Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

Preliminary Environmental Information Report

Chapter 3 – Approach to Environmental Impact Assessment

October 2023

Visit: www.tweenbridgesolar.co.uk
Email: info@tweenbridgesolar.co.uk

3. Approach to Environmental Impact Assessment

3.1. Introduction

3.1.1. This chapter of the working draft Preliminary Environmental Information Report (PEIR) sets out the approach taken to the Environmental Impact Assessment (EIA) process to date, explaining the methodology used to prepare the technical chapters of this working draft PEIR and describes its structure and content. In particular, it sets out the process of identifying and assessing the likely significant environmental effects of the Scheme.

3.1.2. The approach taken in this working draft PEIR is to report the latest findings of the EIA in the form of a draft environmental statement.

3.1.3. This chapter also includes details of the consultation undertaken to date and the overall approach to the assessment of the effects of the Scheme. Further details of topic specific methodologies, such as survey methods, are provided in the relevant PEIR topic chapters.

3.2. Scope of Environmental Impact Assessment

Methodology

3.2.1. Scoping is the process of identifying the environmental topics that will require detailed assessment within the EIA process (establishing the scope of the assessment). Scoping is therefore an important preliminary procedure, which sets the context for the EIA process. Through scoping, the key environmental issues of concern are identified at an early stage, which permits subsequent work to concentrate on those environmental topics for which significant effects may arise as a result of a proposed development.

3.2.2. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended (hereafter referred to as the "EIA Regulations"), allow the applicant to request that the Planning Inspectorate (on behalf of the Secretary of State) sets out its opinion (known as a Scoping Opinion) as to the issues to be addressed in the EIA process. On the 31 January 2023, the applicant requested a scoping opinion from the Planning Inspectorate. The request was accompanied by a Scoping Report which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects and, where necessary, to determine suitable mitigation measures for the construction and operational phases of the Scheme. It also described those topics or sub-topics which are proposed to be scoped out of the EIA process and provided justification as to why the scheme would not have the potential to give rise to significant environmental effects in these areas (see Appendix 1.1- Tween Bridge Solar Scoping Report).

3.2.3. Following consultation with the statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) adopted its Scoping Opinion on the 13 March 2023 (see Appendix 1.2- Scoping Opinion). The key issues raised in the are summarized at the start of each technical chapter of the PEIR. The EIA Scoping Opinion identified assessments that could be scoped out of the draft PEIR and subsequent ES together with topics that do not require a full chapter within the PEIR or subsequent ES, either due to the brevity of the assessment or the small impact associated with the Scheme. These are identified in Table 3.1 and this position will be kept under review for the next iteration of the PEIR and subsequent ES.

Table 3.1 Environmental themes either scoped out of the draft PEIR or not requiring a full chapter.

Environmental Topic	How/ Where Addressed / Reason for Scoping in or Out
Major Accidents and Disasters (Accidents and Emergencies)	The nature, scale and location of the scheme is not considered to be vulnerable to or give rise to significant impacts in relation to the Risk of Accidents and Major Disasters[1]. Potential effects relating to soil conditions, surface water flooding and climate change are all considered in other EIA topics. The applicant's Scoping Report proposed how this environmental topic would be proportionately assessed within ES Chapter 16 ('Other Environmental Topics') rather than a standalone ES Chapters. The Scoping Opinion confirmed that this approach was acceptable.
Climate Change and Climatic Factors	The applicant's Scoping Report proposed how climate change will be assessed within ES Chapter 16 ('Other Environmental Topics') and that climatic factors will be assessed "…within the relevant technical assessments such as flood risk", rather than in standalone ES Chapters. The Scoping Opinion confirmed that this approach was acceptable.
Human Health	Table 3.4 of the applicant's Scoping Report proposes that impacts on human health will be proportionately considered within relevant ES aspect chapters, such as Air Quality and Noise, rather than in a standalone ES chapter. The Scoping Opinion was content with this approach, with EIA Methodology ES chapter should provide clear cross-referencing to where the relevant impacts on human health are considered.
Waste	The Scoping Report proposes that impacts associated with waste will be assessed within ES Chapter 16 ('Other Environmental Topics'), rather than in a standalone ES Chapter. The Inspectorate has considered the nature and characteristics of the scheme and is content with this approach.

