surveys	Environmental DNA (eDNA) surveys of all accessible ponds within 250m of the Site. Follows Freshwater Habitats Trust eDNA survey guidance (Ref 73).	<p>Accessible ponds within the Site and within 250m completed June 2024</p> <p>Remaining ponds scheduled April – June 2025</p>

8.3.13 The refined Cable Route Corridor will be assessed in the Environmental Statement, albeit disturbance will be limited in extent given the narrow width of cable trench required, and the fact that affected land along the cable route will be reinstated following a relatively short (less than 2 years) construction period. Techniques such as Horizontal Directional Drilling (HDD) may also be implemented to avoid damage to ecologically valuable habitats (such as watercourses and hedgerows) or to avoid impacts on protected species, such as otters and water voles.

8.3.14 The survey scope for the Cable Route Corridor has not yet been finalised, as this will take into account the habitats that will potentially be affected by the cable works, however an indicative survey scope is as follows:

- Extended UKHab Survey of refined Cable Route Corridor (estimated Q1-2 2025).
- Great Crested Newt (GCN) eDNA survey of all accessible ponds within 250m of cable route corridor boundaries on third-party land (Mid-April to June 2025). District Level Licensing (DLL) for great crested newts is currently being explored as a

potential compensation option for the Scheme, which does not require pond survey data to be collected. The proposal for GCN eDNA surveys is therefore still to be confirmed.

- It is assumed that watercourses will be crossed by the cable route. A Modular River Physical (MoRPh) survey will be undertaken of all watercourses crossed by the Scheme, primarily to inform Biodiversity Net Gain requirements. No specific surveys for fish or other aquatic ecological features are proposed to inform the baseline assessment at these locations, on the basis that trenchless techniques will be utilised to cross all such locations and avoid significant impacts to aquatic ecology in doing so.
- The cable installation works will be temporary and will occur progressively, with operations moving in one direction, thereby minimising the disturbance or incursion into habitats at any one location along the length of the cable route. It is anticipated that works will be carried out via a combination of open cut trenching and HDD. HDD would likely be employed where ecological features of an increased importance or sensitivity (e.g. main rivers, important hedgerows or Priority Habitats) are to be crossed by the route, and where less impactful routes could not be followed. Consequently, due to the different nature of the cable route works compared to that of the solar array Sites, risks to breeding birds along the cable route are limited to that of killing and injury during works, and the disturbance of Schedule 1 (fully protected) species. A proportionate approach to baseline survey with respect to breeding birds is therefore proposed, comprising the appraisal of habitats for Schedule 1 birds in particular, as well as other notable and ground-nesting birds, during the Extended UK Hab survey. Primarily, this will entail the investigation of trees, hedgerows and watercourses for their potential to support Schedule 1 birds including hobby, barn owl, nightingale, turtle dove, osprey and red kite, as well as an assessment of open habitats to support ground nesting birds such as skylark, yellow wagtail and grey partridge.
- Further recommendations may be made following this work either in the design of the Scheme (i.e. micro-siting the cable route working area to avoid potential impacts) or in the implementation of embedded mitigation (such as pre-commencement bird surveys, sensitive seasonal timing of works and the use of Ecological Clerks of Works). From an examination of the habitats within the Cable Route Search Corridor, together with our understanding of the breeding bird assemblage, habitat usage and relative habitat importance derived from extensive surveys undertaken for the Sites, we believe this to be an appropriate and proportionate approach.

Consultation to Date

- 8.3.15 Natural England has been contacted via the organisation's Discretionary Advice Service (DAS) for consultation relating to survey scope beginning in October 2023, although no formal advice has been received to date. The Wiltshire County Council (WCC) Ecology Team (Natural and Historic Environment) have been consulted for advice on a range of topics including survey scope and methodology, initially in February 2024, although formal advice is yet to be received.
- 8.3.16 Further consultation will be undertaken with Natural England, relevant local authorities and their nature conservation consultees, the Environment Agency, and other interested parties such as Wiltshire Wildlife Trust.

Designated Sites

8.3.17 Statutory and non-statutory sites designated for nature conservation identified within the data search are summarised below, and in **Figure 8.1** to **Figure 8.12**, which also provide maps showing the locations of the designated sites in relation to the Sites.

Statutory Designated Sites

8.3.18 No international designated sites were identified within 10km of Lime Down A to E. However, four international designated sites with qualifying mobile species (bats and/or migratory birds) were identified within the wider search radius of 30km. The search radius was extended for these features due to the highly mobile nature and larger home ranges of these species which can extend beyond 10km. These designated sites were the Bath and Bradford on Avon Bats SAC, Severn Estuary SPA and Ramsar site, and Salisbury Plain SPA (refer to **Table 8.3**).

8.3.19 One international designated site was identified within 10km of Land at Melksham Substation, namely Bath and Bradford on Avon Bats SAC. Two further sites designated for qualifying mobile species were identified within 30km of the Site, Salisbury Plain SPA and Mells Valley SAC (refer to **Table 8.3**).

8.3.20 One international designated site was identified within 10km of the Cable Route Search Corridor, Bath and Bradford on Avon Bats SAC. Within 30km of the Cable Route Search Corridor, four further international designated sites with mobile qualifying species were identified; Severn Estuary SPA and Ramsar site, Salisbury Plain SPA, and Mells Valley SAC. None of these fall within the Cable Route Search Corridor. International designated sites are shown in relation to the Cable Route Search Corridor in **Figure 8.3** and described in associated **Table 8.3**.

Table 8.3: International Designated Sites within 30km of the Site

Site Name	Area (ha)	Reason for Designation	Distance from Site
Lime Down A to E			
Bath and Bradford on Avon Bats SAC	107.86	Overwintering population of greater horseshoe bat, with hibernation sites associated with approximately 15% of UK population. Hibernation sites also support Bechstein's bat.	12.56km south of Lime Down C.
Severn Estuary SPA	24,487.91	Internationally important wintering populations of Annex 1 Bewick's swan, and waterfowl species. Nationally important populations of wintering, passage and breeding wetland bird species.	23.71km north-west of Lime Down A.
Severn Estuary Ramsar	24,662.98	The Severn Estuary Ramsar site's qualifying interest features overlap with those of the Severn Estuary SPA. The site is of particular importance for hosting internationally important populations of several species of waterbird as well as its migrating fish species.	23.71km north-west of Lime Down A.
Salisbury Plain SPA	19,714.54	Nationally important populations of Annex 1 species; 10% of UK population of breeding stone curlew, and 1% of UK population of wintering hen harrier. Further Annex 1 species are supported in	27.89km south-east of

Site Name	Area (ha)	Reason for Designation	Distance from Site
		small numbers. Nationally important breeding populations of quail (20% UK population) and hobby (1% of UK population).	Lime Down E.
Land at Melksham Substation			
Bath and Bradford on Avon Bats SAC	107.86	Overwintering population of greater horseshoe bat, with hibernation sites associated with approximately 15% of UK population. Hibernation sites also support Bechstein's bat.	4.32km north-west.
Salisbury Plain SPA	24,487.91	Nationally important populations of Annex 1 species; 10% of UK population of breeding stone curlew, and 1% of UK population of wintering hen harrier. Further Annex 1 species are supported in small numbers. Nationally important breeding populations of quail (20% UK population) and hobby (1% of UK population).	18.94km south-east.
Mells Valley SAC	28.62	Breeding population of greater horseshoe bat, comprising approximately 12% of UK population. Hibernation sites also present.	28.44km south-west.

- 8.3.21 Four national designated sites for nature conservation were identified within 5km of the Sites, including two SSSIs and two LNRs, designated for calcareous and neutral grassland habitats among other interests (refer to **Table 8.4**). This included Harries Ground, Rodbourne SSSI, which is designated for past records of marsh fritillary butterfly *Euphydryas aurinia* and is located immediately adjacent Lime Down E. The nature of the Scheme requires consultation with Natural England on potential impacts to this site, as identified using the SSSI Impact Risk Zone tool on the MAGIC website (**Ref 64**). One additional SSSI located within the search area (Stanton St Quintin Quarry and Motorway Cutting SSSI) is designated solely for its geological features and is therefore proposed to be scoped out of the ecological assessment. The locations of national designated sites in relation to the Sites are shown in **Figure 8.5**.
- 8.3.22 One national designated site for nature conservation was identified within 5km of Land at Melksham Substation; Box Mine SSSI, which is designated for bat hibernation sites and national significant greater horseshoe *Rhinolophus ferrumequinum* bat populations. One further SSSI (Corsham Railway Cutting SSSI), designated for important geological features, was identified within the search area and is proposed to be scoped out of the ecological assessment (refer to **Table 8.4**).
- 8.3.23 A total of 14 national designated sites for nature conservation were identified within 5km of the Cable Route Search Corridor, including 11 SSSIs and three LNRs. Of these sites, three further SSSIs (Stanton St Quintin Quarry and Motorway Cutting SSSI, Kellaways – West Tytherton, River Avon SSSI, and Corsham Railway Cutting SSSI) designated for important geological features, were identified within the desk study search area and are proposed to be scoped out of the ecological assessment. None of these fall within the Cable Route Search Corridor. National designated sites are shown in relation to the Cable Route Search Corridor in **Figure 8.6** and described in associated **Table 8.6**.

Table 8.4: National Designated Sites within 5km of the Site

Site Name	Area (ha)	Reason for Designation	Distance from Site
Lime Down A to E			
Harries Ground, Rodbourne SSSI	6.73	Species-rich neutral grassland community and past records of marsh fritillary butterflies.	Immediately adjacent the northern boundary of Lime Down E.
Corston Quarry and Pond LNR	0.5	Disused limestone quarry with mesotrophic standing water and calcareous grassland habitats.	1.01km north-east of Lime Down D.
Stanton St Quintin Quarry and Motorway Cutting SSSI	2.54	Important geological features.	1.73km south of Lime Down E.
Sutton Lane Meadows SSSI	3.43	Lowland neutral grassland habitat.	3.67km south of Lime Down E.
Conygre Mead LNR	2.53	Calcareous grassland, damp grassland, pond and woodland habitats.	4.16km north-east of Lime Down D.
Land at Melksham Substation			
Corsham Railway Cutting SSSI	6.6	Important geological features.	2.98km north-west.
Box Mine SSSI	56.6	Seasonal populations of greater horseshoe bat, comprising approximately 10% of UK population. Hibernation sites also present.	4.63km north-west.

Non-Statutory Designated Sites

- 8.3.24 A total of 37 local non-statutory designated sites were identified within 2km of Lime Down A to E and three further local designated sites were identified within 1km of Land at Melksham Substation. The sites are presented in **Table 8.5** below, the locations of which are shown in **Figure 8.5** and **Figure 8.6**. The local designated sites comprise 39 LWS and one protected road verge.
- 8.3.25 A total of 81 local designated sites were identified within 2km of the Cable Route Search Corridor, including 78 LWS and three protected road verges. Local designated sites are shown in relation to the Cable Route Search Corridor in **Figure 8.9** and described in associated **Table 8.9**.

Table 8.5: Non-Statutory Designated Sites within 2km of the Site

Site Name	Area (ha)	Reason for Designation	Distance from Site
Lime Down A to E			
Chalkenhams LWS	5.64	Unimproved, species-rich neutral grassland and woodland habitat.	Within Lime Down E.
Brickyard Scrub LWS	3.96	Species-rich neutral grassland and pond habitats.	Partly within Lime Down E.
Bincombe Wood LWS	17.16	Ancient, semi-natural broadleaved woodland habitat.	Immediately adjacent the north-western boundary of Lime Down E.
Bradfield Wood LWS	9.63	Semi-natural, broadleaved woodland habitat.	Immediately adjacent the northern boundary of Lime Down D.
Lord's Wood LWS	2.73	Ancient broadleaved woodland habitat.	Immediately adjacent the northern boundary of Lime Down C.
Rodbourne Plantation LWS	2.66	Broadleaved woodland habitat.	Immediately adjacent the southern boundary of Lime Down E (north of the railway line).
Seagry Wood and Oak Hill LWS	38.05	Mixed plantation on ancient woodland site.	Immediately adjacent the south-eastern boundary of Lime Down E.
Surrendell Wood LWS	12.21	Ancient, semi-natural broadleaved woodland habitat.	Immediately adjacent the southern boundary of Lime Down C.
Bybrook Meadow LWS	1.99	Unimproved neutral grassland habitat.	0.14km north of Lime Down A.
Bristol Avon River LWS	150.76	Riverine habitat and important drainage functions.	0.23km north of Lime Down A.
Foxley Green LWS	0.87	Calcareous and damp neutral grassland communities.	0.23km north-east of Lime Down B.
West Park Wood – East LWS	4.57	Ancient, semi-natural broadleaved woodland habitat.	0.24km north-east of Lime Down D.
West Park Wood – West LWS	3.3	Ancient, semi-natural broadleaved woodland habitat.	0.24km north-east of Lime Down D.

Site Name	Area (ha)	Reason for Designation	Distance from Site
Lower Easton Town Farm Meadows LWS	2.13	Herb-rich unimproved grassland habitat.	0.27km north of Lime Down A.
Lower Farm Meadows, Sherston LWS	1.37	Calcareous grassland habitat.	0.28km north of Lime Down A.
New House Farm Meadows LWS	6.93	Species-rich limestone and neutral grasslands, and old oak woodland.	0.29km north-west of Lime Down A.
Easton Grey Meadow 2 LWS	1.82	Calcareous grassland and wetland habitats.	0.40km north of Lime Down B.
Easton Grey Meadow 1 LWS	3.35	Calcareous grassland and wetland habitats.	0.42km north of Lime Down B.
Kingway Barn Meadows LWS	4.15	Neutral meadows with ridge and furrow.	0.50km west of Lime Down E.
Townfield Farm Meadows LWS	30.45	Calcareous hay meadow habitat.	0.56km west of Lime Down C.
Brook House Meadow, Luckington LWS	1.78	Pasture and floodplain habitat.	0.60km north-west of Lime Down C.
Manor Farm Meadows, Sherston LWS	4.22	Floodplain grassland, including areas of unimproved grassland and limestone banks.	0.61km north-west of Lime Down A.
Cowage Grove LWS	6.45	Oak woodland habitat.	0.64km east of Lime Down B.
Tyning and Tanhouse Meadows LWS	13.84	Limestone grassland habitat.	0.71km west of Lime Down C.
Carrier's Farm Meadows, Sherston LWS	3.98	Unimproved calcareous grassland habitat.	0.74km west of Lime Down A.
Luckington Meadows LWS	1.12	Meadow habitat.	0.86km west of Lime Down C.
Foxley Grove LWS	8.49	Part-ancient woodland habitat.	0.90km north of Lime Down B.
Gauzebrook Meadows LWS	3.53	Unimproved limestone grassland along banks of Gauze Brook.	0.95km north of Lime Down E.

Site Name	Area (ha)	Reason for Designation	Distance from Site
Corston Quarry and Pond LWS (and LNR)	0.49	Disused limestone quarry with mesotrophic standing water and calcareous grassland habitats.	1.01km north-east of Lime Down D.
Ell Wood LWS	12.97	Ancient, semi-natural broadleaved woodland.	1.06km south of Lime Down E.
Foxley Estate – Riverside Pasture LWS	7.54	Limestone grassland habitat above derelict water-meadow.	1.10km north of Lime Down B.
Cranhill Wood LWS	8.87	Ancient woodland habitat with ponds and springs.	1.28km south-west of Lime Down C.
North Draycot Park LWS	13.59	Old parkland with frequent old oak.	1.29km south of Lime Down E.
Hyam Wood LWS	16.77	Ancient, semi-natural broadleaved woodland habitat.	1.39km north-east of Lime Down B.
Littleton Drew Verge	0.18	Protected road verge.	1.74km south-west of Lime Down C.
Stock Wood LWS	16.83	Ancient, semi-natural broadleaved woodland habitat.	1.84km south of Lime Down D.
Oldland's Wood LWS	11.68	Woodland habitat with network of ditches.	1.92km south-west of Lime Down C.
Land at Melksham Substation			
Daniel's Wood LWS	5.94	Broadleaved woodland habitat.	0.94km east of the Land at Melksham Substation.
Norrington Common LWS	3.58	Neutral grassland with varying levels of botanical diversity.	1.68km south of the Land at Melksham Substation.
Gastard Meadows LWS	1.82	Neutral to calcareous grassland habitat.	1.74km north-east of the Land at Melksham Substation.

Priority Habitats

8.3.26 The following Habitats of Principal Importance (HPIs) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (**Ref 78**) and Local Priority Habitats identified within the Wiltshire Biodiversity Action Plan (BAP) (**Ref 25**) all occur either within the Site, or within the Study Area of 2km, and are therefore considered capable of being impacted by the proposals. The locations of Priority Habitats are shown in **Figure 8.10**, **Figure 8.11** and **Figure 8.12**.

On-Site Priority Habitats

Lime Down A to E

- Lowland Meadows: two lowland meadow fields were recorded within Lime Down E, both of which were identified as LWS during the desk study (namely Chalkenhams LWS and Brickyard Scrub LWS – see **Table 8.5**). Very high levels of botanical diversity were recorded within these parcels.
- Broadleaved Woodland: four small parcels of broadleaved woodland were recorded within the Site Boundaries of Lime Down A, D and E. The parcels formed part of a network of woodland within the wider landscape.
- Hedgerows/Ancient and Species-Rich Hedgerows: fields were bounded by an extensive network of ~375 hedgerows, that were largely species-rich in composition with mature, standard trees noted frequently within. Hedgerows were often recorded associated with dry and wet ditch features.
- Rivers, Streams and Associated Habitats: five sections of watercourses were identified within Lime Down D and E, including Gauze Brook and Gabriel's Well Brook. Gauze Brook is listed as a Priority River on the Natural England Priority River Habitat dataset (**Ref 79**).
- Ponds and Standing Open Water: a total of 32 ponds were recorded within Lime Down A to E, some of which were connected to the ditch network bounding part of the Sites. A further 100 ponds were identified within 250m of Lime Down A to E.
- Farmland Habitats: arable fields comprised the majority of habitat area within Lime Down A to E, occasionally bounded by arable field margin habitat managed for biodiversity benefit. Arable weed species were noted during the surveys, including some notable species such as rye brome *Bromus secalinus*.
- Built Environment: urban habitat within Lime Down A to E comprised farm access tracks, storage areas, a small number of buildings/building footprints, and areas of bare ground.

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- Hedgerows/Ancient and Species-Rich Hedgerows: fields within the Site were bounded by a network of 11 species-rich hedgerows, with several mature standard trees noted within.
- Ponds and Standing Open Water: a single pond was recorded in the centre of the Site, and a further five ponds identified within 250m of the Land at Melksham Substation.
- Farmland Habitats: the four fields within the Site comprised arable habitat, with grassland margins of low botanical diversity to the north and west.

Cable Route Search Corridor

- Deciduous woodland, good-quality semi-improved grassland, lowland calcareous grassland, lowland meadow, and traditional orchards habitats were identified within the Cable Route Search Corridor during the desk study.
- Presence of further priority habitats within the Cable Route Search Corridor will be confirmed during the Extended UKHab Survey of the refined cable route.

Off-Site Priority Habitats

Within 2km of Lime Down A to E

- Broadleaved Woodland (including Ancient Woodland).
- Lowland Calcareous Grassland.
- Good-Quality Semi-Improved Grassland.
- Traditional Orchard.
- Coastal and Floodplain Grazing Marsh.
- Wood-pasture and Parkland.

Within 2km of Land at Melksham Substation

- Deciduous Woodland (including Ancient Woodland).
- Traditional Orchard.
- Wood-pasture and Parkland.
- Within 2km of Cable Route Search Corridor.
- Deciduous Woodland (including Ancient Woodland).
- Lowland Meadows.
- Lowland Calcareous Grassland.
- Good-Quality Semi-Improved Grassland.
- Traditional Orchard.
- Coastal and Floodplain Grazing Marsh.
- Wood-pasture and Parkland.

Protected and Priority Species

- 8.3.27 This section outlines the results of species-specific surveys completed to date relating to Lime Down A to E and Land at Melksham Substation, as well as the desk study, for which species records within 2km of the Sites were obtained. Species records from 2000 or later are provided in this section.
- 8.3.28 Numerous records of protected and priority species within 2km of the Cable Route Search Corridor have been obtained from the desk study. These will be used to aid in refining the Cable Route Corridor and details of existing species records will be made available at PEIR stage and within the ES.

Badgers

Lime Down A to E

- 8.3.29 Frequent records of badger *Meles meles* were returned within the desk study, including fifteen records of setts, and several badger setts were recorded within Lime Down A, B, D and E: two main setts, one subsidiary sett, and 20 other lower status setts. Signs of badger activity were also noted throughout Lime Down A, B, D and E, and grassland,

woodland and scrub are likely to represent suitable foraging habitat for local badger groups. No signs of badger activity were noted within Lime Down C.

Land at Melksham Substation

- 8.3.30 14 records of badger, including six records of setts, were returned within the desk study. No badger setts were recorded within Land at Melksham Substation, although signs of badger activity were noted within the Site.

Bats

Lime Down A to E

- 8.3.31 Numerous records of at least 14 bat species were returned during the desk study, including 35 roost records and six granted European Protected Species (EPS) licenses. A large number of mature trees throughout Lime Down A to E were identified as having potential to support roosting bats during preliminary ground-based assessment, and a small number of buildings with varying levels of suitability for roosting bats were present within the Sites, namely Lime Down A and D. Bat activity surveys completed to date have identified a diverse assemblage of bats, including relatively frequent activity by rarer species such as lesser horseshoe *Rhinolophus hipposideros*, greater horseshoe and barbastelle *Barbastella barbastellus*.

Land at Melksham Substation

- 8.3.32 Records of at least nine bat species were returned during the desk study, including 63 roost records (a large number of which relate to soprano pipistrelle *Pipistrellus pygmaeus*) and four granted EPS licenses. Several mature trees within the Site were identified as having bat roost potential, however the arable habitats were considered to be of limited suitability for foraging bats. Bat activity surveys recorded a generally diverse assemblage of bat species, including lesser horseshoe, greater horseshoe and barbastelle activity recorded during static detector and activity transect surveys.

Otters and Water Voles

Lime Down A to E

- 8.3.33 Eight records of otter *Lutra lutra*, including along Gauze Brook, were returned during the desk study, and 23 records of water voles *Arvicola amphibius* were returned. The presence of otter was confirmed within Lime Down D along Gauze Brook during preliminary surveys with watercourses on Site representing suitable habitat for the species. The ditch network was considered largely sub-optimal for otters but may be used for dispersal. Surveys to date have confirmed presence of water vole in the ditch network within Lime Down D, with ditches across the rest of the Sites largely unsuitable. Evidence of American mink *Neovison vison* presence was confirmed within Gabriel's Well Brook in Lime Down E; water voles are therefore considered likely to be absent from Lime Down E given the high levels of predation pressure from American mink on the species.

Land at Melksham Substation

- 8.3.34 Three records of otter and four records of water vole were returned during the desk study. Ditches at this Site were not considered suitable for otter due to the absence of sufficient water depth and lack of connectivity to a wider watercourse network. The ditches were sub-optimal for water vole and their presence considered unlikely.

Dormice

Lime Down A to E

- 8.3.35 A single record of hazel dormouse *Muscardinus avellanarius* was returned within the desk study, and suitable habitat for the species was recorded within the Sites during the UKHab surveys, including woodland, hedgerows and scrub. It is anticipated that such suitable habitat will be predominantly retained as part of the detailed Scheme design, and thus potential for impacts on dormice are consequently low. In light of this no species-specific surveys for dormice are proposed within the scope of works in order to identify the presence or likely absence of this species, however their presence on-site within all suitable habitat has been assumed for the purpose of this assessment.

Land at Melksham Substation

- 8.3.36 No records of dormice within 2km of the Site were returned by WSBRC, however two EPS licences relating to dormice have been granted within 2km of the Site. Hedgerows within the Site, connecting to adjacent woodland, provide suitable dormouse habitat. No targeted dormice surveys are proposed, however their presence on-site in all suitable habitat has been assumed, as with Lime Down A to E.

Other Mammals

- 8.3.37 Other mammalian Species of Principal Importance for conservation will be considered in the ecological assessment. Based on current statuses and known distributions, this will be restricted to brown hare *Lepus europaeus*, harvest mice *Micromys minutus*, West European hedgehog *Erinaceus europaeus* and polecat only *Mustela putorius*, all of which appear in the desk study records and are capable of being impacted by the Scheme.

Lime Down A to E

- 8.3.38 A total of 37 records of brown hare were returned during the desk study, and large fields and open farmland habitats represent suitable habitat for the species, including field margins and woodland edge habitat.
- 8.3.39 A single record of harvest mouse was returned during the desk study, however tussocky grassland, arable field margins and hedgerows provide suitable habitat for the species with connectivity to woodland blocks within the Sites.
- 8.3.40 A large number of West European hedgehog records were returned during the desk study. Arable and pasture habitats within the Sites are largely sub-optimal for hedgehog, however boundary habitat and woodland/scrub edges provide suitable habitat for the species.
- 8.3.41 Three records of polecat were returned during the desk study, and woodland, hedgerow and scrub habitat bounding agricultural fields within the Sites comprises suitable habitat for the species.

Land at Melksham Substation

- 8.3.42 Eight records of brown hare were returned during the desk study, and several hares have been recorded incidentally on-site during surveys undertaken to date.
- 8.3.43 No records of harvest mice were returned during the desk study, however tussocky grassland and hedgerows provide limited suitable habitat for the species with connectivity to adjacent woodland.

8.3.44 One record of polecat was returned during the desk study, however the farmland habitat present, and particularly the hedgerows and adjacent woodland habitat provide opportunities for polecat within the Site.

8.3.45 44 records of hedgehog were returned during the desk study. Field margins and hedgerow bases provide suitable habitat for hedgehog, and potential hibernation features were noted within the Site.

Amphibians

Lime Down A to E

8.3.46 A total of 30 records of great crested newt (GCN) *Triturus cristatus*, three granted EPS licences relating to GCN, 16 class licence returns and four positive eDNA Pond Survey results were returned during the desk study. Five records of common frog *Rana temporaria* and eight records of common toad *Bufo bufo* were also returned. eDNA surveys completed to date have recorded presence of GCN in three ponds within Lime Down B and E. Surveys have confirmed presence of GCN within a further eight ponds located within 250m of Lime Down A to E. Sampling of un-surveyed ponds will be completed in 2025. Ponds within the Sites are also considered suitable for other common amphibian species. Terrestrial habitats within the Sites are generally limited in quality and extent, comprising hedgerow bases, tussocky grassland, field margins and woodland edges.

Land at Melksham Substation

8.3.47 44 records of GCN, four granted EPS licences relating to GCN and two positive eDNA Pond Survey results were returned during the desk study. One pond also returned. was recorded within the Site, and five further ponds within 250m of Land at Melksham Substation. eDNA surveys completed to date returned negative results for GCN presence within the on-site pond and one off-site pond. The remaining off-site ponds identified within 250m of the Land at Melksham Substation will be surveyed in 2025. Terrestrial habitats on Site were limited to hedgerow bases, field margins and woodland edge habitat.

Reptiles

Lime Down A to E

8.3.48 Six records of slow worm *Anguis fragilis* and four records of grass snake *Natrix helvetica* were returned during the desk study. Habitats within the Sites are largely sub-optimal for reptiles with suitable habitat restricted to hedgerow bases, watercourses, tussocky grassland and woodland edges, although a grass snake slough (shed skin) was recorded incidentally within Lime Down A. It is anticipated that such suitable habitat will be predominantly retained as part of the detailed Scheme design, and thus potential for impacts on reptiles are consequently low. In light of this no targeted reptile surveys are proposed within the scope of works in order to identify the presence likely absence of this species and distribution within Lime Down A to E. However, their presence on-site within all suitable habitat has been assumed for the purpose of this assessment.

Land at Melksham Substation

8.3.49 12 records of grass snake and two records each of slow worm and common lizard *Zootoca vivipara* were returned during the desk study. Habitats within the Site generally represent sub-optimal reptile habitat. Suitable habitat is restricted to field margins and

hedge bases. No targeted reptile surveys are proposed, however their presence on-site has been assumed, as with Lime Down A to E.

Birds

Lime Down A to E

- 8.3.50 Records of 41 bird species were returned during the desk study, of which 11 are Species of Principal Importance (**Ref 78**), 13 are Schedule 1 species under the Wildlife and Countryside Act (**Ref 80**), and 7 are Annex 1 species under the Birds Directive (**Ref 81**). A total of 31 species are also listed as red and amber Birds of Conservation Concern by the BTO (**Ref 82**). Woodland, hedgerows, scrub and trees offer suitable nesting and foraging opportunities for a range of bird species, and arable habitats within the Sites provide suitable habitat for farmland birds, including ground-nesting species such as skylark *Alauda arvensis*. A relatively diverse assemblage of breeding birds has been recorded during surveys to date, with a total of 70 species recorded. Wintering bird surveys have also recorded a moderate diversity of birds, including several notable species.

Land at Melksham Substation

- 8.3.51 Records of 41 bird species were returned during the desk study, of which seven are Species of Principal Importance (**Ref 78**), four are Schedule 1 species (**Ref 80**), and seven are Annex 1 species (**Ref 81**). 47 of these species are also red or amber listed (**Ref 82**). Arable habitats provide limited foraging opportunities, with hedgerows and mature trees providing suitable nesting and foraging habitat. Breeding bird surveys have recorded a moderately diverse assemblage of birds, including species such as skylark, typical of farmland habitats. Wintering bird scoping surveys recorded relatively low numbers and diversity of species, and it was determined that no further wintering bird surveys were required at the Site.

Invertebrates

Lime Down A to E

- 8.3.52 Records of 26 notable invertebrate species were returned during the desk study, including marsh fritillary, purple emperor *Apatura iris*, and white-clawed crayfish *Austropotamobius pallipes*. Previous records of marsh fritillary butterfly were also returned associated with Harries Ground, Rodbourne adjacent to Lime Down E. The majority of habitat within the Sites, comprising intensively managed arable fields, are not considered to be of high intrinsic value for invertebrates or likely to support notable communities of invertebrate species. Other less frequently encountered habitats within the Sites provide opportunities for a range of invertebrate species, particularly within habitats at field edges and areas of botanically diverse grassland. It is anticipated that habitat of higher value for invertebrates will be predominantly retained as part of the detailed Scheme design, and thus potential for detrimental impacts on invertebrates are consequently low. In light of this it is not considered necessary to conduct detailed field survey for terrestrial or aquatic invertebrates. However, given the potential for benefits to invertebrate fauna within these habitats and beyond from the cessation of intensive agriculture and habitat enhancement measures, invertebrates should remain within the scope of the assessment.

Land at Melksham Substation

- 8.3.53 Records of 31 notable insect species were returned during the desk study, however habitats on within the Site generally offered limited opportunities for invertebrates. Hedgerows, field margins, trees and features such as a fallen tree and log pile provide suitable habitat for a range of species.

Plants

Lime Down A to E

- 8.3.54 Records of 54 notable plant species were returned during the desk study. Habitats across Lime Down A to E were generally typical of highly-managed agricultural land, with limited opportunities for notable botanical communities to thrive. A small number of uncommon arable weed species were infrequently recorded, including rye brome. Atypically for the Sites however, parcels of species rich grassland/lowland meadow were present in Lime Down E which were of high botanical interest and included species such as common spotted orchid *Dactylorhiza fuchsii*, marsh orchid *Dactylorhiza sp.*, and heath spotted orchid *Dactylorhiza maculata*.

Land at Melksham Substation

- 8.3.55 Records of 14 notable plant species were returned during the desk study. The habitats within this Site were typical of the surrounding landscape and highly managed, with limited opportunities for notable botanical communities to occur.

Fish

Lime Down A to E

- 8.3.56 Records of the following fish species were returned during the desk study; brook lamprey *Lampetra planeri*, European eel *Anguilla anguilla*, brown trout *Salmo trutta*, and bullhead *Cottus gobio*. This data included records from 1997 of brown trout within Gauze Brook. Fish population monitoring results from 2023 published by the Environment Agency (**Ref 67**) confirmed presence of brown trout, lamprey and bullhead in the Upper River Avon, to which watercourses within the Sites are connected. Two watercourses, Gauze Brook and Gabriel's Well Brook, and several connected wet ditches were identified within the Sites with the potential to support fish populations.

Land at Melksham Substation

- 8.3.57 No records of fish were returned during the desk study. No watercourses on Site were considered suitable to support fish populations. The on-site pond provides suitable habitat although no fish were observed during the survey.

Invasive and Non-Native Species

Lime Down A to E

- 8.3.58 Records of 11 invasive and non-native species were returned during the desk study, including American mink, Himalayan balsam *Impatiens glandulifera*, and Japanese knotweed *Fallopia japonica*. Field signs of American mink have been observed within the watercourse network at Lime Down E. No invasive plant species have been recorded within the Sites, to date.

Land at Melksham Substation

- 8.3.59 Records of 11 invasive and non-native species were returned during the desk study, including American mink, Himalayan balsam and Japanese knotweed. No invasive or non-native species have been recorded within the Site.

8.4 Potential Sources of Impact

- 8.4.1 The following sources of impacts, given here to provide context in the scoping assessment, may affect the various ecological features identified within the Site and give rise to significant effects. The examples given are not exhaustive.
- 8.4.2 CIEEM guidance draws a necessary distinction in Ecological Impact Assessment between 'impacts' and 'effects'. An 'impact' is an action resulting in changes to an ecological feature, whereas an 'effect' is the outcome to an ecological feature from an impact. Impacts are discussed here, while potential effects and potential options for mitigation are discussed later in this chapter.

Construction Phase

- **Habitat Loss and Habitat Change:** Limited habitat loss (for example within 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 of habitat loss include clearance to facilitate any permanent hard standing, such as foundations or footings. 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.
- **Killing and Injury:** Habitat clearance and construction operations have the potential to cause direct harm to species.
- **Fragmentation:** Described by 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/or 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 as the introduction of new materials onto and into the soil.
- **Habitat Creation and Enhancement:** Beneficial effects are likely to arise from the creation of new habitats, such as grassland, woodland, hedgerow and wetland, as well as the enhancement of retained habitats through sensitive management, maintenance of development-free buffer zones and increased habitat connectivity.

Beneficial effects may also be derived from the cessation of cultivation, chemical treatments and soil inputs.

Operation phase

- **Habitat Loss and Habitat Change:** As the operation phase will be largely benign, significant impacts on habitats are not anticipated, unless major, unexpected maintenance or repair events are required. It is anticipated that all panels within the array will be replaced one to two times during the lifetime of the Scheme, and battery units will be replaced on two to three occasions, although it is possible that some panels and batteries may need to be replaced more frequently. Impacts during these works are likely to be similar to those construction-phase impacts detailed above. Ongoing habitat maintenance will seek to ensure favourable condition and enhancement of all newly created and retained habitats for the lifetime of the Scheme. Ecological monitoring will be key to realising this.
- **Killing and Injury:** Routine operational works 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 Site, or the trapping of certain species within the fencing or fenced area.
- **Fragmentation:** The presence of a solar project is anticipated to be habituated to by most species, especially with the creation of new, and enhancement of retained, habitats. Typical perimeter fencing is not considered to impede the movement of most mammals, although movement of deer is likely to be impacted. Migrating birds and bats may interact with or be perturbed by the surfaces of the solar array, so this should be considered.
- **Disturbance:** Operational disturbance may occur through the routine movement of vehicles and personnel on site, as well as the presence of low-level noise associated with electrical equipment. Light reflection may be another factor.
- **EMFs:** The potential for effects of anthropogenic EMFs on ecology is an emerging and poorly-researched 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 very little 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. 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 attenuated in this way, and there lies a risk of impacts on receptive wildlife species, particularly on a number of fish 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 Primary Cable Route (i.e. where the Primary Cable Route is required to cross beneath watercourses). Consequently, the potential effects of this will be assessed within the ES, particularly while the relationship between EMFs and aquatic wildlife remains poorly understood.

- **Pollution and Habitat Degradation:** The risk of these impacts during operation are very low. Good maintenance practice will be key to avoid further pollution events or degradation of adjacent habitats. Risks are further increased around battery energy storage infrastructure, as the water used on surrounding habitats to control fire may create a source of contaminated fire water runoff into surrounding water bodies and watercourse, without appropriate drainage and pollution control allowed for at the design stage
- **Habitat Creation and Enhancement:** Ecological benefits can be maximised through the implementation of a habitat management and monitoring scheme for the lifetime of the Scheme. Beneficial effects may also be derived from the cessation of cultivation, chemical treatments and soil inputs.

Decommissioning Phase

8.4.3 Considering the anticipated 60-year lifespan of the Scheme, the accurate identification of decommissioning effects is challenging and can only be informed by the legal, policy and conservation constraints and priorities present at the time of the application.

- **Habitat Loss and Habitat Change:** It is assumed that the fields will be returned to agricultural use upon decommissioning, therefore this habitat change will need to be considered, including impacts on any newly created habitats.
- **Killing and Injury:** As per the construction phase, risks for direct harm to species should be considered.
- **Fragmentation:** While the removal of Scheme infrastructure as a reversal of the construction phase is unlikely to result in habitat fragmentation, the reversion to agriculture may impact the habitats and species which may have arisen as a result of the Scheme.
- **Disturbance:** Disturbance impacts are likely to be as per the construction phase.
- **Pollution and Habitat Degradation:** Pollution and degradation risks are likely to be as per the construction phase.

Summary

8.4.4 **Table 8.6** below identifies the ecological receptors present within the Zol of the Scheme that are considered likely to be sensitive to sources of impact described above across the construction, operational and decommissioning phases. This provides a summary of the impact context within which each receptor will be assessed in the Environmental Statement. Please refer to **Table 8.7** in **Section 8.6** for details on items to be scoped out.

Table 8.6: Ecological Receptors Likely to be Sensitive to Construction, Operational and Decommissioning Phase Impacts

Source of Impact	Sensitive Ecological Receptors
Construction Phase	
Habitat Loss and Habitat Change	Priority habitats, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds (notably farmland specialists and ground-nesting species).

Source of Impact	Sensitive Ecological Receptors
Killing and Injury	Badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds.
Fragmentation	Badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates.
Disturbance	Badger, bats, otter and water vole, dormice, great crested newt, Schedule 1 birds.
Pollution and Habitat Degradation	Designated sites, priority habitats, badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates, fish.
Habitat Creation and Enhancement	Designated sites, priority habitats, badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates.
Operation phase	
Habitat Loss and Habitat Change	None.
Killing and Injury	Badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds.
Fragmentation	Bats, other mammals, birds.
Disturbance	Badger, bats, other mammals, Schedule 1 birds.
EMF	EMF-sensing fish species.
Pollution and Habitat Degradation	None.
Habitat Creation and Enhancement	Designated sites, priority habitats, badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates.
Decommissioning Phase	
Habitat Loss and Habitat Change	Priority habitats, badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates.
Killing and Injury	Badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds.
Fragmentation	Badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates.
Disturbance	Badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds.

Source of Impact	Sensitive Ecological Receptors
Pollution and Habitat Degradation	Designated sites, priority habitats, badger, bats, otter and water vole, dormice, other mammals, reptiles and amphibians, birds, invertebrates, fish.

Potential Beneficial Effects

8.4.5 There is potential for a number of beneficial effects on biodiversity to arise from the Scheme, including the ecological enhancement measures to be included within Scheme design, such as habitat creation and enhancement, detailed in the relevant sections above. More general effects inherently arising from cessation of intensive agricultural practices within the Sites may result in benefits to wildlife, including:

- Halting the application of chemical herbicides and pesticides on previously arable areas is likely to result in increased botanical and invertebrate diversity across all of the Sites;
- Limiting the application of fertilizers may reduce the build-up of nutrients within the soils, which would result in increased botanical diversity by encouraging less-competitive grasses and herbaceous species to establish;
- Limited fertilizer application may also reduce the possibility for additional run-off into watercourses within and connected to the Sites;
- Reduced movement of agricultural machinery within the Sites will result in reduced levels of disturbance to certain protected species throughout the lifetime of the Scheme; and
- Reduced movement of agricultural machinery within the Sites will result in reduced soil compaction and/or damage to root systems associated with individual trees, hedgerows and woodland blocks.

8.5 Assessment Methodology

8.5.1 The standard approach applied in the UK to Ecological Impact Assessment is that developed by CIEEM in 2018 and revised in 2019 (**Ref 83**). This methodology will be used to evaluate existing conditions, and to assess the significance of likely effects on ecological features that may arise during construction, operation and decommissioning of the Scheme. This involves determining the relative importance of each ecological feature and undertaking an impact assessment pre- and post-implementation of mitigation measures. From this, any residual effects likely to occur can be identified, along with an appreciation of their significance.

Baseline Evaluation

8.5.2 When evaluating the baseline biodiversity importance of natural features found within the Sites (those listed in section 8.3), the following characteristics are considered:

- Animal or plant species which are rare or uncommon, either internationally, nationally or more locally;
- Ecosystems which provide the habitats required by the above species;
- Species that are afforded legal protection;
- Endemic or locally distinct sub-populations of a species;

- Habitat diversity, connectivity and/or other synergistic associations;
- Species and Habitats of Principal Importance under the NERC Act 2006;
- Notable large populations or concentrations of animals considered uncommon or threatened in a wider context;
- Plant communities that are considered to be typical of valued natural/semi-natural vegetation types;
- Species at the edge of their range; and
- Species-rich assemblages of plants or animals.

8.5.3 Habitats, species and designated sites identified in the baseline conditions will all be attributed with an ecological importance. The importance or potential importance of an ecological feature will be described in a geographical context (i.e. International, National, Regional, County, District, and Local importance). Furthermore, a category of 'Site' importance will be applied to a feature which is present or potentially present within the Sites, but where the importance to nature conservation of the feature is of relatively low value in the context of the wider landscape. A further 'Negligible' category will be assigned to features of no particular intrinsic nature conservation importance.

8.5.4 In line with the guidelines set out by CIEEM, the impacts of the Scheme will only be assessed on those Important Ecological Features (IEFs) with importance equal to or higher than Local level, or where mitigation is required for non-IEFs where it is necessary to ensure legal compliance. Habitats or species which are present for which there may be a potential breach of legislation will be considered to be IEFs, even if the feature itself is not considered to be of significant intrinsic nature conservation importance. Non-statutory designated sites will also be identified as IEFs where these lie within the Zol of the Scheme.

8.5.5 Published selection criteria, contained within the selection of Biological SSSIs, can also be referred to, to aid the assessment of importance. Where significant habitats, such as Ancient Woodland, do not carry a designation, these are nevertheless considered at a specified geographic level.

Characterisation of Impacts

8.5.6 When assessing the impact of the Scheme and impacts on baseline conditions, predictions will be made which focus solely on the Zol for each IEF in the context of the lifetime of the Scheme. The Zol will be assessed separately for each individual feature. Features considered when defining the Zol of the Scheme on each IEF include the vulnerability of sites and habitats to the effects of construction and operation of the array, the mobility of species both on and surrounding the Sites, the sensitivity of species to noise and disturbance, the impacts on transient or migratory species, and the importance of any particular species or habitats as keystone features within local ecological networks.

8.5.7 Each potential impact on an IEF will be assessed at its respective geographical scale. Where appropriate, the following parameters will be used in characterising effects:

- Positive or Negative (whether the impact will have a Positive or Negative effect);
- Magnitude (the size of the impact);
- Extent (area over which the impact occurs);

- Duration (time impact expected to last before recovery);
- Reversibility (an impact may be permanent or temporary); and
- Timing and frequency (impact may be seasonal e.g. bird nesting season).

Application of the Mitigation Hierarchy and Biodiversity Net Gain

- 8.5.8 The stepwise approach of avoidance, mitigation and compensation will be followed when reducing potential impacts.
- 8.5.9 Negative impacts can be avoided through embedded Scheme design choices, such as which fields to include within the final Scheme and the extent of the final boundary. Avoidance of impacts can also be part of the mitigation package, such as the imposition of protective buffer zones from sensitive features kept free of all development activity. A distinction is made between avoidance undertaken in deciding the fundamental size and location of the Scheme, and avoidance undertaken in the mitigation process when designing the detailed Scheme (such as fencing and buffer zones). Mitigation and avoidance measures incorporated at the design stage of Scheme are referred to as 'embedded mitigation' and are included in the characterisation of impacts 'pre-mitigation', while all other measures (referred to as secondary mitigation) are taken into consideration when characterising impacts in the light of proposed mitigation.
- 8.5.10 Mitigation measures are typically given where likely adverse impacts are identified upon the IEFs. The mitigation measures will aim to reduce the overall impact value, typically at the location at which the impact occurs. An assessment of residual effects which takes account of the proposed mitigation is then made. Due consideration is given to the reliability of mitigation measures and the likelihood that they will achieve their stated goals, using the terms defined above.
- 8.5.11 Mitigation measures are also identified for species which do not qualify as IEFs but which are afforded legal protection under the Wildlife and Countryside Act (**Ref 80**) or other legislation, and as such will require certain precautionary methodologies to avoid offences being committed.
- 8.5.12 Compensation measures may be appropriate for IEFs which are likely to experience significant effects once mitigation options have been exhausted. Compensation measures seek to offset these residual effects, for example through the provision of alternative habitat either elsewhere within or outside of the boundary. An examination of the uncertainty in achieving successful compensation will take place. Finally, any remaining residual effects can then be assessed.
- 8.5.13 Ecological monitoring is likely to form a key role in the success of any proposed mitigation or compensation measures.
- 8.5.14 Ecological enhancement measures are those which are not expressly required in order to deliver mitigation or compensation but are included to provide further benefits for nature conservation.
- 8.5.15 The Environment Act 2021 contains provisions that require that at least a 10% net gain for biodiversity be demonstrated through a BNG assessment (using the Natural England Statutory Metric or later) (**Ref 63**). It is noted that these provisions are not currently in force for NSIPs, however a BNG assessment will form part of the ES chapter and a net gain of at least 10% will be expected to be demonstrated by the Scheme.