[1] No definition of 'major accidents and disasters' is provided in the EIA Regulations, however the IEMA Quality Mark Article on 'Assessing Risks of Major Accidents / Disasters in EIA' produced by WSP in 2016 provides the following definition "man-made and natural risks which are considered to be likely, and are anticipated to result in substantial harm that the normal functioning of the project is unable to cope with/rectify i.e. a significant effect."

Impacts associated with waste during operational phase	The scoping opinion advised how *"Having regard to the nature and characteristics of the Proposed Development, the Inspectorate is content that impacts associated with waste produced during the operational phase are not likely to result in significant effects. This matter can be scoped out of the ES*".
Detailed assessment of ecological features that are not considered 'important' – all phases	The Applicant's Scoping Report proposes that the ES will only contain a detailed assessment of impacts on 'important' ecological features (as per the CIEEM Guidelines). As part of the informal consultation, the Applicant will seek to agree the list of 'important' ecological features with the relevant host local planning authorities and Natural England (NE). The Applicant would seek to set out the position reached within a draft Statement of Common Ground, to be prepared to accompany the application submission. Subject to this, as per Inspectorate agreement, a detailed assessment of impacts on ecological receptors which are not determined to be 'important' can be scoped out of the ES.
Indirect impacts on statutory designated sites (without mobile qualifying features) located over 2km from the site – all phases	The Scoping Opinion was content that this matter can be scoped out for the operational phase of the development. The final ES will however assess any likely significant effects on statutory designated sites including those located over 2km from the site resulting from hydrological changes and water quality impacts, during construction and decommissioning.
Road traffic and GHG emissions - decommissioning	The Scoping Report proposes to scope out an assessment of air quality impacts related to the decommissioning of the Scheme on the basis that road traffic and GHG emissions at the time of decommissioning are expected to be zero. The Scoping Opinion agreed that these matters can be scoped out of Chapter 14 Air Quality.
Road traffic and GHG emissions - operation	The Scoping Report proposes to scope out these matters on the basis that traffic movements during operation are expected to be minimal. The Scoping Opinion confirmed that these matters can be scoped out.
Detailed assessment of construction traffic impacts on ecological sites	The Scoping Opinion agreed that on the basis that the Decision Making Thresholds set out by the Joint Nature Conservation Committee are not exceeded and that the roads affected by the Proposed Development are more than 200m from any designated site, the Inspectorate agrees that a detailed assessment of construction traffic impacts on ecological sites can be scoped out.

Glint & Glare	The Scoping Opinion is content that a standalone ES Chapter for Glint and Glare is not required. A Glint and Glare Assessment would instead be presented as a standalone report submitted as a technical appendix to ES Chapter 2 (Development Description). However, the applicant will keep this under review. The final ES will contain a summary of the assessment in the technical appendix and identify any significant effects resulting from glint and glare.

Transboundary Effects

3.2.4. The EIA Regulations require consideration of transboundary effects of development on the environment. Transboundary effects are the effects of a project on the environment of another European Economic Area (EEA) member state.

3.2.5. The Scoping Opinion adopted by the Planning Inspectorate on behalf the SoS considered that the scheme is unlikely to have a significant effect either alone or cumulatively on the environment in a European Economic Area State. The Inspectorate considered that the likelihood of transboundary effects resulting from the scheme is so low that it does not warrant the issue of a detailed transboundary screening[2].

3.3. General Assessment Approach

3.3.1. The working draft PEIR has been prepared having regard to the information that will need to be provided in the subsequent ES to satisfy the requirements of the EIA Regulations.

3.3.2. The contents of the draft PEIR has been based upon and will continue to evolve to reflect: -

- Review of the baseline situation through existing information, including data, reports, site surveys and desktop studies available at the time of publishing this draft PEIR
- Site surveys and desktop studies
- Consideration of the relevant National Policy Statement (NPSs)[3], National Planning Policy Framework (NPPF), Planning Inspectorate Technical Advice Notes[4] and accompanying National Planning Practice Guidance (NPPG), and the statutory extant and emerging development plan policies
- Consideration of potential sensitive receptors
- Identification of likely significant environmental effects and an evaluation of their duration and magnitude
- Expert opinion and knowledge

[2] Tween Bridge Scoping Opinion, Page 8
[3] In particular NPS EN-1, NPS EN-5, draft NPS EN-1, draft NPS EN-3 and draft NPS EN-5.
[4] In particular Advice Note 3, 7, 9, 11 and 17.