Assessment of Residual Effects and Significance

- 8.5.16 Following the methodology described by CIEEM, an ecological significant effect is defined as *“an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local”*.
- 8.5.17 In line with CIEEM guidance, significance of residual effects will be described as being ‘significant’ or ‘not significant’. As CIEEM guidance discourages the use of the matrix approaches to assign categories (e.g. minor, moderate, major) to residual effects, ‘significant’ residual effects will be qualified with reference to the appropriate geographical scale at which the effect is considered to be felt.
- 8.5.18 Under the Habitats Regulations, a Competent Authority must consider whether a development will have a likely significant effect (LSE) on an international statutorily designated site, either alone or in combination with other plans or projects. The Habitat Regulations Assessment (HRA) process will be followed in this instance. HRA is a multi-stage process although it may not be necessary to complete all stages, depending on what conclusion is reached at each stage. As an international statutorily designated site (Bath and Bradford-on-Avon Bats SAC) is proposed to be scoped in to the assessment (**Table 8.8**), at least Stage 1 (Screening) of the HRA process is expected to be completed.

Cumulative and In-Combination Effects

- 8.5.19 Refer to **Chapter 5** of this Scoping Report for information regarding the assessment of cumulative effects on IEFs.

8.6 Conclusions on Scoping

Impacts and Receptors to be Scoped Out

- 8.6.1 The following source of impact and ecological receptors are proposed to be scoped out of the assessment, with justification provided in **Table 8.7** below.

Table 8.7: Ecological Aspects to be Scoped Out

Ecological Aspects to be Scoped Out	Justification
Potential Source of Impact	
Impacts of EMFs resulting from cables within the Sites and interconnecting cables	<p>Electric fields emanating from all cables associated with the Scheme will be fully attenuated by cable sheathing and will therefore have no resulting impacts on ecological receptors. Magnetic fields and resulting induced electrical fields are not attenuated in this way however.</p> <p>There is a lack of evidence on the effects of magnetic and induced electrical fields on wildlife. However, the voltage of cables to be used within Lime Down A to E and interconnecting cables will be much lower (33 to 132kV) than the primary cable route (400kV) and the size of generated fields will be consequently smaller. The risk of EMFs resulting in significant impacts is therefore considered highly unlikely due to the burial, sheathing and relatively low voltage of cabling within and between</p>

Ecological Aspects to be Scoped Out	Justification
	<p>Lime Down A to E. The overall risk of EMFs resulting in significant effects on terrestrial wildlife is considered highly unlikely.</p> <p>The effect of EMFs resulting from cables within Lime Down A to E and the interconnecting cables is therefore proposed to be scoped out of this assessment. This is considered proportionate to the potential for significant effects in this instance.</p>
Impacts of EMFs on terrestrial species resulting from the Primary Cable Route	<p>It is recognised that potential effects of EMFs generated along the length of the primary cable route, utilising a 400kV export cable, pose potential risks to certain ecological receptors.</p> <p>Existing research suggests that a number of fish species are sensitive to EMFs, although there is very little evidence of significant behavioural changes due to EMF effects arising from electrical cables. However, it is feasible that fish species with sensitivity to EMFs could be subject to disturbance resulting from installation of the 400kV primary export cable. Where the primary cable route crosses watercourses, the effects of EMF will be considered within the assessment.</p> <p>In respect of terrestrial species along the length of the primary cable route, there is no evidence to suggest potential significant impacts to terrestrial wildlife. The burial of the 400kV cable will provide a degree of attenuation of the possible impacts consistent with that provided by other schemes of a similar nature. The impact of the primary cable route on terrestrial species is proposed to be scoped out of the assessment on this basis.</p>
Ecological Receptors	
Severn Estuary SPA and Ramsar site	<p>Although lying within the 30km search area for sites with mobile qualifying species, the Site is situated a considerable distance from the Severn Estuary (approximately 24km at the closest point) and encompasses land which is markedly different to the estuarine habitats cited within the relevant designations. There is also not considered to be a hydrological linkage. Additionally, land within the Site is not considered to represent functionally-linked habitat for the largely wetland, coastal and estuarine species for which the Severn Estuary SPA and Ramsar site is designated.</p>
Salisbury Plain SPA	<p>Although lying within the 30km search area for sites with mobile qualifying species, the Site is situated a considerable distance from Salisbury Plain (approximately 19km at the closest point, and approximately 28km from Lime Down A to E). The Site is formed of enclosed and largely arable farmland, which is dissonant with the expanses of open chalk grassland which characterises Salisbury Plain. Land within the Site is not considered to represent functionally-linked habitat for the bird species of open downland for which Salisbury Plain SPA is designated.</p>
Mells Valley SAC	<p>Although lying within the 30km search area for sites with mobile qualifying species, this SAC is located approximately 28.44km from Land at Melksham Substation component of the Site, and approximately 42km from Lime Down A to E. Over such distances, and in the light of there being no known breeding or hibernating roosts for this species occurring within the desk study data, the land within the Site would not</p>

Ecological Aspects to be Scoped Out	Justification
	be expected to represent functionally-linked habitat for the populations of breeding and hibernating greater horseshoe bats supported by the SAC, with summer home ranges of this species typically being less than 10km from roost sites.
Stanton St Quinton Motorway Cutting SSSI	Designated solely for its geological interest – features of ecological interest are not cited as a reason for designation of the Site
Corsham Railway Cutting SSSI	Designated solely for its geological interest.

8.6.2 **Table 8.8** below summarises the results, in our considered opinion, of the scoping assessment. Please note, while the final assessment within the ES will deal with each likely impact and Importance Ecological Feature individually, this table gives a broad indication of the overall residual effects considered likely.

Table 8.8: Summary of Scoping Assessment Results

Ecological Impact Pathway/Receptor	Scoped In/Out	Justification
Potential Impact Pathways		
Impacts of EMFs on terrestrial species, and impacts of EMFs resulting from cables within the Sites and interconnecting cables	Out	Potential Sources of Impact: Operation phase and Table 8.7
Impacts of EMFs on aquatic species from the Primary Cable Route	In	Potential Sources of Impact: Operation phase and Table 8.7
Ecological Receptors		
Bath and Bradford on Avon Bats SAC	In	Table 8.3 and Paragraph 8.3.20
Severn Estuary SAC, SPA and Ramsar	Out	Table 8.3 and Table 8.7
Salisbury Plain SAC and SPA	Out	Table 8.3 and Table 8.7
Mells Valley SAC	Out	Table 8.3 and Table 8.7
National Statutorily Designated Sites within 5km of the Site	In	Table 8.4 and Paragraph 8.3.21 to Paragraph 8.3.23
National Statutorily Designated Sites within 5km of the Site, designated solely for geological interest	Out	Paragraph 8.3.21 and Table 8.7

Ecological Impact Pathway/Receptor	Scoped In/Out	Justification
Local Statutory and Non-Statutory Designated Sites within 2km of the Site	In	Table 8.5 and Paragraph 8.3.24 to Paragraph 8.3.25
Habitats of Principal Importance and Local Priority Habitats	In	Paragraph 8.3.26
Badgers	In	Paragraph 8.3.29 to Paragraph 8.3.30
Bats	In	Paragraph 8.3.31 to Paragraph 8.3.32
Otters and Water Vole	In	Paragraph 8.3.33
Dormice	In	Paragraph 8.3.35 to Paragraph 8.3.36
Other Mammals (Brown Hare, Harvest Mice, Hedgehog and Polecat only)	In	Paragraph 8.3.37 to Paragraph 8.3.45
Amphibians (including Great Crested Newts)	In	Paragraph 8.3.46 to Paragraph 8.3.47
Reptiles	In	Paragraph 8.3.48 to Paragraph 8.3.49
Birds	In	Paragraph 8.3.50 to Paragraph 8.3.51
Invertebrates	In	Paragraph 8.3.52 to Paragraph 8.3.53
Plants	In	Paragraph 8.3.54 to Paragraph 8.3.55
Fish	In	Paragraph 8.3.56 to Paragraph 8.3.57
Invasive and Non-Native Species	In	Paragraph 8.3.58 to Paragraph 8.3.59

9 Arboriculture

9.1 Introduction

- 9.1.1 This Scoping Report chapter describes the known arboricultural assets within or within influencing distance of the Scheme. These include individual trees, groups of trees and woodlands. Hedgerows are considered separately in **Chapter 8** and **Chapter 7** of this Scoping Report.
- 9.1.2 Relevant arboricultural legislation and policy is provided below as well as the proposed approach for surveys and sensitive Scheme design. The possible arboricultural impacts of the Scheme during construction, operation and decommissioning are described followed by the proposed mitigation and compensation options. An Assessment Methodology is provided for arboricultural impacts that cannot be avoided and this chapter then concludes by identifying which effects on trees from the Scheme will be scoped into the Environmental Impact Assessment and considered within the ES.
- 9.1.3 A Preliminary Arboricultural Impact Assessment and Outline Arboricultural Method Statement will accompany the DCO submission to confirm the anticipated effects, mitigation and compensation once the final layout and construction details are available and all surveys have been completed.
- 9.1.4 This chapter is supported by the following Figures and Appendices.
- Appendix 9.1 Arboriculture Figures
 - Figure 9.1 Study Area
 - Figure 9.1.1 Study Area Lime Down A
 - Figure 9.1.2 Study Area Lime Down B
 - Figure 9.1.3 Study Area Lime Down C
 - Figure 9.1.4 Study Area Lime Down D
 - Figure 9.1.5 Study Area Lime Down E
 - Figure 9.1.6 Study Area Land at Melksham Substation
 - Figure 9.1.7 Study Area Cable Route Search Corridor
 - Figure 9.1.8 Study Area Cable Route Search Corridor

9.2 Legislation, Policy and Guidance

- 9.2.1 This chapter has considered the following relevant legislation, policy and guidance:
- Overarching NPS for Energy (EN-1) (**Ref 8**);
 - The NPS for Renewable Energy Infrastructure (EN-3) (**Ref 34**);
 - NPPF (**Ref 14**);
 - Planning Policy Guidance for Tree Preservation Orders and Conservation Areas (**Ref 96**);
 - Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (**Ref 97**); and

- British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction' (BS 5837:2012) (**Ref 98**).

9.2.2 Ancient woodland and ancient and veteran trees are considered 'irreplaceable habitats' within the NPPF. Impacts to these trees, such as loss or deterioration, should only be permitted for 'wholly exceptional reasons' where the public benefit of a development outweighs the loss or deterioration and a suitable compensation strategy exists. Given this strong policy protection and the difficulties in establishing a suitable compensation strategy for such features, particular emphasis on identifying and then avoiding impacts to ancient and veteran trees is being given to ensure any potential impacts are avoided from the outset.

9.3 Preliminary Baseline Conditions

9.3.1 The Study Area, illustrated in **Figure 9.1** and **Figure 9.1.1** to **Figure 9.1.8**, includes all land within the Site in addition to a 15m buffer from the boundary. This is considered sufficient to include arboricultural constraints with the potential to be affected by the Scheme, considering the nature of the associated construction activities and operational infrastructure, and based on precedent set by assessment of similar projects.

9.3.2 Baseline arboricultural surveys are currently being undertaken at the time of writing on Lime Down A to E and Land at Melksham Substation have been surveyed. At this stage, the exact route of the Cable Route Corridor is yet to be determined but it will be routed within the Cable Route Search Corridor (refer to **Figure 3.2.1** to **Figure 3.2.3**). The Cable Route Search Corridor will be refined during the design process to a preferred route which will be presented in the PEIR. The identified arboricultural constraints will feed into the design process to refine the route. Desktop information available for the Cable Route Search Corridor is presented in this chapter and arboricultural surveys will be undertaken on the final Cable Route Corridor.

9.3.3 A desk-based assessment has found that there are no existing records of ancient and/or veteran trees (**Ref 99**), and no records of Tree Preservation Orders (**Ref 100**), within Lime Down A to E; nor are any located within 15m of the boundary of these Sites. A provisional Tree Preservation Order (ref: TPO/2024/00011) dated 26th April 2024 was however recently served by Wiltshire Council on tree stock at Land at Melksham Substation.

9.3.4 At the time of writing, the following Tree Preservation Orders have been identified within the current Cable Route Search Corridor:

- N/TPO107 at Monks Park Mine, Corsham to the east of Monk's Lane;
- N/TPO221 at Chapel Knapp farm, Gastard, 45m east of Velley Hill;
- N/10/00003/IND on land at Lackham Park Estate, Lacock, immediately east of the A350;
- N/TPO145 on agricultural land south of the A4 (Bath Road) on the south western outskirts of Chippenham;
- N/TPO128 on land at Camp Farm (Cepen Park), immediately east and west of West Cepen Way, Chippenham;
- N/TPO42 and N/TPO47 on land immediately north and south of the M4 between Grittleton and Stanton St Quinton; and
- N/TPO7, N/TPO8 and N/TPO31 on the Grittleton estate. Protected trees as distributed throughout land south of the M4, northwards into Grittleton Village.

9.3.5 The Scheme does not sit within any designated Conservation Areas although sections of the Cable Route Corridor do adjoin several Conservation Areas which contain protected trees; namely Grittleton, Hullavington Airbase, Leigh Delamere, Sevington, Allington, Corsham, Easton, Lacock and Gastard Conservation Areas.

9.3.6 There are no registered ancient woodlands within Lime Down A to E, Land at Melksham Substation or the Cable Route Search Corridor. However, there are fourteen ancient woodlands within 100m of Lime Down C, D and E and the Cable Route Corridor. These are illustrated at **Figure 9.1.1** to **Figure 9.1.8** as follows:

- Surrendell Wood, located immediately to the south and adjoining Lime Down C (Field C13 (**Figure 3.3.3**)) and also adjoins the upper western extent of the Cable Route Search Corridor;
- Lords Wood, adjoining Lime Down C (Field C20 (**Figure 3.3.3**)) and the section of the Cable Route Search Corridor that adjoins Sites C and A;
- Bradfield Wood, adjoining the northern extent of Lime Down D (Field D10 (**Figure 3.3.4**));
- Bincombe Wood, adjoined on it's north, eastern and western extents by Lime Down E (Fields E1, E2, E3 and E6 (**Figure 3.3.5**)), also abutted on its southern boundary by the Cable Route Search Corridor section linking the northern and southern extents of Lime Down E;
- North Bincombe Woods, immediately north of Lime Down E (adjoining Fields E11, E13, E14 and E16 (**Figure 3.3.5**)). This woodland is also abutted on it's southern boundary by the Cable Route Search Corridor section linking the northern and southern extents of Lime Down E;
- Seagry Wood, abutting the south eastern corner of Lime Down E (Field E34 (**Figure 3.3.5**))
- Leigh Delamere Wood, adjoining the Cable Route Search Corridor, 1.95km south west of Stanton St Quinton;
- Stanton Park adjoining the Cable Route Search Corridor, 1km west of Stanton St Quinton;
- Priory Wood, adjoining the Cable Route Search Corridor, 0.5km east of Easton Piercy;
- Easton Wood, adjoining the Cable Route Search Corridor, 0.5km north east of Easton Piercy;
- Heywood/White Wood, adjoining the eastern extent of the Cable Route Search Corridor and 1.1km north of Allington;
- Chapscroft Wood within 0.9km of Biddestone and adjoining the western extent of the Cable Route Search Corridor;
- Corsham Wood, within 1.7km of Biddestone; and adjoining the Cable Route Search Corridor
- Vincients Wood, 100m from the eastern extent of the Cable Route Search Corridor and at the western extent of Chippenham, adjacent to West Chippenham Way.

- 9.3.7 Results from ground level tree surveys of Lime Down A to E and Land at Melksham Substation have, to date, documented 372 individual trees, 38 of which have been classified as veteran; none of these are identified as ancient specimens.
- 9.3.8 Mixed broadleaf woodland collectives and tree groups have been occasionally identified within the survey areas although most significant features are not within the Scheme. Those identified within the Scheme include:
- Deadhill Plantation and Deadhil Wood, within the Cable Route Search corridor, 2.3km east of Grittleton.
 - Smith's plantation, within the Cable Route Search corridor, 1.4km east of Biddestone.
 - Priors Copse, within the Cable Route Search corridor, immediately west of the outer extents of Chippenham.

9.4 Assessment Methodology

Tree Survey and Design

- 9.4.1 A full tree survey in accordance with BS 5837:2012 is being undertaken at Land at Melksham Substation and other targeted areas within Lime Down A to E and the Cable Route Corridor where the potential exists for arboricultural impacts such as incursions into rooting zones, facilitative pruning or tree removal as a last resort as identified through desk study.
- 9.4.2 For the remainder of the Site, any relevant trees within influencing distance of those areas will be surveyed to record all ancient and veteran trees, as well as the largest tree (by stem diameter and resulting root protection area) on each field boundary, in accordance with BS 5837:2012. Early establishment of tree buffers will provide mitigation by facilitating sensitive constraints-led design around existing tree assets. Further Arboriculturist input into the design process will ensure that existing trees and their buffers are avoided in most instances. Unavoidable tree effects will be detailed in the Preliminary Arboricultural Impact Assessment with required mitigation and compensation measures detailed in the Outline Arboricultural Method Statement to be submitted with the DCO application.
- 9.4.3 The stem locations, Root Protection Areas and canopy spreads of recorded trees will inform the protection offsets for the Scheme design in addition to buffers advised for ecological constraints. For veteran and ancient trees, a buffer zone of 15 times the Diameter at Breast Height of the tree, or 5 metres from the edge of the tree's canopy, whichever is greater, will be followed in accordance with guidance from Natural England and the Forestry Commission (**Ref 97**). For all non-veteran trees, buffer zones will be 12 times the Diameter at Breast Height as per guidance within BS5837:2012.

Likely Effects

- 9.4.4 Possible effects to trees from the construction of the Scheme include tree removal, pruning and root loss/damage from:
- Temporary construction access routes and visibility splays;
 - Permanent access routes and visibility splays;
 - Construction compounds/parking areas/materials storage areas;

- Permanent parking areas and compounds;
- Installation of cables, services, security fencing and ancillary equipment;
- Movements of tall and/or heavy machinery; and
- Future maintenance requirements.

9.4.5 Possible effects to trees from the operation of the Scheme include tree pruning to maintain permanent access routes, visibility splays, parking areas and compounds as well as any pruning to reduce shading to solar panels. The risks of these impacts during operation are likely to be minor given that generous offsets from trees will be applied during the design stage.

9.4.6 Proposed effects to trees from the decommissioning of the Scheme are anticipated to be negligible given that the Scheme's infrastructure is likely to be removed via pre-established permanent access routes and is therefore unlikely to require any additional tree removal, pruning or root loss.

Arboricultural Mitigation and Compensation Approach

9.4.7 The primary method for mitigating the above listed potential impacts to trees will be through considered constraints-led design and layout of the Scheme to avoid buffer zones, canopy spreads and shade patterns of existing trees which will be incorporated into the Outline LEMP. It is considered highly feasible for the solar array areas to achieve these offsets given that the nature of the Scheme requires the arrays to have access to unobstructed light. Potential mitigation options for the installation of the cables include HDD, micro-siting around tree Root Protection Areas and canopies and hand digging within Root Protection Areas. Tree removal and compensatory planting will be undertaken as a last resort.

9.4.8 As the Scheme design progresses, the project arboriculturalist will continue to complete periodic background checks and consult with Wiltshire Council regarding the service of any new Tree Preservation Orders that may have the potential to affect Lime Down A to E, Land at Melksham Substation, and the Cable Route Search Corridor.

9.4.9 Damage to trees, groups, woodlands and hedges will be mitigated primarily via the installation of tree protection fencing and other forms of fit for purpose tree protection (e.g. ground protection), installed to the specifications recommended in BS 5837:2012 prior to the commencement of construction, and the maintenance of this protection for the duration of construction. In places, it may be appropriate for security fencing to act as the tree protection fencing, provided that all construction activities will take place inside of the fencing and the fencing installation will be the first activity on site, before the arrival of any vehicles, plant or machinery.

9.4.10 Mitigation will be secured within an Outline Arboricultural Method Statement to be incorporated within the Outline CEMP and submitted with the DCO. Tree Protection Plans may be required in certain areas where security fencing will not offer sufficient protection for retained arboricultural assets. Arboricultural oversight during construction will be secured with specific provisions to be included within the Outline CEMP. Compensation will be secured through proposed new planting to be secured in the Landscape Mitigation Plan which will compensate for any tree losses and ensure the long-term sustainability of the existing tree resource given the presence of extensive ash dieback across the Scheme.

9.4.11 Unavoidable tree impacts will be assessed by first establishing the value/sensitivity of the arboricultural feature as per **Table 9.1** below.

Table 9.1: Criteria for Value/Sensitivity of Arboricultural Resource

Value/Sensitivity	Description
Very High	Ancient and veteran trees.
High	Trees protected by a Tree Preservation Order and/or classified as Category A in BS 5837:2012.
Medium	Trees protected by a Conservation Area designation and/or classified as Category B in BS 5837:2012.
Low	Trees classified as Category C in BS 5837:2012
Negligible	Trees classified as Category U in BS 5837:2012.

9.4.12 Once the value/sensitivity of an impacted arboricultural feature has been ascertained, the magnitude of impact to that feature will be assessed as per **Table 9.2** below.

Table 9.2: Criteria for Determining Magnitude of Impact

Magnitude of Impact	Description
High	Tree removal or significant tree pruning which alters the value/sensitivity of an arboriculture feature.
Medium	Canopy or root impacts which do not alter the value/sensitivity of an arboricultural feature but may have a medium to long term impact on tree condition, health and safe life expectancy.
Low	Canopy or roots impacts which do not meet the definitions of 'high' or 'medium' above and are likely to have a temporary/short term impact on tree condition, health and safe life expectancy.
Negligible	Very minor impact to a tree which does not meet the definitions of high, medium, low or neutral magnitude.
Neutral	No feasible impact to a tree.

9.4.13 'Significant' arboricultural effects, for the purposes of the Environmental Statement, will be defined as effects which are 'medium' or 'high' as defined in **Table 9.3** below.

Table 9.3: Significance of Effect

		Arboricultural Value/Sensitivity				
		High	Medium	Low	Negligible	Neutral
Magnitude of Impact	Very High	High	High	Medium	Low	Neutral
	High	High	Medium	Low	Low	Neutral
	Medium	Medium	Medium	Low	Low	Neutral
	Low	Medium/Low	Low	Low	Negligible	Neutral
	Negligible	Low	Neutral	Negligible	Negligible	Neutral

9.5 Conclusions on Scoping

- 9.5.1 The primary impacts on trees will be avoided through embedded mitigation included within the design stage in order to minimise potential design conflicts between trees and the Scheme.
- 9.5.2 The Outline CEMP will include an Outline Arboricultural Method Statement to minimise damage to trees during construction, and this will be monitored by a qualified arboricultural professional. A Landscape and Ecological Management Plan will be produced to manage and minimise impacts to trees during operation; however, it is anticipated that impacts to trees will be minimal through sensitive design around tree constraints and buffers.
- 9.5.3 Impacts to trees within Lime Down A to E are proposed to be scoped out of the Environmental Statement. In view of the embedded mitigation that will be included within the Outline CEMP, no impacts to trees within these Sites are likely.
- 9.5.4 Impacts to trees on Land at Melksham Substation are also proposed to be scoped out from the Environmental Statement. The constraints led Scheme design and mitigation strategy allows for and encompasses the legislative requirements of the Tree Preservation Order served on this land as detailed at section 9.3.3.
- 9.5.5 Given that the Cable Route Search Corridor is still to be refined and the potential for arboricultural impacts from construction activities, it is not proposed to scope out the impacts to trees within the Cable Route Corridor (once refined) at this point. However, in light of the extensive embedded mitigation, and that the potential for arboricultural impacts will be a relevant factor in how the Cable Route Corridor is refined, the potential for impacts may be unlikely. The Cable Route Corridor will therefore be kept under review and may be scoped out of the ES with stakeholder agreement.

Table 9.4: Scoping Summary

Assessment	Scoped In or Out	Justification
Impacts to Trees in Lime Down A to E and Land at Melksham Substation	Scoped Out	In view of the embedded mitigation of designing the Scheme to avoid impacts on trees, and further mitigation that will be included within the Outline CEMP, no impacts to trees within these Sites are likely to occur

Assessment	Scoped In or Out	Justification
		during construction, operation or decommissioning.
Cable Route Corridor	Scoped In	Given that the Cable Route Search Area is still to be refined and the potential for arboricultural impacts from construction activities, it is not proposed to scope out the impacts to trees within the Cable Route Area (once refined) at this point. However, in light of the extensive embedded mitigation, and that the potential for arboricultural impacts will be a relevant factor in how the Cable Route Search Area is refined, the potential for impacts may be unlikely. The Cable Route Search Area will therefore be kept under review, and it is proposed that the assessment of impacts within the refined Cable Route may be scoped out of the ES with stakeholder agreement.

10 Hydrology, Flood Risk and Drainage

10.1 Introduction

- 10.1.1 The hydrology, flood risk and drainage chapter of the ES will consider the likely significant effects of the Scheme on local hydrology and flood risk during construction, operation and decommissioning. The ES chapter will consider the potential for effects on water quality and resources, the land drainage regime and flood risk from tidal, fluvial, surface water, groundwater and artificial sources.
- 10.1.2 The Site is in excess of 1ha in size and parts of the Site are located within Flood Zones 2 and 3. A Flood Risk Assessment will therefore also be prepared in line with the requirements of National Policy Statement for Energy (EN-1) guidance (**Ref 8**).
- 10.1.3 This chapter is supported by the following appendix and figures:
- Appendix 10.1 Hydrology, Flood Risk and Drainage Figures
 - Figure 10.1 The Study Area;
 - Figure 10.2 Environment Agency Flood Map for Planning Rivers and Sea; and
 - Figure 10.3 Environment Agency Risk of Surface Water Flooding.

10.2 Study Area

- 10.2.1 The Study Area, illustrated in **Figure 10.1**, includes all land within the Site in addition to a 250m buffer from Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor. This is considered sufficient to include all water environment receptors with the potential to be affected by the Scheme, considering the nature of the associated construction activities and operational infrastructure, and based on precedent set by assessment of similar projects.
- 10.2.2 The Site incorporates Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor as shown in **Figure 3.1**. The Cable Route Search Corridor will be refined during the design process to a preferred route, which will be presented in the PEIR.

10.3 Legislation, Policy and Guidance

- 10.3.1 The following policy provisions are relevant to the Water Environment Assessment:

Legislation

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (**Ref 101**) implement the Water Framework Directive (WFD) in England and Wales and became retained EU law at the end of the Brexit transition period. The Regulations identify the River Basin Districts (RBD) and the processes that the responsible authorities for the implementation of the Directive should follow to: produce the necessary River Basin Management Plans (RBMPs); identify bodies of water within each RBD that are used, or intended to be used, for the abstraction of drinking water; and produce a register of 'protected areas' within each RBD;
- The Groundwater WFD (England and Wales) Regulations 2009 and Groundwater WFD (England) 2014 (**Ref 102**) transpose the Groundwater Daughter Directive.

The Daughter Directive requirements have been transposed into UK law by the Environmental permitting (England and Wales) Regulations 2016 (**Ref 103**);

- The Flood and Water Management Act passed into statute in April 2010 (**Ref 104**). It sets out a number of changes to the way that new developments and water infrastructure will interact, including the proposed future mechanism for using SuDS where practical. The Flood and Water Management Act outlines the responsibilities for local authorities with regards to land drainage and flood risk management;
- The Water Resources Act 1991 (and Land Drainage bylaws) (**Ref 105**) require the prior written consent of the EA for any works or structures, in, over, under or within 8 metres of any watercourse designated as a main river. The EA is responsible for permitting these types of work;
- The Land Drainage Act 1991 (**Ref 106**), together with the Water Resources Act 1991 (**Ref 105**), provide the EA the power to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure in a main river. Where culverting or other works have a potential to affect the flow regime of ordinary watercourses, consent is required from the Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010 (**Ref 104**); and
- The Nitrates Directive (91/676/EEC) (**Ref 107**) sets out the regulatory framework for protecting the water environment from pollution caused by nitrates. The Nitrates Directive is enacted through the Nitrate Pollution Prevention Regulations 2015 (**Ref 108**) that are enforced by the EA and set out a requirement to designate Nitrate Vulnerable Zones (NVZs), limits on nitrogen fertiliser applications, and controls on the application and storage of organic manure.

National Policy Statements

- The NPS for energy infrastructure (EN-1 to EN-6) which were published in 2023 and came into effect in January 2024, provide the framework for assessment and decision making by the Secretary of State. There are three specific national policy statements relevant to the Scheme. The Overarching National Policy Statement for energy (EN-1) (**Ref 8**), in section 3.3, includes a statement on the need for solar power and associated energy storage to deliver the energy objective of net zero. In section 5.8 and 5.16, NPS EN-1 (**Ref 8**) provides guidance on the assessments an applicant should undertake to qualify the effects on flood risk and water quality and resources and how any adverse impacts upon these aspects of the environment should be mitigated. The NPS for Renewable Energy Infrastructure (EN-3) (**Ref 109**), in section 2.10, states the government's commitment to sustained growth in solar capacity and provides guidance for applicants on site selection and design. In paragraphs 2.10.84 and 2.10.85, EN-3 advocates for use of localised Sustainable Drainage Systems to control site runoff. Finally, the NPS for Electricity Networks Infrastructure (EN-5) (**Ref 110**) outlines the importance of the electricity network within the UK, including the strategic approach to renewable energy generation.

10.3.2 The assessment will be undertaken cognizant of the guidance set out in these publications with regard to the effects on the water environment.

National Planning Policy Framework

- The NPPF was published in February 2019 and revised in December 2023 (**Ref 14**). PPG (**Ref 15**) documents are published and updated to support the NPPF. The flood risk and coastal change PPG was published in 2014 and most recently updated in August 2022;
- The NPPF (**Ref 14**) sets out the tests needed to ensure people and properties are protected from flooding. The sequential test is applied to all developments to direct developments to the areas at lowest risk of flooding in preference to those in areas at higher risk. If the sequential test shows that there are no suitable development sites in areas of lower flood risk, then the exception test is applied. The exception test must demonstrate that the development has wider benefits that outweigh flood risk, that the development will be safe for its lifetime and will not increase flood risk elsewhere;
- The NPPF (**Ref 14**) also ensures that climate change is considered in the long term for flood risk, coastal change, water supply and changes to biodiversity and landscape. Therefore, new developments should be planned to avoid increasing vulnerability arising from the impacts of climate change; and
- The NPPF (**Ref 14**) states that a site-specific Flood Risk Assessment (FRA) is required for proposals of 1 hectare or greater in Flood Zone 1; all proposals for new development in Flood Zone 2 and 3; proposals in an area within Flood Zone 1 which has a critical drainage problem, as notified by the local planning authority or the EA; and any proposed development or a change of use to a more vulnerable use, on land in Flood Zone 1 which may be subject to other sources of flooding.

Non-Statutory Technical Standards for Sustainable Drainage (2015)

- The non-statutory technical standards for sustainable drainage systems (**Ref 111**) published in 2015 sets out the technical standards for SUDS, and should be used in conjunction with the NPPF and PPG. The technical standards include guidance on considering sustainable drainage at a planning stage, these include layout, density, site access, topography, ground conditions and discharge destination.

Flood Risk Regulations (2009)

- The Flood Risk Regulations 2009 (**Ref 112**) transposes the EU Flood Directive into law in England and Wales. The EU Flood Directive sets out a consistent approach to flood risk management across all of Europe. In England and Wales, the Regulations require that in six-year cycles all Lead Local Flood Authorities:
- Prepare or review their Preliminary Flood Risk Assessment (PFRAs) to determine and identify Flood Risk Areas;
- Prepare or review their flood hazard and flood risk maps for each of their Flood Risk Areas;
- By the end of each cycle, prepare a flood risk management plan to manage any significant flood risk in their Flood Risk Areas. Setting out objectives and measures to achieve any objectives set; and
- Flood risk management plans, Flood hazard and flood risk maps are published by the EA.

Building Regulations (2010)

- The Building Regulations 2010 (**Ref 113**) are the official legal requirements for building work in the UK, covering topics such as energy efficiency fire safety and water usage. Building Regulations H (drainage and waste disposal) (**Ref 114**) took effect in 2015, following updates from 2002. Building Regulations H provides guidance on:
 - H1: Foul water drainage;
 - H2: Wastewater treatment systems and cesspools;
 - H3: Rainwater drainage;
 - H4: Building over sewers;
 - H5: Separate systems of drainage;
 - H6: Solid waste storage; and
 - The regulations set out a hierarchy of where surface water should be discharged to.

Local Planning Policy

- The Scheme is located completely within Wiltshire Councils administrative boundary. The current Local Plan is the Wiltshire Core Strategy (WCS), adopted in 2015 (**Ref 16**). Wiltshire Council has published a draft Wiltshire Local Plan, with adoption expected at the end of in late 2024 or early 2025. The Wiltshire Local Plan Regulation 19 consultation was undertaken in autumn 2023 (**Ref 116**).
- The current Local Plan policies relevant to this chapter are listed below:
 - Core Policy 42: Standalone Renewable Energy Installations
 - Core Policy 67: Flood Risk;
 - Core Policy 68: Water Resources; and
 - Core Policy 69: Protection of the River Avon SAC.

Emerging Local Plan Policy

- As part of the emerging Local Plan, Wiltshire Council has updated their policies. The emerging Local Plan policies relevant to this chapter are listed below:
 - Policy 86: Renewable energy (formerly Core Policy 42);
 - Policy 95: Flood risk (formerly Core Policy 67);
 - Policy 96: Water resources (formerly Core Policy 68); and
 - Policy 88: Biodiversity and geodiversity (formerly Core Policy 69).

Consultation

- 10.3.3 To date consultation has taken place with regards to hydrology, flood risk and drainage within the Study Area. The EA and LLFA have been consulted to obtain baseline flood data. Engagement has been undertaken with Wiltshire Council regarding the flooding history at the Sites. Further engagement will inform future stages of assessment.

10.4 Preliminary Baseline Conditions

- 10.4.1 A full description of the Scheme is set out in **Chapter 3** and a summary, alongside an overview of baseline hydrological characteristics, is provided below.
- 10.4.2 The risk of fluvial flooding has been assessed with reference to the EA online Flood Map for Planning (**Ref 117**), as shown in **Figure 10.2**. Surface water flooding potential has been characterised using the EA Risk of Flooding from Surface Water Map (**Ref 118**), as shown in **Figure 10.3**. The occurrence of flood defences has been identified with reference to the EA Spatial Flood Defences dataset (**Ref 119**). Ponds/area of standing water have been identified using satellite mapping and MAGIC Map (**Ref 64**), whilst areas of wetland are described in **Chapter 8**.
- 10.4.3 The Scheme is located completely within the Severn RBD (**Ref 120**) and the Bristol Avon Rural Operational Catchment (**Ref 121**).

Solar Area

Catchments and WFD Waterbodies

- 10.4.4 Lime Down A, B, and C are within the catchment of the Sherston Avon waterbody (**Ref 122**) with some tributaries of this waterbody flowing through the Study Area.
- 10.4.5 A small area of Lime Down C is within the Luckington Brook waterbody (**Ref 123**) catchment and Lime Down D and E are within the Gauze Brook - source to confluence River Avon (Brist) waterbody (**Ref 124**) and the Rodbourne Brook - source to conf R Avon (Brist) waterbody (**Ref 125**) catchments.
- 10.4.6 Several tributaries of these waterbodies flow through the Study Area, including an unnamed tributary of Gauze Brook and Gabriels Well Brook, a tributary of the River Avon.

Flood Risk and Defences

- 10.4.7 Land within the Sites is at risk of surface water flooding to varying degrees. Some areas have a high risk of surface water flooding, classified as a chance of occurrence greater than 1 in 30 years (3.3% annual chance). Other areas are at medium risk of surface water flooding, associated with a chance of occurrence between 1 in 30 years and 1 in 100 years (1% annual chance) and large areas have a low (associated with a chance of occurrence between 1 in 100 years and 1 in 1000 years (0.1% annual chance) or very low risk status. A summary of the number of fields at risk of flooding from this source is given in **Table 10.1** below.

Table 10.1: Summary of the Number of Fields at Risk of Surface Water Flooding per Area

Area Name	Total Number of Fields	High Risk*	Number of fields at Medium Risk (Total)	Number of fields at Low Risk (Total)
Lime Down A	12	6	2 (8)	2 (10)
Lime Down B	12	5	1 (6)	4 (10)
Lime Down C	37	17	4 (21)	11 (32)

Area Name	Total Number of Fields	High Risk*	Number of fields at Medium Risk (Total)	Number of fields at Low Risk (Total)
BESS Option Site	9	4	1 (5)	3 (8)
Lime Down D	24	17	5 (22)	2 (24)
Lime Down E	34	18	3 (21)	9 (30)

*These fields are partially, not entirely, at a high risk of surface water flooding. The same applies for those categorised as at medium and low risk.

- 10.4.8 The EA Flood Risk Map for Planning (**Ref 117**) indicates that the majority of the Sites are located in Flood Zone 1, at low risk of flooding from rivers and the sea. There are small areas, e.g. part of Lime Down C, D and E, that are located within Flood Zone 2 and Flood Zone 3, which are defined as medium and high risk flood zones.
- 10.4.9 The EA Spatial Flood Defences dataset (**Ref 119**) has been used to assess the location of flood defences. Within the Study Area there are defences along the River Avon and two of its tributaries, as well as along Gauze Brook and Gabriel's Well Brook.
- 10.4.10 All flood defences in the vicinity of the Site consist of naturally high ground with a design standard of protection of 1 in 2 years, owned by a private individual, company or charity.

Groundwater Aquifers

- 10.4.11 The majority of the solar area is underlain by the WFD Bristol Avon Forest Marble ground waterbody, with smaller pockets underlain by the WFD South of Malmesbury ground waterbody. A summary of the bedrock aquifers present is given in **Table 10.2** below. The bedrock geology is overlain by superficial deposits that support an 'Unproductive' aquifer across the Sites. These are defined as having negligible significance for groundwater storage and supply.

Table 10.2: Summary of Bedrock Aquifers Underlying Each Area

Area Name	WFD Groundwater Body and Bedrock Geology	Aquifer Type
Lime Down A	Bristol Avon Forest Marble Formation – Mudstone	Secondary A
Lime Down B	Bristol Avon Forest Marble Formation – Mudstone and South of Malmesbury Cornbrash Formation – Limestone	Secondary A
Lime Down C	Bristol Avon Forest Marble Formation – Mudstone	Secondary A
Lime Down D	Bristol Avon Forest Marble Formation – Mudstone and South of Malmesbury Cornbrash Formation – Limestone Kellaways Clay Member – Mudstone	Secondary A

Area Name	WFD Groundwater Body and Bedrock Geology	Aquifer Type
Lime Down E	Bristol Avon Forest Marble Formation – Mudstone and South of Malmesbury Cornbrash Formation – Limestone	Secondary A

- 10.4.12 A total of 51 ponds have been recorded from ecology site surveys within the Sites, some of which are connected to the ditch network bounding parts of the Sites. A further 100 ponds have been identified within 250m of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor. Further information is provided **Chapter 8**.
- 10.4.13 Within the solar area key water environment receptors include two WFD groundwater bodies, four WFD surface waterbodies and several tributaries, limited areas of fluvial floodplain and some areas of land that are at varying risk of surface water flooding.

Grid Connection

Cable Route Search Corridor

- 10.4.14 A Cable Route Search Corridor, which exceeds the defined 250m wide Study Area (described in **Section 10.2**), has been established which will be refined and feature a narrower cable route corridor that will be assessed in the forthcoming PEIR. The Cable Route Search Corridor is located within the WFD Avon Bristol Rural Operational Catchment (**Ref 121**) and is crossed by several statutory main rivers and ordinary watercourses. These include the Gauze Brook and several tributaries, several tributaries of the River Avon, Hardenhuish Brook and Pudding Brook. The Flood Map for Planning (**Ref 117**) indicates that there are areas of Flood Zone 2 and Flood Zone 3 associated with these watercourses, although these floodplains are relatively narrow in extent.
- 10.4.15 Flood defences are located along the Gauze Brook, tributaries of the River Avon and Pudding Brook (**Ref 119**). All of the flood defences are naturally high ground, owned by a private individual, company or charity. The design standard of protection of the defences is classified as 1 in 2 years.
- 10.4.16 The Risk of Flooding from Surface Water mapping (**Ref 118**) shows there are areas associated with high, medium, and low risk of flooding from this source located throughout the Cable Route Search Corridor as illustrated in **Figure 10.3**.
- 10.4.17 The Cable Route Search Corridor is underlain by two WFD ground waterbody catchments, the WFD Bristol Avon Forest Marble ground waterbody (**Ref 126**) and South of Malmesbury ground waterbody. The bedrock geology is primarily classified as 'Secondary A' and 'Unproductive' aquifers. The bedrock is overlain by superficial deposits that are primarily 'Unproductive' aquifer, but with pockets of deposits that support 'Secondary A' aquifers.
- 10.4.18 Within the Cable Route Search Corridor, key water environment receptors include two WFD groundwater bodies, several statutory main rivers, designated WFD surface watercourses and a number of ordinary watercourses. There are also limited areas of fluvial floodplain and some areas of land that are at risk of surface water flooding. Refined detail on receptors relevant to the Cable Route Corridor will be present in the PEIR.

Land at Melksham Substation

- 10.4.19 One potential location for the BESS is located near Melksham Substation and is situated in the south of the Study Area within the South Brook - source to confluence River Avon (Bristol) waterbody catchment (**Ref 127**). The nearest waterbody to the Land at Melksham Substation is approximately 700m south and is the South Brook, a tributary of the River Avon. The Flood Map for Planning (**Ref 117**) indicates that the Land at Melksham Substation is not located in Flood Zone 2 and 3. There are no flood defences within 50m of the Land at Melksham Substation. The nearest flood defences are approximately 700m south, along the South Brook.
- 10.4.20 The EA Risk of Flooding from Surface Water mapping (**Ref 118**) shows areas associated with a high risk of surface water flooding, classified as a chance of occurrence greater than 1 in 30 years, are located along the boundary of the Land at Melksham Substation. These extents increase with larger areas associated with medium and low risk of flooding from this source, as illustrated in **Figure 10.3**.
- 10.4.21 The Land at Melksham Substation is underlain by bedrock geology classified as Kellaways Formation - Sandstone, siltstone and mudstone, and 'Unproductive' aquifer. The bedrock is overlain by superficial deposits that also support an 'Unproductive' aquifer, defined as having negligible significance for groundwater storage and supply. Given the absence of a Principal aquifer, the risk of clearwater flooding is low.
- 10.4.22 Within the land at Melksham Substation there are few water environment receptors. The land is at low risk of fluvial flooding but has a high risk of surface water flooding.

10.5 Assumptions and Limitations

- 10.5.1 The methodology for assessment of potential water resource and flood risk effects has incorporated the following assumptions:
- Access roads and footways will be finished with permeable surfacing and therefore assumed to be effectively permeable;
 - Any runoff from waste materials would be collected, contained and prevented from direct entry to watercourses; and
 - Analysis of flood extents is reliant on the accuracy of the published EA Flood Map for Planning (**Ref 117**) and EA flood data. No new hydraulic modelling will be undertaken as part of this study.
- 10.5.2 Given the Scheme is anticipated to be unmanned during the operation phase, with infrequent attendance for maintenance, on-site welfare facilities will be limited or non-existent. Therefore, the water consumption needs of the Scheme will be very limited and no foul water discharges will arise from the Scheme. No new connections to water supply mains or to the foul sewer network are likely to be necessary, maintenance checks being the only time during which there would be staff present. As such, impacts on water supply and foul sewer capacity is scoped out of further assessment.

10.6 Potential Effects and Mitigation

- 10.6.1 The potential and likely environmental effects relating to Hydrology, Flood Risk and Drainage will differ dependent on the phase of the Scheme (construction, operation or decommissioning). The following subsections summaries the potential effects of each phase.

Construction

- 10.6.2 During construction surface water pollution could be possible from machinery or fluid spills. Alongside, there is potential for invasive non-native species (INNS) to be introduced if proper wash down stations are not present. If new crossings or works to existing crossings of rivers is required for the installation of the cable route, this could have an effect on the hydromorphology of the river. An increase in permeable surfaces due to compaction of soils from heavy machinery and temporary surfaces could lead to an increased on and off-site surface water flood risk. There is a potential for groundwater pollution due to seepage of oil or other hazardous fluid spills. During construction due to the increase in work staff there could be an impact on the public drainage network (foul and surface water) in terms of water quality and capacity.

Operation

- 10.6.3 During operation, the concentration of rainfall runoff from the solar panels could increase on and off-site surface water flood risk. If the batteries were to fail, there is the possibility of ground or surface water pollution.

Decommissioning

- 10.6.4 Considering the lifespan of the panels and BESS, the accurate prediction of decommissioning effects is uncertain and can only be informed by the policies and guidance at the time of application. During decommissioning, surface water pollution could be possible from machinery or fluid spills. If decommissioning works are required across watercourses, there is a risk to hydromorphology. There is potential for INNS to be introduced if proper wash down stations are not present. An increase in permeable surfaces due to compaction of soils from heavy machinery and temporary surfaces could lead to an increased on and off-site surface water flood risk. There is a potential for groundwater pollution due to seepage of oil or other hazardous fluid spills.

Mitigation and Enhancement

- 10.6.5 Potential mitigation measures (where required) will be fully identified on completion of the FRA, Drainage Strategy and WFD Assessment and will be described within the ES and secured within the DCO. It is likely that any potential areas at high risk of flooding will be avoided and where this is not practicable, for example, at localised watercourse crossing for access or for the cable installation, flood resistance, and resilience measures would be adopted.
- 10.6.6 Following completion of the concept Drainage Strategy, the existing drainage regime of the Sites will be characterised. It is expected that the solar panels will shed water to the undeveloped surface beneath them so change to the baseline regime would be limited. However, the Drainage Strategy will describe any SuDS measures necessary to prevent any off-site impacts.
- 10.6.7 It is expected that construction stage effects will be managed through a CEMP.

10.7 Assessment Methodology

Flood Risk

- 10.7.1 An initial desktop assessment of available data has been undertaken to determine the flood risk within Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor. Further data will be collected, and analysis will be undertaken as part

of a FRA, prepared to inform the ES. The FRA will identify and assess the risks of all forms of flooding to and from the Scheme and:

- Identify and evaluate effects on receptors at risk;
- Demonstrate consultation with the EA, LLFA and other stakeholders;
- Determine whether the Scheme is likely to be affected by current and future flooding from any source and whether it will cause increased flood risk elsewhere;
- Identify measures to deal with any effects and risks;
- Provide evidence in support of the Sequential Test and, if required the Exception Test; and
- Describe SuDS to be integrated into the Scheme design to manage surface water runoff.

Land Drainage

10.7.2 A hydrological assessment will be undertaken to establish local drainage catchments and overland flow paths, informed by topographical survey data and the Flood Estimation Handbook webservice (**Ref 128**). The Hydrology, Flood Risk and Drainage chapter of the ES will include a drainage assessment that describes baseline land drainage conditions, existing site runoff rates and a concept strategy for managing site runoff during the operational lifetime of the Scheme, inclusive of resilience to climate change. A surface water quality risk assessment and pollution control review will also be included. The ES chapter will summarise the findings of the above and provide recommendations for mitigation measures to reduce any potential impacts. Any residual effects will be identified and assessed cumulatively with other effects associated with nearby developments.

10.7.3 A screening and scoping WFD assessment will also be undertaken for surface and groundwater bodies within the ZoI of the Scheme. The aim of the assessment would be to determine the potential for any non-compliance of the Scheme with WFD objectives. This will include assessing the potential impacts of the Scheme on the relevant WFD biological, hydromorphological, physio-chemical parameters and the assessment will be prepared in consultation with the EA.

Approach and Method

10.7.4 The methodology used within this assessment is adapted from the LA 113 Road drainage and the water environment guidance (**Ref 129**), which is widely accepted for application to projects other than highways schemes.

10.7.5 The methodology involves assigning water environment receptors with a sensitivity (importance), with reference to published criteria, summarised in **Table 10.3**.

Table 10.3: Sensitivity/Importance of Environmental Receptor

Sensitivity	Definition
Very High	Watercourse having a WFD classification shown in a RMBP and a Q95 flow of > 1m ³ /s. Site protected under EU or UK wildlife legislation (SAC, SPA, SSSI, Ramsar Site)

Sensitivity	Definition
	Principal aquifer providing regionally important resource. SPZ1. Essential infrastructure or development highly vulnerable to flood risk.
High	Watercourse having a WFD classification shown in a RMBP and a Q95 flow of < 1m ³ /s. Principal aquifer providing locally important resource or supporting a river ecosystem. SPZ2. Development classified as 'more vulnerable' to flood risk.
Medium	Watercourse not having a WFD classification shown in a RMBP and a Q95 flow of > 0.001m ³ /s. Aquifer providing water for agricultural or industrial use with limited connection to surface water. SPZ3 Developed classified as 'less vulnerable' to flood risk.
Low	Watercourse not having a WFD classification shown in a RMBP and a Q95 flow of < 0.001m ³ /s Unproductive strata. Developed classified as 'water compatible'

10.7.6 In the next step a magnitude of change (or impact) on the baseline conditions of water environment receptors is assigned, considering the scale and extent of change and the nature and the duration of the impact. Definitions of the magnitude are provided in **Table 10.4** below.

Table 10.4: Methodology for Determining Magnitude of Impact

Magnitude of Impact	Example
Major (adverse)	Results in loss of attribute and/or quality and integrity of the attribute. Examples: Loss or extensive change to a designated nature conservation site. Reduction in WFD waterbody classification. Loss of a regionally important public water supply Increase in peak flood level of > 100mm
Moderate (adverse)	Results in effects on integrity of attribute or loss of part of attribute. Examples: Contribution of a reduction in WFD waterbody classification. Partial loss of productivity of a fishery Degradation of a regionally important public water supply or loss of a significant commercial/industrial/agricultural supply Increase in peak flood level of > 50mm

Magnitude of Impact	Example
Minor (adverse)	Results in some measurable change in attributes quality or vulnerability. Examples: Potential low risk of pollution Minor effects on water supplies Increase in peak flood level of > 10mm
Negligible	Effect on attribute that is insufficient to affect the use or integrity Examples: Low risk of pollution Negligible change to peak flood levels (<+/- 10mm)
No Change	No loss or alteration of characteristics, features or elements. No observable impact in either direction (adverse or beneficial).
Beneficial	Effects may also be beneficial in the minor, moderate and major categories.

10.7.7 The overall significance of an effect is then derived by combining the value (sensitivity) of the receptor with the magnitude of the predicted impact (change), as illustrated in **Table 10.5**. The methodology presented in the table is taken from LA 104 (**Ref 130**), Table 3.8.1.

Table 10.5: Methodology for Determining Impact Magnitude

		Magnitude of impact				
		No Change	Negligible	Minor	Moderate	Major
Environmental Value/Sensitivity	Very high	Neutral	Slight	Moderate or large	Large or very Large	Very Large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very Large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate

10.7.8 In considering the significance of the effect, account is taken of an effect's duration, reversibility, and compatibility with relevant environmental policies and standards. Effects can be temporary or permanent. Temporary effects are largely associated with the construction phase and permanent effects are largely associated with the operation phase.

Cumulative and In-Combination Effects

- 10.7.9 A cumulative assessment will be undertaken, assessing the effects of the Scheme in conjunction with other local developments. This will be provided within the Cumulative Effects chapter of the ES.

10.8 Conclusions on Scoping

- 10.8.1 **Table 10.6** and **Table 10.7** provide an assessment of the key issues relating to Hydrology, Flood Risk and Drainage that have been scoped in and out of the assessment, respectively.

Table 10.6: Elements to be Scoped In to the Assessment

Elements to be Scoped In	Justification
Construction	
Adverse impacts on hydromorphology of watercourses due to construction activity in proximity to watercourses and their riparian corridors within Lime Down A to E and crossings of watercourses within the Cable Route Search Corridor.	Watercourse crossing methodologies and locations have not been finalised, so further assessment is warranted.
Effects on rainfall runoff and land drainage regimes due to changes in land permeabilities within Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.	Construction sites and machinery have the potential to compact soils and temporary impermeable areas will be introduced, for example at construction compounds.
Operation	
Risk of surface water and fluvial flooding within Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor due to permanent changes in land permeabilities.	There is potential for permanent changes to existing drainage patterns and overland flow routes (due to changes in land use) both upstream and downstream and changes in flow in receiving watercourses.
Decommissioning	
Temporary effects on the land drainage regime and localised surface water and fluvial flood risk during decommissioning of infrastructure at Lime Down A to E, the Land at Melksham Substation.	Potential for compact soils and temporary impermeable areas to be introduced to support decommissioning activities, which could change the land drainage regime and flood risk within local catchments.

Table 10.7: Elements to be Scoped Out of the Assessment

Element to be Scoped Out	Justification
Construction	
Increased silted/nutrient loaded surface water runoff volumes due to stripping of soil, compound preparation, soil storage	Runoff from work site areas will be managed using suitable SuDS to ensure treatment and controlled discharge rates prior to discharge to

Element to be Scoped Out	Justification
and other earthworks, with impacts on water quality and flow regimes of receiving watercourses in the Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.	the receiving water environment. These measures will be described and secured through the CEMP.
Direct adverse impact upon water quality due to the release of any site substances (e.g. fuel, oils) as the result of an accidental spill, leading to harm to aquatic ecology in Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.	The likelihood of any accidental spills causing pollution would be reduced through measures that would be adopted and secured within the CEMP, for example, suitable storage and refuelling areas for construction materials and plant, stores of spillage containment and clean up supplies on site.
Contamination of groundwater if contaminants are mobilised, e.g. via a spillage, pass onto permeable land and percolate down to contaminate the groundwater in Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.	This potential impact pathway would be removed by adoption of good practices pollution prevention techniques that will be secured by the CEMP.
Operation	
Impacts on groundwater flow paths and levels along the cable route as a consequence of cable installation and presence of the cable during operation of the Scheme.	Based on the depth of the cable installation and the predominance of non-aquifer superficial deposits within the Cable Route Search Corridor groundwater flows are not expected to be impacted.
Impacts on water quality due to receiving surface water runoff or drainage from the operational Scheme in the Lime Down A to E, the Land at Melksham Substation.	Surface water runoff from the BESS will be subject to treatment using suitable SuDS prior to release into the receiving water environment and runoff from the Sites and cable corridor will be 'clean' rainfall runoff, with no detriment to its quality.
Decommissioning	
An adverse impact upon water quality due to the release of any substances during decommissioning in Lime Down A to E and the Land at Melksham Substation (e.g. fuel, oils) as the result of an accidental spill, leading to harm to aquatic ecology.	Based on justification of controls in place to manage the decommissioning works.

11 Ground Conditions and Contamination

11.1 Introduction

11.1.1 This chapter of the Scoping Report will consider the likely significant effects of the Scheme in respect of ground conditions and contamination during its construction, operational and decommissioning phases. The chapter will describe and identify the relative level of effects arising as a result of the Scheme, including prior to and post mitigation, in relation to human health and controlled waters risk.

11.1.2 This chapter is supported by the following appendices:

- Appendix 11.1 Preliminary Geo-Environmental Risk Assessment, Land at Melksham Substation, Delta-Simons Project No. 93799.580479, dated July 2024;
- Appendix 11.2 Limestone Mining Report, Lime Down Solar Scheme, Wiltshire, Delta-Simons Project No. 93799.580479, dated January 2024; and
- Appendix 11.3 Preliminary Geo-Environmental Risk Assessment, Lime Down Solar Scheme, Wiltshire, Delta-Simons Project No. 93799.580479, dated July 2024.

11.2 Legislation, Policy and Guidance

11.2.1 The following legislative provisions, policy and guidance, as well as the EIA Regulations, provide the context for the ground conditions and contamination assessment to be undertaken in the EIA:

11.2.2 Land Contamination: Risk Management pages of the GOV.UK web pages (**Ref 208**), the relevant requirements of the NPPF (as revised 2023) (paragraphs 180 and 189-190) (**Ref 209**) and

11.2.3 Planning Practice Guidance (Land Affected by Contamination) (**Ref 210**)

11.2.4 The stakeholders consulted for this chapter include the local council relevant to the Site, namely Wiltshire Council, regarding the contaminative status of the sites in the context of Part 2A. No further stakeholder engagement has been conducted.

11.3 Preliminary Baseline Conditions

11.3.1 The baseline conditions associated with the soil and groundwater conditions have been obtained from a desktop review (Preliminary Geo-Environmental Risk Assessment (PRA)), including the identification of the environmental setting, a review of historical and present-day maps and a review of regulatory information.

11.3.2 The environmental setting information has been obtained from a variety of sources including:

- British Geological Survey (BGS) online data (**Ref 211**);
- EA data (**Ref 64**);
- A Landmark Envirocheck Report for the assessment sites;
- Coal Authority (CA) online data (**Ref 212**); and
- Information provided by Wiltshire Council (**Ref 213**).

- 11.3.3 The PRA for the development site is included as **Appendix 11.1** and **Appendix 11.3** and should be read in conjunction with this chapter. At this stage, the exact Cable Route Corridor is unknown, however, an assessment has been undertaken of a Cable Route Search Corridor, comprising land between the Scheme and Land at Melksham Substation, within which the underground transmission cable will be located.
- 11.3.4 The baseline conditions relating to the Cable Route Search Corridor are described below based on existing information within the PRA's and readily available online data. A formal Preliminary Risk Assessment will be undertaken for the cable route and summarised within the ES chapter.
- 11.3.5 The Scheme is split into the following distinct sites and the adjoining cable route;
- Lime Down A - Land to the south-east of Sherston;
 - Lime Down B - Land to the east of Alderton and adjacent to the Fosse Way;
 - Lime Down C - Land to the east of Ladyswood and west of Norton. Adjacent to the east of the Fosse Way;
 - Lime Down D - Land to the south of Norton and west of Corston;
 - Lime Down E - Land to the south of Corston and Rodbourne, and to the east of the A429 road;
 - Land at Melksham Substation to the north of Whitley.
- 11.3.6 The sites are shown within the PRAs in **Appendix 11.1** and **Appendix 11.3**.

Lime Down A

Geology

- 11.3.7 Published British Geological Survey (BGS) data indicates Lime Down A to be directly underlain by bedrock of the Forest Marble Formation (Mudstone).
- 11.3.8 No superficial deposits are mapped across Lime Down A.

Hydrogeology and Hydrology

- 11.3.9 The EA classifies the Forest Marble Formation as a Secondary A Aquifer.
- 11.3.10 The EA also indicate that Lime Down A is located within a Zone II Subsurface Activity Groundwater Source Protection Zone (SPZ).
- 11.3.11 There are no licensed groundwater abstractions for potable water within 500 m of Lime Down A.
- 11.3.12 A small pond is located approximately 160 m south and the River Avon is approximately 260 m north of Lime Down A.

Mining

- 11.3.13 There is no recorded, or evidence of mining within Lime Down A.

Historical Summary

- 11.3.14 Lime Down A has remained undeveloped throughout its history, comprising a series of agricultural fields.

Lime Down B

Geology

- 11.3.15 Published BGS data indicates Lime Down B to be directly underlain by bedrock of the Forest Marble Formation (Mudstone).
- 11.3.16 No superficial deposits are mapped across the majority of Lime Down B, however, discrete pockets of Head Deposits (Sand and Gravel) are mapped in the south.

Hydrogeology and Hydrology

- 11.3.17 The EA classifies the Forest Marble Formation and superficial Head Deposits as Secondary A Aquifers.
- 11.3.18 The EA also indicate that Lime Down B is located within a Zone II Subsurface Activity Groundwater Source Protection Zone (SPZ).
- 11.3.19 There are no licensed groundwater abstractions for potable water within 500 m of Lime Down B.
- 11.3.20 A small pond is present in the northern portion of Lime Down B and a drainage channel is located in the south-west.
- 11.3.21 A drainage ditch is present in the western area of Lime Down B.

Mining

- 11.3.22 There is no recorded, or evidence of mining within Lime Down B.

Historical Summary

- 11.3.23 Lime Down B has largely remained undeveloped and comprises a series of agricultural fields.
- 11.3.24 Barns are mapped in the western area from the earliest map edition dated 1888 until no longer visible in aerial imagery dated 1999.
- 11.3.25 The adjacent railway line was noted to be under construction in 1900 and fully mapped by 1923.

Lime Down C

Geology

- 11.3.26 Published BGS data indicates Lime Down C to be directly underlain by bedrock of the Forest Marble Formation (Mudstone) across the eastern and central areas. The Cornbrash Formation (Limestone) is mapped in the west.
- 11.3.27 No superficial deposits are mapped across the majority of Lime Down C, however, discrete pockets of Alluvium (Clay, Silt, Sand and Gravel) are mapped adjacent to the tributary in the central area of the Site and adjacent to the central southern boundary.

Hydrogeology and Hydrology

- 11.3.28 The EA classify the Forest Marble Formation, Cornbrash Formation and Alluvium as Secondary A Aquifers.

- 11.3.29 The EA also indicates that the majority of Lime Down C is located within a Zone II Subsurface Activity Groundwater Source Protection Zone (SPZ) and a Zone I Subsurface Activity SPZ in the east of the Site.
- 11.3.30 There are no licensed groundwater abstractions for potable water within 500 m of Lime Down C.
- 11.3.31 A tributary of the River Avon is located on-Site in the central area and adjacent to the central southern boundary. The River Avon is located approximately 1.2 km north.

Mining

- 11.3.32 There is no recorded coal or underground non-coal mining within Lime Down C.
- 11.3.33 A BGS Recorded Mineral Site is mapped along the southern boundary of Lime Down C, noted to have been for the extraction of clay/shale. The entry is noted to be ceased.

Historical Summary

- 11.3.34 Lime Down C has largely remained undeveloped and comprises a series of agricultural fields.
- 11.3.35 Historical mapping shows a quarry along the southern boundary from the earliest map edition dated 1888 until 1955. The area is now shown as a localised depression in topography and is heavily vegetated.

Lime Down D

Geology

- 11.3.36 Published BGS data indicates Lime Down D to be directly underlain by bedrock of the Kellaways Clay Member (Mudstone) across the majority of Lime Down D, with the Cornbrash Formations and Kellaways Sand Member (Sandstone and Limestone) in the east and the Forest Marble Formation (Mudstone) in the west.
- 11.3.37 No superficial deposits are mapped across the majority of Lime Down D, however, discrete pockets of Alluvium (Clay, Silt, Sand and Gravel) are mapped adjacent to Gauze Brook in the central area of Lime Down D.

Hydrogeology and Hydrology

- 11.3.38 The EA classify the Cornbrash Formation, Kellaways Sand Member, Forest Marble Formation and Alluvium as Secondary A Aquifers. The Kellaways Clay Member is classified as Unproductive Strata.
- 11.3.39 The EA also indicates that the eastern portion of Lime Down D is located in a Zone I Subsurface Activity SPZ and the western portion in a Zone II Subsurface Activity SPZ.
- 11.3.40 There are no licensed groundwater abstractions for potable water within 500 m of Lime Down D.
- 11.3.41 Gauze Brook is present in the central eastern area portion of the Site. An unlabelled water network is located across the western portion of Lime Down E.

Mining

- 11.3.42 There is no recorded, or evidence of mining within Lime Down D.

Historical Summary

- 11.3.43 Lime Down D has remained undeveloped throughout its history, comprising a series of agricultural fields.
- 11.3.44 Fosse Farm Cottage and Well in the western portion of Lime Down D are present from the earliest historical mapping, remaining present within 2024 aerial imagery.

Lime Down E

Geology

- 11.3.45 Published BGS data indicates Lime Down E to be directly underlain by bedrock of the Kellaways Clay Member (Mudstone), Cornbrash Formation (Limestone) and Forest Marble Formation (Mudstone) along the tributary in the west.
- 11.3.46 No superficial deposits are mapped across the majority of Lime Down E, however, discrete pockets of Alluvium (Clay, Silt, Sand and Gravel) are mapped adjacent to the tributary in the west.

Hydrogeology and Hydrology

- 11.3.47 The EA classify the Forest Marble Formation, Cornbrash Formation and Alluvium as Secondary A Aquifers. The Kellaways Clay Member is classified as Unproductive Strata.
- 11.3.48 The EA also indicates that Lime Down E is located in a Zone I Subsurface Activity SPZ.
- 11.3.49 There are no licensed groundwater abstractions for potable water within 500 m of Lime Down E.
- 11.3.50 Gabriel's Well runs through the centre of the Site from north-east to south of Lime Down E.

Mining

- 11.3.51 There is no recorded coal or underground non-coal mining within Lime Down E.
- 11.3.52 A BGS Recorded Mineral Site is mapped along the north western area of Lime Down E relating to the extraction of limestone. The entry is noted to be ceased. No evidence is noted within historical mapping, as such, if extraction did occur, it would likely be on a very small scale.
- 11.3.53 Rodbourne Brick Works and associated clay extraction was historically adjacent to the northern boundary of Lime Down E from the earliest map edition dated 1888 until noted to be disused in 1983.

Historical Summary

- 11.3.54 Lime Down E has largely remained undeveloped and comprises a series of agricultural fields.
- 11.3.55 Barns are mapped in the southern area of Lime Down E from the earliest map edition dated 1888. The western barn is no longer visible in 2014 aerial imagery and the central building remains to present.
- 11.3.56 The adjacent railway line was noted to be under construction in 1900 and fully mapped by 1923.

Land At Melksham Substation

Geology

- 11.3.57 Published BGS data indicates the Land at Melksham Substation is directly underlain by bedrock of the Kellaways Formation (Sandstone, Siltstone and Mudstone) in the south and the Forest Marble Formation (Mudstone) in the north.
- 11.3.58 A geological fault is present in the central area which runs in an east to west orientation.
- 11.3.59 No superficial deposits are mapped.

Hydrogeology and Hydrology

- 11.3.60 The EA classify the Forest Marble Formation as a Secondary A Aquifer and the Kellaways Formation as Unproductive Strata.
- 11.3.61 The EA also indicates that the majority of the Land at Melksham Substation is not located within a SPZ. A Zone I – Inner Protection Zone is present in the northern area associated with the Forest Marble Formation.
- 11.3.62 There are two licensed groundwater abstractions for potable water located approximately 145 m north east.
- 11.3.63 The nearest surface water feature is a drainage channel adjacent to the north western boundary. The River Avon is located approximately 2.16 km south east.

Mining

- 11.3.64 The Land at Melksham Substation is located within an area where underground limestone mining has occurred. Following a detailed desk top assessment no evidence of stone mining has been identified that could affect the Land at Melksham Substation.
- 11.3.65 Evidence of mining is noted throughout mapping in the wider surrounding area. Opencast quarries were mapped between approximately 220 m west and 850 m west of the Land at Melksham Substation from 1886. Underground mining is also inferred at quarries located 850 m west (Park Lane Quarry) and 750 m north (Monk's Quarry) given the presence of slope shafts, trial shafts and air shafts. The closest shaft is located approximately 250 m north east, mapped in 2000. By this time the surrounding quarries and shafts are largely mapped as disused.

Historical Summary

- 11.3.66 The Land at Melksham Substation has remained undeveloped and in agricultural use throughout its history.

Cable Route Search Corridor

- 11.3.67 The exact cable route is unknown at this stage and as such a Cable Route Search Corridor has been determined for assessment. The Cable Route Search Corridor as shown within **Figure 3.1** and links Lime Down A to E, the Land at Melksham Substation and Melksham sub-station running in a north-south orientation.
- 11.3.68 Where possible, information held within the existing PRAs has been utilised in the baseline information below, however, no detailed information is provided for the main stretch of the cable route between Lime Down B/C and the Land at Melksham Substation. Once the alignment of the Cable Route Corridor is confirmed, baseline data will be obtained and the corridor assessed as part of the ES.

- 11.3.69 A walkover of the Cable Route Search Corridor and the surrounding area has not been undertaken at this stage. Once the final Cable Route Corridor is confirmed, a walkover will be undertaken.

Geology

- 11.3.70 Published BGS data indicates that the majority of the Cable Route Search Corridor is underlain directly by bedrock. Discrete pockets of Head Deposits and Alluvium (Clay, Silt, Sand and Gravel) are present associated with surface water features and the sub-station in the south is mapped as being underlain by River Terrace Deposits (Sand and Gravel).
- 11.3.71 The underlying bedrock is noted to largely comprise the Forest Marble Formation (Mudstone) across the northern and southern areas. The central area is indicated to be underlain by varying bedrock of the Kellaways Clay Member (Mudstone), Cornbrash Formation (Limestone) and Forest Marble Formation. The sub-station in the most southerly area is indicated to be underlain by bedrock of the Oxford Clay Formation (Mudstone).

Hydrogeology and Hydrology

- 11.3.72 The published EA data held on the MAGIC Map website indicates the Alluvium, Head and River Terrace Deposits classify as Secondary A Aquifers.
- 11.3.73 The EA classify the Forest Marble Formation and Cornbrash Formation as Secondary A Aquifers. The Kellaways Clay Member and Oxford Clay Formation are classified as Unproductive Strata.
- 11.3.74 The EA data also indicates that the majority of the Cable Route Search Corridor is located within a Groundwater SPZ. The northern areas comprise subsurface Zone I and II SPZ's, the central area is designated as a Zone II Outer Protection Zone and a small area to the north of Whitley is classified as a Zone I Inner Protection Zone, associated with the potable water abstraction in this area.
- 11.3.75 From available data a licensed potable groundwater abstraction is present to the north of Whitley. The presence of water abstractions from groundwater and surface water within/adjacent to the remaining Cable Route Search Corridor is not known at this stage and will be assessed as part of the ES chapter.
- 11.3.76 From available online mapping, the Cable Route Search Corridor includes a number of drainage ditches and tributaries which connect to the River Avon located to the east of the Scheme.

Mining

- 11.3.77 The southern area of the Cable Route Search Corridor is located within an area where underground limestone mining has occurred. It is anticipated that areas of known underground mining will not form part of the Cable Route Corridor given the potential for ground instability.
- 11.3.78 The presence of mining within/adjacent to the remaining Cable Route Search Corridor is not known at this stage and will be assessed as part of the ES chapter.

Historical Summary

- 11.3.79 Existing historical maps for the northern and southern area of the cable search route indicate that the majority of the area has historically been in agricultural use with little to no development.
- 11.3.80 The historical use of the route between Lime Down B and C and the Land at Melksham Substation will be assessed and included within the ES chapter.

11.4 Assessment Methodology

- 11.4.1 A risk assessment of the identified plausible contaminated linkages has been undertaken as part of the Preliminary Risk Assessments included in **Appendix 11.1** to **Appendix 11.3**. The methodology utilised within this assessment is detailed as followed:
- review of the environmental setting of the Site, including the current use/status of the Site and surrounding area, and review of the geology, hydrogeology and hydrology;
 - review of the historical activities of the Site and surrounding area;
 - review of regulatory information relating to the Site;
 - review of the online planning records for the Site;
- 11.4.2 consult and review information from the Local Authority/Petroleum Officer/Environment Agency in relation to Part 2A of the 1990 Environmental Protection Act (**Ref 214**);
- review online records of potential unexploded ordnance risks;
 - complete a Site reconnaissance by undertaking a visual inspection of readily accessible areas of the Sites, to identify current conditions and highlight any potential on-Site risks;
 - review of readily available third-party reports relating to the Sites or surrounding area;
 - develop an outline Conceptual Site Model, including site zoning, and undertake a Preliminary Risk Assessment with respect to potential contamination focussed on the proposed land use; and,
 - provide commentary on potential land contamination and geotechnical constraints in the context of the proposed development.
- 11.4.3 The underlying principle is the evaluation of pollutant linkages via the Conceptual Site Model in order to assess whether the presence of a source of contamination could potentially lead to significant harm. A contaminant linkage consists of three elements:
- A 'contaminant' is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters.
 - A 'receptor' is something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property, or controlled waters. The various types of receptors that are relevant under the Part 2A regime are explained in later sections.
 - A 'pathway' is a route by which a receptor is or might be affected by a contaminant.

Assessment Process

- 11.4.4 Following the Preliminary Risk Assessment, the sensitivity and magnitude of impact has been determined by considering the nature of the change, its severity, the duration of an effect, the likelihood of an effect occurring, and the relative extent of the effects of contamination to the receptor. Therefore, the risk assessment has been based on a qualitative assessment and professional judgement.

Assessment of Sensitivity

- 11.4.5 The sensitivity is based on the relative importance of the receptor, as detailed in **Table 11.1**.

Table 11.1: Sensitivity Criteria

Sensitivity	Definition
High	Land to be used for human consumption (e/g agricultural, allotments), highly sensitive ecosystems (eg. SPA, SAC, SSSI, NNR) and the receptor being a public drinking water supply.
Medium	Parks and open spaces, regional or locally sensitive ecosystems and water bodies of medium quality.
Low	Commercial or industrial land uses, low to non-sensitive ecosystems (e.g derelict land, Solar Farms), water bodies of low quality and not a public water supply.
Negligible	Land with no sensitive environmental receptors. Residual risk considered to be so minor that it would not be detectable. No appreciable change in environmental risk to environmental receptors.

Assessment of Magnitude of Impact

- 11.4.6 The magnitude of impact on the receptor is detailed in **Table 11.2**.

Table 11.2: Magnitude of Impact

Magnitude	Definition
High	The proposal will cause the release of large areas of contaminations which are significantly above guideline values or release hazardous contamination for the operational timescale of the develop. Remediation will be required.
Medium	The proposal will cause the release of small areas of contamination close to the guidance values during construction or operational timescale of the development. Remediation may be required.
Low	The proposal will cause the release of contamination that are below the guideline values for short period of time. Remediation will be not required; however, mitigation measures may be used to reduce the potential impact.
Negligible	The proposal will cause the release of contaminants at very low concentrations. Remediation not required.

Magnitude	Definition
Neutral	No change from baseline conditions.

Receptors

- 11.4.7 The key receptors have been identified as follows: construction workers, third parties during construction (adjacent site users and adjacent residents), future site users including maintenance workers and PRow, controlled waters including on and off-site land drains, adjacent rivers and the underlying aquifers and the built environment (new buildings and infrastructure/utilities).

Environmental Receptor [Construction Workers]

- 11.4.8 Construction workers (groundworkers involved with the Scheme's installation and decommissioning) may be exposed to contamination through direct dermal contact, ingestion and inhalation during the construction and decommissioning phases. Limited potential sources of contamination have been identified within the PRAs. As such, groundworkers are classed as high sensitivity, however the magnitude of impact is considered negligible.

Environmental Receptor [Future Site Users]

- 11.4.9 Future Site users, including maintenance workers and PRow users, may be exposed to contamination through direct dermal contact, ingestion and inhalation during the operation phase. Limited potential sources of contamination have been identified within the PRAs. As such, maintenance workers and PRow users are classed as high sensitivity, however the magnitude of impact is considered negligible.

Environmental Receptor [Adjacent Site users and adjacent residents]

- 11.4.10 Adjacent site users may be exposed to contamination through direct dermal contact, ingestion and inhalation via windblow dust during all three stages of construction, operational and decommissioning phases. Limited potential sources of contamination have been identified within the PRAs. As such, adjacent site users are classed as high sensitivity, however the magnitude of impact is considered negligible.

Environmental Receptor [Controlled Waters]

- 11.4.11 Groundwater could become contaminated via the mobilisation of existing contamination during construction and decommissioning phase, however, limited potential sources of contamination have been identified within the PRAs. Controlled waters could also become contaminated via potential spillages or leakages of temporary fuels and chemicals during construction, operational and decommissioning phases, with the leaching of chemical contaminants from faulty batteries, fires/damage to the storage of batteries and associated subsequent fire ash deposition/extinguishing fire waters. As such, controlled waters are considered to be of moderate to high sensitivity (in the area of potable abstractions) and low to medium impact magnitude.

Environmental Receptor [Future Site users and Built Environment]

- 11.4.12 There is a potential for hazardous ground gases to accumulate and migrate into buildings during the operation phase, with subsequent asphyxiation of future site users, or the potential for explosion. Limited potential sources of ground gas have been identified and the potential for hazardous ground gases to accumulate in proposed solar farm

infrastructure is considered very low. As such, future site users are considered to be of high sensitivity, but the impact is considered to be negligible. The built environment is considered to be of moderate sensitivity and negligible impact.

Significance

- 11.4.13 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the impacts can be positive or negative. The Significance matrix is set out in **Table 11.3**.

Table 11.3: Impact Significance Matrix

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major/Moderate	Moderate	Moderate/Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

- 11.4.14 Based on the above, the overall significance (using **Table 11.3**) for each receptor for Lime Down A to E and Land at Melksham Substation are as follows;

Environmental Receptor [Construction Workers]

- 11.4.15 Direct contact/ingestion and inhalation of dust, vapours and asbestos fibres.
- During construction and decommissioning phase – Medium Sensitivity and Low Magnitude: Moderate/Minor significance.
 - During operation phase – Medium Sensitivity and Negligible Magnitude: Minor significance.

Environmental Receptor [Future Site Users]

- 11.4.16 Direct contact/ingestion and inhalation of dust, vapours, and asbestos fibres.
- During construction and decommissioning phase – Medium Sensitivity and Low Magnitude: Moderate/Minor significance.
 - During operation phase – Medium Sensitivity and Negligible Magnitude: Minor significance.

Environmental Receptor [Adjacent Site users and adjacent residents]

- 11.4.17 Direct contact/ingestion and inhalation of dust, vapours and asbestos fibres.
- During construction and decommissioning phase – Medium Sensitivity and Low Magnitude: Moderate/Minor significance.

- During operation phase – Medium Sensitivity and Negligible Magnitude: Minor significance.

Environmental Receptor [Controlled Waters]

11.4.18 Leaching of contamination into groundwater and vertical/lateral migration through permeable deposits below the site.

- During construction and decommissioning phase – Medium Sensitivity and Low Magnitude: Moderate/Minor significance.
- During operation phase – Medium Sensitivity and Negligible Magnitude: Minor significance.

Environmental Receptor [Future Site users and Built Environment]

11.4.19 Direct contact between and accumulation of gas into buildings, enclosed spaces and sub-floor voids.

- During construction and decommissioning phase – Medium Sensitivity and Negligible Magnitude: Minor significance.
- During operation phase – Medium Sensitivity and Negligible Magnitude: Minor significance.

11.4.20 Prior to mitigation, the potential impact for construction, operation and decommissioning are of a moderate to minor significance.

Cable Route Search Corridor

11.4.21 As part of the PEIR, the Cable Route Search Corridor will be narrowed to a preferred route. A formal Preliminary Risk Assessment will be undertaken for the Cable Route Corridor and summarised within the ES chapter. However, based on the available information to date significant sources of contamination and therefore significant environmental effects have not been identified.

11.4.22 Based on the nature of the Cable Route Corridor comprising linear infrastructure the works involving the ground are temporary, with the land returned to former use following the cable being laid. As such, the receptors involved in this work are construction/groundworkers only, in which the risk would be managed via standard mitigation measures detailed within the Outline CEMP. This risk assessment will be guided by the Preliminary Risk Assessment which will be provided within the Ground Conditions and Contamination ES chapter.

Mitigation Measures

11.4.23 An Outline CEMP will be compiled for the development, which will describe the construction related mitigation measures. The plan will set out best practise to ensure any environmental impacts during construction and in terms of land contamination are minimal.

11.4.24 Limited potential sources of contamination have been identified across the Scheme. Site workers will be made aware of the possibility of encountering localised contamination through toolbox talks and good standards of personal hygiene, including welfare facilities on-site and the use of appropriate levels of personal protective equipment (PPE), will be enforced.

- 11.4.25 Site workers will adhere to health, safety and environmental precautions in order to reduce the potential for any accidents and incidents.
- 11.4.26 A 'Discovery Strategy' protocol shall be included within the Outline CEMP and drawn upon to ensure that any contamination identified during construction is assessed by a specialist in land contamination. This will include but not be limited to stopping works in the area and ensuring the identified contamination does not pose a risk until an environmental specialist undertakes an assessment and a method is agreed to deal with the identified contamination. If required, the Local Planning Authority will be notified.
- 11.4.27 Methods will be used to reduce the amount of dust, e.g. washing down of vehicle's wheels, dampening down, etc.
- 11.4.28 Any bulk fuels or chemical used on the construction site should be stored appropriately, within an impervious bund of 110% of the volume of the container in order to reduce the potential for any contamination source in the event of a container failure/leak of battery fire and associate fire waters. Also, any spillages will be promptly addressed by appropriate measures, such as spill kits.

Cumulative and In-Combination effects

- 11.4.29 Given modern methods of construction and the low sensitivity end use, there is not considered to be any cumulative effects to human health or controlled waters. Therefore, the risk of cumulative effects occurring is considered to be negligible.
- 11.4.30 There are no potential in-combination sources identified during the Preliminary Risk Assessment. Therefore, the risk of in-combination effects is considered to be negligible.

11.5 Conclusions on Scoping

- 11.5.1 Limited potential sources of contamination have been identified from the Preliminary Risk Assessments for Lime Down A to E and Land at Melksham Substation. No significant effects are expected for ground conditions during construction, operation and decommissioning subject to the implementation of a detailed Outline CEMP. As such, it is proposed that Lime Down A to E and Land at Melksham Substation be scoped out of further consideration in the ES.
- 11.5.2 Based on the available information to date no significant sources of contamination have been identified and therefore no significant environmental effects have been identified associated with the Cable Route Search Corridor. The Cable Route Corridor works would be temporary, with the land returned to former use once the cable has been laid. As such, the receptors for the Cable Route Corridor are limited to construction/groundworkers only, for whom risk associated with contamination would be managed via standard mitigation measures detailed within the Outline CEMP. It is therefore proposed that a formal Preliminary Risk Assessment considering potential sources of contamination is undertaken for the Cable Route Corridor is produced and will be summarised within the Other Environmental Matters ES chapter. The Preliminary Risk Assessment Cable Route Corridor will be provided within an appendix to the chapter.

Table 10.4: Conclusions on Scoping

Likely Significant Effect	Receptors	Scoped In/Out
Construction/Decommissioning Phase		
Exposure to contamination through direct contact/ingestion and inhalation of dust, vapours and asbestos fibres.	Construction Workers, including groundworkers. Human Health - Adjacent Site Users and Adjacent Residents.	Out
Mobilisation of existing contamination via vertical/lateral migration through permeable deposits below the site.	Controlled Waters, including underlying groundwater.	Out
Spillages or leakages of fuels and chemicals. Leaching of chemicals from faulty battery incidents (fire damage, ash deposition and extinguishing waters).	Controlled Waters, including underlying groundwater.	Out
Operation phase		
Exposure to contamination through direct contact/ingestion and inhalation of dust, vapours and asbestos fibres.	Human Health - Future Site Users, including maintenance workers and PRow users. Human Health - Adjacent Site Users and Adjacent Residents.	Out
Spillages or leakages of fuels and chemicals. Leaching of chemicals from faulty battery incidents (fire damage, ash deposition and extinguishing waters) via vertical/lateral migration through permeable deposits below the site.	Controlled Waters, including underlying groundwater.	Out
Hazardous ground gases to accumulate and migrate into buildings, enclosed spaces and sub-floor voids, with subsequent asphyxiation and/or the potential for explosion.	Human Health - Future Site users, including maintenance workers. Built Environment, buildings on-Site.	Out

12 Cultural Heritage

12.1 Introduction

- 12.1.1 This chapter of the Scoping Report has been informed by the National Heritage List for England (NHLE) and Wiltshire Historic Environment (HER).
- 12.1.2 This chapter sets out the proposed approach to the assessment of likely significant effects on the historic environment (comprising built heritage and archaeological remains) during construction, operation and decommissioning of the Scheme, how these will be identified and assessed, and how suitable mitigation strategies will be put forward, within a Cultural Heritage chapter of the ES.
- 12.1.3 A description of the Scheme can be found in **Chapter 3** and **Chapter 4** of this Scoping Report.
- 12.1.4 This chapter is supported by the following figures and appendices:
- Appendix 12.1 Cultural Heritage Figures
 - Figure 12.1 Designated Heritage Assets 2km Buffer
 - Figure 12.1.1 Designated Heritage Assets Lime Down A
 - Figure 12.1.2 Designated Heritage Assets Lime Down B
 - Figure 12.1.3 Designated Heritage Assets Lime Down C
 - Figure 12.1.4 Designated Heritage Assets Lime Down D
 - Figure 12.1.5 Designated Heritage Assets Lime Down E
 - Figure 12.1.6 Designated Heritage Assets Land at Melksham Substation
 - Figure 12.1.7 Designated Heritage Assets Cable Route Search Corridor
 - Figure 12.1.8 Designated Heritage Assets Cable Route Search Corridor
 - Figure 12.2 Non-Designated Heritage Assets 1km Buffer
 - Figure 12.2.1 Non-Designated Heritage Assets Lime Down A
 - Figure 12.2.2 Non-Designated Heritage Assets Lime Down B
 - Figure 12.2.3 Non-Designated Heritage Assets Lime Down C
 - Figure 12.2.4 Non-Designated Heritage Assets Lime Down D
 - Figure 12.2.5 Non-Designated Heritage Assets Lime Down E
 - Figure 12.2.6 Non-Designated Heritage Assets Land at Melksham Substation

12.2 Legislation, Policy and Guidance

- 12.2.1 The following legislative provisions, policy and guidance, as well as the EIA Regulations, provide the context for the cultural heritage assessment to be undertaken in the EIA:
- Ancient Monuments and Archaeological Areas Act (AMAAA) 1979 (**Ref 131**)
 - Planning (Listed Buildings and Conservation Areas) Act 1990 (**Ref 132**)
 - Overarching National Policy Statement for Energy (EN-1) including Section 5.9, which came into effect on 17 January 2024 (**Ref 8**)

- NPS for Renewable Energy Infrastructure (EN-3) including Section 2.10, which came into effect on 17 January 2024 (**Ref 34**)
- NPPF, revised December 2023 (**Ref 14**)
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (**Ref 1**)
- Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**)
- Planning Practice Guidance, Section 16: Conserving and enhancing the historic environment (2021) (**Ref 133**)
- The Hedgerows Regulations 1997 (**Ref 134**)
- Conservation Principles (English Heritage 2008) (**Ref 135**)
- Historic Environment Good Practice Advice in Planning 2: Managing Significance in Decision Taking in the Historic Environment (Historic England 2015) (**Ref 136**)
- Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision Taking in the Historic Environment, Historic England (2015) (**Ref 137**)
- Statements of Heritage Significance. Analysing Significance in Heritage Assets, Historic England (2019) (**Ref 138**)
- Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-based Assessment (2020) (**Ref 139**)

12.3 Preliminary Baseline Conditions

Study Area

- 12.3.1 Records of all designated heritage assets and Conservation Areas within the Scheme and 2km from its boundary will be collated to inform an assessment of the potential indirect (setting) impacts of the Scheme upon these. Designated heritage assets beyond the 2km Study Area may also be assessed if identified and may be potentially affected by the Scheme by the relevant consultees, and the EIA technical team. It is considered that this Study Area is appropriate as it is considered unlikely that there would be significant effects upon settings at distance of greater than 2km, but nevertheless offers the flexibility of extending the Study Area if this is considered to be appropriate.
- 12.3.2 Records of non-designated heritage assets, archaeological finds and previous archaeological investigations will be collated for within the Scheme and 1km from its boundary, allowing the archaeological potential of the Scheme to be assessed together with potential (direct) impacts on any archaeological remains or heritage assets. The Study Area is considered to be appropriate as it is a standard sized Study Area for assessments of this type in rural areas of England and aligns with common professional practice.
- 12.3.3 At this stage, the exact route of the Cable Route Corridor is yet to be determined but it will be within the Cable Route Search Corridor (refer to **Figure 3.2.1** to **Figure 3.2.3**). The Cable Route Search Corridor will be refined during the design process to a preferred route, which will be presented in the PEIR. It is anticipated that localised impact will occur during the construction phase. A 250m Study Area is considered appropriate to assess any impacts to heritage assets (including designated and non-designated assets. Any impacts to built heritage are expected to be minimal and temporary in nature, and the

proposed Study Area is considered sufficient to identify and characterise any potential archaeological remains. Assessments undertaken as part of the EIA will be used to inform the final design to minimise any potential impacts and allow for micro-siting.

Summary of Designated Heritage Assets

Lime Down A

- 12.3.4 There are no designated heritage assets within Lime Down A.
- 12.3.5 Within the 2km Study Area surrounding Lime Down A there are 107 designated heritage assets, comprising one Conservation Area in Sherston, located c. 300m to the north-west of Field A1 (**Figure 3.3.1**), one Scheduled Monument comprising the 'earthwork 200yds (180m) west of parish church' (NHLE 1004703) which is located within the village of Sherston, c. 880m to the north-west of Field A1 (**Figure 3.3.1**). There are two Grade I Listed Buildings, seven Grade II* Listed Buildings and 96 Grade II Listed Buildings, the closest listed building to Lime Down A is the Grade II Listed 15 Thompsons Hill (NHLE 1199883), 320m to the north-west of Field A1 (**Figure 3.3.1**). There are no Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within the 2km Study Area. The locations of all designated heritage assets within 2km of Lime Down A are illustrated on **Figure 12.1** and **Figure 12.1.1**.

Lime Down B

- 12.3.6 There are no designated heritage assets within Lime Down B.
- 12.3.7 Within the 2km Study Area surrounding Lime Down B there are 43 designated heritage assets, comprising one Conservation Area in Easton Grey, which is located c.1.2km to the north of Field B6 (**Figure 3.3.2**), two Scheduled Monuments comprising the early medieval settlement, palace, church and Bronze Age ring ditches 340m east of Cowage Farm (NHLE 1018389) which is located c.980m to the north-east of Field B12 (**Figure 3.3.2**) and the Romano-British settlement, earthwork enclosure and a section of the Fosse Way, 415m west of Whatley Manor (NHLE 1013354) is located c.850m to the north-east of Field B6 (**Figure 3.3.2**). There is one Grade I Listed Building, three Grade II* Listed Buildings and 36 Grade II Listed Buildings, the closest listed building to Lime Down B is the Grade II Listed 15 Foxley Manor (NHLE 1023221), 235m to the north of Field B12 (**Figure 3.3.2**). There are no Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within the 2km Study Area. The locations of all designated heritage assets within 2km of Lime Down B are illustrated on **Figure 12.1** and **Figure 12.1.2**.

Lime Down C

- 12.3.8 There are no designated heritage assets within Lime Down C.
- 12.3.9 Within the 2km Study Area surrounding Lime Down C there are 111 designated heritage assets, comprising three Conservation Areas in Grittleton located c.1.75km south-east of Field C10 (**Figure 3.3.3**); Alderton, located c.1.135m to the west of Field C6 (**Figure 3.3.3**) and in Luckington, which is located c.645m to the north-west of Field C1 (**Figure 3.3.3**). There is one Scheduled Monument comprising the 'pillow mound 280m south-west of Surrendell Farm' (NHLE 1018610), which is of medieval or early post-medieval date, is located c.620m to the south of Field C15 (**Figure 3.3.3**). There are three Grade I Listed Buildings, three Grade II* Listed Buildings and 101 Grade II Listed Buildings, the closest listed building to Lime Down C is the Grade I Listed Fosse Lodge (NHLE 1198366), which lies 40m to the south of Field C10 (**Figure 3.3.3**). There are no Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within the 2km Study Area. The

locations of all designated heritage assets within 2km of Lime Down C are illustrated on **Figure 12.1** and **Figure 12.1.3**.