- Modelling and calculations
- Use of relevant technical and good practice guidance
- Specific consultations with appropriate bodies

3.3.3. Each topic chapter defines the scope of the assessment within the methodology section, together with details of the study area, desk study and survey work undertaken. Each environmental topic has been considered by a specialist in that area.

3.3.4. Environmental effects have been evaluated with reference to definitive standards and legislation where available. Where it has not been possible to quantify effects, assessments have been based on available knowledge and professional judgment. Within each of the technical chapters of the PEIR, the information which will inform the EIA process will generally follow the structure below:

- Introduction – to introduce the topic under consideration, state the purpose of undertaking the assessment and set out those aspects of the scheme material to the topic assessment, and provide a summary of the relevant consultation responses;
- Assessment Approach – to describe the method and scope of the assessment undertaken and responses to consultation in relation to method and scope in each case pertinent to the topic under consideration;
- Baseline Conditions – a description of the baseline conditions pertinent to the topic under consideration including baseline survey information. Future baseline scenario will also be assessed in the subsequent ES and this may include the baseline whereby the Tween Bridge Wind Farm is decommissioned during the operational lifetime of the Scheme;
- Assessment of Likely Significant Effects - identifying the likely effects, evaluation of those effects and assessment of their significance, considering construction, operational (including maintenance) and decommissioning and direct and indirect effects;
- Mitigation and Enhancement - describing the mitigation strategies for the significant effects identified and noting any residual effects of the proposals and their significance;
- Cumulative and In-combination Effects - consideration of potential cumulative and in-combination effects with those of other developments; and
- Summary – a non-technical summary of the chapter, including baseline conditions, likely significant effects, mitigation and conclusion.

3.4. Determining Significance

3.4.1. The purpose of the PEIR is to identify the likely 'significance' of environmental effects (beneficial or adverse) arising from a proposed development. In broad terms, environmental effects are described as:

- Adverse – detrimental or negative effects to an environmental resource or receptor;

- Beneficial – advantageous or positive effect to an environmental resource or receptor; or
- Negligible – a neutral effect to an environmental resource or receptor.

3.4.2. Effects will be considered against three phases of the development; the construction phase, operational phase and decommissioning phase.

3.4.3. The construction phase effects are those effects that result from activities during enabling works, construction, and commissioning activities. This covers sources of effects such as construction traffic, noise and vibration from construction activities, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on site. Some aspects of construction related effects will last for longer than others. For example, impacts related to earth moving are likely to be relatively short in duration compared with the construction of energy infrastructure and landscaping activities, which are likely to persist throughout the entire construction period.

3.4.4. Operational effects are the effects that are associated with operational and maintenance activities during the generating lifetime of the Proposed Development. This includes the effects of the physical presence of the energy infrastructure, and its operation, use and maintenance. Timescales associated with these enduring effects are as follows:

- Short term – a period of months, up to one year;
- Medium term – a period of more than one year, up to five years; and
- Long term – a period of greater than five years. As the development is temporary, consideration and distinction will be given to long term effects that are reversable (e.g. those that could end on decommissioning and those that may be permanent (e.g. those that could not be reversed following decommissioning).

3.4.5. Decommissioning effects are changes resulting from activities beginning and ending during the decommissioning stage. This covers sources of effects such as decommissioning site traffic, recycling of solar PV panels, noise and vibration from decommissioning activities, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on site, for example. Typically, decommissioning phase effects are similar in nature to the construction phase, although may be of shorter duration and of slightly less intensity.

3.4.6. It is proposed that the significance of environmental effects (adverse, negligible/ neutral or beneficial) would be described in accordance with the following 7-point scale:-

Table 3.2 Definition of Impact of Significance

Impact Significance	Definition
Major Adverse	Very large or large change in receptor condition, which are likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or, could result in exceedance of statutory objectives and/or breaches of legislation

Moderate adverse	Intermediate change in receptor condition, which are likely to be important considerations at a local level
Minor adverse	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision-making process.
Negligible	No discernible change in receptor condition.
Minor beneficial	This impact is of minor significance but has been assessed as having some environmental benefit.
Moderate beneficial	This impact is assessed as providing a moderate gain to the environment
Major beneficial	This impact is assessed as providing a significant positive gain to the environment

3.4.7. Significance reflects the relationship between two factors:

- The magnitude or severity of an effect (i.e., the actual change taking place to the environment); and
- The sensitivity, importance or value of the resource or receptor.