Lime Down D

- 12.3.10 There are no designated heritage assets within Lime Down D.
- 12.3.11 Within the 2km Study Area surrounding Lime Down D there are 64 designated heritage assets, comprising one Conservation Area in Hullavington Airfield, located c.675m to the south of Field D17 (**Figure 3.3.4**). There are three Grade I Listed Buildings, two Grade II* Listed Buildings and 58 Grade II Listed Buildings, the closest listed building to Lime Down D is the Grade I Listed Bradfield Manor Farmhouse (NHLE 1198808) located c.195m to the south-east of Field D5 (**Figure 3.3.4**). There are no Scheduled Monuments, Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within the 2km Study Area. The locations of all designated heritage assets within 2km of Lime Down D are illustrated on **Figure 12.1** and **Figure 12.1.4**.

Lime Down E

- 12.3.12 There are no designated heritage assets within Lime Down E.
- 12.3.13 Within the 2km Study Area surrounding Lime Down E there are 64 designated heritage assets, comprising two Conservation Areas in Rodbourne, located c.140m to the north-east of Field E8 (**Figure 3.3.5**) and Stanton St Quinton located c.1.3km south-west of Field E26 (**Figure 3.3.5**). There is one Scheduled Monument comprising the moated site 500m north-west of Nabals Farm (NHLE 1013076) c.730m to the south-east of Field E27 (**Figure 3.3.5**). There are two Grade II* Listed Buildings and 59 Grade II Listed Buildings, the closest listed building to Lime Down E is the Grade II Listed Trinity Farmhouse (NHLE 1284644) located c.180m to the north-east of Field E8 (**Figure 3.3.5**). There are no Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within the 2km Study Area. The locations of all designated heritage assets within 2km of Lime Down E are illustrated on **Figure 12.1** and **Figure 12.1.5**.

Land at Melksham Substation

- 1.1.1 There are no designated heritage asset with Land at Melksham Substation.
- 1.1.2 Within the 2km Study Area surrounding Land at Melksham Substation there are 109 designated heritage assets, comprising two Grade I Listed Buildings, two Grade II* Listed Buildings and 105 Grade II Listed Buildings, the closest listed buildings to the Land at Melksham Substation are the Grade II Listed Whitley House (NHLE 1021775) and the Barn to Rear of Whitley House (NHLE 1285548), which lie 190m to the south-east. There are no Conservation Areas, Scheduled Monuments, Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within the 2km Study Area. The locations of all designated heritage assets within 2km of the Land at Melksham Substation are illustrated on **Figure 12.1** and **Figure 12.1.6**.
- 12.3.14 The locations of all designated heritage assets and Conservation Areas within the 2km Study Area for the Scheme are shown on **Figure 12.1** and **Figure 12.1.6**.

Cable Route Search Corridor

- 12.3.15 Within Lime Down Cable Route and 250m Study Area there are 298 designated heritage assets, comprising: 13 Conservation Areas, seven Scheduled Monuments, two Registered Parks and Gardens, five Grade I Listed Buildings, 15 Grade II* Listed Buildings and 256 Grade II Listed Buildings. Listed buildings are mainly concentrated around the villages many of which form Conservation Areas. Both Registered Parks and

Gardens are located to the west of Chippenham. Scheduled monuments are distributed across the cable route and relate to two prehistoric barrows, a Roman farmstead, a deserted medieval village, a pillow mound and two dovecotes. There are no Registered Battlefields or World Heritage Sites within the Cable Route or 250m Study Area.

- 12.3.16 The locations of all designated heritage assets within 250m of the Cable Route Search Corridor are illustrated on **Figure 12.1**, **Figure 12.1.7** and **Figure 12.1.8**.

Summary of Non-Designated Heritage Assets

Lime Down A

- 12.3.17 There are 25 HER entries within, or partially within Lime Down A. These include cropmarks of linear features and oval enclosures within Field A7, medieval ridge and furrow across Fields A4-5 and A11-12 and the site of out farm buildings in Field A1 and A3 (**Figure 3.3.1**).
- 12.3.18 Within the 1km Study Area for Lime Down A there are 117 'monument' records held on the Wiltshire HER. These include archaeological findspots, earthworks, features identified from air photographs as cropmarks or soilmarks, features identified from documentary evidence such as historic mapping, and extant elements of the built environment including Listed Buildings and non-designated buildings. They also include HER 'monument' records relating to activity dating from the prehistoric, Iron Age/Romano-British, medieval, post-medieval and modern periods. The locations of all HER 'monument' records within 1km of Lime Down A are illustrated on **Figure 12.2** and **Figure 12.2.1**.

Lime Down B

- 12.3.19 There are 31 HER entries within, or partially within Lime Down B. These include Neolithic to Iron Age barrows in Field B5, Bronze Age barrows in Field B5, Bronze Age ring ditches in Field B6 and Field B9, Iron Age to Roman settlement in Field B5, Field B9 and Field B12, the line of the Roman Fosse Way which runs along the north-western edge of Lime Down B and medieval ridge and furrow in Field B4 and Field B11 (**Figure 3.3.2**).
- 12.3.20 Within the 1km Study Area for Lime Down B there are 277 'monument' records held on the Wiltshire HER. These include archaeological findspots, earthworks, features identified from air photographs as cropmarks or soilmarks, features identified from documentary evidence such as historic mapping, and extant elements of the built environment including Listed Buildings and non-designated buildings. They also include HER 'monument' records relating to activity dating from the prehistoric, Iron Age/Romano-British, medieval, post-medieval and modern periods. The locations of all HER 'monument' records within 1km of Lime Down B are illustrated on **Figure 12.2** and **Figure 12.2.2**.

Lime Down C

- 12.3.21 There are 15 HER entries within, or partially within Lime Down C. These include prehistoric flints in C1 and C20, a prehistoric round barrow in Field C2, Mesolithic flints in Field C2 and C12, Roman-British Pottery in Field C20, the line of the Roman Fosse Way which runs through the middle of Lime Down C, medieval field systems across Fields C3-C6 and the site of out farm buildings in Field C19 (**Figure 3.3.3**).
- 12.3.22 Within the 1km Study Area for Lime Down C there are 146 'monument' records held on the Wiltshire HER. These include archaeological findspots, earthworks, features identified from air photographs as cropmarks or soilmarks, features identified from

documentary evidence such as historic mapping, and extant elements of the built environment including Listed Buildings and non-designated buildings. They also include HER 'monument' records relating to activity dating from the prehistoric, Iron Age/Romano-British, medieval, post-medieval and modern periods. The locations of all HER 'monument' records within 1km of Lime Down C are illustrated on **Figure 12.2** and **Figure 12.2.3**.

Lime Down D

- 12.3.23 There are nine HER entries within, or partially within Lime Down D. These include an Iron Age coin in Field D5, Romano-British pottery in Field D6 and Field D7, a medieval coin in Field D7 and undated field systems in Field D1, Field D6 and Fields D21-23 (**Figure 3.3.4**).
- 12.3.24 Within the 1km Study Area for Lime Down D there are 155 'monument' records held on the Wiltshire HER. These include archaeological findspots, earthworks, features identified from air photographs as cropmarks or soilmarks, features identified from documentary evidence such as historic mapping, and extant elements of the built environment including Listed Buildings and non-designated buildings. They also include HER 'monument' records relating to activity dating from the prehistoric, Iron Age/Romano-British, medieval, post-medieval and modern periods. The locations of all HER 'monument' records within 1km of Lime Down D of the Scheme are illustrated on **Figure 12.2** and **Figure 12.2.4**.

Lime Down E

- 12.3.25 There are seven HER entries within, or partially within Lime Down E. These include prehistoric flints in Field E2 and Field E33, Romano-British pottery in Field E4, the site of a post-medieval quarry in Field E12 and the site of out farm buildings in Field E19, Field E30 and Field E32 (**Figure 3.3.5**).
- 12.3.26 Within the 1km Study Area for Lime Down E there are 129 'monument' records held on the Wiltshire HER. These include archaeological findspots, earthworks, features identified from air photographs as cropmarks or soilmarks, features identified from documentary evidence such as historic mapping, and extant elements of the built environment including Listed Buildings and non-designated buildings. They also include HER 'monument' records relating to activity dating from the prehistoric, Iron Age/Romano-British, medieval, post-medieval and modern periods. The locations of all HER 'monument' records within 1km of Lime Down E are illustrated on **Figure 12.2** and **Figure 12.2.5**.

Land at Melksham Substation

- 12.3.27 There is one HER entry within, or partially within Land at Melksham Substation, consisting the shrunken medieval settlement earthwork remains of Whitley, as well as associated ridge and furrow, banks and ditches. LiDAR data indicates that the ridge and furrow remains within the south-western part of the Land at Melksham Substation no longer survive as above-ground features.
- 12.3.28 Within the 1km Study Area for Land at Melksham Substation there are 84 'monument' records held on the Wiltshire HER. These include archaeological findspots, earthworks, features identified from air photographs as cropmarks or soilmarks, features identified from documentary evidence such as historic mapping, and extant elements of the built environment including Listed Buildings and non-designated buildings. They also include HER 'monument' records relating to activity dating from the prehistoric, Iron Age/Romano-British, medieval, post-medieval and modern periods. The locations of all

HER 'monument' records within 1km of Land at Melksham Substation site of the Scheme are illustrated on **Figure 12.2** and **Figure 12.2.6**.

- 12.3.29 The location of all HER monument records within the Scheme and its surrounding 1km Study Area are shown on **Figure 12.2** and **Figure 12.2.6**.

Cable Route Search Corridor

- 12.3.30 Following refinement of the Cable Search Route Corridor to a preferred route, information sources, as detailed in **Paragraph 12.3.33** will be consulted to identify the relevant baseline for non-designated heritage assets and the potential for buried archaeological features to be impacted.

Information Sources

- 12.3.31 In line with the guidelines laid down by ClfA (2020) (**Ref 139**) and Local Planning Authorities, sources of information that will be consulted to inform the Cultural Heritage chapter of the ES include:

- Wiltshire HER;
 - All records relating to non-designated heritage assets, other archaeological records and previous archaeological investigations within 1km of the boundary of the Scheme.
- National Record of the Historic Environment (NRHE);
 - All records relating to heritage assets, other archaeological records and previous archaeological investigations within 1km of the boundary of the Scheme.
- NHLE;
 - All records relating to designated heritage assets within 2km of the Scheme.
- Portable Antiquities Scheme (PAS);
 - All records relating to reported archaeological finds found within 1km of the Scheme.
- Historical Cartographic Sources;
 - Relevant and accessible historical maps and plans of the area within the Scheme.
- National Mapping Programme (NMP);
 - Aerial photograph interpretation and investigation undertaken by English Heritage (now Historic England).
- LiDAR Data;
 - LiDAR data produced by the Environment Agency and published on the DEFRA Data Service Platform (DEFRA 2023) will be consulted in order to identify any previously unrecorded earthwork features within the Scheme.
- Archaeological field evaluation; and

- Geophysical survey will be undertaken within all areas of the Site that are suitable for survey (for example, excluding roads and areas of woodland) and where land access can be obtained.
- Trial trenching will be undertaken as appropriate to test the results of the geophysical survey following consultation with the Local Authority's Planning Archaeologist.
- Site Visit;
 - Site visits will be undertaken, to provide an assessment of the character of land within the Scheme and appraise any potential impacts to heritage assets from the Scheme, either directly or indirectly (i.e. to elements of their setting that contribute to their significance).

12.4 Potential Effects

Overview

- 12.4.1 There are a number of non-designated archaeological features recorded within Lime Down Sites A to E, the Land at Melksham Substation and the Cable Route Corridor, and it is likely that previously unrecorded archaeological remains could survive for which there could be potential for effects.
- 12.4.2 The Scheme also has potential to have indirect (setting) effects on heritage assets within the surrounding area.
- 12.4.3 In summary, potential impacts could include;
- Partial or total removal of non-designated heritage assets within the Site;
 - Partial or total removal of unrecorded archaeological remains within the Site; and
 - Effects upon the significance of heritage assets due to changes to their setting beyond the Site.

Construction Phase

- 12.4.4 There may be potential for construction groundworks within the Scheme to directly affect previously unrecorded archaeological remains within the boundary of the Scheme, that could be identified through the production of the forthcoming Archaeological Desk-Based Assessment (DBA), which be informed by information sources listed in **Section 12.3** and will be undertaken to inform the Cultural Heritage chapter of the ES.
- 12.4.5 There may be potential for the Scheme to indirectly impact heritage assets beyond the boundary of the Scheme during the Construction Phase (i.e. elements of their setting that contribute to their significance), but any such effects relating solely to the Construction Phase would be reversible.
- 12.4.6 There may be the potential for In-combination effects during the construction phase as a result of the mitigation required to reduce potential impacts caused by the Scheme on other environmental factors (i.e. landscape, ecology, noise etc), and changes to land use/management (for example, see **Chapter 10** for changes to land drainage).

Operation phase

- 12.4.7 Once the Scheme is operational, no further effects on buried archaeological remains will be anticipated.

- 12.4.8 There may be potential for the Scheme to have effects upon the settings of heritage assets within the surrounding area during its operation.

Decommissioning Phase

- 12.4.9 Any potential for impacts to heritage assets as a result of the decommissioning phase will be considered as part of the environmental impact assessment.

12.5 Assessment Methodology

Consultation

- 12.5.1 Consultation will be undertaken with the Local Authority's Planning Archaeologist, Historic England, relevant Conservation Officers and any other relevant stakeholders on the scope of the assessment.

Assessment Methodology

- 12.5.2 The Cultural Heritage chapter of the ES will be informed by the results of an archaeological DBA and Heritage Statement, which will be supported by information sources as detailed in **Section 12.3**.

- 12.5.3 The ES chapter will present a consideration of designated and non-designated heritage assets within the Study Area for the Scheme, an assessment of their significance and the potential direct (physical) and indirect (setting) effects that the Scheme could have on these. It will then provide proposals for mitigating any impacts through archaeological recording or through design-based mitigation.

Significance Criteria

- 12.5.4 NPS EN-1 and the NPPF refer to the consideration of the 'significance' of heritage assets. However, in the context of an EIA, the term 'significance' is used to denote the magnitude of likely environmental effects.
- 12.5.5 Significance, as defined in the NPS EN-1 and the NPPF, lies in the value of a heritage asset to this and future generations because of its heritage interest, which may be archaeological, architectural, artistic or historic.
- 12.5.6 It is recognised that not all parts of a heritage asset will necessarily be of equal significance. In some cases, certain elements could accommodate change without affecting the significance of the asset. Change is only considered harmful if it erodes an asset's significance. Understanding the significance of any heritage assets affected and any contribution made by their setting (paragraph 200, NPPF December 2023) is therefore fundamental to understanding the scope for and acceptability of change.
- 12.5.7 The criteria to establish the sensitivity of assets is provided in **Table 12.1** below.

Table 12.1: Sensitivity of Heritage Assets

Heritage Sensitivity	Description
High (e.g. International/National)	<ul style="list-style-type: none"> World Heritage Sites Buildings or structures of recognised international importance

Heritage Sensitivity	Description
	<ul style="list-style-type: none"> Scheduled Monuments Grade I and II* Listed Buildings Grade I and II* Registered Historic Parks and Gardens Non-designated assets of equivalent heritage significance which are potentially nationally important.
Medium (e.g. Regional/County)	<ul style="list-style-type: none"> Grade II Listed Buildings Grade II Registered Historic Parks and Gardens Conservation Areas Regionally important archaeological features and areas (as defined in the HER)
Low (e.g. Local)	<ul style="list-style-type: none"> Locally Listed Buildings Non-designated archaeological sites of local value, and/or potential to contribute to local research objectives
Negligible	<ul style="list-style-type: none"> Heritage assets with very little or no surviving research value Assets compromised by poor preservation and/or poor contextual association, or very common archaeological features/buildings of little or no value at local or other scale

Assessment of Effects

- 12.5.8 The consideration and forecasting of likely significant effects are based upon an assessment of data relating to designated and non-designated heritage assets, undertaken by professionals with extensive experience in the identification, assessment and mitigation of development-related effects on the historic environment.
- 12.5.9 The significance of the effect (**Table 2.3** of **Chapter 2**) is dependent on:
- The sensitivity of the heritage asset or its setting (**Table 12.1** above); and
 - The magnitude of the effect (**Table 12.2** below).
- 12.5.10 The magnitude of effect will be determined as the predicted change to the existing baseline conditions during and following the construction of the Scheme. The effect can either be adverse or beneficial, direct or indirect, and the criteria for assessing the magnitude of the impact is set out in **Table 12.2** below.

Table 12.2: Magnitude of Effects

Magnitude of Effect	Environmental Impact
High	<ul style="list-style-type: none"> Change such that the significance of the asset is totally altered or destroyed. Comprehensive change to setting affecting sensitivity, resulting in a serious loss in our ability to understand and appreciate the asset.

Magnitude of Effect	Environmental Impact
	<ul style="list-style-type: none"> High loss of archaeological material (>60% by area) or loss of specific areas of material which contribute directly to the understanding of the asset concerned; or Circumstance within which it is not possible to determine the precise level of change in this way.
Medium	<ul style="list-style-type: none"> Change such that the significance of the asset is affected. Noticeably different change to setting affecting significance, resulting in erosion in our ability to understand and appreciate the asset. Moderate loss of archaeological material (>40% by area) or loss of small specific areas of material which contribute to the understanding of the asset concerned. Indicative modification of high magnitude of change following best practice mitigation strategy.
Low	<ul style="list-style-type: none"> Change such that the significance of the asset is slightly affected. Slight change to setting affecting significance, resulting in a change in our ability to understand and appreciate the asset. Loss of archaeological material (>10% by area). Indicative modification of medium magnitude of change following best practice mitigation strategy.
Negligible	<ul style="list-style-type: none"> Changes to the asset that hardly affects significance. Minimal changes to the setting of an asset that have little effect on significance, resulting in no real change in our ability to understand and appreciate the asset. No change. Indicative modification of low magnitude of change following best practice mitigation strategy.
Neutral	<ul style="list-style-type: none"> No change from baseline conditions.

Significance of Effects

- 12.5.11 It is proposed that the criteria provided in the matrix in **Table 12.3** are used to allow a determination of the likely significance of effects prior to the implementation of any additional mitigation and are in line with paragraph 5.9.27 of NPS (EN-1) and paragraph 205 of the NPPF (December 2023). This would take into account that a 'Low' magnitude of effect on a heritage asset of 'High' (i.e. national) importance may equate to 'Less than substantial harm', while for an asset of local importance the equivalent effect would be less.

Table 12.3: Degrees of Significance

Magnitude of Impact	Sensitivity of Receptor			
	High	Medium	Low	Very Low
High	Major	Major/Moderate	Moderate	Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

- 12.5.12 As the matrix indicates, there is a degree of overlap between the matrix categories, and therefore professional judgement is applied to ensure it is commensurate with unique factors relating to the heritage assets concerned.
- 12.5.13 Not all adverse effects are considered to be 'significant' and it considered that those assessed as Neutral, Negligible or Minor Adverse would not be considered to be a 'significant' effect in EIA terms.

In-Combination and Cumulative Effects

- 12.5.14 Where in-combination effects are identified, these will be addressed in the Cultural Heritage chapter and a summary of any significant effects set out within the Cumulative Effects Chapter.
- 12.5.15 An assessment will be made of likely cumulative effects that may arise from the addition of the Scheme to a baseline including other, proposed developments that could impact the same receptors as the Scheme.

Mitigation

Direct (Physical) Impacts

- 12.5.16 The detailed design and evolution of the Scheme will be informed by environmental assessment(s) to reduce any adverse effects as considered necessary. Any mitigation measures as required will be confirmed in the ES.

Indirect (Setting) Impacts

- 12.5.17 Mitigation options will be explored where any impacts are identified that could have an adverse effect on any elements of a heritage asset's setting that contribute to its significance. Any appropriate mitigation measures will be confirmed in the ES.

12.6 Conclusions on Scoping

Scoped In

- 12.6.1 The aspects described in **Table 12.4** below are proposed to be 'scoped in' the assessment.

Table 12.4: Matters to be ‘Scoped In’ the Assessment

Effects	Justification
Impact to archaeological remains during the construction phase	<p>There is a potential for impact to Archaeological remains during the construction phase of the Scheme as a result of ground disturbance that could either partially or fully impact buried archaeology.</p> <p>As such the potential for impact to archaeological remains during the construction phase is ‘scoped in’ for further assessment.</p>
Impact to built heritage	<p>There is a potential for an indirect impact to heritage assets where the Scheme could result in changes to elements of heritage asset’s setting that contribute to its significance during the construction, operation and decommissioning phases. Therefore, built heritage will be ‘scoped in’ for further assessment during the construction, operation and decommissioning phases of the Scheme.</p> <p>Study areas to identify built heritage assets that could be impacted by the Scheme will be in line with that detailed in paragraphs 12.3.1 to 12.3.3. As agreed with the Local Authority Conservation Officer and Historic England, individual heritage assets will be ‘scoped out’ of further assessment where no potential for impact is identified.</p>

Scoped Out

- 12.6.2 The aspects described in **Table 12.5** below are proposed to be ‘scoped out’ of the assessment.

Table 12.5: Matters to be ‘Scoped Out’ of the Assessment

Effects	Justification
Impact to archaeological remains during the operation and decommissioning phases	<p>Activities associated with the operation and decommissioning phases are not considered to cause further impact to buried archaeological remains beyond that which will occur during the construction phase.</p> <p>While the potential for impact to archaeological remains during the operation and decommissioning phases is ‘scoped out’ of further assessment, it is recommended that mitigation measures are will be considered to ensure archaeological remains are adequately protected during the operation and decommissioning phases (i.e. archaeology is included in an operation and decommissioning environmental management plan).</p>

13 Transport and Access

13.1 Introduction

- 13.1.1 This Scoping Report chapter considers the likely significant effects of the Scheme on the local highway network, during its construction, operational and decommissioning phases.
- 13.1.2 The nature of solar parks is such that there are few significant effects in Transport and Access terms during the Scheme's operation phase. During this period, there are anticipated to be only a handful of visits to the site per month by vehicle for maintenance as well as vehicle movements associated with the replacement of panels and batteries. The focus of the Transport and Access ES chapter will be on the effects during the temporary construction phase. The effects during the replacement of panels and batteries in the operation phase and the temporary decommissioning phase will be equivalent to, or less than, the construction phase.
- 13.1.3 This chapter is supported by the following figures and appendices:
- Appendix 13.1: Transport and Access Figures
 - Figure 13.1 Indicative Study Area
 - Figure 13.2 Public Rights of Way Location Plan
 - Figure 13.3 Indicative Construction Vehicle Access Locations

13.2 Policy and Legislation

- 13.2.1 The Planning Act 2008 (**Ref 2**) sets out the process for the consenting of NSIPs and the basis for the decision of whether to grant development consent.
- 13.2.2 NPS set out the policy basis for NSIPs and form the basis for determination of decisions on DCO applications by the Secretary of State. The NPSs that are relevant to the Scheme and the Transport and Access chapter of the ES are:
- Overarching National Policy Statement for Energy (EN-1) (**Ref 8**);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3) (**Ref 34**); and
 - National Policy Statement for Electricity Networks Infrastructure (EN-5) (**Ref 9**).
- 13.2.3 The wider national and local planning policy documentation considered relevant to the Scheme and Transport and Access are identified below and will be considered as part of the Transport and Access ES chapter:
- NPPF (as amended December 2023) (**Ref 14**);
 - PPG (as amended March 2015) (**Ref 15**);
 - Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**);
 - Wiltshire Local Transport Plan 2011-2026 (**Ref 27**); and
 - Department for Transport Circular 02/2013 - Strategic Road network and the delivery of sustainable development (as amended December 2022) (**Ref 140**).

- 13.2.4 The Transport and Access ES chapter will be prepared with reference to guidance provided within the IEMA Guidelines: Environmental Assessment of Traffic and Movement (**Ref 141**).

13.3 Preliminary Baseline Conditions

Study Area

- 13.3.1 A full overview of the Sites in a transport context will be set out in the Transport and Access ES chapter. This will include a summary of highway, non-motorised and public transport infrastructure in the local area.
- 13.3.2 The Study Area (**Figure 13.1**) for the assessment of the likely significant effects of the Scheme on transport and access will consist of all PRow within the Sites and the roads that comprise the construction vehicle routes from Junctions 17 and 18 of the M4. These roads will include but not be limited to the following:
- A46;
 - B4040;
 - B4039;
 - Unnamed Road (between The Gibb and Grittleton);
 - Alderton Road;
 - Fosse Way;
 - A429;
 - Unnamed Road (between A429 and Bradfield Cottages);
 - Grange Lane;
 - Rodbourne Road;
 - A350;
 - A365 Bath Road; and
 - B3353
- 13.3.3 Construction routes may also require the crossing of small sections of roads between Sites and along the Cable Route Search Corridor which will be considered further in the Transport and Access chapter of the ES.
- 13.3.4 The Transport and Access Study Area is shown in **Figure 13.1**. Construction routes will be discussed with stakeholders and are subject to refinement and consideration of constraints.

Local Highway Network

A46

- 13.3.5 The A46 is located approximately 5.7km north west of Lime Down C. It is a two-way, single carriageway road routing from Junction 18 of the M4 to the south towards Nailsworth to the north.

13.3.6 On-site observations and traffic surveys indicate that the A46 within the vicinity of the Study Area is already well used by HGVs. The road is subject to the national speed limit, which then reduces to 50mph and then 40mph as it approaches Old Sodbury.

13.3.7 There are no posted weight or height restrictions along the section of the A46 within the Study Area.

B4040

13.3.8 The B4040 is located approximately 530m north west of Lime Down A. It is a two-way single carriageway road, subject to a 50mph speed limit for a majority of its length within the Study Area, except where it reduces to 40mph in the vicinity of Old Sodbury and Acton Turville. The B4040 routes from the A46 to the west to the B4039 near Acton Turville to the east.

13.3.9 On-site observations and traffic surveys indicate that the B4040, within the Study Area, is already well used by HGVs. There are no posted weight or height restrictions along the section of the B4040 within the Study Area.

B4039

13.3.10 The B4039 is located approximately 4.3km south west of Lime Down C. From its merger with the B4040 near Acton Turville to the west, the section of the B4039 within the Study Area continues in a south east direction towards the A420. It is a two-way single carriageway road subject to a 30mph speed limit within the villages of Acton Turville and Burton, a 50mph speed limit between the villages and the national speed limit to the east of Burton.

13.3.11 On-site observations and traffic surveys indicate that the B4039 within the Study Area is already well used by HGVs. There are no posted weight or height restrictions along the section of the B4040 within the Study Area.

Unnamed Road (between The Gibb and Grittleton)

13.3.12 From its junction with the B4039 to the west, an unnamed road routes between The Gibb and Grittleton crossroads to the east. This is located approximately 2.1km south of Lime Down C. It is a two-way single carriageway rural road with no visible central markings and is subject to the national speed limit for a majority of its length. The unnamed road routes beneath an M4 underbridge, however, there are no posted weight or height restrictions along the section of road within the Study Area.

Alderton Road

13.3.13 Alderton Road is located approximately 880m south west of Lime Down C. It routes north towards the Fosse Way from Grittleton crossroads to the south. It is a two-way single carriageway road, which is subject to the national speed limit upon exiting the 30mph speed limit within the village of Grittleton. There are no posted weight or height restrictions along the section of Alderton Road within the Study Area.

Fosse Way

13.3.14 The Fosse Way is located immediately adjacent to and partly within Lime Down B and Lime Down C, and partly within and adjacent to the Cable Route Search Corridor. It routes from Alderton Road in the south and continues in a north eastern direction. It is a two-way single carriageway road, with no central markings and is subject to the national speed limit. There are no posted weight or height restrictions along the section of the Fosse Way within the Study Area.

A429

- 13.3.15 The A429 is located approximately 630m south east of Lime Down D and 520m north west of Lime Down E, and partly within and adjacent to the Cable Route Search Corridor. It is a two-way, single carriageway road routing from Junction 17 the M4 towards Malmesbury to the north. On-site observations and traffic surveys indicate that the A429 within the vicinity of the Study Area is already well used by HGVs.
- 13.3.16 The A429 is subject to a 60mph speed limit for the majority of the construction route, however through the village of Lower Stanton St Quinton, a 50mph speed limit is enforced, and throughout the village of Corston, a 30mph speed limit is enforced. As the A429 routes under the Great Western Main Line, there is an underbridge with a height restriction of 4.2m.

Unnamed Road (between A429 and Bradfield Cottages)

- 13.3.17 From the roundabout junction with the A429 to the east, an unnamed road routes northwest, past Hullavington to Bradfield Cottages. This is located adjacent to Lime Down D and partly within and adjacent to the Cable Route Search Corridor. It is a two-way single carriageway subject to the national speed limit. The initial section of the road has recently been upgraded with central markings and street lighting. Beyond the access to Hullavington Airfield, the route becomes more rural in character with no central road markings or street lighting. The unnamed road routes beneath a railway underbridge before becoming Bradfield Cottages. There are no posted weight or height restrictions along the section of road within the Study Area. Bradfield Cottages is similar in character and continues up to Lime Down D.

Grange Lane

- 13.3.18 Grange Lane is located approximately 820m north east of Lime Down E. It routes from the A429 at its northern extent and continues in southerly direction towards Startley. Grange Lane is a two-way single carriageway road subject to the national speed limit. There are no road markings and there are no footways or streetlighting. There are also no posted weight or height restrictions along the section of road within the Study Area.

Rodbourne Road

- 13.3.19 Rodbourne Road is located approximately 160m north east of Lime Down E. It extends from the A429 to the west and Grange Lane to the east. Similarly, to Grange Lane, it is a two-way single carriageway road with no road markings with no pedestrian infrastructure. There is no posted weight or height restrictions along the section of road within the Study Area.

A350

- 13.3.20 The A350 is located approximately 1.8km east of the Land at Melksham Substation and partly within and adjacent to the Cable Route Search Corridor. It routes from Junction 17 the M4 to the north towards Melksham and the A365 to the south. The section of the A350 within the vicinity of the Study Area is already well used by HGVs.
- 13.3.21 The initial section of the A350 between Junction 17 of the M4 and the Bumpers Farm Roundabout is a two-way dual carriageway road. The A350 then narrows to a two-way single carriageway road as it continues towards Melksham.
- 13.3.22 There are no posted weight or height restrictions along the section of the A350 within the Study Area.

A365 Bath Road

- 13.3.23 The A365 Bath Road is located approximately 1km south of the Land at Melksham Substation and partly within and adjacent to the Cable Route Search Corridor. It provides a route from the A350 in Melksham to the south, towards the B3353 to the north west. It is a two-way single carriageway road which is already well used by HGVs. There are no posted weight or height restrictions along the section of the A365 within the Study Area.

B3353

- 13.3.24 The B3353 is located immediately east of the Land at Melksham Substation and partly within and adjacent to the Cable Route Search Corridor. It provides a route from the A365 Bath Road to Land at Melksham Substation. It is a two-way single carriageway road which is already well used by HGVs. There are no posted weight or height restrictions along the section of the B3353 within the Study Area.

Public Rights of Way

- 13.3.25 The locations of these PRoW are shown in **Figure 13.2**. There are a number of PRoW that run through the Sites which are described in further detail in **Table 13.1**.

Table 13.1: Public Rights of Way

PRoW	PRoW Type	Site	Route Description
SHER14	Bridleway	Lime Down A	Routes in a general north/south alignment between an unnamed road and through Ladyswood Farm to the south
SHER15	Footpath		Routes in a general east/west alignment near Southfield and intercepts SHER37
SHER16	Bridleway		Connects from the Fosse Way at two points (opposite HULL26 and Pig Lane junction) and continues northwest onto a track
SHER37	BOAT (Byway Open to All Traffic)	Lime Down B	Connects from the Fosse Way to the south and onto the unnamed road to the north
EGRE1	BOAT		Routes southwest/northeast between Foxley Road and the unnamed road north of SHER35
NORT1	Footpath		Routes north/south from near Foxley to the north and onto Honey Lane to the south
NORT5	Footpath		Routes east/west from the Fosse Way to the west, opposite SHER15 and onto Honey Lane in the east
SHER17	Footpath	Lime Down C	Extends between the northern end of SHER35 and the eastern end of SHER16, routing in an east/west alignment
SHER18	Footpath		Routes east/west alignment between LUCK35 and the Fosse Way near to HULL25

PRoW	PRoW Type	Site	Route Description
SHER35	BOAT		Connects from Commonwood Farm and routes north/south merging with LUCK57
LUCK57	BOAT		Connects from SHER35 to the north and routes south onto the Fosse Way near the railway line
LUCK35	Footpath		Routes east/west alignment between Luckington and SHER18
HULL23	Footpath		Extends from Pig Lane, south of the rail line, and routes southeast towards Hullavington
NORT10	Footpath	Lime Down D	Routes in a general north/south direction between Norton and HULL1
HULL1	Footpath		Extends from NORT10 and routes south to the underpass of the railway line near Bradfield Manor Farm
HULL2	Footpath		Routes in a general east/west direction between Gorse Leaze Farm and an Unnamed Road south of Norton
HULL4	Footpath		Routes north/south from the Unnamed Road south of Norton and connects onto HULL2 near Gorse Leaze Farm
HULL5	Footpath		Follows similar route to HULL4 between the Unnamed Road south of Norton and Gorse Leaze Farm
HULL6	Footpath		Routes between Court Farm north of the railway line and routes in a general northeast direction to connect onto MALW49
HULL7	Bridleway		Extends between a track routing northeast from Court Farm and onto MALW51 in an easterly direction
HULL8	Footpath		Routes in a north/south direction from the north of Hullavington, over the railway line and connects onto MALW52 and forks off to connect onto HULL7
MALW49	Footpath		Connects from HULL6 to the south and routes northeast onto Common Road to the west of Corston
MALW51	Bridleway		Extends from HULL7 and routes northeast onto Mill Lane in Corston
MALW52	Footpath		Extends from HULL8 and routes northeast onto Main Road in Corston

PRoW	PRoW Type	Site	Route Description
MALW60	Footpath	Lime Down E	Routes between Main Road from Kingsway Barn Farm and connects onto MALW54 at its eastern terminus
MALW54	Bridleway		Connects between Main Road (north of Kingsway Barn Farm) and routes southwest connecting to MALW60
MALW68	Footpath		Routes from Pound Hill to the east and onto an unnamed track to the west
MALW59	Bridleway		Routes northeast/southwest between the A429 near Hangar Farm and an unnamed track south of Bincombe Wood
SSTQ5	Footpath		Routes in a general north/south direction from an unnamed road north of Lower Stanton St Quintin and connects onto MALW62
MALW61	Bridleway		Routes in a general north/south direction from SSTQ4 and onto an unnamed track to the north near MALW59
SSTQ4	Bridleway		Routes in a general north/south direction from an unnamed road near Haresfield Farm and merges into MALW61
MALW62	Footpath		Routes between SSTQ5 to the south and intercepts onto SSTQ4
MALW64	Bridleway		Extends between SSTQ4 and an unnamed road in Rodbourne Bottom in an east/west alignment
MELW68	Footpath	Land at Melksham Substation	Routes in a north/south direction between Top MELW70 and Littleworth Lane
MELW70	Footpath		Routes in a north/south direction between Top Lane and MELW68
MELW77	Footpath		Routes in a north/south direction between B3353 and Top Lane

- 13.3.26 In addition, there are PRoW which cross the Cable Route Search Corridor. The Cable Route Search Corridor will be refined during the design process to a preferred route which will be presented in the PEIR stage. The Transport and Access chapter of the ES will consider all PRoW which cross the preferred route in further detail.

Cycle Routes

- 13.3.27 There are a number of cycle routes within the vicinity of the Sites. This includes part of Section 14 of the Wiltshire Cycleway, which is an on-road, unsegregated route. It includes the section of Alderton Road and the Fosse Way routing between Grittleton to the south and the crossroads in the vicinity of Lords Wood to the north.

13.3.28 There are also sections of National Cycle Network (NCN) 403 which cross the A350 to the south of Chippenham along the potential construction route to Land at Melksham Substation.

13.3.29 There are cycle routes which cross the Cable Route Search Corridor. The Cable Route Search Corridor will be refined during the design process to a preferred route which will be presented at the PEIR stage. The Transport and Access chapter of the ES will consider all cycle routes which cross the preferred route in further detail.

Construction Vehicle Access

13.3.30 During the construction and operation phases, access points serving the Sites will be required. The proposed locations of the access points are shown in **Figure 13.3** and listed in **Table 13.2**. The proposed points of access are subject to change as the design develops and further detailed work is undertaken.

Table 13.2: Indicative Construction Vehicle Access Locations

Site	Access Reference	Access Location	Existing/New
Lime Down A	8	West of Unnamed Road between Fosse Way and Sherston	Existing
	9	East of Unnamed Road between Fosse Way and Sherston	Existing
Lime Down B	6	East of Fosse Way, to the south of crossroads	Existing
	7	East of Fosse Way (byway), to the north of crossroads	New
	10a/10b	East and west of Unnamed Road north of Norton	New
	11	East of Unnamed Road north of Norton	New
Lime Down C	1	West of Fosse Way south of railway bridge	Existing
	2	East of Fosse Way south of railway bridge	Existing
	3a/3b	West and east of Pig Lane	New
	4	East of Fosse Way north of railway bridge	Existing
	5	West of Fosse Way north of railway bridge	Existing
Lime Down D	12	East of Bradfield Cottages road	New
	13	West of Bradfield Cottages road	New
	14	Hullavington crossroads	New
	15	Unnamed road East of Hullavington crossroads	Existing

Site	Access Reference	Access Location	Existing/New
Lime Down E	16	South of Rodbourne Road	Existing
	17	North of Cabbage Lane, near Rodbourne	Existing
	18	East of Cabbage Lane, near Rodbourne	Existing
	19	West of Cabbage Lane, near Rodbourne	New
Land at Melksham Substation	20	West of B3353	Existing

13.3.31 The Cable Route Search Corridor will be refined during the design process to a preferred route which will be presented in the PEIR stage. Any accesses required for the preferred route will be included within the Transport and Access chapter of the ES.

13.3.32 Where the proposed access points utilise existing agricultural access points or tracks, they will be formalised and widened where necessary. Swept path analysis of the proposed access points will be included within the Outline CTMP that will be submitted with the application for the DCO to demonstrate they can operate safely.

Initial Surveys

13.3.33 Automatic Traffic Count Surveys have been undertaken for all roads within the vicinity of the proposed points of access to the Sites. These were undertaken between 23rd January 2024 and 1st February 2024. In addition, Department for Transport (DfT) data has been reviewed for the strategic road network, including the A46 and A429. The average weekday two-way traffic count for the main roads within the vicinity of the Scheme is set out in **Table 13.3**.

Table 13.3: Baseline Traffic Flows – Average Day (24hr), Two-Way

Link	Total Vehicles	%HGV
A46	13,132	6%
A429	14,585	4%
A350	19,474	9%
A365	12,903	3%
Fosse Way	886	2%
Unnamed Road between Alderton and Fosse Way	347	3%
Pig Lane	15	5%
Unnamed Road between Fosse Way and Norton	666	3%

Link	Total Vehicles	%HGV
Unnamed Road between Fosse Way and Sherston	1,489	3%
Unnamed Road north of Norton	592	3%
Unnamed Road east of Hullavington	2,925	4%
Bradfield Cottages	1,396	3%
Rodbourne Road	212	5%

- 13.3.34 Additional traffic surveys will be conducted along the proposed construction routes and Cable Route Search Corridor where required. Further information on the Cable Route Corridor will be included once a preferred route has been identified.

Other Baseline Data Sources

- 13.3.35 Other baseline data sources that will inform the Transport and Access ES chapter are:

- Personal Injury Collision (PIC) data;
- Highway boundary information;
- OS Mapping; and
- Topographical surveys

Temporary Construction Phase

- 13.3.36 The ES Transport and Access chapter will set out the effects of the temporary construction phase.
- 13.3.37 An Outline CTMP is currently being prepared and will form an appendix to the full Transport and Access ES chapter. The Outline CTMP will provide a framework for the management of construction vehicle movements to and from the Site (including the cable route once finalised), to ensure that the effects of the temporary construction phase on the local highway network are minimised. The Outline CTMP will set out construction access arrangements, construction vehicle routing, construction vehicle trip generation, and the management/mitigation measures. Any requirements for abnormal loads to be delivered to the Sites during construction (for elements such as transformers), will be determined through the design process, in consultation with the appropriate statutory consultees, and addressed in the ES. The strategy is still being developed, but an overview is provided at **Paragraph 13.4.26**.
- 13.3.38 An Outline PRow Management Plan and Abnormal Loads Assessment will also be appended to the full Transport and Access ES chapter.

Project Basis for Scoping Assessment

- 13.3.39 Transport and access impacts resulting from the Scheme will be restricted to the local highway network within the Study Area, as shown in **Figure 13.1**. The receptors will be users of the local highway network, including drivers and non-motorised users (including pedestrians, cyclists, and equestrians).

Embedded Mitigation

- 13.3.40 Construction vehicle access points will be designed to accord with guidance, as set out in the Design Manual for Roads and Bridges (**Ref 110**).

13.4 Assessment Methodology

Construction Phase

- 13.4.1 The potential transport and access effects resulting from the construction and decommissioning phases of the Scheme that will be assessed within the ES chapter comprise:
- Severance;
 - Driver delay;
 - Non-motorised user delay;
 - Non-motorised user amenity (including Fear and Intimidation);
 - Road User and Pedestrian Safety; and
 - Hazardous loads.
- 13.4.2 The assessment methodology to be used to assess the likely significant effects from the construction and decommissioning phases of the Scheme on the environmental impact criteria above is set out below.

Severance

- 13.4.3 The IEMA Guidelines (**Ref 141**) define severance as ‘the perceived division that can occur within a community when it becomes separated by a major traffic artery’ (paragraph 4.27) that ‘separates people from places’, for example, difficulties crossing existing roads or the physical barrier of the road itself.
- 13.4.4 There are no predictive formulae which give simple relationships between traffic factors and levels of significance. Nevertheless, there are a range of indicators for determining the significance of the relief from severance. The IEMA Guidelines (**Ref 141**) suggest that ‘changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively’ (paragraph 4.31). The guidance also suggests that ‘marginal changes in traffic flows are, by themselves, unlikely to create or remove severance’.

Driver Delay

- 13.4.5 The IEMA Guidelines (**Ref 141**) state that ‘delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system’ (paragraph 4.34). As such, the impact of a proposed development on driver delay is typically considered in relation to background traffic. Junction assessment modelling can be used to estimate increased vehicle delays at junctions, if necessary.

Non-Motorised User Delay

- 13.4.6 The IEMA Guidelines (**Ref 141**) state that ‘changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the

general level of pedestrian activity, visibility and general physical conditions of the development site' (paragraph 3.24). There are a range of local factors that affect non-motorised user delay, including the level of pedestrian (and all non-motorised users) activity, visibility and general physical conditions of the site. However, the IEMA Guidelines (**Ref 141**) do not set out definitive thresholds for judging the significance of changes in levels of delay, and suggest that the assessor uses their judgement to determine whether pedestrian (and all non-motorised user) delay is a significant effect.

Non-Motorised User Amenity (including Fear and Intimidation)

- 13.4.7 Non-motorised user amenity is broadly described in the IEMA Guidelines (**Ref 141**) as '*the relative pleasantness of a journey*' (paragraph 3.29) and can be affected by traffic flow, composition and pavement width/separation from traffic. This definition includes pedestrian (and non-motorised user) fear and intimidation and can be considered a much broader category when considering the overall relationship between pedestrians (and other non-motorised users) and traffic. The IEMA Guidelines (**Ref 141**) suggest that a threshold for judging this would be '*where the traffic flows (or its lorry component) is halved or doubled*' (paragraph 3.30). However, the IEMA Guidelines encourages full regard to specific local conditions for a better assessment.

Road User and Pedestrian Safety

- 13.4.8 The IEMA Guidelines (**Ref 141**) do not include any definition in relation to the assessment of effects on accidents and safety, advising that professional judgement should be used to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents.

Hazardous Loads/Large Loads

- 13.4.9 The IEMA Guidelines (**Ref 141**) state that 'some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognised within any traffic and movement assessment' (paragraph 3.49).
- 13.4.10 Some deliveries to the Sites during the construction phase will be regarded as 'large loads'. An abnormal load is one where the vehicle exceeds 44 tonnes, the width is over 2.9m or the length is more than 18.65m. These include the deliveries of the transformers. All applicable regulations for the movement of large loads will be followed, and the appropriate documentation will be obtained.

Prediction of Impact Magnitude

- 13.4.11 The IEMA Guidelines (**Ref 141**) set out two rules which have been used as threshold impacts to define the scale and extent of this assessment, as follows:
- Rule 1: Include highway links where traffic flows will increase by more than 30% (or where the number of HGVs will increase by more than 30%); and
 - Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.
- 13.4.12 A specifically sensitive area is an area defined as having a 'High' sensitivity in accordance with the criteria set out in **Table 13.4**.
- 13.4.13 The IEMA Guidelines (**Ref 141**) identify general thresholds for traffic flow increases of 10% and 30%. Where either (or both) of these rules are exceeded, then further detailed consideration of the associated impacts is undertaken in accordance with the methodologies and assessment criteria set out below. Where the predicted increase in

traffic/HGV flow is lower than these thresholds, then the significance of the effects should be considered to be low or not significant and further detailed assessment is not required.

- 13.4.14 It is notable that, on roads where baseline traffic flows are low, any increase in traffic flow may result in a predicted increase that would be higher than the two rules set out in the IEMA Guidelines. Therefore, it is important to consider any overall increase in road traffic in relation to the capacity of the road.
- 13.4.15 The IEMA Guidelines (**Ref 141**) state that ‘For many effects there are no simple rules or formulae which define the thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed up by data or quantified information wherever possible’, and ‘those preparing the Environmental Statement will need to make it clear how they have defined whether a change is considered significant or not’ (paragraph 4.5).
- 13.4.16 In order to ensure a robust assessment of the increase in traffic flows in environmental terms, the following criteria defined in **Table 13.4** and **Table 13.5** will be used to determine receptor sensitivity and magnitude of impact respectively.

Receptors and Receptor Sensitivity

- 13.4.17 The IEMA Guidelines (**Ref 141**) identifies the following groups and special interests, referred to as sensitive receptors, as susceptible to changes in traffic flow conditions:
- People at home;
 - People at work;
 - Children, elderly and disabled persons;
 - Sensitive locations such as hospitals, churches, schools, historical buildings;
 - Pedestrians;
 - Cyclists;
 - Equestrian users;
 - Open recreational spaces;
 - Sites of ecological/nature conservation value; and
 - Sites of tourist/visitor attraction.
- 13.4.18 For the purpose of this assessment, the traffic and transport environmental sensitivity of receptors ranging from negligible to high have been categorised as set out in **Table 13.4**. These will be assessed and identified in relation to the proposed Study Area, including the Cable Route Search Corridor.

Table 13.4: Sensitivity/Importance of Identified Receptor

Sensitivity	Definition
High	Receptors of greatest sensitivity to traffic flows, such as schools, hospitals, playgrounds/recreational spaces, accident blackspots, retirement/nursing homes. Includes areas with no footways/cycleways with high pedestrian footfall/cycle movements and congested areas.

Sensitivity	Definition
Medium	Receptors with moderate sensitivity to traffic flow, such as conservation areas, historical buildings, tourist attractions, and residential areas.
Low	Receptors with low sensitivity to traffic flows, and those distant from affected roads.
Negligible	Receptors with no material sensitivity to traffic flows.

Magnitude of Impact

13.4.19 The magnitude of impact is the level of change caused by the Scheme. An overview of the different magnitudes of impact is set out in **Table 13.5**.

Table 13.5: Magnitude of Impact

Impact	Source	Neutral	Negligible	Low	Medium	High
Severance	IEMA Guidance	No Change	Change in total traffic or HGV flows of 10%-30%	Change in total traffic or HGV flows of 30% to 60%	Change in total traffic or HGV flows of 60% to 90%	Change in total traffic or HGV flows over 90%
Driver Delay	Professional judgement	No Change	Changes which are unlikely to be perceptible (based on a judgement).	Changes which are likely to be perceptible but not to the extent that it would materially change conditions which would otherwise prevail.	Changes which are likely to be perceptible and which would materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to measurable degree.	Changes which are likely to be perceptible and which could change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour.
Non-Motorised User Delay						
Non-Motorised User Amenity	Professional judgement	No Change	Magnitude of impact is based on professional judgement regarding the 'pleasantness' of a journey and is affected by the composition, speed or volume of traffic introduced as a result of the Scheme. The IEMA Guidance suggests that assessors use their judgement to determine			

Impact	Source	Neutral	Negligible	Low	Medium	High
			whether pedestrian amenity is a significant effect and as such, the magnitude of change for pedestrian amenity has been defined qualitatively based on professional judgement.			
Fear and Intimidation	IEMA Guidance	No Change	No Change in step changes	One step change in level, with • <400 vehicles increase in average 18hr AV two-way all vehicle flow; and/or • <500 HV increase in total 18hr HV flow	One step change in level, but with • >400 vehicles increase in average 18hr AV two-way all vehicle flow; and/or • >500 HV increase in total 18hr HV flow	Two step changes in level
Road User and Pedestrian Safety	Professional judgement	No Change	Magnitude of impact to be based on professional judgement following analysis detailed in the Transport Assessment on collision history and the nature of movements associated with the Scheme.			
Hazardous/Large Loads	Professional judgement	No Change	Magnitude of impact to be based on professional judgement following the outcomes of the abnormal loads assessment which will be an appendix to the Transport Assessment, frequency and size of abnormal loads and consideration of wider traffic effects.			

Categorising Likely Significant of Effect

13.4.20 Following the determination of sensitivity and the magnitude of impact, the likely significance of effect will be calculated using the matrix presented in **Table 13.6**.

Table 13.6: Significance of Potential Effects

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major/Moderate	Moderate	Negligible
Medium	Major/Moderate	Moderate	Moderate/Minor	Negligible
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Defining the Effect

13.4.21 The nature of the effects will be defined as either:

- **Beneficial** - effects that produce benefits in terms of transportation and access;
- **Adverse** - effects that produce a negative effect in terms of transportation and access; or
- **Neutral** - meaning that changes produce no benefits or disbenefits in terms of transport and access (such as no reduction/increase in traffic, travel time, patronage or no loss/provision of service or facility).

Effect Duration

13.4.22 The effects can be temporary or permanent and short, medium, or long term in duration. These will be assessed in conjunction with the proposed construction programme. The definitions of these for the Transport and Access assessment will be as follows:

- A short-term effect – an effect that will be experienced for 0-5 years;
- A medium-term effect – an effect that will be experienced for 5-15 years; and
- A long-term effect – an effect that will be experienced for 15 years or longer

13.4.23 For the purposes of the assessment, construction phase effects are effects that are anticipated to result from activities during site preparation and enabling works, construction, and commissioning activities. The construction effects will be temporary and short-term. The decommissioning phase is expected to take between 12 and 24 months and will also be temporary and short-term.

Cumulative and In-Combination Effects

13.4.24 A cumulative assessment will be undertaken for the temporary construction phase, assessing the effects of the Scheme in conjunction with other local developments. This will be provided within the cumulative chapter of the ES.

13.4.25 Identification of any transport effects in-combination with other effects and/or from combined phases of work on the Scheme will be also considered and described within the Transport and Access chapter of the ES. Where there are no in-combination effects, will also be stated in the Transport and Access chapter.

Mitigation

- 13.4.26 An Outline CTMP will be prepared and will form a technical appendix to the ES chapter. The Outline CTMP will provide a framework for the management of construction vehicle movements to and from the site. At decommissioning, a Decommissioning Traffic Management Plan (DTMP) will be prepared, that will follow the principles of the outline CTMP. Both the CTMP and DTMP will be secured via suitably worded DCO requirements.
- 13.4.27 A number of mitigation measures will be set out within the Outline CTMP and ES chapter. These will typically include, but will not be limited to the following:
- A commitment to avoid network peak hours for deliveries;
 - Signage to direct construction vehicles;
 - The provision of Banksman at the site access junctions to assist the safe movement of HGVs;
 - Site Compounds will be set up within the Scheme. These will include an appropriate number of parking spaces. No vehicles used in the Scheme's construction and decommissioning phases will park on the local highway network;
 - A booking system will be set up to manage arrivals and departures to the site. A log will be kept as part of the booking system;
 - A requirement for engines to be switched off on-site when not in use;
 - The provision of a wheel washing facilities;
 - Spraying of areas with water as and when conditions dictate to prevent the spread of dust;
 - Vehicles carrying waste material off-site to be sheeted;
 - The contact details of the site manager to be provided on notice boards for the local communities; and
 - The commitment to undertake a pre- and post- construction highway condition survey at agreed locations around key junctions.

13.5 Limitations and Assumptions

- 13.5.1 A number of assumptions will be made when forecasting the traffic generation of the Scheme, both during construction and operation. However, these forecasts will be developed by the Applicant and their consultants using a first principles approach based on professional judgement and derived from experience of other developments similar in scale and nature to the Scheme. Therefore, they will represent a realistic estimation of traffic generation.

13.6 Conclusions on Scoping

Construction Phase

- 13.6.1 A full assessment of the temporary construction phase effects is proposed to be scoped in for the whole site in the Transport and Access ES chapter.

Operation phase

- 13.6.2 During the Scheme's operation phase, there are anticipated to be a limited number of visits to the site per month for maintenance (up to two visits per month consisting of four two-way vehicular trips per month). These would typically be made by light van or 4x4 type vehicles. The level of traffic would not meet the threshold impact set out in **Paragraph 13.4.11** and would therefore not require any further assessment. Whilst the site compound will have been removed during the operation phase, space will remain within the Site on the access tracks for such a vehicle to turn around to ensure that reversing will not occur onto the highway.
- 13.6.3 During the operation phase, the panels will be replaced at least once and the BESS at least twice. However, the effects during the replacement of panels and batteries in the operation phase will be less than the construction phase.
- 13.6.4 Whilst the characteristics of the operation phase will be set out in the Transport and Access ES chapter, a full assessment of effects of the operation phase is proposed to be scoped out for the whole site.

Decommissioning Phase

- 13.6.5 The effects during the temporary decommissioning phase will be equivalent to, or less than the temporary construction phase. A full assessment of the temporary decommissioning phase effects is proposed to be scoped out for the whole site in the Transport and Access ES chapter.

14 Noise and Vibration

14.1 Introduction

14.1.1 This chapter of the Scoping Report considers the likely significant effects of noise and vibration associated with the construction, operation and decommissioning of the Scheme. It has been carried out in accordance with recognised standards and guidance.

14.1.2 This chapter is supported by the following figures and appendices:

- Appendix 14.1 Noise and Vibration Figures
 - Figure 14.1 Monitoring – Lime Down A and B;
 - Figure 14.2 Monitoring Locations – Lime Down C;
 - Figure 14.3 Monitoring Locations – Lime Down D;
 - Figure 14.4 Monitoring Locations – Lime Down E;
 - Figure 14.5 Monitoring Locations - Land at Melksham Substation;
 - Figure 14.6 Monitoring Locations – Development Overview (North); and
 - Figure 14.7 Monitoring Locations – Development Overview (South).

14.2 Legislation, Policy and Guidance

14.2.1 The following guidance, legislation and information sources will be considered when carrying out the EIA:

- Control of Pollution Act 1974 (**Ref 143**);
- Environmental Protection Act 1990 (**Ref 144**);
- Overarching National Policy Statement for Energy (EN-1) (**Ref 8**);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (**Ref 145**);
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (**Ref 146**);
- NPPF (**Ref 14**);
- National Planning Policy Guidance (NPPG) (**Ref 15**);
- The Noise Policy Statement for England (NPSE) (**Ref 147**);
- Wiltshire Planning Consultation Guidance Notes (Noise and Vibration) (**Ref 148**);
- BS 4142:2014+A1:2019 Methods for rating and assessing Industrial and commercial sound (BS 4142:2014) (**Ref 149**);
- BS 8233:2014 Guidance on sound Insulation and noise reduction for buildings (BS 8233:2014) (**Ref 150**);
- BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise) (**Ref 151**);
- BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 2 (Vibration) (**Ref 152**);
- Calculation of Road Traffic Noise (CRTN) (**Ref 153**); and

- Design Manual for Roads and Bridges (DMRB) Volume 11 (**Ref 153**).

14.3 Consultation

- 14.3.1 Consultation will be undertaken with the Local Planning Authority's Environmental Health Officer and other statutory consultees as appropriate to agree the scope and methodology of the assessment.
- 14.3.2 Noise and Vibration specialists associated with the project have been represented at public consultation events, whereby public concerns and issues have been voiced to the project team and considered within the assessment methodology.
- 14.3.3 It is anticipated that further consultation events may be attended following further development of design proposals.

Methodology for the Assessment of Effects

- 14.3.4 The NPSE introduced three concepts to the assessment of noise, as follows:

NOEL - No Observed Effect Level

- This is the level below which no effect can be detected and below which there is no detectable effect on the health and quality of life due to noise.

LOAEL – Lowest Observable Adverse Effect Level

- This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

- This is the level above which significant adverse effects on health and quality of life occur.

14.4 Preliminary Baseline Condition

- 14.4.1 For the purposes of providing an assessment of likely significant noise and vibration effects, the Study Area has been determined by receptors within approximately 500m of the Scheme (including the Sites, Cable Route Search Corridor, and Land at Melksham Substation). The Cable Route Search Corridor will be refined during the design process to a preferred route which will be presented in the PEIR stage.
- 14.4.2 The land use within the Site is primarily agricultural. There are individual and clusters of residential properties located adjacent to Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor. The main sources of sound in the Study Area identified through aerial mapping are traffic on the local road network and agricultural activities.
- 14.4.3 The baseline noise environment has been established following noise surveys undertaken across the Sites and the Land at Melksham Substation. A logging weather station was installed on-site during the surveys to allow for omission of any periods of adverse weather conditions from further analysis in accordance with BS 4142:2014 (**Ref 149**). **Figure 14.1** to **Figure 14.7** present the monitoring locations. Baseline condition surveys are ongoing and any further monitoring locations will be presented in the PEIR for statutory consultation ahead of the submission of the completed ES as part of the future DCO submission.

- 14.4.4 Monitoring locations have been selected to be representative of baseline noise conditions at sensitive receptor locations and communities in proximity to the Scheme.
- 14.4.5 It should be noted that baseline condition surveys for the extension of Lime Down C have not been completed prior to the submission of this Scoping Report. Due to its proximity to Lime Down C, the baseline conditions for this new additional land are assumed for the purpose of this Scoping Report to be equivalent to Lime Down C. If this new additional land is taken forward and included in the Scheme, the baseline conditions will be shared with key stakeholders and any differences from Lime Down C baseline identified, will be presented in the PEIR for statutory consultation ahead of the submission of the completed ES as part of the future DCO submission.
- 14.4.6 Whilst the baseline conditions for the new additional land are not yet available, due to its proximity to Lime Down C, it is proposed that the assessment of significant environmental effects from this new additional land is to be carried out in the same manner as for Lime Down C. In the event any characteristics of the new additional land are found to differ from the baseline for Lime Down C, the differences identified between the baseline surveys will be shared with key stakeholders and will be assessed in full in the ES.

Likely Environmental Effects

- 14.4.7 Noise effects during construction and decommissioning would typically be due to the undertaking of site preparation works, plant installation and cable laying. The level of noise at nearby receptors due to construction activities would be dependent on the distance to construction works and equipment being used.
- 14.4.8 In addition, potential noise effects would be likely from construction traffic on public roads and haul roads for all phases of the Scheme (including Solar PV sites, Cable Routes, and Land at Melksham Substation).
- 14.4.9 Noise effects due to construction activities would be temporary in nature and will generally only occur during daytime hours (0700 to 2300 hours). As such, it is considered that noise effects due to construction are unlikely to result in significant effects. However, it is not possible to conclude that construction effects would be 'not significant' when localised temporary works such as digging of service trenches or road modifications might be required.
- 14.4.10 During the operation phase, noise would be generated by the substations, inverters, battery storage systems and transformers associated with the Scheme at the Solar PV sites and the Land at Melksham Substation. The level of noise at nearby receptors would be dependent on the plant noise emission levels and distance to the receptors. Operational noise levels will be predicted at the nearest residential receptors and assessed to determine the magnitude of any effect. Any effects of operational noise shall be temporary for the duration of the site's operational lifespan.
- 14.4.11 Vibration associated with piling of photovoltaic (PV) mounting structures, excavating trenches for the cable runs and cable routing, and compaction of tracks/hard standing areas have the potential to cause a temporary effect at nearby receptors. All other construction phase activities, and all operation phase and decommissioning phase activities produce negligible levels of vibration, and as such do not require detailed assessment.

14.5 Assessment Methodology

Scope of Assessment

14.5.1 The key issues for the assessment of potential noise and vibration effects relating to the Scheme would be:

- Effects arising from noise and vibration emitted by construction plant during the construction and decommissioning phase. These effects would be short-term and temporary; and
- Operational effects from noise generated by substations, inverters, transformers, and battery units. These effects would be ceased completely when operation of the Scheme ceases and are therefore long-term and temporary.

Construction and Decommissioning

14.5.2 Noise associated with construction and decommissioning works will be predicted at the assessed receptors using the methodology in BS 5228-1 (**Ref 151**) based on plant noise emission levels, distance to receptors, and plant 'on-time'.

14.5.3 The construction impact semantic scale, set out in **Table 14.1** below, is based on the ABC method of assessment described in Annex E.3.2 of BS 5228 (**Ref 151**) which sets out threshold values depending upon the ambient noise at receptors determined from the baseline sound survey.

Table 14.1: Construction Time Period - LOAEL and SOAEL

Time Period	LOAEL	SOAEL	Threshold Level $L_{Aeq,1hr}$ dB
Day (0700-1900 hours Weekday and 0700-1200 Saturdays)	Baseline noise levels $L_{Aeq,T}$	Threshold level determined as per BS 5228-1:2009+A1:2014 Section E3.2 and Table E.1 BS 5228-1:2009+A1:2014	65 - 75
Night (2300-0700) hours	Baseline noise levels $L_{Aeq,T}$	Threshold level determined as per BS 5228-1:2009+A1:2014 Section E3.2 and Table E.1 BS 5228-1:2009+A1:2014	45 - 55
Evening and weekends (time periods not covered above)	Baseline noise levels $L_{Aeq,T}$	Threshold level determined as per BS 5228-1:2009+A1:2014 Section E3.2 and Table E.1 BS 5228-1:2009+A1:2014	55 - 65

14.5.4 The magnitude of Impact for construction noise is outlined in **Table 14.2** (as defined in DRMB LA 111 (**Ref 153**)).

Table 14.2: Magnitude of Impact for Construction Noise

Magnitude of Impact	Construction Noise Level
Neutral	No increase

Magnitude of Impact	Construction Noise Level
Negligible	Below LOAEL
Low	Above or equal to LOAEL and below SOAEL
Medium	Above or equal to SOAEL and below SOAEL + 5 dB
High	Above or equal to SOAEL + 5 dB

Construction and Decommissioning Traffic Noise

14.5.5 Baseline traffic noise levels will be predicted at assessment receptors based on the methodology in CRTN, utilising baseline traffic flows along the construction traffic route for the proposed year of construction. The percentage increase in all traffic and Heavy Goods Vehicles (HGVs) will be used to calculate the likely change in traffic noise due to construction traffic during the construction works.

14.5.6 The magnitude of effects for construction traffic noise, as defined in DRMB are presented in **Table 14.3**.

Table 14.3: Magnitude of Impact for Construction Road Traffic Noise

Magnitude of impact	Increase in basic noise level of closest public road used for construction traffic (dB)
Neutral	No Increase
Negligible	Less than 1.0
Low	Greater than or equal to 1.0 and less than 3.0
Medium	Greater than or equal to 3.0 and less than 5.0
High	Greater than or equal to 5.0

Construction Vibration

14.5.7 The level of vibration at the assessment receptors will be predicted using the method in Table E.1 of British Standard 5228-2 (**Ref 152**) which is based on the distance to receptor and a scaling factor.

14.5.8 For construction phase vibration the LOAEL and SOAEL is set out in DRMB LA 111 (**Ref 153**) and provided in **Table 14.4**.

Table 14.4: Construction Vibration LOAEL's and SOAEL's

Time Period	LOAEL	SOAEL
All time periods	0.3 mm/s PPV	1.0 mm/s PPV

14.5.9 The magnitude of Impact for construction vibration is therefore determined in accordance with **Table 14.5**, as defined in DMRB LA 111.

Table 14.5: Magnitude of Impact for Construction Vibration

Magnitude of Impact	Vibration Level
Neutral	No Increase
Negligible	Below LOAEL
Low	Above or equal to LOAEL and below SOAEL
Medium	Above or equal to SOAEL and below 10 mm/s PPV
High	Above or equal to 10 mm/s PPV

Operational Noise

- 14.5.10 The assessment of operational noise effects will be undertaken according to the methodology set out in BS 4142:2014 (**Ref 149**).
- 14.5.11 The baseline noise measurements will be used to determine representative daytime and night-time background noise levels at the assessed receptors.
- 14.5.12 Noise from operational plant such as substations, inverters, transformers, and battery storage units will be predicted using noise modelling software and plant emission data provided by the Applicant.
- 14.5.13 The assessment will consider the level by which the Scheme's BS 4142 Rating level exceeds the prevailing background noise levels, as well as the context in which the sound will occur. BS 4142 states that a difference of +5dB is likely to be an indication of adverse impact.
- 14.5.14 Where background and rating levels are low, BS 4142:2014 (**Ref 149**) states that the absolute level might be as, or more, relevant than the margin by which the Rating level exceeds the background noise level. As such, it is proposed that noise limits will be a combination of a margin of 5dB above the representative background level, subject to a fixed lower threshold of 35dB, which would apply in low background noise situations.
- 14.5.15 **Table 14.6** below presents the operational noise magnitude of effect.

Table 14.6: Method for Assessing the Magnitude of Impact

Magnitude of Impact	Effect Level	Noise Level Criteria	Justification for Effect Level-Action Required
High	Unacceptable Observed Adverse Effect Level (UOAEL)	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is equal to or greater than 10dB, depending on context.	Justification for Effect Level: Within significant adverse impact threshold in BS4142:2014 Action Required: Additional mitigation required to achieve effect of LOAEL or less.
	Unacceptable Observed Adverse Effect Level (UOAEL)	Noise levels exceed: Living Rooms: 45 dBL _{Aeq,16hours}	Justification for Effect Level: Exceeds BS8233:2014 $L_{Aeq,T}$ reasonable criteria by 10dB or

Magnitude of Impact	Effect Level	Noise Level Criteria	Justification for Effect Level-Action Required
		<p>Kitchens, Dining Rooms, and Studies:</p> <p>50 dBL_{Aeq,16hours}</p> <p>Bedrooms Rooms:</p> <p>45 dBL_{Aeq,16hours}</p> <p>40dB L_{Aeq,8hr}</p> <p>LAF_{max,2min} noise levels exceeds 55dB LAF_{max} based on 10th highest LAF_{max,2min} sample)</p>	<p>exceeds LAF_{max,2min} (10th highest sample) by 10dB or more.</p> <p>Action Required:</p> <p>Additional mitigation required to achieve effect of LOAEL or less.</p>
		<p>Difference between Rating Level (L_{Ar,Tr}) dB and existing background sound level LA_{90,T} dB is equal to or greater than 10dB, depending on context.</p>	<p>Justification for Effect Level:</p> <p>Within significant adverse impact threshold in BS4142:2014</p> <p>Action Required:</p> <p>Additional mitigation required to achieve effect of LOAEL or less.</p>
Medium	Significant Observed Adverse Effect Level (SOAEL)	<p>Difference between Rating Level (L_{Ar,Tr}) dB and existing background sound level LA_{90,T} dB is between 5-9dB, depending on context.</p>	<p>Justification for Effect Level:</p> <p>Within adverse impact threshold in BS4142:2014.</p> <p>Action Required</p> <p>Additional mitigation required to achieve effect of LOAEL or less.</p>
		<p>Noise levels are between:</p> <p>Living Rooms:</p> <p>40-45 dBL_{Aeq,16hours}</p> <p>Kitchens, Dining Rooms, and Studies:</p> <p>45-50 dBL_{Aeq,16hours}</p> <p>Bedrooms Rooms:</p> <p>40-45 dBL_{Aeq,16hours}</p> <p>35-40dB L_{Aeq,8hr}</p> <p>45-55dB LAF_{max,2min} based on 10th highest LAF_{max,2min} sample)</p>	<p>Justification for Effect Level:</p> <p>Exceeds BS8233:2014 L_{Aeq,T} reasonable criteria by 5dB or exceeds LAF_{max,2min} (10th highest sample)</p> <p>Action Required:</p> <p>Additional mitigation required to achieve effect of LOAEL or less.</p>
		<p>Increase in ambient L_{Aeq,T} due to contribution from Scheme of 3.0-4.9dB.</p>	<p>Justification for Effect Level:</p> <p>Within moderate short-term impact classification range in Table 7.14 in IEMA 2014 guidance Guidelines for</p>

Magnitude of Impact	Effect Level	Noise Level Criteria	Justification for Effect Level-Action Required
			<p>Environmental Noise Impact Assessment</p> <p>Action Required:</p> <p>Additional mitigation required to achieve effect of LOAEL or less.</p>
Low	Lowest Observed Adverse Effect Level (LOAEL)	<p>Difference between Rating Level ($L_{A,r,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is between 1-4dB, depending on context.</p>	<p>Justification for Effect Level:</p> <p>Within less likely for adverse or significant adverse impact to occur low impact threshold in BS4142:2014</p> <p>Action Required:</p> <p>Mitigate and reduce to a minimum the exceedance over 0dB above background threshold</p>
		<p>Noise levels are between:</p> <p>Living Rooms: 35-40 $dBL_{Aeq,16hours}$</p> <p>Kitchens, Dining Rooms, and Studies: 40-45 $dBL_{Aeq,16hours}$</p> <p>Bedrooms Rooms: 35-40 $dBL_{Aeq,16hours}$</p> <p>30-35dB $L_{Aeq,8hr}$</p> <p>LAFmax,2min noise levels do not exceed 45dB L_{AFmax} based on 10th highest $L_{AFmax,2min}$ sample)</p>	<p>Justification for Effect Level:</p> <p>Exceed threshold guidelines in Table 4 of BS8233:2014 and World Health Organisation (1999) Guidelines on Community Noise by no greater than 5dB to achieve reasonable internal conditions as defined by Note 7 to Table 1 in BS8233:2014</p> <p>Action Required:</p> <p>Mitigate and reduce to a minimum the exceedance over the threshold</p>
		<p>Increase in ambient $L_{Aeq,T}$ due to contribution from the Scheme of 1.0-2.9dB.</p>	<p>Justification for Effect Level:</p> <p>Within minor short-term impact classification range in Table 7.14 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment</p> <p>Action Required:</p> <p>Additional mitigation required to achieve effect of LOAEL or less.</p>

Magnitude of Impact	Effect Level	Noise Level Criteria	Justification for Effect Level-Action Required
Negligible	No Observed Adverse Effect Level (NOAEL)	Difference between Rating Level ($L_{A,r,Tr}$) dB and existing background level $L_{A90,T}$ dB is less than or equal to 0dB depending on context	Justification for Effect Level: Below low impact threshold in BS4142:2014 Action Required: None
		Noise levels are below: Living Rooms: 35 dBL _{Aeq,16hours} Kitchens, Dining Rooms, and Studies: 40 dBL _{Aeq,16hours} Bedrooms Rooms: 35 dBL _{Aeq,16hours} 30dB L _{Aeq,8hr} L _{AFmax,2min} noise levels do not exceed: 45dB L _{AFmax} based on 10th highest L _{AFmax,2min} sample)	Justification for Effect Level: Less than threshold values in Table 4 in BS8233:2014 and Table 1 in World Health Organisation (1999) Guidelines on Community Noise Action Required: None

14.5.16 Whilst the noise descriptors and categories presented in **Table 14.6** have been established through reference to relevant guidance documents, there are other factors (predominantly site context in accordance with BS4142:2014 (**Ref 149**)) which need to be considered when assessing the noise impact.

14.5.17 Therefore, impact magnitude will be assessed with consideration to both quantitative and contextual factors determining how specific Impacts associated with the Scheme interact with the identified sensitive receptors.

Sensitivity of Receptors

14.5.18 The sensitivity of potentially affected receptors will be assessed in line with **Table 14.7** below.

Table 14.7: Receptor Sensitivity

Sensitivity of Receptor	Definition
High	Residential dwellings, schools and hospitals
Medium	Offices, internal teaching/training spaces
Low	Commercial premises

14.5.19 Receptor sensitivity is based upon IEMA Noise guidelines. For the purposes of this assessment, receptors of Negligible sensitivity have not been considered due to the

absence of potential impact at these receptors (as per IEMA Guidelines for Environmental Noise Impact Assessment, 2014).

- 14.5.20 Based on an initial desk-based study, the closest (and therefore worst case) receptors are residential and are therefore of high sensitivity. As such, providing noise and vibration effects are not significant at the closest receptor, effects at all other receptors will also be not significant, regardless of sensitivity.

Significance of Effect

- 14.5.21 The sensitivity of the receptor and the magnitude of the predicted effects will be used as a guide, in addition to professional judgement, to predict the significance of the likely effects. **Table 14.8** summarises guideline criteria for assessing the significance of noise and vibration effects.

Table 14.8: Significance of Effects Matrix

Sensitivity	High	Medium	Low
Magnitude			
High	Major	Major/Moderate	Moderate
Medium	Major/Moderate	Moderate	Moderate/Minor
Low	Moderate	Moderate/Minor	Minor
Negligible	Moderate/Minor	Minor	Negligible
Neutral	Neutral	Neutral	Neutral

- 14.5.22 Effects predicted to be of major or major/moderate significance are considered to be 'significant' in the context of the EIA. Where a departure from this approach has been taken this will be justified accordingly.

Mitigation

- 14.5.23 During the construction and operation stages of the development embedded mitigation in the form of a CEMP and OEMP will be used. Therefore, no additional mitigation is expected to be required.

Assessment of In-Combination Effects

- 14.5.24 The assessment will identify any other Solar or BESS developments, or any other significant developments, either operational, consented or currently in planning which have the potential to result in cumulative effects i.e., where the Study Area for the other development overlaps with the Study Areas for the Scheme. Where required, the potential cumulative noise effects will be assessed according to the assessment criteria agreed with statutory consultees. Any identified cumulative effects will be considered in the cumulative effects chapter of the ES and in-combination effects will be addressed within the Noise and Vibration chapter of the ES.

14.6 Conclusions on Scoping

Scoped In

- 14.6.1 The aspects described In **Table 14.9** below are proposed to be scoped in the assessment.

Table 14.9: Matters to be Scoped in the Assessment

Effects	Justification
Vibration from construction	Construction activities within the Scheme have the potential to generate likely significant vibration effects of a temporary nature at nearby sensitive receptors, dependent on the precise nature and location of the construction work required. Activities that may cause vibration include excavating trenches for the cable runs/cable routing and piling of photovoltaic (PV) mounting structures. As such, the effects of construction vibration are proposed to be scoped into the detailed assessment.
Noise from construction and decommissioning	Construction activities within the Site have the potential to generate likely significant noise effects of a temporary nature at nearby sensitive receptors. As such, the effects of noise generated during construction activities are proposed to be scoped into the detailed assessment.
Noise from construction traffic	Traffic movements to and from the Site during the construction phase have the potential to result in likely significant effects of a temporary nature at sensitive receptors, depending on the proximity of construction traffic routes to receptors and the volume of vehicle movements required during construction. Consequently, the likely effects of construction traffic noise will be scoped into the detailed assessment.
Operational noise	Whilst the solar PV arrays are not a noise emission source when in operation, there is the potential for adverse noise impacts to be generated by ancillary equipment such as substations and battery storage equipment. The effect of operational noise from the Scheme is proposed to be scoped into the detailed assessment.

Scoped Out

- 14.6.2 The aspects described In **Table 14.10** below are proposed to be scoped out of the assessment.

Table 14.10: Matters to be Scoped Out of the Assessment

Effects	Justification
Vibration from operation	Solar PV arrays do not make use of any plant or equipment that generates significant vibration levels during operation. As such, vibration from the operation of plant and equipment within the Sites is proposed to be scoped out of the detailed assessment.
Operational traffic	It is anticipated that only minimal numbers of road traffic movements would be generated by the Scheme once it is in operation due to limited levels of on-site employment and

Effects	Justification
	intermittency of maintenance. As such, it is proposed that noise and vibration from operational road traffic are scoped out of the detailed assessment.

15 Glint and Glare

15.1 Introduction

- 15.1.1 This chapter of the Scoping Report considers the approach to the assessment of likely significant effects of Glint and Glare by the Scheme during its construction, operation, and decommissioning phases, with particular focus on risk to residential amenity, road safety, railway operations and infrastructure, and aviation safety.
- 15.1.2 A Glint and Glare assessment will accompany the application, with any likely significant effects being mitigated through design (layout changes or screening) prior to the DCO application being submitted.
- 15.1.3 This chapter is supported by the following appendix:
- Appendix 15.1: Receptor Scoping and Methodology

15.2 Legislation, Policy and Guidance

- 15.2.1 This Scoping Report has considered the National Policy Statement for Renewable Energy Infrastructure (EN-3) (**Ref 34**) which came into effect on 17th January 2024, as has the associated technical appendix 'Receptor Scoping and Methodology' (**Appendix 15.1**).
- 15.2.2 NPS EN-3 (para 2.10.158) states that "Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and glare on nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths)."
- 15.2.3 NPS EN-3 does not state which receptors should be considered as part of a quantitative glint and glare assessment. Based on Pager Power's extensive project experience, typical receptors include residential dwellings, road users, aviation infrastructure, and railway infrastructure.

15.3 Preliminary Baseline Conditions

- 15.3.1 The location of the Scheme is rural, surrounded by roads, dwellings, railway, and local airfields. A description of the Scheme and its wider context is set out in **Chapter 3**.
- 15.3.2 Only Lime Down A to E are relevant for Glint and Glare, as solar panels will be sited within these. The Cable Route Search Corridor and Land at Melksham Substation are not relevant for Glint and Glare as no panels are to be sited within these areas.

Initial surveys

- 15.3.3 No field work/site surveys were undertaken as part of the scoping report.

15.4 Assessment Methodology

- 15.4.1 The glint and glare assessment methodology is based on Pager Power's Glint and Glare Guidance (Fourth Edition) (**Ref 155**), which was developed in line with information provided to Pager Power through consultation with stakeholders and by reviewing the available studies. The methodology for a glint and glare assessments is as follows:
- Identification of relevant receptors based on their type and range from the panel area;

- Technical modelling of the sun path throughout the year to calculate the times and duration of predicted glare for the proposed panel configuration;
- Evaluation of impact significance based on the criteria for the receptor type in accordance with Pager Power's guidance (the main considerations are duration, field of view and intensity but this varies per receptor type);
- Identification of areas that require mitigation, if any; and
- Mitigation strategy if required.

15.4.2 There is no formal guidance with regard to the maximum distance at which glint and glare should be assessed. From a technical perspective, there is no maximum distance for potential reflections. However, the significance of a solar reflection decreases with distance. This is because the proportion of an observer's field of vision that is taken up by the reflecting area diminishes as the separation distance increases. In most instances, terrain and shielding by vegetation are also more likely to obstruct an observer's view at greater distances.

15.4.3 As not all of the proposed panels will be present simultaneously during the construction or decommissioning phase, it is considered that the length and intensity of any glare will be less than or equal to the operation phase. The worst-case scenario for glint and glare effects is therefore the operation phase.

Assessment Process

15.4.4 A 1km assessment area is considered appropriate when identifying ground-based receptors surrounding the Scheme. The following receptors have been identified:

- Residential dwellings; and
- Local roads.

15.4.5 Under the Pager Power methodology, technical modelling is not recommended for local roads, where traffic densities are likely to be relatively low. Any solar reflections from the Scheme that are experienced by a road user along a local road would be considered low impact in the worst case in accordance with the guidance and industry best practice. Therefore, no modelling of local roads (i.e. roads with low traffic densities and typically without lane markings) will be undertaken in the ES.

15.4.6 Technical modelling is also not recommended for PRow, horse riders using bridleways, or waterway users. It is considered that there is a far lesser risk to safety when compared to aviation, roads, or railways. In addition, users of PRow or waterways are likely to encounter other natural and man-made sources of glint and glare within the rural environment, such as areas of water and metal agricultural buildings. Therefore, no modelling of PRow or waterways will be undertaken in the ES.

15.4.7 If a railway line is identified within 200m of the Scheme, a technical assessment is undertaken for railway receptors within a 500m assessment area. This assessment area size is deemed appropriate when identifying railway receptors and infrastructure and has been previously accepted by Network Rail. A railway line has been identified which passes through the Scheme and will be assessed as part of the glint and glare assessment.

15.4.8 There is no set buffer distance within which aviation effects must be modelled. However, in practice, concerns are most often raised for developments within 10km of a licensed aerodrome. Requests for modelling at ranges of 10 to 20km are far less common. Assessment of aviation effects for developments over 20km from a licensed aerodrome

is a very unusual requirement and is not necessary for this development. A 10km assessment area is considered when identifying aviation receptors, as this is the typical assessment range based on previous experience; aerodromes outside of this range would only be considered for assessment upon request from the relevant aerodrome. The following receptors in the surrounding area have been identified:

- Hullavington Airfield, approximately 1.1km west;
- Badminton Airfield, approximately 4.6km west;
- Langley House Airfield, approximately 5.2km south;
- Charlton Park Airfield, approximately 5.8km north-east; and
- Bowldown Farm Airfield, approximately 7.0km north-west.

Assessment of Sensitivity

- 15.4.9 The nature or sensitivity of all identified environmental receptors, as well as the magnitude of impact on those receptors will be described as high, medium, or low. This is set out in the context of Glint and Glare below.

Table 15.1: Sensitivity/Importance of the Identified Receptor

Sensitivity	Definition
High	A receptor that requires exceptional isolation or screening from glare of any kind
Medium	A receptor that may be affected by glare, but can experiences glare with limited adverse impacts
Low	A receptor that is largely unaffected by glare of any kind
Negligible	A receptor that is unaffected by glare of any kind

Aviation Receptors

- 15.4.10 Sensitivity and importance: aviation receptors are of 'Medium' sensitivity because pilots experience glare from the man-made and natural environment all the time (e.g. from bodies of water and buildings with glass facades).
- 15.4.11 Magnitude of impact: The magnitude of effect upon receptors is predominantly dependent on the following factors:
- The predicted glare intensity; and
 - The direction that glare occurs from, relative to the receptor.
- 15.4.12 A 'Negligible' magnitude would occur if no glare could be experienced at the receptor.
- 15.4.13 A 'Low' magnitude would occur if the receptor could be subjected to glare which was of an intensity of 'low potential for temporary after-image', or if the glare originates outside of a pilot's primary field-of-view (50 degrees either side of the direction of travel).
- 15.4.14 A 'Medium' magnitude would occur if the receptor could be subjected to glare which was of an intensity of 'potential for temporary after-image', which originates within a pilot's primary field-of-view (50 degrees either side of the direction of travel).

- 15.4.15 A 'High' magnitude would occur if the receptor could be subjected to glare which was of an intensity of 'potential for permanent eye damage', which originates within a pilot's primary field-of-view (50 degrees either side of the direction of travel).

Railway Receptors

- 15.4.16 Sensitivity and importance: railway receptors are of 'Medium' sensitivity because receptors experience glare from a man-made and natural environment all the time (e.g. from bodies of water and buildings with glass facades).
- 15.4.17 Magnitude of impact: The magnitude of effect upon a person is predominantly dependent on the following factor:
- The direction that glare originates from, relative to the receptor.
- 15.4.18 A 'Negligible' magnitude would occur if no glare could be experienced at the receptor.
- 15.4.19 A 'Low' magnitude would occur if the receptor could be subjected to glare which originates outside of a train driver's primary field-of-view (30 degrees either side of the direction of travel).
- 15.4.20 A 'Medium' magnitude would occur if the receptor could be subjected to glare which originates inside of a train driver's primary field-of-view (30 degrees either side of the direction of travel).
- 15.4.21 A 'High' magnitude would occur if the receptor could be subjected to glare which originates directly in front of a train driver.

Dwelling Receptors

- 15.4.22 Sensitivity and importance: dwelling receptors are of 'Medium' sensitivity because people experience glare from a man-made and natural environment all the time (e.g. from bodies of water and buildings with glass facades).
- 15.4.23 Magnitude of impact: The magnitude of effect upon a person is predominantly dependent on the following factor:
- The duration a receptor may be subjected to the glare.
- 15.4.24 A 'Negligible' magnitude would occur if no glare could be experienced at the receptor.
- 15.4.25 A 'Low' magnitude would occur if the receptor could be subjected to glare for less than three months per year and less than 60 minutes on any given day.
- 15.4.26 A 'Medium' magnitude would occur if the receptor could be subjected to glare for more than three months per year or more than 60 minutes on any given day.
- 15.4.27 A 'High' magnitude would occur if the receptor could be subjected to glare for more than three months per year and more than 60 minutes on any given day.

Significance

- 15.4.28 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity. This impact significance matrix is set out below.

Table 15.2: Impact Significance Matrix

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major/Moderate	Moderate	Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

15.4.29 Overall, the level of effect would be considered ‘Significant’ if the resultant significance of effect was ‘moderate’ or higher.

Mitigation and Enhancement

15.4.30 The impact of the Scheme can only reliably be determined via detailed geometric modelling, this will be undertaken in accordance with the methodology and guidance as stated in previous section.

15.4.31 Common mitigation strategies for ground-based receptors are:

- Site surveys to inform visibility (and landscaping plans) more accurately;
- Provision of screening (planting or opaque fence) at boundaries or elsewhere between the observer and reflecting panel areas;
- Changes to the Site configuration. This may involve changes to the azimuth angle of the solar panels; and/or changes to the elevation (tilt) angle of the solar panels; and
- Changes to technology. This may involve implementing areas of fixed panels instead of single-axis tracking panels.

15.4.32 The most common mitigation solution for ground-based receptors is the provision of screening at the Site perimeter. A screening solution that sufficiently obstructs visibility of the potentially reflecting panels will mitigate impacts.

15.4.33 The reflecting panels that should be obscured from view, based on the proposed configuration, will be defined within the impact assessment (if any).

15.4.34 Where screening solutions are not feasible changes to the Site configuration can be investigated.

15.4.35 For aviation receptors, where mitigation is recommended/required, the most common solution is changes to the Site configuration.

Cumulative and In-Combination effects:

15.4.36 The cumulative effects of the Scheme will be assessed within the Cumulative Effects chapter of the ES. The anticipated methodology for the cumulative assessment is set out within **Chapter 5** of this Scoping Report.

- 15.4.37 Where in-combination effects (i.e. glint and glare effects combined with other effects and/or from combined phases of work on the Scheme) these will be addressed in the Glint and Glare section of the Other Environmental Matters chapter of the ES.

15.5 Conclusions on Scoping

- 15.5.1 Any significant effects towards the identified ground-based receptors can be adequately mitigated, the most common approach being the provision of screening at the boundary of the Site. Other solutions such as changes to the Site configuration can be considered.
- 15.5.2 Considering the relative location of the Scheme with respect to the surrounding aviation infrastructure, changes to the Site configuration may be required. If required, it is expected that changes to the Site configuration would be sufficient to remove any significant effects upon aviation activity.
- 15.5.3 It is recommended that glint and glare effects for Lime Down A to E be scoped into the Other Environmental Matters chapter of the ES for receptors identified in **Appendix 15.1**. A technical appendix will also be prepared which considers glint and glare impacts, and this will be submitted alongside the ES.
- 15.5.4 An assessment of glint and glare effects for the Land at Melksham Substation and the Cable Route Search Corridor are scoped out as no panels are to be sited within these areas.

16 Electromagnetic Fields

16.1 Introduction

- 16.1.1 This chapter of Scoping Report considers the approach to the assessment of likely significant EMF effects created by the Scheme during its construction, operation, and decommissioning phases, with particular focus on risk to human health.
- 16.1.2 EMFs arise from the generation, transmission, distribution, and use of electricity. EMFs occur around all electronic infrastructure. In this instance, the most significant EMF sources could be the BESS, cable route which will be 400kV, and associated infrastructure which connect the Scheme to the grid.
- 16.1.3 The levels of EMF emitted by the solar panels themselves, given the distance from the identified receptors, are expected to be low in magnitude. These levels are not expected to be more than those emitted by common household appliances. Therefore, EMF emitted by the solar panels are not considered to be harmful to human health.
- 16.1.4 The chapter will describe and identify the potential significant effects arising as a result of the Scheme. This chapter considers EMF in relation to the following Scheme infrastructure:
- Underground cable routes;
 - Substations including inverters, transformers and switch gear; and
 - BESS.
- 16.1.5 This chapter is supported by the following appendix:
- Appendix 16.1 High-Level Electromagnetic Field Assessment.

16.2 Legislation and Policy

- 16.2.1 This chapter and **Appendix 16.1** of the Scoping Report has considered the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines published in 1998 (**Ref 169**). Assumptions were made regarding the type of infrastructure that is to be implemented, where required.
- 16.2.2 The reference limits presented within the ICNIRP guidelines (**Ref 169**) have been used when determining recommended setback distance from residential and non-residential properties and other locations where the general public may congregate.

16.3 Study Area and Preliminary Baseline Conditions

- 16.3.1 The Scheme will be located within existing field boundaries. The Scheme will consist of numerous Sites with varying distances between them. The Scheme will be connected to the grid via the cable route, the exact route of which has not yet been determined (**Chapter 3**). There is a Cable Route Search Corridor that will be refined as the Scheme design progresses.
- 16.3.2 The cables will connect into the existing electrical infrastructure, as well as a proposed BESS to store energy. There are no existing cable routes, solar panels, or other associated electrical infrastructure present within the area which will be used as part of the Scheme.

- 16.3.3 The focus of the EMF assessment will be primarily within the immediate vicinity of the Scheme's infrastructure, as EMFs decrease significantly with increasing distance from the source.

Potential and Likely Environmental Effects

- 16.3.4 The following potential effects were identified at the scoping stage for consideration in this assessment:

- Direct effects during construction and operation from EMF on:
 - Local residents;
 - People located in non-residential properties; and
 - The general public on PRow.
- There are no known indirect effects predicted during construction or operation from EMF. This is because EMF produce no physical output meaning there can be no downstream emissions/waste product which could lead to additional effects not already captured within the assessment of direct EMF effects.

- 16.3.5 Refer to **Chapter 8** for an overview of ecological impacts of EMF.

16.4 Assessment Methodology

Assessment Process

- 16.4.1 The cable route, locations of infrastructure, cable powers, and locations of existing residential properties will be considered. Within **Appendix 16.1**, reference calculations have been undertaken to determine whether setback distances are required.

Assessment of Sensitivity

- 16.4.2 The nature or sensitivity of all identified environmental receptors, as well as the magnitude of impact on those receptors will be described as high, medium, low, or negligible. This is set out in the context of EMF in **Table 16.1** below.

Table 16.1: Sensitivity/Importance of Receptor

Sensitivity	Definition
High	A receptor that requires exceptional isolation or shielding from EMFs of any kind
Medium	A receptor that routinely experiences varying EMFs within a regulated range with no adverse impacts
Low	A receptor that is largely unaffected by EMFs of any kind
Negligible	A receptor where there will be no discernible effect and therefore is not considered

- 16.4.3 The identified environmental receptors are local residents, people located in non-residential properties or the general public on PRow. People are of 'Medium' sensitivity because they experience EMFs from a man-made environment all the time, usually subject to commercial limits.