3.4.8. The broad criteria for determining magnitude are set out in Table 3.3. It is worth noting that the degrees of magnitude defined in the table below can be both positive and negative, as a development can result in a positive effect on the environment.

Table 3.3 Degrees of Magnitude and their Criteria

Magnitude of Effect	Criteria
High	Total loss or major/substantial alteration to 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 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 conditions. Change arising from the loss/alteration will be discernible/detectable but the underlying character/composition/attributes of the baseline condition will be similar to the pre-development.
Negligible	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a 'no change' situation.

3.4.9. The sensitivity of a receptor is based on the relative importance of the receptor using the scale in Table 3.4.

Table 3.4: Degrees of Sensitivity and their Criteria

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

3.4.10. Placement within the 7-point significance scale would be derived from the interaction of the receptor's sensitivity and the magnitude of change likely to be experienced (as above), assigned in accordance with Table 3.5 below, whereby effects assigned a rating of Major or Moderate would be considered as 'significant'. It is noted that not all environmental factors use the matrix based approach but instead use numerical values (such as noise impacts). The approach towards numerical values would be detailed within the relevant individual technical chapter.

Table 3.5: Levels of Effect Degrees of Significance

Magnitude of Change	Sensitivity of Receptor				
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor to Moderate	Negligible
Low	Moderate	Minor to Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

3.4.11. The above magnitude and significance criteria are provided as a guide for specialists to categorise the significance of effects within the PEIR. Where discipline-specific methodology has been applied that differs from the generic criteria above, this will be clearly explained within the given technical chapter.

3.4.12. The shaded cells in table 3.5 denotes where the environmental effect is assessed as having a major or moderate degree of significance it is deemed to be "significant". When such a significant effect occurs consideration of mitigation solutions or enhancements to minimise the effect (which can include design alterations) will be considered.

3.4.13. It should be noted at this point that mitigation can come in the form of embedded design through design alteration to resolve a significant effect and mitigation through additional measures. Once these mitigations and enhancements have been assessed the degree of significance may decrease to minor/moderate, minor or negligible. If such a level of environmental effect occurs the Scheme is no longer considered as creating a "significant effect". If an environmental effect remains "significant" (i.e. major/moderate) the determining authority must weigh up the planning balance and determine if this significant, negative/positive environmental effect is outweighed by some other planning gain in determining the application.

3.4.14. A level of effects would be assigned both before and after mitigation. This will include both embedded design mitigation, such as the CEMP, and any additional mitigation 'additional mitigation' over and above the embedded mitigation that may be required to mitigate any significant adverse effects identified following the assessment of the Scheme inclusive of its embedded mitigation.

3.5. Addressing Uncertainty in Assessment

3.5.1. There is always some degree of inherent uncertainty within the EIA process, in relation to factors such as future improvements to construction and design, the potential effects of climate change on existing receptors and in terms of the margin of error within forecasting or modelling tools. As the EIA process progresses, the degree of uncertainty is anticipated to reduce. Any uncertainty at this stage of the project has been set out within the relevant chapters of the PEIR.

3.5.2. The assessment of construction and decommissioning effects will be undertaken based on existing knowledge, techniques and equipment. A 'reasonable worst-case' scenario will be used with respect to the envisaged construction methods, location (proximity to sensitive receptors), phasing and timing of construction activities.

3.5.3. Where modelling tools have been used within the topic assessments, care has been taken to ensure that the tool selected is appropriate for the assessment, taking into account topic-specific good practice and guidance. Calibration has been used to ensure a reasonable degree of accuracy in measurements. Topic chapters within the PEIR set out measures taken to address any uncertainty with regard to modelling inputs and outputs and any assumptions made.

3.6. Mitigation

3.6.1. The EIA Regulations (Regulation 14(2)(c) and paragraph 7, Schedule 4) require that where significant effects are identified ***'a description of any feature of the Project, or measures envisaged in order to avoid, prevent or reduce or, if possible, offset any likely significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements'*** should be provided. The development of mitigation measures is part of the iterative EIA process. Therefore, mitigation measures are therefore still under consideration and will be further developed following the initial consultation of this working draft PEIR.