Magnitude of Impact

16.4.4 The levels of magnitude of effect are presented in **Table 16.2**. The magnitude of effect upon a person is predominantly dependent on the following factors:

- The predicted EMF level;
- The duration a person may be subjected to the EMF; and
- The setting e.g. a dwelling, office, PRoW.

Table 16.2: Magnitudes of Impact from EMF

Magnitude	Definition
High	If a person could be subjected to EMF which was above the human health limit with respect to their setting as per ICNIRP guidance
Medium	If a person could be subjected to EMF which was above the reference health limit but below the human health limit with respect to their setting as per ICNIRP guidance e.g. increased exposure limits based on a person's profession
Low	If a person could be subjected to EMF which was below the reference health limit with respect to their setting as per ICNIRP guidance
Negligible	If no measurable EMF could be experienced by any person

Significance

16.4.5 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity. This impact significance matrix is set out in **Table 16.3**.

Table 16.3: Impact Significance Matrix

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major/Moderate	Moderate	Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

16.4.6 Overall, the level of effect would be considered 'Significant' if the resultant significance of effect was considered 'moderate' or higher.

Receptors

- 16.4.7 The detailed plans for the location of the associated electronic infrastructure have not yet been confirmed. However, **Appendix 16.1** determines the level of clearance required, if any, from residential and non-residential properties, as well as the general public (on PRoW, for example).
- 16.4.8 The analysis will consider the following infrastructure:
- Cable routes, specifically those underground up to 400kV high-voltage cables; and
 - Infrastructure including:
 - Substations;
 - Inverters;
 - Transformers; and
 - BESS.

Mitigation and Enhancement

- 16.4.9 The Scheme will be designed in a way that will mitigate any EMF impacts with respect to human health.
- 16.4.10 Mitigating techniques will include minimum setback distances between receptors, if required.
- 16.4.11 It has also been confirmed that there are no overhead cables planned as part of the Scheme. This is significant as underground cables significantly reduce the risk of significant EMF impacts upon human health.

Cumulative and In-Combination effects

- 16.4.12 A summary of the cumulative effects of the Scheme will be set out within the cumulative effects chapter of the ES, and the anticipated methodology is set out in **Chapter 5** of this Scoping Report. No in-combination effects are predicted with regard to EMF.

16.5 Conclusions on Scoping

- 16.5.1 Based on the findings detailed in **Appendix 16.1**, the maximum levels of electromagnetic radiation from the proposed underground cables, where one cable lies within a trench, are predicted to be below ICNIRP reference levels for magnetic fields. However, the electrical design is considering the possibility of up to four high-voltage cables within a single trench along sections of the cable route. This scenario could potentially result in an impact on the resultant magnetic field intensity. Since the precise voltages and quantity of cables within the cable trenches are still to be determined, it cannot yet be confirmed whether the reference limits would be exceeded. Therefore, the impact of electromagnetic fields pertaining to the cable route will be scoped into the ES for direct effects of EMF during construction and operation of the Scheme. No effects are predicted during decommissioning. It is therefore proposed that impact of electromagnetic fields pertaining to the Cable Route Corridor once refined is considered within the Other Environmental Matters ES chapter.
- 16.5.2 Radiation from the substations, transformers and PV inverters will be even less significant than a singular underground cable, as the equipment is typically housed in protective enclosures and the transformers and PV inverters will be CE marked, meaning they should not generate or be affected by electromagnetic disturbance.

- 16.5.3 Additionally, radiation from the substations and BESS will not be significant as they will be at least 100m from any surrounding dwellings and workplaces. For users of PRoW, any radiation effects would likely be minimal and transient, as these are not continually occupied, rather they are moving receptors, as opposed to permanent residential dwellings and workplaces.
- 16.5.4 Consequently, radiation from the BESS, substations, transformers and PV inverters for the Scheme are predicted to have a 'minor' effect, in a worst-case scenario, upon all surrounding receptors. Therefore, EMF from the BESS, substations, transformers, and PV inverters will be scoped out of the Environmental Statement, as any potential impact from construction, operation and decommissioning of the Scheme will be identified and mitigated through design considerations before the DCO application is submitted.

17 Air Quality

17.1 Introduction

17.1.1 This Scoping Report chapter addresses the proposed scope of the EIA with respect to air quality. It includes a brief summary of air quality specific legislation, policy and guidance, air quality baseline conditions and the proposed assessment methodology. Matters that are proposed to be scoped in and out of the assessment are identified. It considers all potential air quality sensitive receptors (human and ecological) within the anticipated Study Area during construction, operation, and decommissioning.

17.2 Legislation, Policy and Guidance

17.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, policy and guidance, further details of which will be provided in the ES:

Legislative Context

- Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe (**Ref 170**). This sets legally binding limits for concentrations of specific air pollutants. It merges, consolidates, and replaces the majority of previous EU air quality legislation, and incorporates the Fourth Daughter Directive. While the UK has now left the EU, the Air Quality Standards Regulations 2010 (as amended) (**Ref 171**) implement the principles of the Directive in UK legislation as ‘retained EU law’ and set Limit Values which are legally binding;
- Part IV of the Environment Act (1995, amended 2021) (**Ref 172**). The Environment Act 2021 requires the UK Government to produce a national Air Quality Strategy (AQS), which contains standards, objectives, and measures for improving ambient air quality. Where the air quality standards are not being met, a local authority is required to designate an Air Quality Management Area (AQMA);
- Environmental Protection Act 1990 (**Ref 144**). Part III of the Environmental Protection Act 1990 provides legislation around statutory nuisance, which applies to dust;
- The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (**Ref 173**). These regulations amend the Air Quality Standards Regulations 2010 to reflect the UK’s departure from the EU; and
- Air Quality (England) Regulations (2000/2002) (**Ref 174**). The Air Quality (England) Regulations 2000 and the Air Quality (England) (Amendment) Regulations 2002 set national air quality objective levels for local authorities to meet in England.

National Policy Context

- Overarching NPS for Energy (EN-1) (2024) (**Ref 8**). Section 5.2 suggests that if a project is likely to have adverse effects on air quality an assessment of the impacts should be included in the ES. Paragraph 5.2.9 of NPS EN-1 puts forth a number of aspects associated with the assessment of air quality that should be included in the ES, for example, “*existing air quality levels and the relative change in air quality from existing levels*”; and
- NPPF (December 2023) (**Ref 14**). Sets out the Government’s core policies and principles with respect to land use planning, including air quality.

Local Planning Policy Context

- Wiltshire Council's Core Strategy (2015) (**Ref 16**) provides a framework of policies and strategies for sustainable development across the county. Core Policy 55 relates to air quality states:

“Development proposals, which by virtue of their scale, nature or location are likely to exacerbate existing areas of poor air quality, will need to demonstrate that measures can be taken to effectively mitigate emission levels in order to protect public health, environmental quality and amenity. Mitigation measures should demonstrate how they will make a positive contribution to the aims of the Air Quality Strategy for Wiltshire and where relevant, the Wiltshire Air Quality Action Plan. Mitigation may include:

i. landscaping, bunding or separation to increase distance from highways and junctions

ii. possible traffic management or highway improvements to be agreed with the local authority

iii. abatement technology and incorporating site layout/separation and other conditions in site planning

iv. traffic routing, site management, site layout and phasing

v. where appropriate, contributions will be sought toward the mitigation of the impact a development may have on levels of air pollutants.”

- Wiltshire Air Quality Supplementary Planning Document (**Ref 175**) assists developers in improving air quality and lowering transport emissions in line with national planning and the aims and objectives of Wiltshire's Air Quality Action Plan and Air Quality Strategy;
- Wiltshire Air Quality Strategy (**Ref 176**) sets out the priorities and direction of the council for improving air quality in Wiltshire working with key service areas such as transport, planning, climate change and Public Health; and
- Air Quality Action Plan for Wiltshire (**Ref 177**) is a statutory obligation following the declaration of an AQMA in response to identified exceedance of one or more of the air quality objectives. The plan sets out the strategic and locally generated actions that will be implemented to improve air quality and work towards meeting the air quality objectives.

Relevant Industry Guidance

- NPPG (2019) (**Ref 15**) includes guidance relating to planning and air quality; the role of Local Plans with regard to air quality; when air quality is likely to be relevant to a planning decision; what should be included within an air quality assessment and how impacts on air quality can be mitigated;
- Institute of Air Quality Management Guidance (**Ref 178**) on the assessment of dust from demolition and construction v2.2 (2024) provides a mechanism for the assessor to consider both the magnitude of emissions and sensitivity of an area in order to define the level of risk of dust soiling and human health impacts during the construction phase. Defining the construction dust risk levels allows appropriate mitigation measures to be adopted;

- Institute of Air Quality Management and Environmental Protection UK: Land-use Planning and Development Control: Planning for Air Quality v1.2 (2017) (**Ref 179**) is applicable in assessing the effect of changes in exposure of members of the public resulting from developments such as the Scheme. It provides guidance on how to decide whether an air quality assessment is required, how to undertake a suitable assessment of operational impacts and whether these are to be considered significant or not, and how to identify whether additional mitigation is required;
- Local Air Quality Management Technical Guidance (LAQM.TG(22)) (**Ref 180**) provides best practice principles for the technical assessment of local air quality including the use of monitoring data, selection of receptors and verification procedure. LAQM.TG(22) also provides guidance for the application of Department for Environment, Food and Rural Affairs (Defra) tools and resources used for the technical assessment of air quality; and
- World Health Organisation (WHO) Global Air Quality Guidelines (**Ref 181**) provide recommendations on air quality guideline levels as well as interim targets for six key air pollutants.

17.2.2 The air quality assessment will consider air quality impacts regarding both national, and WHO standards detailed in **Table 16.1**.

Table 16.1: Objectives and Standards for Air Quality

Pollutant	Time Average Period	Objective Concentration
AQS/National Objectives:		
Nitrogen Dioxide (NO ₂)	1 hour mean (not to be exceeded more than 18 times a year)	200µg/m ³
	Annual mean	40µg/m ³
Particulate Matter less than 10 microns in diameter (PM ₁₀)	24 hour mean (not to be exceeded more than 35 times a year)	50µg/m ³
	Annual mean	40µg/m ³
Particulate Matter less than 2.5 microns in diameter (PM _{2.5})	Annual mean	25µg/m ³
WHO Air Quality Standards:		
NO ₂	1 hour mean	200µg/m ³
	Annual mean	40µg/m ³
PM ₁₀	24 hour mean	50µg/m ³
	Annual mean	20µg/m ³
PM _{2.5}	24 hour mean	25µg/m ³

Pollutant	Time Average Period	Objective Concentration
	Annual mean	10µg/m ³

17.3 Consultation

- 17.3.1 Consultation will be undertaken with the Local Planning Authority's Environmental Health Officer and other statutory consultees as appropriate to agree the scope and methodology of the assessment.

17.4 Preliminary Baseline Conditions

- 17.4.1 This section sets out the baseline data that will be utilised to produce a detailed assessment of baseline air quality conditions that will be contained within the ES.

- 17.4.2 The existing base year scenario for the purposes of the air quality assessment is 2023.

- 17.4.3 Baseline data has been collated to determine the existing air quality conditions in the area that is likely to be affected by the Scheme, and to identify areas that are likely to be sensitive to changes in emissions as a result of the Scheme. Baseline information on air quality has been collected from the following sources:

- Defra UK Air website (**Ref 182**) to establish predicted background concentrations for NO₂, PM₁₀ and PM_{2.5}
- Wiltshire Council website and air quality Annual Status Reports (ASR) (**Ref 183**) to determine existing AQMAs and local air quality monitoring results:
- MAGIC.gov.uk (**Ref 64**) website to identify ecologically designated sites within the air quality Study Area.
- Wiltshire Council have declared 8 AQMAs for exceedances of the annual mean NO₂ AQS objective. These are:
 - AQMA 1 Salisbury City Centre – an area encompassing the city centre bounded by main ring roads to North, East and the River Avon to the East and South;
 - AQMA 2 Salisbury London Road – Residential properties in vicinity of St Mark's roundabout and following London Road as far as the railway tunnel;
 - AQMA 3 Salisbury Wilton Road (extended) – Part of Devizes Road and Wilton Road as far as Skew Bridge;
 - AQMA 4 Bradford on Avon – Main roads in the centre of the town;
 - AQMA 5 Westbury – Main A350 through centre of the town;
 - AQMA 6 Marlborough – The whole town as described by town council boundary;
 - AQMA 7 Devizes – Main roads through the town; and
 - AQMA 8 Calne – Main roads through the town.

- 17.4.4 The closest AQMA to the Scheme is AQMA 8 Calne which is located over 10km south-east from Lime Down E as detailed in **Chapter 3**.

- 17.4.5 A summary of the Defra background map concentrations for the relevant pollutants within Wiltshire Council administrative boundary is displayed below in **Table 16.2**.

Table 16.2: Defra Background Map Pollutant Concentrations

Pollutant ($\mu\text{g}/\text{m}^3$)	Average 2023 background map concentration	Maximum 2023 background map concentration
NO ₂	5.9	13.8
PM ₁₀	12.2	15.7
PM _{2.5}	7.7	10.5

- 17.4.6 The most recently available ASR from Wiltshire Council is the 2022 Air Quality ASR (**Ref 183**) which details the local authority's monitoring results for the year 2021. The 2022 ASR shows that there were 59 NO₂ diffusion tube monitoring sites across Wiltshire and 3 automatic monitoring stations measuring NO₂ and PM₁₀. The closest monitoring site to the Sites is diffusion tube ID 20 located approximately 8km south of Lime Down E. The 2021 annual average NO₂ concentration measured at this site was 28.6 $\mu\text{g}/\text{m}^3$, well below the AQS objective of 40 $\mu\text{g}/\text{m}^3$. Four of the 59 monitoring sites measured exceedances of the annual mean AQS objective for NO₂, the closest of which was located in Calne AQMA over 10km from the Sites. The 2022 ASR reported no exceedances of the NO₂ 1-hour AQS Objective of 200 $\mu\text{g}/\text{m}^3$ and no exceedances for particulate matter AQS objectives. The Sites are located in a much more rural environment than any of the AQMAs and therefore air pollutant concentrations are typically much lower, hence the distance to nearest monitoring locations.
- 17.4.7 The existing baseline data suggests that the air pollutant concentrations in the vicinity of the Sites are below the AQS objectives, and there have been no AQMAs declared within close proximity to the Sites.
- 17.4.8 The Site is in proximity to a number of ecologically sensitive sites, as listed in **Chapter 8**, which are potential receptors for air quality.

17.5 Assessment Methodology

- 17.5.1 An air quality assessment will be undertaken considering the construction, operational and decommissioning phases of the Scheme, where applicable.
- 17.5.2 Generally, concentrations in air pollution are expected to decrease over time as green energy and emission reduction technology becomes cheaper and more widely used. Therefore, it is anticipated that air quality impacts in the construction phase of 2027-2029 will be a worst-case scenario relative to the decommissioning year 2089. The decommissioning phase effects are likely to be short term and similar to the construction phase impacts and it is assumed that any mitigation measures identified from the construction phase assessment would be applied to the decommissioning phase as a worst-case. Impacts should be well controlled through best practice mitigation measures, which will be set out in a CEMP. Therefore, it is proposed that the assessment of decommissioning phase is scoped out.

Study Area

- 17.5.3 The Study Area for the Scheme includes an area up to 250m from the Sites, Cable Route Search Corridor, and Land at Melksham Substation presented in **Figure 3.1**.

Construction Dust

- 17.5.4 The Institute of Air Quality Management (IAQM) construction dust guidance requires that construction dust impacts are assessed up to 250m from the locations of demolition, construction, and earthworks activities. The trackout (the transport of dust and dirt from the Site onto the public road network) Study Area includes the first 50m of any local road within 250m from the main entrance(s) used by construction vehicles, as per IAQM construction dust guidance.

Construction Vehicle Emissions

- 17.5.5 The number of vehicles associated with the construction phase of the Scheme is not yet confirmed and, therefore, it is assumed that detailed assessment of construction vehicle emissions will be scoped in until traffic flows are available for consulting with the Council's Highways Officer to consider if the traffic flows have the potential to significantly alter congestion. This will be confirmed upon receipt and screening of construction traffic data at either PEIR or ES stage. If construction Heavy Duty Vehicle (HDV) flows are expected to be greater than 100 Annual Average Daily Traffic (AADT) flows on a road during the construction phase or 25 AADT within or adjacent to an AQMA, then exhaust emissions from construction vehicles will potentially require modelling at receptors within 200m of these roads.
- 17.5.6 The IAQM development control guidance details its own indicative criteria with respect to change as a result of a project's operation phase that, if met, highlight the need for an assessment, rather than necessarily defining the boundaries of a Study Area. The criteria are:
- A change in Light Duty Vehicle (LDV) flows of >100 AADT within or adjacent to an AQMA, or >500 AADT elsewhere;
 - A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
 - Where a road is realigned by 5m or more and is within an AQMA;
 - Where a junction is added or removed close to existing receptors; and
 - Where there are one or more substantial combustion processes and there is a risk of impacts at relevant receptors.
- 17.5.7 The same screening criteria will be used to define the Study Area should the operation phase be scoped in for assessment. However, operation phase traffic flows are expected to be below these screening criteria due to the limited number of vehicles accessing the Scheme during operation (limited to a small number of maintenance vehicles). Therefore, it is proposed that the assessment of operational vehicle emissions is scoped out, as air quality impacts will be negligible.

Assessment of Likely Environmental Effects at Receptors

- 17.5.8 Construction dust impacts may affect human and ecological receptors. The IAQM construction dust guidance defines a human receptor as:

"[...] any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM over a time period relevant to the air quality objectives, as defined in the Government's technical guidance for Local Air Quality Management. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other

premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production)”.

17.5.9 An ecological receptor is defined as:

“[...] any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)”.

17.5.10 The final Site Boundary has not yet been confirmed, however, it is likely that either residential properties, schools, care homes or hospitals will be located within 250m of the locations of demolition, construction and earthworks activities and within 50m of the highway up to 250m from Site entrances and exits, including the Cable Route Search Corridor. Therefore, all residential receptors within the Study Area will be included in the construction phase dust risk assessment at PEIR stage.

17.5.11 Lowland Meadow habitat has also been identified within Lime Down E which is considered likely to be sensitive to dust and therefore will be included within the assessment and PEIR stage.

Battery Energy Storage System

17.5.12 The proposed BESS have the potential for air quality impacts in the rare event of a fire. Therefore, the air quality assessment will include point source emissions modelling of a worst-case scenario to predict potential NO_x and particulate emissions in the event of a fire and predict concentrations at nearby sensitive receptors.

Significance of Effects

Construction Dust

17.5.13 The IAQM construction dust guidance categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual effects are 'not significant'. A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects. The mitigation measures identified in relation to the Scheme, including activity carried out within the Sites, Cable Route Search Corridor, and Land at Melksham Substation, would be incorporated into the Scheme's CEMP. Once mitigated, construction dust impacts are considered to be negligible and not significant.

Construction Vehicle Emissions

17.5.14 Assessment of vehicle emissions will be undertaken should the screening of traffic data associated with the Scheme, meet the criteria set out by IAQM development control guidance. If these criteria are not exceeded, the guidance considers air quality impacts associated with a project in terms of traffic emissions to be negligible and no further assessment is required. Should screening of the relevant data indicate that any of the IAQM criteria are met, potential impacts at sensitive receptor locations would be assessed by calculating the change in NO₂ and particulate matter concentrations as a result of construction vehicle emissions associated with the Scheme, including construction vehicles associated with the Cable Route Search Corridor. Detailed dispersion modelling would be undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200m of affected vehicle routes. The magnitude of change would be calculated,

and total concentrations compared against relevant AQS objectives. The significance of effects would be assessed in accordance with the Wiltshire Air Quality Supplementary Planning Document which is dependent on the modelled air pollutant concentrations with the Scheme relative to the relevant air quality objectives.

- 17.5.15 The Wiltshire Air Quality Supplementary Planning Document states that Wiltshire Council will generally object to applications that are likely to cause unacceptable local concentration impacts and pose an unacceptable risk in terms of human exposure. 'Unacceptable local concentration impacts' is defined as where development increases pollutant concentrations by 5% or more of the corresponding air quality objective value. If any air quality deterioration is observed in an AQMA, or in an area where the annual mean NO₂ is already >38µg/m³, this is considered a severe impact likely to lead to objection. 'Unacceptable risk in terms of human exposure' is defined as where development creates or increases human exposure to poor air quality (annual mean NO₂ >38 µg/m³) and suitable exposure reduction measures have not been identified as part of the development.

Cumulative and In-Combination Effects

- 17.5.16 A cumulative assessment will be undertaken, assessing the effects of the Scheme in conjunction with other local developments. This will be provided within the cumulative effects chapter of the ES. Cumulative and in-combination effects at human and ecological receptors can occur where construction or operational periods overlap. For the Scheme there is potential for cumulative or in-combination effects on air quality during the construction period, particularly from construction traffic and construction activities. Therefore, to assess the in-combination effects on air quality, other local developments with overlapping construction periods will be identified and the impact on shared receptors will be assessed.

17.6 Conclusions on Scoping

- 17.6.1 Construction phase activities associated with the Scheme, such as earthworks and trackout, can give rise to adverse impacts from fugitive emissions of dust, such as nuisance and health impacts, if left unmitigated. A construction dust risk assessment will be undertaken to determine the risk of dust impacts and identify appropriate mitigation measures that would be incorporated into the CEMP. These measures will be adopted for the decommissioning phase and therefore dust impact during the decommissioning phase is scoped out.
- 17.6.2 There may also be increases in NO₂, PM₁₀ and PM_{2.5} concentrations due to emissions from non-road mobile machinery (NRMM) used during construction. However, these impacts are likely to be minimal and temporary in nature and have the potential to be well controlled through best practice mitigation measures, therefore the assessment of NRMM has been scoped out at this stage.
- 17.6.3 In the event of an accidental fire incident of the BESS, there is potential for a significant short-term increase in toxic gas emissions and particulate matter concentrations at nearby sensitive receptors. Therefore, an air quality assessment in the event of a BESS fire will be scoped in to predict NO_x, particulate matter, and other relevant pollutant concentrations at nearby sensitive receptors and, if necessary, determine mitigation measures.
- 17.6.4 Additionally, the movement of materials and waste to and from the Scheme by construction vehicles can lead to adverse impacts from increased exhaust emissions of air pollutants, such as nitrogen dioxide and particulate matter. It is proposed for construction vehicle emissions to remain scoped in for further assessment until traffic

data becomes available for screening at PEIR or ES stage. Should construction vehicle emissions require further assessment upon screening, detailed dispersion modelling will be undertaken to predict NO₂, PM₁₀ and PM_{2.5} concentrations at relevant receptor locations and determine overall significance in accordance with the Wiltshire Air Quality Supplementary Planning Document and IAQM development control guidance.

- 17.6.5 Traffic trips associated with the operation and maintenance of the Scheme are anticipated to be below the IAQM indicative criteria for potential significant effects. Therefore, air quality impacts associated with operation phase vehicle emissions will be negligible and are proposed to be scoped out of further assessment.

18 Socio-Economics, Tourism and Recreation

18.1 Introduction

18.1.1 The chapter will consider the likely significant effects arising as a result of the Scheme, in relation to:

- Population demography;
- Population skill level and qualification attainment;
- Indices of deprivation;
- Economic activity and performance;
- Business sectors;
- Tourism as an economic sector;
- Agriculture as an economic sector; and
- Accessibility to and desirability of tourism and recreational facilities.

18.1.2 For the purposes of assessing socio-economic, tourism and recreation effects, the Scheme, as defined in **Chapter 1** of this Scoping Report, are considered functionally and geographically in their entirety. The geographic extents of the Scheme, consisting of the Sites and Cable Route Search Corridor, are set out on the Location Plan at **Figure 3.1** and in more detail in **Figures 3.1.1 to Figure 3.1.6**, and **Figure 3.2.1 to Figure 3.2.3**.

18.1.3 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (**Ref 1**) require the direct and indirect likely significant effects of the Scheme on population and human health factors to be identified, described, and assessed. While this chapter considers socio-economic population factors, and factual reporting of population health, such as demographic trends and deprivation, matters directly relating to human health are covered in **Chapter 19**.

18.1.4 This chapter is supported by the following appendices:

- Appendix 18.1 Socio-Economics, Tourism and Recreation Baseline Data.

18.2 Legislation, Policy and Guidance

Legislative Context

18.2.1 The Planning Act 2008 (**Ref 2**) sets out the process for the consenting of major infrastructure projects and is the principal legislation governing an application for a NSIP.

18.2.2 The EIA Regulations sets out the regulatory framework for Environmental Impact Assessments in connection with development consent order applications, to include screening, scoping and the requirements in respect of their content.

National Policy Context

18.2.3 NPS set out the policy basis for NSIPs including for ground mounted solar developments. The NPSs that are relevant to the Scheme are NPS EN-1, EN-3 and EN-5, which came into effect on 17 January 2024, and are important material considerations, in addition to other relevant and important national and local planning policies. The policies relate directly to socio-economics, tourism and recreation are summarised as follows.

- Overarching National Policy Statement for Energy (EN-1) (**Ref 8**)
- Specifically, Sections 5.11 and 5.13.
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (**Ref 34**).
- Specifically Section 2.10, wherein paragraphs 2.10.73-2.10.126, are considered in relation to socio-economics, and tourism and recreation.
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (**Ref 9**) – this does not have any policy directly specific to socio-economics, tourism and recreation.

Local Planning Policy Context

18.2.4 Local Planning Policy is set out in Wiltshire Council's (the host local authority) adopted policy documents:

- Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**);
- Wiltshire and Swindon Minerals Core Strategy 2006 to 2026 (adopted June 2009) (**Ref 17**);
- Wiltshire and Swindon Waste Core Strategy 2006 to 2026 (adopted July 2009) (**Ref 18**); and
- Any made neighbourhood plans relevant to the Scheme (**Ref 156, Ref 157, Ref 158, Ref 19, Ref 159, Ref 20**).

18.2.5 Due consideration will also be given to:

- The emerging draft Wiltshire Local Plan (**Ref 161**);
- Strategic socio-economic objectives in neighbouring authority areas (Bath and North East Somerset, Cotswold, Somerset, Stroud, South Gloucestershire, and Swindon); and
- Strategic economic objectives set out by the relevant Local Enterprise Partnerships (**Ref 162, Ref 163, Ref 164**).

Local Tourism Policy and Strategy

18.2.6 Local tourism policy and strategy as set out by the local authorities (**Ref 165, Ref 166**) and official visitor strategy and information boards in the ZoI of the Scheme will be assessed in full in the ES to determine the important and focal attractions near to the Scheme, and the likely level of impact upon them from the Scheme's construction and operation.

Relevant Industry Guidance

18.2.7 As the professional accreditation body for the production of EIAs, the IEMA provides a number of guides for the production of environmental assessments and hosts a collection of articles by professional bodies on the use of and publication of socio-economic assessments for EIA.

18.2.8 It is recognised in the industry that there is a widely varied approach to socio economic assessments as a result of the significant scope of the assessment, variety in development impacts, and the lack of procedural guidance available directly relating to the technical production of socio-economic assessments. As such, measurements of

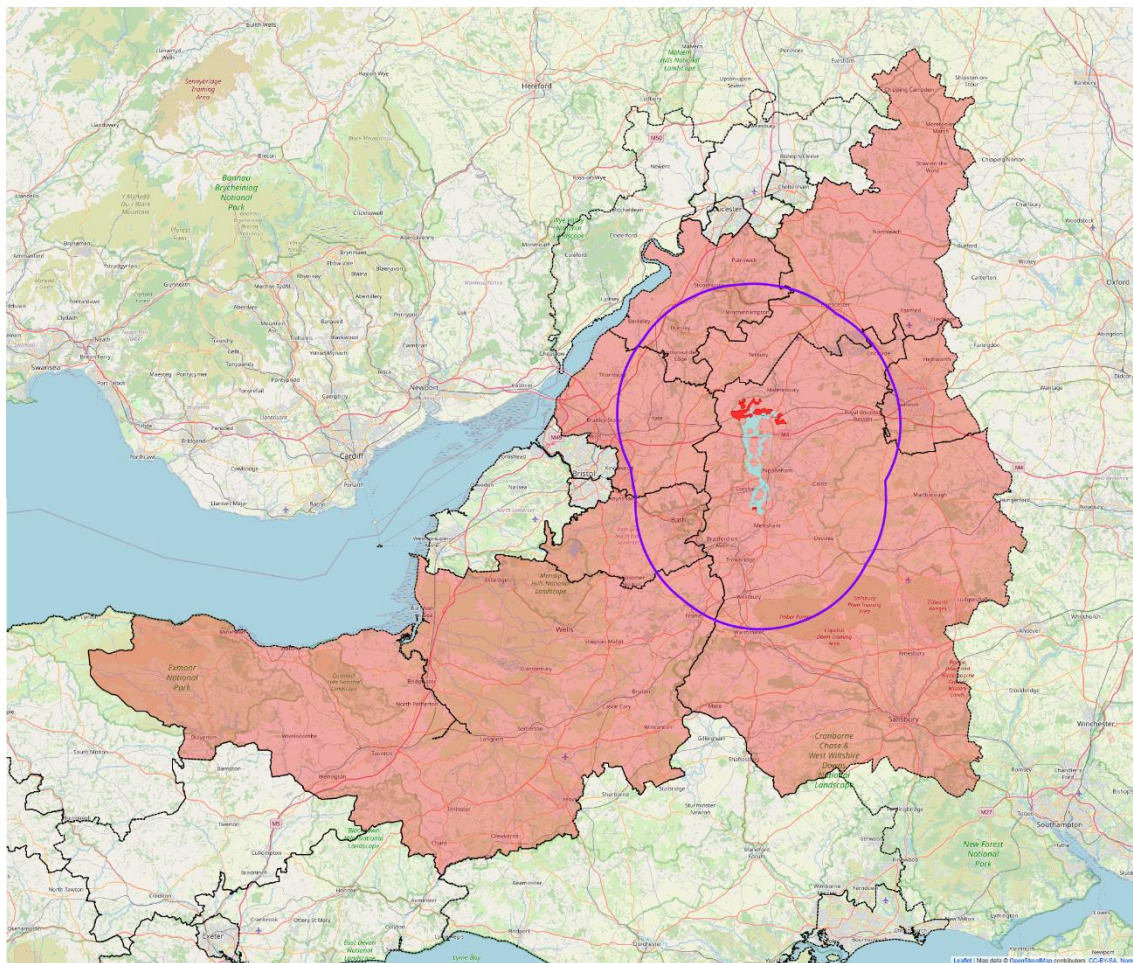
baseline data sensitivity, and the significance of impacts from the development are reliant on professional judgement based on best practice and experience. As such, socio-economic impacts should consider socio demographic and cultural receptors, local economic factors, as well as the accessibility and provision of local services. It is important that socio-economic assessments are not considered in isolation from other assessment areas in the EIA, as there are multiple overlapping factors, such as with transport, construction management, water and air quality, and human health assessment.

18.3 Preliminary Baseline Conditions

Socio-Economics

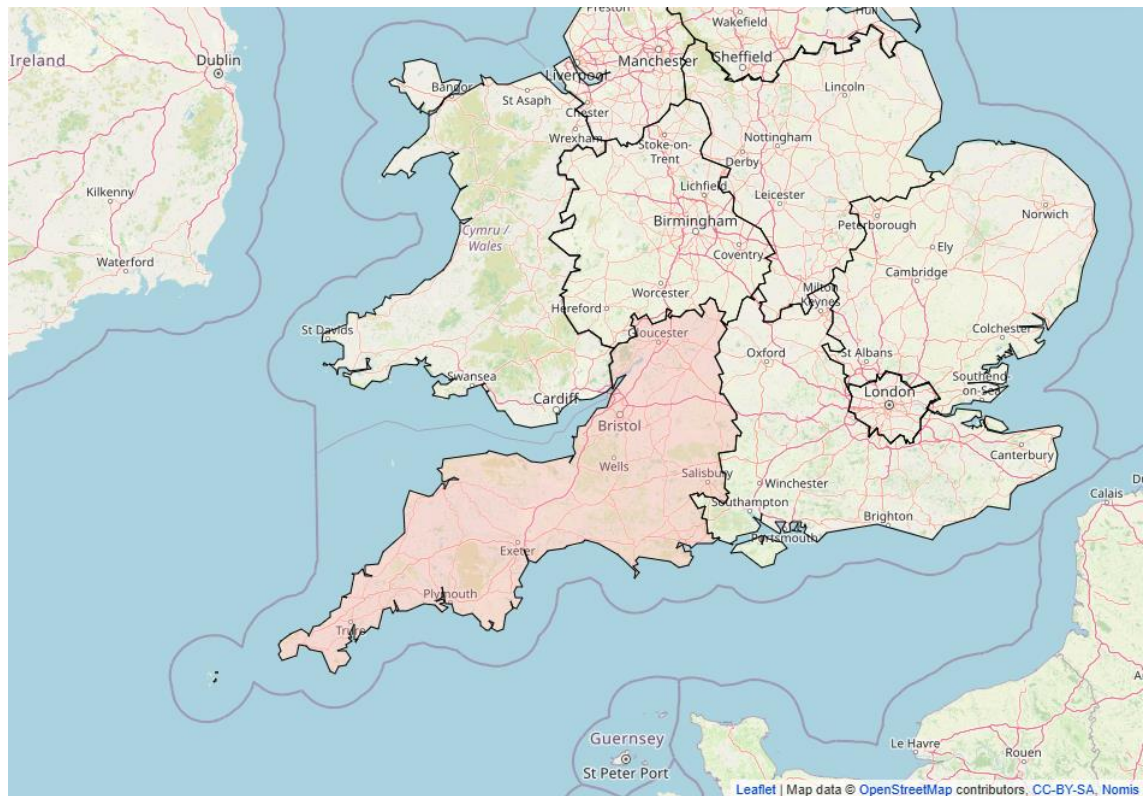
- 18.3.1 The scale and geographic distribution of the Scheme means that its effects have the potential to impact a significant geographic area and the associated population. The Sites are situated in the northwest of the county of Wiltshire, and as such, is likely to have economic impacts in the neighbouring districts and counties. As such, two Zones of Influence for socio-economic impacts have been determined.
- 18.3.2 A Local Impact Area (LIA) comprises a 20km offset from the Scheme, defined by offsetting from the outermost extents of the Sites and Cable Route Search Corridor. As the Cable Route Search Corridor is subject to refinement to a preferred Cable Route Corridor prior to the submission of the DCO to create the 'Order limits', the LIA will also be refined to reflect the finalised Order limits.
- 18.3.3 The LIA sits across seven local authority areas: Wiltshire (the host local authority to the Scheme), Bath and North East Somerset, Cotswold, Somerset, South Gloucestershire, Stroud, and Swindon. This is shown in **Plate 18.1** with the Sites shown in red, Cable Route Search Corridor shown in blue, the 20km offset from the Scheme in purple, and the authority areas in pink and outlined back.

Plate 18.1: Local Impact Area and relevant local authorities



- 18.3.4 Wider regional impacts from the Scheme will be assessed across a Regional Impact Area (RIA), defined by the South West International Territorial Level 1 statistical region – highlighted pink in **Plate 18.2**. Receptors discussed within this chapter will also be comparatively assessed against national trends across the United Kingdom.

Plate 18.2: Regional Impact Area – South West ITL1 region



18.3.5 Initial baseline information has been gathered, as set out in **Appendix 18.1**, relating to:

- Resident Population;
- Skills and Qualification Attainment;
- Deprivation;
- Economic Activity and Unemployment;
- Employment and Wages;
- Working Population; and
- Business Sectors.

18.3.6 The ES will consider the economic effects in respect of changes in land use from current arable production to that of energy production, energy storage and associated electricity infrastructure. This will be informed by the Agricultural Land Classification studies that are ongoing (see further consideration of this in **Chapter 20** of this Scoping Report) and a survey of agricultural employment within the Scheme boundaries.

Tourism and Recreation

18.3.7 The LIA falls across multiple authority areas, and as such, several individual and joint economic strategies for tourism and visitors. The LIA also includes two National Landscapes – The Cotswolds (immediately to the northwest of the Scheme), and North Wessex Downs (at closest 10km southeast from the Scheme).

18.3.8 The visitor economy in Wiltshire and Swindon is estimated to be worth £1.5 billion and supports approximately 28,000-30,000 jobs and includes the World Heritage Sites at

Stonehenge and Avebury (**Ref 165**). The Cotswolds National Landscape, covering a large area of South Gloucestershire, Stroud, Cotswold District, and parts of northwest Wiltshire, generates an estimated £800 million in tourism spending, supporting 31,000 jobs across the entire Cotswolds National Landscape area (**Ref 166**). In Bath and North East Somerset, the city of Bath is a key heritage and historic architecture destination and is also designated as a World Heritage Site.

- 18.3.9 A number of the Sites, and the Cable Route Search Corridor, host a number of PRoW (see **Figure 7.12.1** to **Figure 7.12.6**), and are located nearby to a number of long-distance recreational walking and cycling routes (**Ref 167**, **Ref 168**), as detailed in **Appendix 18.1**.
- 18.3.10 The Scheme is predominantly set within agricultural land which is not in itself a key tourist attraction or destination. The land does however play a role in providing a landscape context to recreational use of pedestrian and cycling routes and trails, and to the enjoyment and appreciation of the neighbouring Cotswolds National Landscape, which the Scheme borders.
- 18.3.11 Further initial baseline information on the tourism and recreational environment baseline has been set out in **Appendix 18.1**.

Summary

- 18.3.12 There is potential for the Scheme – both in relation to the Sites, and to the Cable Route Search Corridor – to impact the socio-economic environment of the local and regional impact areas. The likely effects are considered to be increased access to employment opportunities, increased workplace population, and increased direct and indirect economic activity. Impacts on agricultural and farming practices and activity will be explored in the Socio-Economics, Tourism and Recreation chapter of the ES, based on the outcomes of proposed Agricultural Land Classification and agricultural circumstances surveys to be undertaken. Effects on tourism and recreation are likely to be limited to those facilities immediately impacted by the Scheme, such as PRoW and landscape and heritage assets within close proximity or direct line of sight to the Sites, or directly impacted by grid connection cable connection works. Human health impacts as a result of changes to the socio-economic and recreational environment will be assessed in other topic chapters of the ES, and will utilise assessment data from the socio-economics chapter as applicable to receptors that are likely to be affected by topic-specific impacts.

18.4 Assessment Methodology

Assessment Process

- 18.4.1 The initial baseline assessment undertaken for this Scoping Report will be expanded in the ES to produce a more detailed understanding of the socio-economic conditions within the local and regional impact areas. This will include where applicable, providing additional data at District Ward level for fine-grain data. Tourism and recreation conditions will be assessed across the LIA, with detailed assessment of impacts on individual tourism and recreation assets focussed to within an approximately 2km impact area (or as dictated by zones of theoretical visibility) to define the extent to which these impacts are likely to be felt.
- 18.4.2 Alongside the expanded baseline assessments, data from the relevant local authorities will be used to assess how the Scheme will affect the socio-economic environment, and tourism and recreation receptors. The information sources to be used for the assessments are as follows:

- Office for National Statistics (ONS) Census 2021;
- Scotland's Census 2022;
- Northern Ireland Statistics and Research Agency (NISRA) Census 2021;
- ONS Annual Population Survey;
- ONS Local Authority and National Population Projections;
- Department for Communities and Local Government (DCLG): Indices of Multiple Deprivation Map App;
- Office for Health Improvement and Disparities (OHID): Fingertips Public Health Data web tool;
- ONS: Annual Survey of Hours and Earnings;
- ONS Business Register and Employment Survey;
- Department for Work and Pensions (DWP) Stat-Xplore web tool;
- Communities NI Statistics;
- Local Plans and supporting documentation;
 - Wiltshire;
 - Bath and North East Somerset;
 - Cotswold District;
 - Somerset;
 - South Gloucestershire;
 - Stroud District;
 - Swindon Borough; and
 - Gloucestershire (minerals and waste).
- Local Enterprise Partnership strategic economic documentation;
 - Swindon and Wiltshire;
 - Gloucestershire; and
 - West of England.
- National Planning Policy Framework;
- Natural England;
- Tourism and visitor information:
 - Visit Britain;
 - Visit England;
 - Visit Bath;
 - Visit Bristol;
 - Visit the Cotswolds;

- Visit Gloucestershire;
- Visit Somerset;
- Visit Stroud;
- Visit Swindon;
- Visit Wiltshire;
- OpenStreetMap;
- OS Explorer Map;
- Google Maps and Google Earth;
- Long Distance Walkers Association;
- The Ramblers Association;
- Cycling UK; and
- Sustrans.

Assessment of Sensitivity and Magnitude

- 18.4.3 The sensitivity of all identified environmental receptors will be described as high, medium, low or negligible, whilst the magnitude of impact on those receptors will be described as high, medium, low, negligible, or neutral.
- 18.4.4 The sensitivity of the receptors identified in this chapter will be assessed by understanding measurable indicators of the receptor's present characteristics and considering this alongside the weighted importance of the receptor in local, regional, and national policy or strategic requirements together with professional judgment. For example, the sensitivity of number of jobs is likely to be determined from its local characteristics and how far it deviates (by standard deviations – denoted by ' σ ') from national trends, in consideration with the local policy requirements for the creation of new employment opportunities.
- 18.4.5 To ensure a consistency of approach across the socio-demographic and economic receptors identified in this assessment, each receptor will be measured by way of statistical analysis against national data at the local authority level to determine its sensitivity. Otherwise, sensitivity will be determined based on professional judgement of the qualitative criteria set out in **Table 18.1** and **Table 18.3**.
- 18.4.6 The methodology for determining the impact magnitude is described below and has been determined by quantifying the predicted deviation from baseline conditions. This will be considered both with and without mitigation. The magnitude of change will be used for either beneficial or adverse impacts. As there is no standard methodology for determining how magnitude of impacts is calculated, professional judgement has been used to determine the criteria set out in **Table 18.2** and **Table 18.4**.

Environmental Receptors - Socio-Economic

- 18.4.7 The Scheme is likely to have impacts on socio-economic receptors at the local and regional level, and potentially to a more minor extent, the national level. These effects are predominantly focused on economic impacts (particularly during construction), given the nature of the Scheme. Impacts on socio-demographic receptors are likely to be limited to those as a result of the anticipated construction workforce and the related

indirect impacts on socio-demographic characteristics. The sensitivity of these receptors will be assessed in accordance with **Table 18.1**.

- 18.4.8 The Scheme is of a nationally significant scale, and as such will provide a significant number of employment opportunities for direct and indirect sectors of the local and regional economy during construction. These will also have knock-on impacts on other socio-economic factors such as wages, unemployment, and deprivation as a result of increased access to employment. The magnitude of these impacts will be quantified in full for the construction and operation phases of the Scheme and estimated for the Scheme's decommissioning (considered for the purposes of the EIA to be no later than 2089) in accordance with the metrics set out in **Table 18.3**.
- 18.4.9 The Scheme is likely to impact on existing economic sectors within the local and regional impact areas as a result of competition for resources, labour force, and direct and indirect conflicts with economic sectors such as the agricultural economy and in the tourism and recreation economies. Additional localised economic impacts may occur where the location of the Scheme impacts on the operation of businesses near to or adjacent to the Scheme where their location, landscape setting, and long views are fundamental to their economic success.

Table 18.1: Sensitivity and Importance of the Identified Environmental Receptor

Sensitivity	Definition
High	Receptor is likely to experience direct and significant socio-economic challenges with fundamental change to present characteristics. Accorded a high priority in local, regional or national economic regeneration policy. Receptor is of regional or national importance. Data for the receptor shows it is more than 2σ from the national population mean or median.
Medium	Receptor is likely to experience some socio-economic challenges, which may be indirect, but will materially change its present characteristics. Change relating to receptor has medium priority in local, regional and national economic and regeneration policy. Receptor is of significant local importance. Data for the receptor shows it is between 1σ and 2σ from the national population mean or median.
Low	Minor socio-economic challenges relating to receptor resulting in non-material changes to baseline conditions. Receptor is accorded a low priority in local, regional and national economic and regeneration policy. Receptor is of low importance. Data for the receptor shows it is less than 1σ from the national population mean or median.
Negligible	Receptor unlikely to experience any socio-economic challenges or changes to baseline conditions. Receptor is not a priority at any level of economic or regeneration policy.

Table 18.2: Magnitude of Change for the Identified Environmental Receptor

Magnitude	Definition	Value of Change to Receptor
High	The total loss or major change/substantial alteration to key elements/features of the baseline conditions, such that the post-development characteristics will be fundamentally changed.	Change of more than or equal to 10%
Medium	Loss or alteration to one or more key elements/features of the baseline conditions, such that post-development characteristics of the baseline will be materially changed.	Change of between 1% and 10%
Low	A minor shift away from baseline condition. As change arising from the loss/alteration will be discernible/detectable but not material. The post development characteristics of the baseline condition will be similar to pre-development conditions.	Change of between 0.1% and 1%
Negligible	Very little change from baseline conditions. The change will be barely distinguishable and approximating to a non-change situation.	Change of less than 0.1%
Neutral	No change from baseline conditions.	No change

Environmental Receptors – Tourism and Recreation

- 18.4.10 The Scheme is likely to have an impact on tourism and recreation receptors, albeit these are likely to be limited to those receptors that are directly impacted by the location of the Scheme such as PRow, and landscape visual receptors and local heritage assets that rely on their setting for their value to the tourism and recreational economy. Assessment of these assets will be made in consideration of the impacts assessed in **Chapter 7** and **Chapter 12**. This ES will assess the sensitivity of receptors and magnitude of impact on key tourism and recreation receptors based on the metrics in **Table 18.3** and **Table 18.4** respectively.
- 18.4.11 The Scheme, being located on existing agricultural land, is not anticipated to directly impact on the use and accessibility of dedicated recreational spaces and tourist attractions. The Scheme may impact on the use of PRow which cross the Scheme's boundaries during the project's construction, but this will be addressed as part of the emerging construction management strategy to ensure these features are retained and protected.
- 18.4.12 The ES will identify and assess the impact on key local tourism and recreational facilities including but not limited to:
- PRow;
 - Long distance walking and cycling routes;
 - Navigable waterways; and
 - Recreational hubs and key tourist attractions.

Table 18.3: Sensitivity and Importance of the Identified Environmental Receptor

Sensitivity	Definition
High	Receptor is likely to experience significant direct and indirect tourism and economic challenges with fundamental change to present characteristics. Accorded a high priority in local, regional or national tourism and recreation policy. Receptor is of regional or national importance.
Medium	Receptor is likely to experience some direct and indirect tourism and economic challenges, that will materially change its present characteristics. Change relating to receptor has medium priority in local and regional tourism and recreation policy. Receptor is of significant local importance.
Low	Minor direct or indirect tourism and economic challenges relating to receptor resulting in non-material changes to baseline conditions. Receptor is accorded a low priority in local and regional tourism and recreation policy. Receptor is of low importance.
Negligible	Receptor unlikely to experience any tourism and economic challenges or changes to baseline conditions. Receptor is not a priority at any level of tourism and recreation policy.

Table 18.4: Magnitude of Change for the Identified Environmental Receptor

Magnitude	Definition
High	The total loss or major change/substantial alteration to key elements/features of the baseline conditions, such that the post development characteristics will be fundamentally changed.
Medium	Loss or alteration to one or more key elements/features of the baseline conditions, such that post-development characteristics of the baseline will be materially changed.
Low	A minor shift away from baseline condition. As change arising from the loss/alteration will be discernible/detectable but not material. The post development characteristics of the baseline condition will be similar to pre-development conditions.
Negligible	Very little change from baseline conditions. The change will be barely distinguishable and approximating to a non-change situation.
Neutral	No change from baseline conditions.

Significance

18.4.13 The degree of significance of impacts, in respect of Socio-economics and Tourism and Recreation, is determined using the matrix below in **Table 18.5**, taking into consideration both receptor sensitivity to change and magnitude of change to baseline conditions.

Effects assessed to be moderate, major-moderate, or major, are deemed to be significant effects in EIA terms.

Table 18.5: Criteria for Assessing the Significance of Effects

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major-moderate	Moderate	Moderate-minor
Medium	Major-moderate	Moderate	Moderate-minor	Minor
Low	Moderate	Moderate-minor	Minor	Negligible
Negligible	Moderate-minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

- 18.4.14 The degree of significance of an effect can be described either as beneficial or adverse in nature, and temporally as being of short-, medium-, or long-term. These together with the level of significance should be used to determine which effects from the Scheme need to be considered further in the ES, and therefore which effects require mitigation measures to be implemented in the design, construction, operation, and decommissioning of the Scheme.

In-Combination and Cumulative Effects

- 18.4.15 The assessment will consider potential in-combination effects from different aspects of the Scheme, and cumulative effects related to relevant projects, where they are considered likely to have significant environmental effects. This includes assessing the cumulative impact of the construction of this Scheme, its operational lifetime, and where relevant its decommissioning, against other nearby NSIPs and relevant Town and Country Planning Act planning applications and approvals which will also have effects within the LIA.

18.5 Conclusions on Scoping

- 18.5.1 It is considered appropriate to scope into the ES an assessment of impacts on socio-economics, tourism and recreation for the construction, operational lifetime, and decommissioning of the Scheme. The following specific matters are therefore scoped into the EIA:
- Socio-economic impacts during construction. There is potential for the Scheme to give rise to socio-economic effects on the LIA and RIA. The likely effects are considered to be increased access to employment opportunities, increased workplace population, and increased direct and indirect economic activity, many of which are anticipated to be positive;
 - Socio-economic impacts during operation. This will include impacts on the energy industry through on-site employment, economic impacts from any replacement activities for the solar arrays and BESS Site, agricultural industry through taking the land out of production for the lifetime of the Scheme, and on the tourism and visitor economy due to the long-term impact of the Scheme's siting in the LIA;
 - Socio-economic impacts during decommissioning. Due to the limitations of future baseline data for decommissioning in 2089, this will be limited to assessment of

employment and economic performance from decommissioning works, and aspects such as education that may be directly related to the Scheme; and

- Impacts on tourism and recreation during construction and operation. Effects on tourism and recreation are likely to be limited to those facilities immediately impacted by the Scheme, such as PRow and heritage assets within close proximity to the Scheme boundaries.

18.5.2 The following matters are proposed to be scoped out of the EIA:

- Socio-economic impacts during decommissioning (other than those explicitly scoped in, as above). These are anticipated to be no more significant than effects assessed for the Scheme's construction. Furthermore, the future baseline date of 2089 is too far in the future to provide a meaningful assessment of potential impact on future demographic receptors, nor on future economic prosperity. Instead, a summary of effects from decommissioning activities and post-decommissioning activities will be presented in the ES chapter;
- Tourism and recreation impacts during decommissioning. As for socio-economic impacts, tourism and recreation impacts during decommissioning are likely to be no more significant than during construction, and are anticipated to be short-to-medium term effects rather than long-term effects during operation. As such, these are not anticipated to be significant. Instead, a summary of effects from decommissioning activities and post-decommissioning activities will be presented in the ES chapter; and
- Specific matters. Impacts upon property value, and crime are proposed to be scoped out of any stage of the assessment due to these matters being very unlikely to be significantly affected by the Scheme. This is as there is little conclusive evidence that property value is significantly affected by the development of utility scale solar farms or that any negative effect is felt over a large area. Crime has also been scoped out as whilst the solar infrastructure itself may be a target for theft, there is no conclusive evidence that levels of crime or safety to people or residents nearby are adversely affected.

19 Human Health and Wellbeing

19.1 Introduction

- 19.1.1 This chapter of the Scoping Report sets out the approach to collective baseline data within the Scheme and surrounding Zol, based on publicly available information at the time of publication, in regard to Human Health and Wellbeing. The proposed scope of assessment for Human Health and Wellbeing impacts is included herein, including justification of the proportionality of the aspects proposed to be scoped in or out.
- 19.1.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (**Ref 1**) (the 'EIA Regulations') require the direct and indirect significant effects of the proposed development on population and human health factors to be identified, described, and assessed. The assessment of human health and wellbeing impacts will furthermore be assessed in the context of relevant national and local planning policy.
- 19.1.3 The assessment will be undertaken in accordance with EIA guidance as published by IEMA in November 2022 (**Ref 184, Ref 185**).

19.2 Legislation, Policy and Guidance

Legislation

- 19.2.1 The Planning Act 2008 (**Ref 2**) sets out the process for the consenting of major infrastructure projects and is the principal legislation governing an application for a NSIP.
- 19.2.2 The EIA Regulations (**Ref 1**) sets out the regulatory framework for EIA in connection with DCO applications. The framework includes screening and scoping, and the requirements in respect of each stage.

National Policy Context

- 19.2.3 National Planning Policy is set out in the following documents:
- Overarching National Policy Statement for Energy (EN-1), which came into effect on 17 January 2024 (**Ref 8**), where section 4.4 sets out the assessment principles for health;
 - National Policy Statement for Renewable Energy Infrastructure (EN-3), which came into effect on 17 January 2024 (**Ref 54**), which provides the primary policy basis for decisions on renewable energy DCO applications, including Section 2.10 which specifically pertains to solar photovoltaic generation; and
 - National Policy Statement for Electricity Networks Infrastructure (EN-5), which came into effect on 17 January 2024 (**Ref 9**), in specific regard to the monitoring of potential health impacts from EMF; and
 - National Planning Policy Framework, (December 2023) (**Ref 14**), where Section 8 provides a policy context for the support and promotion of healthy and safe communities.

Local Planning Policy Context

- 19.2.4 Local Planning Policy is set out in Wiltshire Council's (the host local authority) adopted policy documents:
- Wiltshire Core Strategy 2006 to 2026 (adopted January 2015) (**Ref 16**);

- Wiltshire and Swindon Minerals Core Strategy 2006 to 2026 (adopted June 2009) (**Ref 17**);
- Wiltshire and Swindon Waste Core Strategy 2006 to 2026 (adopted July 2009) (**Ref 18**); and

19.2.5 Due consideration will also be given to:

- The emerging draft Wiltshire Local Plan (**Ref 161**); and
- Strategic health and wellbeing objectives in neighbouring authority areas (Bath and North East Somerset, Cotswold, Somerset, Stroud, South Gloucestershire, and Swindon).

19.2.6 Any made neighbourhood plans which apply to areas covered by the Scheme Order limits will be considered in detail in the full ES assessment.

Relevant Industry Guidance

19.2.7 National guidance for the assessment of health impacts is available through Planning Practice Guidance (2023) (**Ref 14**) for the promotion of healthy and safe communities. Specific guidance on consideration of health as a topic within an EIA is provided by IEMA in their guidance documents: Effective Scoping of Human Health in Environmental Impact Assessment (2022) (**Ref 184**) and Determining Significance For Human Health In Environmental Impact Assessment (2022) (**Ref 185**).

19.3 Preliminary Baseline Conditions

19.3.1 Health and wellbeing impacts are likely to be felt at a different level and across a different area for different types of effect. For the collection of baseline data, the widest likely Zol, based on the Local Impact Area (LIA) for socio-economic impacts (refer to **Chapter 18**) has been used to ensure the worst-case impact area is included. The LIA encompasses an area defined by a 20km offset from the Scheme, defined by offsetting from the outermost extents of the Sites and Cable Route Search Corridor. As the Cable Route Search Corridor is subject to refinement to a preferred Cable Route Corridor prior to the submission of the DCO to create the Order limits, the LIA will also be refined to reflect the finalised Order limits.

19.3.2 This therefore includes the authority areas of Wiltshire (the host authority), and Bath and North East Somerset, Cotswold, Somerset, South Gloucestershire, Stroud, and Swindon. Baseline conditions are sourced from Census 2021 (**Ref 186**), Office for Health Improvement and Disparities (OHID) online resources (**Ref 187**) and Indices of Multiple Deprivation mapping resource (**Ref 188**) to determine the scope of this assessment. Reference is also made to the Joint Strategic Needs Assessments (JSNA) that cover the LIA. It should be noted that information sourced is provided at a local authority or county level, and therefore extends beyond the 20km LIA itself.

Table 19.1 Health Profile of Local Authority Areas and England

Health Indicator	Bath and NE Somerset	Cotswold	Somerset	South Gloucs.	Stroud	Swindon	Wiltshire (host authority)	Regional Impact Area (SW England)	England and Wales
Male population over 65	18.0%	25.0%	23.5%	17.4%	22.1%	14.8%	20.4%	21.0%	17.4%
Female population over 65	20.7%	27.0%	26.1%	19.9%	24.4%	17.0%	23.3%	23.6%	19.7%
Male life expectancy (years)	81.0	80.9	80.1	81.0	80.6	79.3	80.9	80.0	78.9
Female life expectancy (years)	84.8	84.7	83.9	84.6	83.8	83.4	84.3	83.9	82.8
Self-reported bad or very bad health	4.1%	3.8%	5.1%	4.2%	4.2%	4.4%	4.2%	5.1%	5.2%
Prevalence of limited activity due to long-term illness or disability	16.4%	15.4%	18.6%	16.3%	16.9%	15.9%	16.9%	18.6%	17.5%
Under 75 mortality rate from all causes (per 100,000)	256.1	242.4	302.2	283.4	285.3	333.4	272.7	305.1	342.3
Suicide rate (per 100,000)	8.8	11.2	12.7	8.5	12.4	10.8	11.9	11.9	10.3
Emergency hospital admissions for	217.2	111.2	242.1	261.9	151.5	323.4	259.0	218.9	163.7

Health Indicator	Bath and NE Somerset	Cotswold	Somerset	South Gloucs.	Stroud	Swindon	Wiltshire (host authority)	Regional Impact Area (SW England)	England and Wales
intentional self-harm (per 100,000)									
Indices of Multiple Deprivation 2019 Rank (of 317 ¹)	274	272	n/a	267	279	171	231	n/a	n/a
Indices of Multiple Deprivation 2019 Score	11.7	11.1	18.6	11.7	10.8	18.6	13.4	18.2	21.7
Percentage of Lower Super Output Areas in most deprived 20%	4.3%	0.0%	8.9%	1.2%	0.0%	15.2%	2.8%	10.9%	20.0% (England only)

¹ Where “1” is the most deprived local authority area.
Somerset Unitary Authority formed in April 2023.

19.3.3 Each of the constituent authority areas within the LIA have their own JSNA which gives an up-to-date overview of the health and wellbeing conditions in the population of each of the authority areas. These documents are based on research and community consultation to determine what factors have the greatest impact on health and wellbeing, and where the greatest challenges and inequalities exist. The key challenges and areas of focus for each of the authority areas are listed below:

- Wiltshire (**Ref 189**):
 - Aging population, health inequalities due to deprivation, dementia and age-related disease, mental health in adults, and access to affordable housing;
- Bath and North East Somerset (**Ref 190**):
 - Aging population, health inequalities due to deprivation, access to affordable housing, community safety due to violent crime, mental health in adults, access to dental care;
- Gloucestershire (covering Cotswold and Stroud) (**Ref 191**):
 - Aging population, dementia and age-related disease, social isolation, health inequalities due to deprivation;
- Somerset (**Ref 192**):
 - Aging population, health inequalities due to deprivation, dementia and age-related disease, mental health in children and adolescents, mental health in adults, access to health services in rural areas;
- South Gloucestershire (**Ref 193**):
 - Aging population, healthy weight, physical activity, healthy eating, mental health in children and adolescents, mental health in adults, health inequalities due to deprivation, alcohol and substance misuse, social isolation;
- Swindon (**Ref 194**):
 - Aging population, health inequalities due to deprivation, community safety due to domestic violence, homelessness, access to education and skills attainment, childhood development, access to dental care, health weight, mental health in adolescents and adults, smoking prevalence;

19.4 Assessment Methodology

19.4.1 At present, there is no specific established methodology for assessing the health and wellbeing effects of a solar development. This section therefore provides a summary of the assessment methodology including the baseline analysis, and the relevant standards and guidance that will be used.

Assessment Approach

19.4.2 The assessment of health will cross refer to the technical assessments undertaken for the other technical disciplines in the EIA, highlighting any conclusions reached which are relevant to human health. A health 'lens' will be applied to these conclusions to determine the extent to which these conclusions have any effect (or not) upon the health of the local population or specific population groups therein. A clear pathway between the anticipated impact and the resultant health effects will need to be determined to

understand the significance of any effects to human health and wellbeing. The assessment will also be informed by available topic-specific literature, and where appropriate, engagement with health and wellbeing stakeholders and statutory bodies.

19.4.3 The Study Areas for human health and wellbeing impacts will be largely influenced by the relevant technical assessment in the rest of the ES. For example, where noise and vibration impacts are defined within a given Study Area of the Scheme, this same Study Area will be considered when assessing the health impacts associated with the changes in noise and vibration identified.

19.4.4 As set out in **Chapter 4**, for the purpose of assessment in the ES, the construction phase of the Scheme is anticipated from 2027-2029 for up to 24 months. The operational lifetime of the Scheme is anticipated to be up to 60 years, giving a likely decommissioning date no later than 2089. Human health and wellbeing impacts are to be assessed for the construction phase, and for the operation phase. Impacts at decommissioning are anticipated to be less than, or at a maximum no worse than, those experienced at construction.

19.4.5 The assessment of health and wellbeing impacts will be applied to the general population, and to identified vulnerable groups as identified through baseline conditions analysis. Consideration of vulnerable groups will be utilised to effectively determine sensitivity of the population as a whole and identify what impacts the Scheme may have on health inequalities. Vulnerable sub-population groups as identified in Table 9.2 of IEMA Scoping guidance (2022) (**Ref 184**) include the following groups:

- Age related groups: children, young people, older people;
- Income related groups: people on low income or with poor job security, economically inactive and unemployed people, people in poverty or experiencing homelessness, those unable to work due to poor health;
- Health inequality or disadvantage: people with long-term physical disabilities, long-term mental disabilities, and learning or neurological disabilities, and those providing care to people with disabilities;
- Social disadvantage: people experiencing social isolation, persons experiencing discrimination (including specifically based on race or religion), as necessary any other protected characteristic as defined by the Equality Act 2010 (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation), gypsy and traveller groups, refugee and/or asylum seekers, non-English speakers, and those with low literacy or numeracy;
- Geographic factors: people experiencing barriers in access to services or service provision, amenities, or facilities, people living in areas of high deprivation, and differences in urban versus rural challenges to access to services.

19.4.6 The health assessment will also consider sensitive physical receptors such as schools, care homes, and healthcare facilities, which may be particularly vulnerable to change as a result of their occupants or users. The identification of these vulnerable groups and locations will be furthermore supported by the technical assessments of other ES chapters as appropriate.

Assessment of Sensitivity and Magnitude

19.4.7 The sensitivity of all identified environmental receptors will be described as high, medium, low, or very low, whilst the magnitude of impact on those receptors will be

described as high, medium, low, or negligible. Where an effect is identified, the likely duration, location and significance will be presented. The health effects will be assessed in the context of the baseline position, as well as the nature and context of the effect, taking account of the sensitivity of the identified receptor (i.e. the existing population and identified vulnerable/priority groups).

- 19.4.8 The sensitivity of the receptors identified in this chapter will be assessed by understanding measurable indicators of the receptor's present characteristics and considering this alongside the weighted importance of the receptor in local, regional, and national policy or strategic requirements together with professional judgment. To ensure a consistent approach across the socio-demographic and economic receptors identified in this assessment, each receptor will be assessed against the criteria as set out in **Table 19.2** to determine its sensitivity. This determination will be based on statistical analysis where appropriate or based on professional judgement of the qualitative aspects of the criteria being assessed.

Table 19.2: Sensitivity and Importance of the Identified Environmental Receptor

Sensitivity	Definition
High	Population or population groups with high levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the project); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Population or population groups with moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt
Low	Population or population groups with low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt
Very Low	Population or population groups with very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

- 19.4.9 The methodology for determining the impact magnitude is described below and will be based on the residual impacts of the Scheme post-mitigation. The magnitude of change will be used for either beneficial or adverse impacts. As there is no standard methodology for determining how magnitude of impacts are calculated, professional judgement has been used to determine the criteria set out in **Table 19.3**.

Table 19.3: Magnitude of Change for the Identified Environmental Receptor

Magnitude	Definition
High	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; majority of population affected; permanent change; substantial service quality implications.
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications.
Low	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population affected; rapid reversal; slight service quality implications.
Negligible	Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.

Significance

- 19.4.10 The degree of significance of impacts, in respect of Human Health and Wellbeing, is determined using the matrix below in **Table 19.4**, taking into consideration both receptor sensitivity to change and magnitude of change to baseline conditions.
- 19.4.11 Effects that are major, major/moderate, moderate or moderate/minor are significant in terms of EIA as in accordance with IEMA guidance (**Ref 185**).

Table 19.4: Criteria for Assessing the Significance of Effects

Sensitivity	High	Medium	Low	Very Low
Magnitude				
High	Major	Major/moderate	Moderate/minor	Minor/negligible
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Low	Moderate/minor	Minor	Minor	Negligible
Negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

- 19.4.12 The degree of significance of an effect can be described either as beneficial or adverse in nature, or neutral if there is no anticipated impact. Temporally, effects are described as being of short-, medium-, or long-term. These together with the level of significance should be used to determine which effects from the Scheme need to be considered further in the ES, and therefore which effects require mitigation measures to be implemented in the design, construction, operation, and decommissioning of the Scheme.

In-Combination and Cumulative Effects

- 19.4.13 The assessment also considers potential in-combination (or intra-development) effects from different aspects of the Scheme, and cumulative effects related to relevant projects, where they are considered likely to have significant environmental effects. This includes assessing the cumulative impact of the construction of this Scheme, its operational lifetime, and where relevant its decommissioning, against other nearby NSIPs and relevant Town and Country Planning Act planning applications and approvals which will also have effects within the Zol as appropriate.
- 19.4.14 In-combination effects related to human health and wellbeing will be assessed in full within the Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES.
- 19.4.15 A full list of cumulative sites considered for assessment will be included in the ES, based on the Zol for each topic area and a full assessment of cumulative effects relating to human health and wellbeing will be undertaken in the Cumulative Effects chapter of the ES.

Consultation

- 19.4.16 The Applicant will carry out a detailed baseline assessment of human health conditions in the Zol to focus on identifying and understanding local health needs and vulnerable groups that could be significantly impacted by the Scheme.
- 19.4.17 To ensure that this approach is proportionate but suitably robust, engagement will be carried out with relevant public health bodies and the local authority to supplement the desk-based findings ahead of production of the PEIR. Where required, these inputs will inform the evolving design of the Scheme ahead of PEIR and the production of the ES for the DCO application.

19.5 Conclusions on Scoping

- 19.5.1 Table 5.1 of the IEMA Guide to: Effective Scoping of Human Health in Environmental Impact Assessment (2022) (**Ref 184**) includes a non-exhaustive list of wider determinants of health associated with the WHO definition. Solar farms are designed, operated and maintained safely, and are not known to be linked with or represent a serious risk to public health. Many of the key determinants of human health will not be applicable in this case, or will be assessed throughout other chapters, namely Climate Change, Landscape and Visual, Hydrology and Flood Risk, Ground Conditions and Contamination, Transport and Access, Noise and Vibration, Air Quality, Socio-Economics, Tourism and Recreation; Agriculture and Soils chapters, as well as Major Accidents and Disasters section of the Other Environment Matters chapter. With this considered, the wider determinants used by IEMA and the Office for Health Improvement and Disparities, to be scoped in or out of the assessment in the ES for this Scheme are set out below.

Scoped In

- 19.5.2 The potential effects on wider determinants of health used by IEMA and the Office for Health Improvement and Disparities, which are considered should be scoped in detailed assessment, or included in other technical chapters within the ES are listed in **Table 19.5**.

Table 19.5: Health Effects to be Scoped In

Health Effect	Consideration and Discussion
Health-related behaviour	
None	
Social environment	
Housing	<p>Construction (and Decommissioning)</p> <p>Although it is anticipated the majority of the construction workforce will reside within the Zol, there may be requirement for temporary accommodation for construction workers moving to the area for work. The quantum of accommodation anticipated will be assessed in the Socio-Economics, Tourism and Recreation chapter of the ES.</p> <p>Health effects may be experienced by residents if the local accommodation market is significantly adversely affected.</p>
Open space, leisure and play	<p>Construction (and Decommissioning)</p> <p>The Scheme has potential to impact upon the use and desirability of, and access to, leisure and recreation facilities as a result of direct impacts from construction and decommissioning works (particularly on recreational facilities in the countryside such as PRoW. The level of impact upon leisure and recreation facilities will be assessed in the Socio-Economics, Tourism and Recreation chapter of the ES, and will take account of impacts from transport and access and landscape and visual where appropriate.</p> <p>Operation</p> <p>During operation the Scheme will not directly reduce any land used for or access to open space, leisure and play. Whilst long-term access and connections to the natural environment will be maintained, the impact on landscape amenity and associated desirability and enjoyment will be considered in the Socio-Economics, Tourism and Recreation and Landscape and Visual chapters of the ES.</p> <p>The assessment of the impact in health terms will include for any changes to how vulnerable groups access and connect to the natural environment, open space, leisure and play opportunities. Any mitigation or enhancement measures, such as the improvement of PRoW or creation of new permissive routes will also be taken into account of the health and wellbeing benefit of residents and visitors to the area.</p>
Transport modes, access and connections	<p>Construction, Operation and Decommissioning</p> <p>Construction works may temporarily disrupt use of PRoW and roads through cable laying or movements by heavy goods vehicles. Any potential disturbance and safety impacts will be assessed in the Transport and Access chapter and will be cross-referenced where appropriate.</p> <p>During the operation phase, the volume of traffic associated with the Scheme is considered to be substantively less than during construction, with only traffic movements associated with replacement of equipment likely to generate any significant effects. This is also proposed to be</p>

Health Effect	Consideration and Discussion
	<p>assessed in the Transport and Access chapter and will be cross-referenced where appropriate.</p> <p>The assessment of the impact in health terms will include for any changes to how vulnerable groups access and connect to other settlements and communities.</p>
Community identity, culture, resilience and influence	<p>Construction, Operation and Decommissioning</p> <p>The Scheme will not result in any demographic changes which would strongly influence community identity, nor will it result in long-term changes to lighting, overshadowing and reflections, or the attractiveness of public spaces and buildings. The key change will be the visual landscape of the area, which will be considered in the Landscape and Visual chapter with mitigation measures secured to minimise impacts. The assessment of health impacts will cross-reference to the Landscape and Visual chapter where appropriate.</p> <p>Another key issue is the sense of control within the community and how this can affect anxieties. The health assessment will therefore assess the impact on mental wellbeing of the receptors, and the preparation of the Development Consent Order application will be informed by an extensive programme of community engagement.</p>
Economic environment	
Education and training	<p>Construction, Operation and Decommissioning</p> <p>All phases of the Scheme are expected to support education and training opportunities. This will be assessed in full in the Socio-Economics, Tourism and Recreation chapter.</p> <p>Those impacts that could have a significant impact upon human health such as school programmes, adult learning and apprenticeships will be assessed further in the Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES.</p>
Employment and income	<p>Construction, Operation and Decommissioning</p> <p>The Scheme will provide numerous direct and indirect opportunities for employment and higher incomes, which can potentially be particularly beneficial for some vulnerable or priority groups. The greatest extent of these impacts would be during construction, although assessment of all phases of the Scheme will be outlined in the Socio-Economics, Tourism and Recreation chapter. Secondary impacts on existing businesses will also be assessed.</p> <p>The Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will cross-reference to the Socio-Economics, Tourism and Recreation chapter where appropriate. The Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will assess the effect of improving employment opportunities and income on the health of vulnerable groups.</p>
Bio-physical environment	
Climate change mitigation and adaptation	<p>Operation</p> <p>The Climate Change chapter will assess how the Scheme responds to the challenges of climate change which will affect current and future</p>

Health Effect	Consideration and Discussion
	<p>global populations. The Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will cross-reference to the Climate Change chapter where appropriate. Embodied carbon and other emissions which can alter the climate are not expected to be of a scale to have a health impact during the construction phase. During the operation phase the renewable energy generated will assist in transitioning towards net zero and improving climate resilience. The Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will assess how the contribution towards net zero targets affects the physical and mental health of receptors during the operation phase.</p>
Air quality	<p>Construction (and Decommissioning)</p> <p>The Scheme has potential to generate dust from construction works, and generate pollution from construction traffic. These matters will be assessed in in the topic chapter for Air Quality.</p> <p>Operation</p> <p>The production of dust and pollution from the Scheme during operation is minimal and so is not anticipated to generate any secondary health impacts. That notwithstanding, there is potential for adverse air quality conditions as a result of fire from the Scheme, particularly in regard to the Battery Energy Storage System. These matters will be assessed in in the topic chapter for Air Quality.</p> <p>The assessment of the impact in health terms will therefore include for any impacts on the physical health of vulnerable groups who may be within the impact area for dust, pollution, or smoke from fires.</p>
Water quality or availability	<p>Construction, Operation and Decommissioning</p> <p>The Hydrology and Flood Risk chapter will assess how the Scheme affects water resources. The project would adopt standard best practice to minimise pollution risk issues. The potential resultant effects on the health of vulnerable groups will be included in the Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES if the Hydrology and Flood Risk chapter indicates significant effects to human health.</p>
Land quality	<p>Construction, Operation and Decommissioning</p> <p>The Ground Conditions and Contamination section of the Other Environmental Matters chapter will assess how the Scheme may affect risks of ground-based pollutants or contaminants. The project would adopt standard best practice to minimise onward contamination risks to vulnerable people or receptors. The potential resultant effects on the health of vulnerable groups will be included into the Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES if the Ground Conditions and Contamination assessment indicates significant effects to human health.</p>
Noise and vibration	<p>Construction, Operation and Decommissioning</p> <p>The Noise and Vibration chapter will assess how the Scheme affects the existing sound environment and associated impacts from the Scheme's construction and operation. The Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will assess the effect of noise and vibration on health of the identified</p>

Health Effect	Consideration and Discussion
	receptors (including mental wellbeing), and will cross reference to the Noise and Vibration chapter where appropriate.
Institutional and built environment	
Health and social care services	Construction (and Decommissioning) <p>There would be a larger workforce on Site during the construction phase. Whilst the vast majority of the workforce are expected to already be residents of the LIA with existing access to healthcare, some may want to temporarily register with local GP facilities, particularly if temporarily relocating closer to the Scheme. As such, the Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will assess the effect on GP availability, and emergency healthcare availability during the construction phase.</p>
Wider societal infrastructure and resources	Operation <p>The project will contribute towards clean and resilient electricity infrastructure to generate the energy which society depends on for good population health. A reliable supply of renewable electricity is required in relation to numerous societal factors such as food production and safety, thermal comfort, healthcare, education, income generation and socialising. As will be outlined throughout the ES, it could provide significant contributions in terms of economic development, climate change mitigation; and protection or enhancement of the natural environment (e.g. biodiversity, access to natural spaces and habitats). The Human Health and Wellbeing section of the Other Environmental Matters chapter of the ES will assess the effect in health terms of the Scheme's contribution towards wider societal infrastructure and will cross-reference to other ES chapters where appropriate.</p>

Scoped Out

- 19.5.3 The potential effects on wider determinants of health used by IEMA and the Office for Health Improvement and Disparities, which are considered should be scoped out from detailed assessment are listed in **Table 19.6**.

Table 19.6: Health Effects to be Scoped Out

Health Effect	Consideration and Discussion
Health-related behaviour	
Physical activity	Construction, Operation and Decommissioning <p>Physical activity is a recognised important determinant of health, however, to avoid duplication, this is considered under 'open space, leisure and play', and 'transport modes, access and connections'.</p>
Risk taking behaviour	Construction, Operation and Decommissioning <p>During all phases, all people based on the site will be professional workers and all contractors and operators on site will have strict health and safety protocols enforced. These policies and practices can cover issues including alcohol, cigarettes, non-prescribed drugs, problem gambling and communicable illness.</p>

Health Effect	Consideration and Discussion
Diet and nutrition	<p>Construction, Operation and Decommissioning</p> <p>The proposal will result in the temporary long-term reduction in agricultural land. As the Scheme covers less than 0.005% of the UK's Utilised Agricultural Area it is unlikely to significantly affect the availability and affordability of food. However, some of the Scheme may constitute as Best and Most Versatile Agricultural Land, and any likely significant effects of the Scheme on agricultural land will be assessed within the Agriculture and Soils chapter.</p>
Social environment	
Housing	<p>Operation</p> <p>The operational workforce will comprise a very small number of permanent staff, most of whom are anticipated to already live in the LIA, limiting the potential for any adverse impacts on housing or access to suitable accommodation, that could result in a significant health effect.</p>
Relocation	<p>Construction, Operation and Decommissioning</p> <p>The Scheme would not involve the compulsory acquisition or temporary possession of any homes or community facilities: no relocation is therefore necessary.</p>
Community safety	<p>Construction, Operation and Decommissioning</p> <p>Good practice measures in terms of safety, such as a risk assessment prior to the start of works, would be secured through suitable management plans during construction and so the risk to the local community from accidental injury is scoped out. Safe working practices will be secured through a CEMP (an outline CEMP will be submitted as part of the DCO application).</p> <p>Security will be managed through perimeter fencing, CCTV and lighting and secured through a CEMP and OEMP. Given the nature of the Scheme and its rural location, it is anticipated that potential for widespread actual or perceived crime that could affect population health is unlikely.</p>
Social participation, interaction and support	<p>Construction, Operation and Decommissioning</p> <p>Social participation, interaction and support are not anticipated to be directly impacted by the Scheme as there are no proposed impacts on social or community facilities or venues for social interaction. Any indirect impacts on access to these spaces are considered under 'transport modes, access and connections'.</p>
Bio-physical environment	
Climate change mitigation and adaptation	<p>Construction (and Decommissioning)</p> <p>The impact of the Scheme on climate change from construction activities and the manufacturing and transport of materials for use on the Scheme is not anticipated to induce human health impacts, particularly when considered in parallel to the likely improvements to carbon emissions offsetting, climate change mitigation and climate resilience as a result of the operational lifetime of the Scheme.</p>

Health Effect	Consideration and Discussion
Radiation	<p>Construction, Operation and Decommissioning</p> <p>Construction works would not include using, or making material changes to, active major electrical infrastructure producing EMF.</p> <p>Long-standing exposure limit and health protection guidelines for EMF, have been developed by the International Commission on Non-Ionizing Radiation Protection and have a high safety margin. The Scheme will comply with these guidelines and will include suitable buffer zones from high voltage cables and substation equipment to sensitive receptors to ensure no impacts on human health are anticipated.</p> <p>Whilst fears of a causal link between EMFs and health impacts can generate community anxieties, these can be suitably addressed with a robust community engagement process. This will include non-technical information to explain how the balance of scientific evidence suggests EMFs are safe.</p>
Institutional and built environment	
Health and social care services	<p>Operation</p> <p>The operational workforce will comprise a very small number of permanent staff, most of whom are anticipated to already live in the LIA. Workers required for replacement of equipment will be far fewer than for construction, limiting the potential for any likely significant adverse impacts on access to healthcare and social care services, that could result in a significant health effect.</p>
Built environment	<p>Construction (and Decommissioning)</p> <p>The construction phase of the Scheme is unlikely to significantly affect existing features of the built environment in terms of population health. Where cables are to be laid, these will be routed to avoid existing buried services where necessary, or crossed by trenchless (drilled) techniques to ensure risk of severance of utilities (including telecommunications, sanitation, and energy utilities) is minimised. The design of cable routing will be secured through the CEMP and directed by a Crossing Schedule provided as part of the DCO application. On this basis, this health effect is proposed to be scoped out.</p> <p>Operation</p> <p>The location of the Scheme is within a rural and semi-rural setting, although the electricity generated by the Scheme will predominantly be used to temporarily power the built environment. The landscape and visual impacts on the natural environment will be considered in the Landscape and Visual chapter, with mitigation measures secured to minimise impacts. The community response to visual landscape change is assessed under the 'Community identity, culture, resilience and influence' determinant of human health.</p>
Wider societal infrastructure and resources	<p>Construction (and Decommissioning)</p> <p>This Scheme is not projected to generate public health benefits, nor adversities, at this stage in respect of infrastructure important to societal health. Nevertheless, Scheme benefits regarding economic development are included under the determinant 'Employment and income'.</p>

20 Agriculture and Soils

20.1 Introduction

20.1.1 This chapter of the Scoping Report considers the likely significant effects of the Scheme on agricultural land and soils during construction, operation and decommissioning.

20.2 Legislation, Policy and Guidance

- Overarching National Policy Statement for Energy (EN-1) (**Ref 8**);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (**Ref 34**);
- National Planning Policy Framework (**Ref 14**);
- Planning Practice Guidance (**Ref 195**);
- Agricultural Land Classification (ALC) guidelines (**Ref 196**);
- Defra Construction Code of Practice (**Ref 197**);
- Natural England's Technical Information Note (TIN) 049 (**Ref 198**);
- IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment (**Ref 199**);
- British Society of Soil Science Working with Soil Guidance Note (**Ref 200**); and
- Building on soil sustainability: Principles for soils in planning and construction (**Ref 201**).

20.3 Preliminary Baseline Conditions

20.3.1 The Study Area for Agriculture and Soils extends to all of the agricultural land within Lime Down A to E, Land at Melksham Substation, and the Cable Route Search Corridor. At this stage, the exact route of the Cable Route Corridor is yet to be determined but it will be within the Cable Route Search Corridor (refer to **Figure 3.2.1** to **Figure 3.2.3**). The Cable Route Search Corridor will be refined during the design process to a single Cable Route Corridor, which will be presented in the PEIR.

20.3.2 Most of the agricultural land at the Site (80%) is shown on the Provisional Agricultural Land Classification (ALC) map (**Ref 202**) as good to moderate quality Grade 3 agricultural land, with areas of poor quality Grade 4 amounting to 17% in total, notably across the west of Lime Down B, the east of Lime Down C and the east of Lime Down D, and a small area of very good quality Grade 2 land mapped in the east of Lime Down E, amounting to around 3% of the area. Similarly, the vast majority of the Cable Route Search Corridor is shown as Provisional Grade 3.

20.3.3 However, the Provisional ALC data cannot be used to classify individual sites due to limitations of scale and changes to the classification system. Detailed ALC surveys are required to establish the definitive grade of agricultural land but no detailed ALC surveys have previously been undertaken within the Site.

20.3.4 Soil and ALC surveys are ongoing to establish the baseline conditions. Given that the vast majority of the Site will remain undisturbed during construction and operation, and that the Site will be returned to agricultural use at the end of the Scheme, the surveys have been undertaken at an observation density of one per 2ha, supported by soil pit data and laboratory analysis.

- 20.3.5 At each observation point the following characteristics are assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:
- Soil texture;
 - Stone content;
 - Colour (including localised mottling);
 - Consistency;
 - Structural condition;
 - Free carbonate; and
 - Depth.
- 20.3.6 Topsoil samples are submitted for laboratory determination of particle size distribution, pH, organic matter content and nutrient contents (P, K, Mg).
- 20.3.7 The data is analysed according to the published guidelines and criteria for assessing agricultural land in order to determine the definitive land grade (**Ref 196**).
- 20.3.8 There are eight soil associations present within the Site. In order of prevalence these are:
- Sherborne – shallow, well-drained, brashy, calcareous clayey soils over limestone, mapped in the centre and west of Lime Down A; the east and south of Lime Down B; the south, centre and north-west of Lime Down C; the centre and west of Lime Down D; the south-west of Lime Down E; and throughout the Cable Route Search Corridor;
 - Evesham 1 – slowly permeable, calcareous clays, mapped in the north and south of Lime Down A; the west of Lime Down B; the north, west and south-east of Lime Down C; the west and south-east of Lime Down D; and throughout the Cable Route Search Corridor;
 - Wickham 3 – slowly permeable, fine loamy over clayey, mapped across the north and east of Lime Down D; the north and east of Lime Down E; most of the Land at Melksham Substation; and throughout the Cable Route Search Corridor;
 - Denchworth – slowly permeable, waterlogged clays, mapped in the very south of Lime Down A; the west, north and north-east of Lime Down C; and in the north of the Cable Route Search Corridor;
 - Fladbury 1 – stoneless, clayey soils affected by groundwater, mapped in the east of Lime Down D and in the north of the Cable Route Search Corridor;
 - Elmtun 2 – shallow, well-drained, brashy, calcareous fine loamy over limestone, mapped in the north of the Land at Melksham Substation and in the south of the Cable Route Search Corridor;
 - Badsey 2 – well-drained, calcareous, fine loamy soils over limestone gravel, mapped on Land at Melksham Substation and in the south of the Cable Route Search Corridor; and
 - Bursledon – deep, fine loamy soils with slowly permeable subsoils, mapped at the south-eastern tip of Lime Down E.

20.4 Assessment Methodology

Proposed Scope

- 20.4.1 During construction, agricultural uses will cease within each of the fields within the Scheme to accommodate the solar PV arrays and for laying the underground cables. Subject to demand, agricultural uses including sheep grazing may resume within the solar PV arrays once construction is complete, other than in the areas proposed for associated infrastructure, including the proposed substations each with a maximum compound area of 2.9ha, the BESS, 6m wide access tracks, and the siting of multiple conversion units within the main panel areas, and the Land at Melksham Substation.
- 20.4.2 The level of disturbance to the soil resource caused by the installation of the Scheme will be variable: most disturbance is anticipated to be due to the installation of permanent access tracks, substations and compounds, as well as temporary disturbance during the installation of the cables, rather than the solar PV arrays.
- 20.4.3 The impacts on farm holdings form part of the socio-economic assessment in **Chapter 18** but, on the basis that landowners who form part of the Scheme have signed up to a voluntary agreement and have considered the potential effects on the viability of farm holdings, any effects on individual owner-occupied farm holdings can be scoped out of both the construction and operation phases. There is a potential for effects on tenant farmers to occur where the tenants have not reached private agreement with their respective landowners. Effects on these holdings will be scoped in although assessment may have to rely upon some assumptions if information is not obtainable from tenants.
- 20.4.4 There is also the potential that some of the land required for the installation of the underground cables may not have signed a voluntary agreement. The assessment will therefore assess the temporary effects from installing the underground cables on those farm holdings during the construction phase.
- 20.4.5 There are no direct effects on agricultural land or soil resources anticipated to occur during the operation phase of the Scheme. However, whilst the land would remain largely undisturbed during the operational period, it would not be primarily available for food production, other than grazing by livestock beneath the panels, and would be lost during the operation phase.
- 20.4.6 Effects on soil resources and agricultural land during the operation phase of the Scheme can be scoped out on the basis that significant effects on agricultural land are likely to be restricted to the construction and decommissioning phases.
- 20.4.7 The effect on agricultural land quality at decommissioning will be influenced by the extent of disturbance caused by the removal of the solar PV arrays, for example the presence and dimensions of leftover voids. It is currently anticipated that cables will be decommissioned in-situ in which case no further disturbance to the soil and land would be necessary along the Cable Route Corridor.
- 20.4.8 Soil health, quality and structure are likely to improve during the lifetime of the Scheme by leaving land undisturbed under long-term grassland such that, by the time of decommissioning, there will be beneficial effects on soil resources.

Assessment Methodology

- 20.4.9 The assessment methodology is based on determining the sensitivity and magnitude of impact on the relevant receptors of agricultural land and soil resources.

- 20.4.10 The assessment methodology will follow published guidelines, such as IEMA's A New Perspective on Land and Soil in Environmental Impact Assessment (**Ref 199**), but in line also with the assessment methodology and terminology set out in Chapter 2 of this Scoping Report.
- 20.4.11 The sensitivity of agricultural land will be determined according to its ALC grade, with Grade 1 being the most sensitive and Grade 5 the least. The magnitude of impact will be determined according to the area of land removed from agricultural production, and the duration of that removal.
- 20.4.12 The sensitivity of soil resources will be determined according to their resilience to handling and disturbance, which is affected largely by texture and moisture content. The magnitude of impact will be determined according to the degree to which the ecosystem functions and services provided by soils are able to continue.

Potential Significant Effects

- 20.4.13 The construction of the Scheme will result in the temporary but long-term removal of land from agricultural production for the lifetime of the Scheme (anticipated to be 60 years), and the temporary but short-term use of agricultural land along the Cable Route Corridor. From survey results obtained to date, agricultural land at the Site is likely to comprise roughly equal proportions of Grades 3a and 3b, with Grade 4 in Lime Down A and Lime Down C, and a small area of Grade 2 in Lime Down E.
- 20.4.14 Best and most versatile (BMV) quality land (Grades 1, 2 and 3a) is likely to be present but not anticipated to be predominant. Effects will mostly be of a temporary nature although some permanent land-take may be required in the locations of substations, BESS, conversion units and access tracks. Given the large area of agricultural land at the Site, there is the potential for significant effects on agricultural land and consequential food production to arise.
- 20.4.15 Most of the soil resource affected is likely to comprise calcareous clay. Clayey textures are susceptible to damage and compaction if handled or tracked in inappropriate conditions. Therefore, there is the potential for significant effects on soils to occur during the construction phase.
- 20.4.16 There is also the potential for significant beneficial effects on soil resources to arise at decommissioning by managing the land as permanent pasture rather than as arable for the lifetime of the Scheme.

Cumulative and In-Combination Effects

- 20.4.17 A cumulative assessment will be undertaken, assessing the effects of the Scheme in conjunction with other local developments.
- 20.4.18 There is a potential for in-combination effects to occur with Socio-Economics in relation to the farm holdings affected, specifically land that is tenanted.

20.5 Mitigation

- 20.5.1 Mitigation measures available to reduce the severity of potential effects on agricultural land and soil include:
- Within the Scheme design, seeking to site access tracks, compounds and substations on the lowest quality land available within each parcel;
 - Preparation of and adherence to a SMP; and

- The continuation of agricultural use and production within the panel areas, e.g. sheep grazing.

20.5.2 The outline SMP as well as the overarching Outline CEMP will incorporate best practice measures to ensure adverse effects on agricultural land and soil are minimised wherever possible.

20.6 Conclusions on Scoping

20.6.1 The Provisional ALC data and the survey data undertaken to date are largely consistent, with most of the land being classified as Subgrade 3a or 3b, with Grade 4 present in the west and Grade 2 in the east.

20.6.2 Given the approximate area of Sites A to E and the Land at Melksham is 901ha, there would be a significant effect on agricultural land encompassing all grades during the construction phase. There would also be widespread disturbance to soil resources across the Sites and the Cable Route Corridor during the construction phase. As most of the soil resource is anticipated to be clayey, the effect on soils is also likely to be significant. Farm holdings which are currently tenanted may also be subject to significant effects. Construction phase effects on agricultural land, soils and farm holdings are therefore scoped into the assessment in the Agriculture and Soils chapter of the ES.

20.6.3 Mitigation measures are available to minimise impacts on agricultural land and soil resources during the construction phase and include strategic siting of substations and permanent access tracks, implementation of a SMP and later enabling grazing by livestock among the solar arrays.

20.6.4 The effects of the primary change of land use and loss of food production during the operation phase will also be scoped in for assessment in the Agriculture and Soils chapter of the ES.

20.6.5 Assuming that the cables are decommissioned in-situ, effects anticipated to arise during the decommissioning phase mainly relate to removal of the solar arrays and reinstatement of agricultural use, and therefore the return of the land resource to a farm holding. It is likely that some beneficial effects to soil structures will be seen after 60 years under permanent grass. Effects during the decommissioning phase are therefore scoped in to the Agriculture and Soils chapter of the ES.

21 Other Environmental Matters

21.1 Introduction

- 21.1.1 The aim of the scoping stage is to focus the EIA on those environmental aspects that may be significantly affected by the Scheme (including Lime Down A to E, the Cable Route Search Corridor, and Land at Melksham Substation). The following sections provide a summary of other environmental topics which have been considered during the preparation of this Scoping Report.
- 21.1.2 It is proposed that these topics can be addressed briefly and qualitatively within the ES. The Other Environmental Matters chapter of the ES will include a brief assessment of each of the topics mentioned below, supported by cross referencing to where relevant matters are addressed elsewhere in the application and/or with technical notes that will be appended to the ES containing further information that evidences the conclusion for each topic. Where technical notes are required, this is set out in the topic sections below. The generic EIA methodology set out in **Chapter 2** of this Scoping Report does not apply to the Other Environmental Matter chapter.
- 21.1.3 For clarity, these topics are not scoped out of the EIA. Rather, they are addressed proportionately within the ES in relation to the likelihood for significant effects based on the scoping work undertaken to date.

21.2 Major Accidents and Disasters

- 21.2.1 Schedule 4, Paragraph 5(d) of the EIA Regulations (**Ref 30**) requires that the EIA contain a description of the likely significant effects of the development on the environment resulting from the “risks to human health, cultural heritage or the environment (for example due to accidents or disasters)” and Schedule 4, Paragraph 8 requires that the EIA contain “a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned”.

Baseline Conditions

- 21.2.2 The potential receptors of effects resulting from major accidents or disasters will be reported in the ES in accordance with the assessment methodology presented below.

Assessment Methodology

- 21.2.3 The IEMA (**Ref 203**) definitions for major accidents and disasters are presented in **Table 21.1**.

Table 21.1: IEMA Definitions for Major Accidents and Disasters

Term	Definition
Major Accidents	Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may not be the same and therefore many mitigation measures will apply to both deliberate and accidental events.

Term	Definition
Disasters	A disaster is a man-made/external hazard (such as. an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident.

21.2.4 The aim of the scoping stage, as described by the IEMA Primer (**Ref 203**), is “to determine in more detail whether there is potential for significant effects as a result of major accidents and/or disasters associated with a development, and the resulting scope of and approach to the assessment if required.”

21.2.5 An initial desk-based review was undertaken to identify the possible risks of major accidents and disasters that could be relevant to the Scheme. Major accidents or disasters with little relevance in the UK were not included. This initial scoping exercise shows the potential vulnerability of the Scheme to the risk of a major accident and/or disaster associated with a variety of different events.

Potential Effects

21.2.6 **Table 21.2** presents a short list of major accidents or disasters that are considered to need further consideration within the EIA process. Where the major accidents and disasters identified are not already being considered within the scope of existing technical assessments, they will be reviewed by the design team to ensure the risks are understood and addressed through the design as necessary.

Table 21.2: Major Accidents and Disasters Shortlisted for Consideration

Major Accident or Disaster	Potential Receptor	Comments
Flooding	Properties and people in areas of increased flood risk.	Both the vulnerability of the Scheme to flooding, and its potential to exacerbate flooding, will be addressed in the Hydrology, Flood Risk and Drainage chapter of the ES. The Scheme does not propose large expanses of hardstanding that would be likely to cause significant increase to surface water flooding.
Fires and explosions	Local residents, habitats and species.	There may be some potential for fire as a result of the battery storage element of the Scheme. Battery technology has built in safety features including fire resistant construction, fire detection, suppression systems, emergency stop functions and isolation monitoring, which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. Although rare, fires and associated explosions have the potential to cause safety concerns to human health, including anyone working on site, or within the area of fire spread/associated contamination fall out. Fires also have the potential to have an impact on the natural environment including the habitats and species on Site and surrounding area.
Rail accidents	Rail users	The London to Swansea rail line passes through the centre of the Scheme. The potential for glint and glare to affect trains will be considered within the Glint and Glare section of the Other Environmental Topics chapter of the ES. If any

Major Accident or Disaster	Potential Receptor	Comments
		risks are identified, subsequent mitigation will be considered and, where necessary, incorporated into the Scheme design.
Road accidents	Road users	<p>The risk of road collisions and accidents will be addressed in the Transport Assessment.</p> <p>Road accidents could occur during the construction or decommissioning phases that involve hazardous substances. The risk posed by spillage from hazardous loads as a result of a road traffic accident during construction or decommissioning will be explored as part of the Ecology and Biodiversity, Hydrology, Flood Risk and Drainage, and Ground Conditions section of the Other Environmental Matters chapter of the ES. Furthermore, these will all be controlled within the Outline CEMP and ODS.</p> <p>The potential for glint and glare to affect road users will be considered within the Glint and Glare section of the Other Environmental Topics chapter of the ES. If any risks are identified, mitigation will be considered and, where necessary, incorporated into the Scheme design.</p>
Aviation incidents	Pilots and aircrafts	The National Policy Statement for Renewable Energy Infrastructure EN-3 (Ref 34) confirms that some evidence suggests glint and glare from solar farms can be experienced by pilots and air traffic controllers in certain conditions. Therefore, the potential for aircraft disasters will be explored as part of the Glint and Glare assessment within the Glint and Glare section of the Other Environmental Topics chapter of the ES. Any required mitigation measures will be incorporated into the proposed design.
Damage/cut-off of utilities	Employees and local residents	The construction of the Scheme has the potential to cause utility accidents, potentially damaging or cutting off the supply of utilities such as gas, electricity, water, sewage, and telecommunications. Depending on the nature of the accident this could cause supply disruption to users, and/or present a risk of danger to people and the natural environment on Site and in the surrounding area via contamination or potential fire or explosion. Discussions are in progress with utility and infrastructure providers to ascertain the locations of all assets, and the provider's required offset distances will be implemented in the Scheme design to minimise this risk. Contractor practice and working guidelines will also be implemented to minimise the risk of such accidents occurring, and to minimise the severity of an impact in the event an asset is disturbed. This will be addressed within the Outline CEMP.
Unstable ground conditions	Employees and local residents	There is potential for unstable ground conditions within the Sites as a result of current and past mineral mining and extraction activity. A full planning history search of the site

Major Accident or Disaster	Potential Receptor	Comments
		will be checked with the Minerals authorities in relation to mining history. The ground conditions survey will inform any required mitigation in developing the design of the proposals. This will minimise the risk to people working on site, in terms of land collapse, throughout all phases of the project.
Plant Disease	Habitats and Species	The new planting proposed can be susceptible to disease and pests. Changing conditions due to climate change may exacerbate this. The failure of planting presents a risk to the natural environment. The landscape planting strategy will take account of the need to plant a diverse range of species that will be tolerant to climate change. This will be addressed within the LEMP.

21.2.7 Where design mitigation is unable to remove the potential interaction between a major accident or disaster and a particular topic, the relevant ES chapter will identify the potential consequence for receptors covered by the topic and give a qualitative evaluation of the potential for the significance of the reported effect to be increased as result of a major accident or disaster.

21.2.8 The potential receptors of effects resulting from major accidents or disasters will be reported in the relevant topic chapter, and this will negate the need for a specific major accidents or disasters topic chapter in the ES. Nevertheless, there will be signposting of major accident or disaster impacts in the ES to enable these to be identified.

21.2.9 Based on the above, any effects in respect of potential accidents and disasters will be assessed in other topic chapters (such as traffic, human health, cultural heritage) and, as such, a standalone chapter is not proposed to be produced in the ES.

21.3 Light Pollution

21.3.1 Schedule 4, Paragraph 1(d) of the EIA regulations (**Ref 30**) sets out that the EIA contains *“an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases.”*

Baseline Conditions

21.3.2 The Scheme (including Lime Down A to E, the Cable Route Search Corridor, and Land at Melksham Substation) is located across a generally rural area where there is relatively little light pollution.

Assessment Methodology

21.3.3 Use of artificial lighting across the Site has the potential to cause environmental effects in relation to ecology and landscape. Effects on receptors associated with the use of artificial lighting within the Scheme will be assessed as part of the assessments for other environmental topics in the ES, such as ecology and landscape. The Landscape chapter of the ES will consider the lighting strategy on Site including details of directionality, intermittent lighting, and an assessment of associated effects. It will also describe any

measures necessary to avoid or mitigate lighting effects. Glint and Glare from sunlight will be assessed separately in the ES.

Potential Effects

- 21.3.4 Construction lighting may be used across the Scheme but will be temporary in nature, directional and, only used in working hours. The Outline CEMP and Outline Decommissioning Strategy will include a lighting strategy to minimise light spillage to receptors.
- 21.3.5 As described in **Chapter 4** of this Scoping Report, there would be no permanent external operational lighting installed as part of the Scheme. Security lighting within the Sites would be infrared, and limited lighting associated with substations and BESS would be used for occasional maintenance/emergency use only. During the operation phase, no lighting would be required along the Cable Route Corridor.
- 21.3.6 It is not considered necessary to include a standalone chapter on Light Pollution within the ES. The potential effects of lighting will be assessed as part of the Other Environmental Topics chapter in the ES.

21.4 Minerals

- 21.4.1 The EIA Regulations (**Ref 30**) require consideration to be given to the use of natural resources, in particular land (including land take). In this case, the Scheme would occupy a large surface area and consideration needs to be given to the impact this may have on the existing geology and identified mineral resources.
- 21.4.2 Minerals are important national resources and adequate and steady supplies are vital for development and sustaining the economy and society. Minerals are a finite natural resource that can only be worked where they are found. A key aspect of sustainable development is the conservation and safeguarding of non-renewable resources for future generations. As such it is important that other 'non mineral related' development does not needlessly prevent the future extraction of mineral resources.

Baseline Conditions

- 21.4.3 The mineral interest is determined by the underlying geology. Within Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor and 1km Study Area, the surface bedrock is a series of sedimentary beds dating from the Jurassic period. The oldest occurring bedrock is mudstone progressing to limestone and younger mudstones and sandstone. The strata is generally progressively younger moving from west to east across the Site. The bedrock is overlain in places by quaternary superficial deposits of alluvium, clays, silts, sand, and gravels principally of fluvial origin.
- 21.4.4 In terms of the Sites, although the British Geological Survey has previously identified the limestone outcrops occurring within parts of Lime Down C, D and E as being of potential mineral interest, there is no evidence of any significant mineral working of these deposits within these Sites. There are no safeguarded mineral resources within Lime Down A and E identified on the Wiltshire and Swindon Minerals and Waste Development Framework Policies Map (**Ref 204**) (**Figure 21.1**).
- 21.4.5 The Land at Melksham Substation lies within a Mineral Safeguarding Area identified on the Wiltshire and Swindon Minerals and Waste Development Framework Policies Map (**Ref 204**). The Land at Melksham Substation is also adjacent to Monks Park Mine extracting building stone and in close proximity to a second mine (Park Lane Quarry).

- 21.4.6 The Cable Route Search Corridor also crosses a Mineral Safeguarding Area identified on the Wiltshire and Swindon Minerals and Waste Development Framework Policies Map (**Ref 204**). The Cable Route Search Corridor will be refined during the design process to a preferred route which will be presented in the PEIR stage.
- 21.4.7 The superficial fluvial sand and gravel deposits associated with the River Avon, south of Chippenham, are identified as Mineral Resource Zone and a Mineral Safeguarding Area on the Wiltshire and Swindon Minerals and Waste Development Framework Policies Map (**Ref 204**). Mineral Resource Zones are identified as potential areas for future sand and gravel supply in Wiltshire. The majority of the Cable Route Search Corridor is beyond the Mineral Resource Zone and Mineral Safeguarding Area, however, there is some overlap in the areas surrounding the Land at Melksham Substation.

Potential Effects

- 21.4.8 Any built development has the potential to sterilise underlying mineral deposits by effectively preventing access for future exploitation. Non mineral development occurring within areas with the benefit of planning permission for mineral extraction or allocated for future mineral extraction have the potential to interrupt the supply of minerals.
- 21.4.9 There is a permitted mineral extraction site adjacent to the Land at Melksham Substation and another in close proximity. The Land at Melksham Substation and part of the Cable Route Search Corridor are within a Mineral Safeguarding Area and thus there are potential conflicts with the mineral safeguarding policies which require mitigation. In the long term, due to the temporary nature of the Scheme, any minerals that are beneath the Site will not be permanently sterilised and would be available to exploit if required at a future date.
- 21.4.10 Given the temporary nature of the Scheme, the limited extent of mineral safeguarded mineral affected it is concluded the environmental impact on mineral resources is low. The application will be accompanied by a Mineral Resource Assessment, summarised in the Other Environmental Matters chapter of the ES, to demonstrate how the mineral resources have been considered as part of the Scheme.
- 21.4.11 The protection of mineral resources is of national significance and the Scheme has the potential to affect areas of safeguarded mineral resource and allocated and/or permitted mineral workings. However, the Scheme is for a temporary period affecting a limited area of safeguarded mineral. On this basis, with mitigation, the Scheme is unlikely to result any significant environmental effects in relation to safeguarding or working mineral resources.

21.5 Waste

- 21.5.1 The EIA Regulations (**Ref 30**) require an estimate, by type and quantity, of expected residues and emissions, with specific reference to quantities and types of waste produced during the construction and operation phases. The Planning Inspectorate stipulates that this information should be provided in a clear and consistent fashion and may be integrated into the relevant aspect assessments.

Potential Effects

Construction

- 21.5.2 At this stage the exact quantities and types of waste likely to be generated during the construction and decommissioning stages across the Scheme (including the Sites, Cable

Route Search Corridor, and Land at Melksham Substation) are not known. However, it is expected that the waste streams will include:

- General waste from site offices and welfare facilities;
- Packaging waste from incoming materials; and
- Other waste from construction of fencing, access roads and other supporting infrastructure.

21.5.3 A CEMP will be developed and submitted with the application. The CEMP will include measures to minimise waste, such as a waste hierarchy, and will set out site management procedures such as waste management, recycling opportunities, and off-site disposal. This will include an approach to any soil excavated to bury cabling across the Scheme. These will be assessed as part of the ES in the relevant chapter, such as vehicles removing waste covered as part of the Transport and Access chapter of the ES.

21.5.4 A Site Waste Management Plan (SWMP) will be prepared in outline and appended to the ES. The DCO application will confirm how the SWMP will be secured through the DCO Requirements procedure.

21.5.5 All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.

Operation

21.5.6 Waste generation will generally be low during the operation of the Scheme, as solar PV panels and cabling do not generate any waste as part of the energy production process. Waste would be associated with occasional maintenance work and the replacement of panels and batteries.

21.5.7 The Scheme will operate for up to 60 years. The components of the Scheme are anticipated to have the following lifespan:

- Photovoltaic Panels – 25-40 years
- Batteries – 15 - 20 years

21.5.8 It is therefore estimated that the solar PV panels could require replacement one or two times and the batteries three times during the operation of the Scheme. The replacement of these will be considered within the assessment of operational impacts of the Scheme in the ES.

Decommissioning

21.5.9 At the end of the Scheme's operational life, it will be decommissioned. At the present time it is envisaged almost all of the solar PV panels and related built infrastructure, ancillary infrastructure, substations and BESS will be removed and recycled or disposed of in accordance with good practice and market conditions at that time. As this is expected to be at least 60 years in the future, it is not possible to identify at this stage either the waste management routes or specific facilities that would be used.

21.5.10 The underground ducting within the Cable Route Corridor will be decommissioned in accordance with the latest regulations and good practice at that time but are anticipated to be left in-situ to minimise adverse environmental effects. It is possible to remove the cable itself by extracting it at the joint bays from within the ducting, so that the cable can be recycled. This will be considered further in the ES.

- 21.5.11 Considering the above, it is concluded that significant waste impacts are not expected during either construction, operation, or decommissioning, and hence the need for a separate waste chapter has been scoped out of the EIA. However, estimates of by type and quantity, of expected residues and emissions and quantities and types of waste produced during the construction and operation phases will be provided as required under Schedule 4 of the EIA Regulations (**Ref 30**).

21.6 Telecommunications, Utilities and Television

- 21.6.1 Solar farms have the potential to affect existing below ground utility infrastructure, for example, through 'cable strike' when piling the solar PV frames or excavating the cable trenches. However, such developments are not at a height to affect above ground telecommunications.

Baseline Conditions

- 21.6.2 There are several cables, pylons and pipelines crossing the Scheme (including Lime Down A to E, the Cable Route Search Corridor, and Land at Melksham Substation) which are owned and operated by a number of different utilities providers.
- 21.6.3 Utilities surveys are currently ongoing which will identify the precise locations of any cables, pylons, and pipelines. Initial discussions have been undertaken with utilities, telecommunications, and television providers, to confirm potential assets across the Site and their required offsets.
- 21.6.4 There are a number of overhead cables running across all parts of the Scheme, including the Sites and the Cable Route Search Corridor. However, the latter is considered to be of little relevance due the nature of the underground cables.

Potential Effects

- 21.6.5 Solar PV panels and associated development have the potential to affect above and below ground telecommunications, utilities, and television receptor infrastructure. Any potential impacts are most likely to be direct physical in-situ impacts to existing infrastructure, rather than indirect impacts as a result of the Scheme.
- 21.6.6 The Scheme, by its nature, as described in **Chapter 4** of this Scoping Report, is unlikely to interfere with above ground television receptors given its limited height.
- 21.6.7 Where above ground utilities and telecommunications infrastructure exists within or adjacent to the Site, there is the potential for development to encroach upon the relevant safeguarded areas.

Assessment Methodology

- 21.6.8 To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant telecommunication and utilities providers is a routine part of development and consultees will include water, gas and electricity utilities providers and telecommunication providers, as appropriate. Information obtained from consultation will be used to inform the Scheme design and appropriate protective provisions will be included in the DCO to ensure the protection of apparatus wherever any existing infrastructure has the potential to be affected by the Scheme and to mitigate against any identified risks, such as utilities failure. The findings of the desk-based study and consultation, along with any required mitigation measures, will be presented in the Other Environmental Matters chapter of the ES.

- 21.6.9 Taking the above into account, relevant measures will be captured within the Scheme design, and therefore a separate utilities chapter is not considered to be required in the ES.
- 21.6.10 The assessment methodology, findings, and recommendations for telecommunications and utilities will be confirmed and presented in the Other Environmental Topics chapter of the ES.

21.7 Additional Environmental Matters

- 21.7.1 As concluded in **Chapter 11**, **Chapter 15**, **Chapter 16**, and **Chapter 19** of this Scoping Report, Ground Conditions and Contamination, Glint and Glare, EMFs, and Human Health will be considered within the Other Environmental Matters chapter of the ES.

22 Summary

22.1 The Request

- 22.1.1 The Applicant confirms that they will be providing an ES to accompany their DCO application and this Scoping Report therefore constitutes notice under Regulation 8(1)(b) of the EIA Regulations (**Ref 30**).
- 22.1.2 This Scoping Report also forms a request for a Scoping Opinion under Regulation 10(1) of the Infrastructure Planning EIA Regulations (**Ref 30**).

22.2 Summary of Scoping Request

- 22.2.1 A summary of the elements to be scoped in and scoped out of the EIA are provided in **Table 21.1** and **Table 21.2**.

Table 21.1: Elements to be Scoped In/Out of EIA

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
Chapter 6: Climate Change	<p>GHG Emissions assessment considering construction emissions, operational emissions, and decommissioning emissions.</p> <p>ICCI Assessment considering temperature change, precipitation change, and extreme weather conditions.</p> <p>Climate Change Resilience assessment considering temperature change, precipitation change, and extreme weather conditions.</p>	<p>ICCI Assessment considering sea level rise.</p> <p>Climate Change Resilience assessment considering sea level rise.</p>
Chapter 7: Landscape and Visual	<p>LVIA considering all receptors within 500m of the Cable Route Corridor.</p> <p>LVIA considering all receptors within 1km of the Sites.</p> <p>LVIA considering receptors within 2km of the Sites (visual receptors identified with direct, extensive and/or open views towards the Scheme).</p> <p>Landscape assessment considering landscape receptors within 5km of the Sites.</p>	<p>LVIA considering landscape receptors over 5km of Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.</p> <p>LVIA considering visual receptors with no direct, extensive, or open views within 2km of the Sites</p> <p>Visual receptors over 2km from Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor.</p> <p>Photomontages where no significant effects are anticipated.</p>

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
Chapter 8: Ecology and Biodiversity	<p>Assessment of impacts of EMFs on aquatic species from the Primary Cable Route.</p> <p>Assessment of impacts to the following ecological receptors: Bath and Bradford on Avon Bats SAC, national statutorily designated sites within 5km of Site Boundary, local statutory and non-statutory designated sites within 2km of Site Boundary, habitats of Principal Importance and Local Priority Habitats, badgers, bats, otters and water vole, dormice, other mammals (brown hare, harvest mice, hedgehog and polecat only), amphibians (including great crested newts), reptiles, birds, invertebrates, plants, fish, and invasive and non-native species.</p>	<p>Assessment of impacts of EMFs resulting from cables within the Sites and interconnecting cables</p> <p>Assessment of impacts of EMFs on terrestrial species resulting from the Primary Cable Route, cables within the Site, and interconnecting cables.</p> <p>Assessment of impacts to the following ecological receptors: the Severn Estuary SPA and Ramsar; Salisbury Plain SPA; Mells Valley SAC; Stanton St Quinton Motorway Cutting SSSI; Corsham Railway Cutting SSSI; and national, local and non-statutory sites designated solely for geological interest.</p>
Chapter 9: Arboriculture	<p>Further consideration regarding an assessment of impacts to trees within the Cable Route Corridor.</p>	<p>Assessment of impacts to trees within Lime Down A to E and the Land at Melksham Substation.</p>
Chapter 10: Hydrology, Flood Risk and Drainage	<p>Adverse impacts on hydromorphology of watercourses due to construction activity within Lime Down A to E and crossings of watercourses within the Cable Route Search Corridor during the construction phase.</p> <p>Effects on rainfall runoff and land drainage regimes within Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor during the construction phase.</p> <p>Risk of surface water and fluvial flooding within Lime Down A to E, the Land at Melksham Substation, and Cable Route Search Corridor during the operation phase.</p> <p>Temporary effects on the land drainage regime and localised surface water and fluvial flood</p>	<p>Assessment of increased silted/nutrient loaded surface water runoff volumes during the construction phase.</p> <p>Assessment of direct adverse impact upon water quality during the construction phase.</p> <p>Assessment of contamination of groundwater during the construction phase.</p> <p>Assessment of impacts on groundwater flow paths and levels along the cable route during the operation phase.</p> <p>Assessment of impacts on water quality during the operation phase.</p> <p>Assessment of impacts upon water quality during decommissioning.</p>

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
	risk at Lime Down A to E, the Land at Melksham Substation during the decommissioning phase.	
Chapter 11: Ground Conditions and Contamination	Preliminary Risk Assessment of the Cable Route Search Corridor summarised in the Other Environmental Matters chapter of the ES.	<p>Exposure to contamination through direct contact/ingestion and inhalation of dust, vapours and asbestos fibres during the construction phase.</p> <p>Mobilisation of existing contamination via vertical/lateral migration through permeable deposits below the Site during the construction phase.</p> <p>Spillages or leakages of fuels and chemicals. Leaching of chemicals from faulty battery incidents (fire damage, ash deposition and extinguishing waters) during the construction phase.</p> <p>Exposure to contamination through direct contact/ingestion and inhalation of dust, vapours and asbestos fibres during the operation phase.</p> <p>Spillages or leakages of fuels and chemicals. Leaching of chemicals from faulty battery incidents (fire damage, ash deposition and extinguishing waters) via vertical/lateral migration through permeable deposits below the Site during the operation phase.</p> <p>Hazardous ground gases to accumulate and migrate into buildings, enclosed spaces and sub-floor voids, with subsequent asphyxiation and/or the potential for explosion during the operation phase.</p>
Chapter 12: Cultural Heritage	Assessment of impacts to archaeological remains during the construction phase.	Assessment of impacts to archaeological remains during the operation and decommissioning phases.

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
	Assessment of impacts to built heritage during the construction, operation, and decommissioning phases.	
Chapter 13: Transport and Access	Assessment of transport impacts during the construction phase.	Assessment of transport impacts during the operational and decommissioning phases.
Chapter 14: Noise and Vibration	<p>Assessment of vibration impacts during the construction phase.</p> <p>Assessment of noise impacts from construction and decommissioning activities and construction traffic.</p> <p>Assessment of noise impacts from Scheme elements during the operation phase.</p>	<p>Assessment of vibration impacts during the operation phase.</p> <p>Assessment of noise and vibration impacts from operational traffic.</p>
Chapter 15: Glint and Glare	Assessment of glint and glare effects to aviation, railway, road and residential receptors from Lime Down A to E to be provided as an appendix and summarised in the Other Environmental Matters chapter.	Assessment of glint and glare effects to aviation, railway, road and residential receptors from the Land at Melksham Substation and Cable Route Search Corridor.
Chapter 16: Electromagnetic Fields	<p>Further consideration regarding an assessment of electromagnetic fields pertaining to the Cable Route Corridor during construction and operation to be summarise in the Other Environmental Matters chapter.</p> <p>Impact of cable route on fish to be addressed in Chapter 8.</p>	Assessment of EMF from the BESS, substations, transformers, and PV inverters.
Chapter 17: Air Quality	<p>Further consideration regarding an assessment of construction emissions during the construction phase.</p> <p>Assessment of a potential BESS fire during the operation phase.</p>	<p>Assessment of dust emissions during the construction phase. A construction dust risk assessment will be undertaken to determine the risk of dust impacts and identify appropriate mitigation measures that would be incorporated into the CEMP.</p> <p>Assessment of emissions from non-road mobile</p>

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
		<p>machinery during the construction phase.</p> <p>Assessment of traffic emissions during the construction, operation and decommissioning phases.</p>
Chapter 18: Socio-Economics, Tourism and Recreation	<p>Assessment of impacts on socio-economic impacts for construction: employment opportunities, workplace population, and economic activity.</p> <p>Assessment of impacts on socio-economic impacts for operation: energy industry, agricultural industry, and tourism and visitor economy.</p> <p>Assessment of impacts on socio-economic impacts for decommissioning: employment, economic performance, and education.</p> <p>Assessment of impacts to tourism and recreation during the construction and operation phases.</p>	<p>Assessment of impacts on socio-economic impacts for decommissioning other than those explicitly scoped in.</p> <p>Assessment of tourism and recreation impacts during the decommissioning phase.</p> <p>Assessment of impacts to property value and crime.</p>
Chapter 19: Human Health and Wellbeing	<p>Assessment of impacts to the following in other topic chapters and summarised in the Other Environmental Matters chapter of the ES:</p> <ul style="list-style-type: none"> Housing (construction and decommissioning). Open space, leisure and play. Transport modes, access and connections (construction and decommissioning). Community identity, culture, resilience and influence. Education and training. Employment and income. 	<p>Assessment of impacts to:</p> <ul style="list-style-type: none"> Physical activity. Risk taking behaviour. Diet and nutrition. Housing (operation). Relocation. Transport modes, access and connections (operation). Community safety. Social participation, interaction and support. Climate change mitigation and adaptation (construction and decommissioning).

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
	<ul style="list-style-type: none"> Climate change mitigation and adaptation (operation) (Chapter 6). Air quality (Chapter 17). Water quality or availability (Chapter 10). Land quality (Chapter 11). Noise and vibration (Chapter 14). Health and social care services (construction and decommissioning). Wider societal infrastructure and resources (operation). 	<ul style="list-style-type: none"> Radiation Health and social care services (construction and decommissioning). Built environment. Wider societal infrastructure and resources (construction and decommissioning).
Chapter 19: Soils and Agriculture	<p>Assessment of impacts to agricultural land, soils and farm holdings during the construction and decommissioning phases.</p> <p>Assessment of impacts to the primary change of land use and loss of food production during the operation phase.</p>	

Table 22.2: Approach to Other Environmental Topics

Environmental Topic	Proposed Approach
Major Accidents and Disasters	Where the major accidents and disasters identified are not already being considered within the scope of existing technical assessments, they will continue to be reviewed by the design team to ensure the risks are understood and addressed through design as necessary. However, it is considered highly likely that as the design of the Scheme evolves in preparation of the DCO application, it will become clear that there is no real risk or serious possibility of the event interacting with the Scheme. In that eventuality, it is proposed to scope out from the ES the assessment of such major accidents or disasters. The ES will note and explain where this approach has been taken.
Light Pollution	Summary of the assessments undertaken by Landscape and Visual and Ecology in Chapter 7 and Chapter 8 .

Environmental Topic	Proposed Approach
Minerals	A description of potential conflicts with the mineral safeguarding policies which require mitigation, supported by a Mineral Resource Assessment.
Waste	A description of the potential streams of construction, operation and decommissioning waste and estimated volumes will be provided in the ES, along with any measures that would be implemented to minimise waste, such as the use of the waste hierarchy.
Telecommunications, Utilities and Television	Consultation and a desk-based study to identify any existing infrastructure constraints. This information will be used to inform the Scheme design.

23 References

- Ref 1 Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (online) Available at: <https://www.legislation.gov.uk/ukxi/2017/572/contents>.
- Ref 2 Planning Act 2008 (online) Available at: <https://www.legislation.gov.uk/ukpga/2008/29/contents>
- Ref 3 Planning Inspectorate (2020) Advice Note 7: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (online) Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an>
- Ref 4 Planning Inspectorate (2024) Advice Note 3: EIA Consultation and Notification (online) Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-three-eia-notification-and-consultation/nationally-significant-infrastructure-projects-advice-note-three-eia-notification-and-consultation>
- Ref 5 Planning Inspectorate (2018) Advice Note 9: Rochdale Envelope (online) Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope>
- Ref 6 Planning Inspectorate (2024) Advice Note 11: Working with Public Bodies in the Infrastructure Planning Process (online) Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-eleven-working-with-public-bodies-in-the-infrastructure-planning-process/nationally-significant-infrastructure-projects-advice-note-eleven-working-with-public-bodies-in-the-infrastructure-planning-process>
- Ref 7 Planning Inspectorate (2019) Advice Note 17: Cumulative Effects Assessment (online) Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure>
- Ref 8 Department of Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). London: The Stationery Office (online) Available at: https://assets.publishing.service.gov.uk/media/64252f3b60a35e00120cb158/NPS_EN-1.pdf
- Ref 9 Department of Energy Security and Net Zero (2023). National Policy Statement for Electricity Networks Infrastructure (EN-5). London: The Stationery Office (online) Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5>
- Ref 10 Energy White Paper (2020) Powering our Net Zero Future (online) Available at: <https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future>
- Ref 11 Department for Energy Security (2022) Government Net Zero Strategy (online) Available at: <https://www.gov.uk/government/publications/net-zero-strategy>

- Ref 12 Department for Energy Security (2022) British Energy Security Strategy (online) Available at: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>
- Ref 13 Department for Energy Security (2023) Powering Up Britain (online) Available at: <https://www.gov.uk/government/publications/powering-up-britain>
- Ref 14 Department for Levelling Up, Housing and Communities (2023). National Planning Policy Framework. London: The Stationery Office (online) Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Ref 15 Department for Levelling Up, Housing and Communities (as amended March 2015) Planning Practice Guidance (PPG) (online) Available at: <https://www.gov.uk/government/collections/planning-practice-guidance>
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24 Glossary

Term	Definition
A" Weighting (dB(A)) The human ear does not respond uniformly across the audible frequency range. The "A" weighting is commonly used to simulate the frequency response of the ear.	A" Weighting (dB(A)) The human ear does not respond uniformly across the audible frequency range. The "A" weighting is commonly used to simulate the frequency response of the ear.
Agricultural Land Classification (ALC)	A means of assessing the quality of farmland. Its assessment is based on physical limitations of the land, such as climate, site characteristics (for example gradient) and soil. The assessment gives an indication of the versatility and expected yield of the land. The system classifies agricultural land in 5 grades. The best and most versatile land is classified as 1, 2 and 3a. The Agricultural Land Classification was developed by the former Ministry of Agriculture, Fisheries and Food (MAFF) in 1988 and revised in 1996.
Air Quality Management Area (AQMA)	Places where air quality objectives are not likely to be achieved. Where an AQMA is declared, the local authority is obliged to produce
Ambient noise Level, LAeq,T	The total sound in a certain situation at a given time usually composed of sound from many sources, near and far.
Annual Average Daily Traffic (AADT)	Traffic data obtained by calculating daily traffic flows and then calculating the annual average. Often used in predicting noise levels and air quality, usually in conjunction with other parameters such as average vehicle speed and percentage heavy vehicles.
Annual Average Weekly Traffic (AAWT)	Traffic data obtained by calculating weekly traffic flows and then calculating the annual average. Often used in predicting noise levels and air quality, usually in conjunction with other parameters such as average vehicle speed and percentage heavy vehicles.
Annual Exceedance Probability (AEP)	The probability of a certain accumulation being exceeded in a particular year.
Applicant	Lime Down Solar Park Limited
Background Noise Level LA90,T	The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T, measured using the fast time weighting, F, and quoted to the nearest whole number.
Baseline Conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Scheme together with any known or foreseeable future changes that will take place before completion of the Scheme.
Battery Energy Storage System (BESS)	BEES is used to describe the battery storage installation to allow for the storage, importation, and exportation of energy to the National Grid. For the purposes of the Environmental Impact Assessment, it

Term	Definition
	has been assumed battery technology will be adopted for the BESS.
Biodiversity	The biological diversity of the earth's living resources. The total range of variability among systems and organisms at the following levels of organisation: bioregional, landscape, ecosystem, habitat, communities, species, populations, individuals, genes and the structural and functional relationships within and between these different levels.
Biodiversity Net Gain (BNG)	Development that leaves biodiversity in a better state than before and involves an approach where developers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation.
Bund	An embankment structure
Cable circuit	An electrical conductor necessary to transmit electricity between two points within the Scheme and may include one or more auxiliary cables for the purpose of gathering monitoring data, earthing cables, cables for auxiliary supply, optical fibre and other types of communication cables, cables connecting to direct current boxes.
Cable Route Search Corridor	An area of land between the solar array sites and the point of connection at Melksham Substation, within which an alignment for the underground transmission cable will be located.
Conservation Area	An area of special environmental or historic interest or importance, of which the character or appearance is protected (Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990).
Construction Environmental Management Plan (CEMP)	A site-specific plan which is developed to ensure that appropriate environmental management practices are followed during the construction phase of a Scheme.
Conversion Units	Conversion Units incorporate the inverters, transformers and switchgear and are required to manage the electricity generated by the PV Panels. These would either be standalone equipment or they would be housed ('integrated') together within a container.
County Wildlife Sites (CWS)	CWS designation is non-statutory but is recognition of a site's high value for wildlife, with many sites being of county and often regional or national importance. They often support characteristic or threatened species and habitats included in Local and National Biodiversity Action Plans
Cumulative Effects	Effects upon the environment that result from the incremental impact of an action when added to other past, present or reasonably foreseeable actions. Each impact by itself may not be significant but can become a significant effect (in EIA terms) when combined with other impacts.
Decibel (dB)	The decibel is a logarithmic ratio of two values of a variable. The range of audible sound pressures is approximately 2×10^{-5} Pascals

Term	Definition
	(Pa) to 200 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB.
Design Manual for Roads and Bridges (DMRB)	A series of 15 volumes authored by Highways England that provide standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads, including motorways in the United Kingdom, and, with some amendments, the Republic of Ireland.
Decommissioning Environmental Management Plan (DEMP) A specific plan developed to ensure that appropriate environmental management practices are followed during the decommissioning phase of a project.	Decommissioning Environmental Management Plan (DEMP) A specific plan developed to ensure that appropriate environmental management practices are followed during the decommissioning phase of a project.
Development Consent Order (DCO)	Development consent is required pursuant to the Planning Act 2008 for Nationally Significant Infrastructure Projects. A development consent order is a statutory instrument containing powers that enable the applicant to carry out the construction, operation, maintenance and decommissioning of the Nationally Significant Infrastructure Project. Applications for DCOs are made to, and decided by, the relevant Secretary of State.
Electric field	An electric field is the physical field that surrounds electrically charged particles and exerts force on all other charged particles in the field, either attracting or repelling them. Measured in volt per meter (Vm-1) or newton per coulomb (NC-1).
Electromagnetic field	Property of space caused by the motion of an electric charge and is the product of mutual interaction between electric fields and magnetic fields. A such, these are produced in the surrounding area of anywhere there is an electric current.
Environmental effect	The consequence of an action (impact) upon the environment.
Environmental impact	The change in the environment from a development such as the removal of a hedgerow.
Environmental Impact Assessment (EIA)	A process, underpinned by legislation, by which information about environmental effects of a proposed development is collected, assessed and used to inform decision making. For certain projects, EIA is a statutory requirement.
Environmental Impact Assessment (EIA) Regulations	Regulations that give planning authorities a means of ensuring that they can take account of the environmental, economic and social implications of individual developments in their decisions on planning applications.
Environmental Statement	A document produced in accordance with the EU's EIA Directive (2011/92/EU as amended by 2014/52/EU) as transposed into UK law (for DCO projects) by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 to report the results of an EIA.

Term	Definition
Flood Zone	Flood Zone definitions are set out in the National Planning Policy Guidance. There are three flood zones which refer to the probability of river and sea flooding, not taking account of the presence of flood defences.
Frequency (Hz)	The number of cycles per second (i.e., the number of vibrations that occur in one second); subjectively this is perceived as pitch.
Frequency Spectrum	The relative frequency contributions that make up a noise.
Generating Station	The elements of the project that generate the electricity output, namely: solar modules fitted to mounting structures; DC electrical cabling; conversion units including inverters, transformers, switchgear, and monitoring and control systems; and electrical and communications cabling connecting the generating station to a sub-station.
Green Infrastructure	A network of multi-functional green space and other green features, urban and rural, which can deliver quality of life and environmental benefits for communities.
Ground mounted PV Modules	Solar photovoltaic (PV) modules attached to structures that are fixed to the ground.
Important Ecological Features (IEFs)	Each habitat, species or site of 'Site' importance or above.
Interconnecting cables	The cable route that will connect the solar PV arrays at sites A, B, C D, and E to each other.
Inverter	Inverters convert the direct current (DC) electricity into alternating current (AC), which allows the electricity generated to be exported to the national grid.
Jointing bay	Underground structures constructed at regular intervals along the cable route to join sections of the cable circuits and facilitate installation of the cable circuits into the buried ducts.
Landscape and Visual Impact Assessment (LVIA)	A tool used to identify and assess the likely significance of the effects of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity. The LVIA is usually reported as a chapter to the Environmental Statement, including appendices and figures.
Level LA10,T	The A-weighted sound pressure level exceeded for 10% of a given time interval, T, measured using the fast time weighting, F.
Lowest Observed Adverse Effect Level	This is the level of noise above which adverse effects on health and quality of life can be detected.
Magnetic field	A magnetic field is a vector field that describes the magnetic influence on moving electric charges, electric currents, and magnetic materials. The magnetic flux density of the field is measured in tesla (T), based on the SI unit kilogram per second squared per ampere (kgm-2A-1).

Term	Definition
Mitigation	Measures including any process, activity, or design to avoid, reduce, or remedy for negative environmental impacts or effects of a development.
Mounting Structures	The metal frames onto which the PV Panels are attached.
National Grid Substation	A National Grid substation is a large installation where 275 kV and 400 kV overhead power lines or underground cables are switched and where electricity is transformed to 33/132 kV for distribution to surrounding areas.
Nationally Significant Infrastructure Projects (NSIP)	NSIPs are large scale developments (as defined in sections 14-30A of the Planning Act 2008) such as certain new harbours, power generating stations (including wind farms), highways developments and electricity transmission lines, which require a type of consent known as 'development consent' which is governed by the Planning Act 2008 (and amended by the Localism Act 2011).
National Policy Statement (NPS)	National Policy Statements are produced by government in accordance with Part 2 of the Planning Act 2008. They comprise the government's central policy documents for the development of nationally significant infrastructure
On-site cables as earthing cables and optical fibre cables.	The low or medium voltage cables within the Solar Farm, which transmit electricity between solar PV Modules to inverters and transformers, and from there to the proposed on-site substation and BESS. These cables consist of 33, 132 and 400 kilovolt cables, as well as earthing cables and optical fibre cables.
Operational Environmental Management Plan (OEMP)	The OEMP identifies environmental mitigation measures required during operation of the Scheme that have been identified as part of the EIA. It defines those environmental commitments and actions that will be implemented during the operation and maintenance of the Scheme.
Order limits	The land shown on the Works Plans within which the Scheme can be carried out.
Outline Battery Fire Safety Management Plan	This document identifies the measures required to avoid and reduce the risk of fire from the batteries within the Scheme, as well as how to effectively manage a fire should the event occur.
Outline Landscape and Ecological Management Plan	The OLEMP sets out the landscape and ecological management actions for the Scheme, outlining how mitigation measures, identified within the Environmental Statement, will be delivered through future landscape works and management.
Photovoltaic (PV)	The process of converting sunlight to electrical energy.
Point of Connection (POC)	The Melksham 400kV National Grid Substation, which the scheme connects to, to transfer the energy generated to the grid.
Preliminary Environmental Information	Preliminary Environmental Information is defined in the EIA Regulations as: 'information referred to in regulation 14(2) which – (a) has been compiled by the applicant; and (b) is reasonably

Term	Definition
	required for the consultation bodies to develop and informed view of the likely significant environmental effects of the development (and of any associated development). A Preliminary Environmental Information Report is to be produced.
Primary cable route	The 400kV cable between the Solar 33 to 132/400kV customer substation and the National Grid substation.
Planning Inspectorate	The Planning Inspectorate for England is an executive agency of the Department for Levelling Up, Housing and Communities of the United Kingdom Government with responsibility for making decisions and providing recommendations and advice on a range of land use planning-related issues across England.
Preliminary Environmental Information	<p>Preliminary Environmental Information is defined in the EIA Regulations as: 'information referred to in regulation 14(2) which –</p> <p>(a) has been compiled by the applicant; and</p> <p>(b) is reasonably required for the consultation bodies to develop and informed view of the likely significant environmental effects of the development (and of any associated development).</p> <p>A Preliminary Environmental Information Report for the Scheme was produced in July 2022.</p>
Principal Aquifer	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability – meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.
PV Panel	Solar photovoltaic panel designed to convert solar irradiance to electrical energy
Receptor	A component of the natural or man-made environment (including people) that is affected by an impact.
Reference Time Interval, Tr	The specified interval over which an equivalent continuous A-weighted sound pressure level is determined.
Relevant Representation	A relevant representation is a summary of a person's view on an application, made in writing.
Scheduled Monument	A 'nationally important' archaeological site or historic building, given protection against unauthorised change and included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport. The protection given to scheduled monuments is given under the Ancient Monuments and Archaeological Areas Act 1979.
Scheme	A nationally significant infrastructure project comprising a ground mounted solar photovoltaic generating station with a gross electrical capacity of over 50 megawatts and associated development.

Term	Definition
	The Scheme is known as 'Lime Down Solar Park'.
Setting	The surroundings within which a heritage asset is experienced and any element which contributes to the understanding of its significance.
Significant Observed Adverse Effect Level	This is the level of noise above which significant adverse effects on health and quality of life occur.
Solar Arrays	A term used to describe the land or Sites that accommodate the Solar PV modules and associated development.
Site/Sites	The sites (Lime Down A, B, C, D, E and Land at Melksham Substation) that accommodate the ground mounted solar photovoltaic generating stations and Battery Energy Storage System, excluding the Cable Route Corridor.
Source Protection Zone	Source Protection Zones ("SPZ") show the risk of contamination from any activities that might cause pollution to groundwater sources such as wells, boreholes and springs used for public water supplies. The closer the activity, the greater the risk. SPZs can comprise of up to three main zones (inner, outer and total catchment). A fourth zone of special interest can also occasionally be applied to a groundwater source.
Statements of Common Ground	A written statement containing factual information about the proposal which is the subject of the appeal that the appellant reasonably considers will not be disputed by the local planning authority.
Study Area	The area in which a particular assessment or survey targets. The Study Area will vary depending on the nature of the technical assessment. Where relevant, these are defined within the relevant technical chapter of the ES.
Substation	<p>A substation is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels.</p> <p>The Scheme has variety of different substations including:</p> <p>Collector substation to connect the Solar Arrays to the primary cable route.</p> <p>Solar Array substations to serve Lime Down A, Lime Down B, Lime Down C, Lime Down D, Lime Down E.</p> <p>BESS substation at Land at Melksham Substation, if this Site is required for the BESS.</p>
Switchgear	A combination of electrical disconnect switches, fuses or circuit breakers used to control, protect, and isolate electrical equipment.
Transformers	Transformers increase and decrease the voltage of the electricity.

Term	Definition
Tesla (T)	Unit of measurement for the magnetic flux density of a magnetic field. Usually scaled to micro Tesla (μT) for everyday applications
Underground Cable Ducting	Underground ducting refers to the protective pipework through which essential utility pipes and cables are run underground to provide buildings with power, water and gas etc.
Visual Effects	Effects on specific views and on the general visual amenity experienced by people.
Volt per metre (Vm^{-1})	Unit of measurement for the strength of an electric field. Usually scaled to kilovolts per meter (kVm^{-1}) for measuring electric fields around electrical infrastructure.
Water Framework Directive	The Water Framework Directive (“WFD”) introduced a new system for monitoring and classifying the quality of surface and ground waters. The Directive requires that Environmental Objectives be set for all surface waters and groundwater to enable them to achieve Good Ecological Potential/Status by a defined date.
Works Plans	The plans submitted with the Application known as the Works Plans and which delineate the Order limits for the Scheme.
Written Scheme of Investigation	A Written Scheme of Investigation outlines known and potential archaeological features and deposits or built heritage elements on a site and suggests a structure for exploring them using the latest, most appropriate and cost-effective archaeological techniques.
Zone of Influence (Zoi)	An area established for the purposes of EIA in respect of a particular environmental topic over which the impacts of a particular project on receptors will be assessed. Zones of Influence are variable depending on the environmental matter being assessed.
Zone of Theoretical Visibility	A map, usually digitally produced, showing areas of land within which, the Scheme is theoretically visible, which are used to inform LVIA