3.6.2. Where the assessment of the scheme has identified potential for significant adverse environmental effects, the scope for mitigation of those effects has been considered and is outlined in the appropriate technical chapter. It is assumed that such measures would be secured by appropriate Development Consent Order (DCO) requirements.

3.6.3. Where the effectiveness of the mitigation proposed has been considered uncertain, or where it depends upon assumptions of operating procedures, then data and/or professional judgement has been introduced to these assumptions.

- The topic chapters included in this PEIR consider the following mitigation types: measures included as part of the scheme's design including good practice measures (sometimes referred to as mitigation by design or embedded mitigation)
- measures proposed to avoid effects occurring or to minimise environmental effects, and are not included within the design (referred to as additional mitigation); and
- measures proposed that bring additional benefits to the project but are not necessary to make the development acceptable (referred to as enhancements).

3.7. Cumulative and In-Combination Effects

3.7.1. In accordance with the EIA Regulations, the applicant will consider cumulative effects. Cumulative impacts are those effects of the scheme that may interact in an additive or subtractive manner with the impacts of other developments including those that are not currently in existence but may be by the time the Scheme is implemented. Examples of these kinds of effects that can be readily appreciated could include:

- Traffic generated from developments, affecting the surrounding road network;
- Air quality effects from developments; and
- Discharges to the water environment.

3.7.2. The scope of cumulative assessment includes identification of a long list of development within the appropriate Zone of Influence (ZoI) for each topic discipline, which will form the basis of the search area for the cumulative effects assessment. The cumulative effects assessment will draw upon the method as set out within Advice Note Seventeen (Cumulative Effects Assessment), as published by PINS in August 2019. As part of the consultation on the draft PEIR, the applicant will seek to agree the long list with the relevant local planning authorities. Table 3.6 identifies the four stage process to assess cumulative effects.

Table 3.6: Summary of the four stage process for cumulative effect assessment

Cumulative Effect Assessment Stage	Description of Stage
Stage 1	Establish the National Significant Infrastructure Project's Zone of Influence and identify long list of 'other developments'.
Stage 2	Identify shortlist of 'other developments' for Cumulative Effects Assessment.
Stage 3	Information gathering of the 'other developments'
Stage 4	An assessment of the likely cumulative effects. Mitigation measures are identified (where appropriate) where an adverse cumulative effect is identified. The apportionment of effect between the scheme and the 'other developments' is considered, eg whether

	the contribution to the effect is demonstrably related to one development or whether there is an equal contribution from either development.

3.7.3. The applicant is progressing with Stage 1 and a long list of sites will be shared with the relevant host local planning authorities for their agreement. The long list of other existing and/or approved development will be established using the tiered approach in accordance with Planning Inspectorate's Advice Note Seventeen: Cumulative Effects Assessment (Planning Inspectorate, 2019) Table 2- Assigning certainty to 'other existing development and/or approved development.

3.7.4. Developments included in the initial long-list are based on the following criteria:-

- Large-scale development currently under construction;
- Approved applications which have not yet been implemented;
- Large-scale submitted applications not yet determined;
- Refused large-scale applications, subject to appeal procedures not yet determined;
- On the National Infrastructure Planning Programme of Projects;
- Development identified in the relevant Development Plan (and emerging Development Plans); and
- Development identified in other plans and programmes which set the framework for future development consents/approvals where such development is reasonably likely to come forward.

3.7.5. Criteria are developed and applied to filter developments which may be excluded from the initial long list, having regard to the size and spatial influence of each development. This long list will be kept under continual review up until the point of DCO submission.

Zone of Influence

3.7.6. The proposed 'Zone of Influence' for each environmental topic area has been identified based on the extent of likely effects as identified as the study area in each of the individual topic chapters of this PEIR. The 'Zone of Influence' has been proposed in line with industry specific guidance along with professional judgement and knowledge of the local area relevant to each environmental topic area. The identified 'Zone of Influences' are presented in Table 3.7 below for the scoped in topic chapters.

Table 3.7 Zone of Influence

Topic	Proposed Zone of Influence
Landscape and visual	Landscape and visual receptors: 3km from the Order Limits
Residential visual amenity	Residential receptors: up to 500m from the order limits.

Nature Conservation and Biodiversity	• International statutory designated sites: 10km from order limits; • National statutory designated sites: 5km from order limits; • Non-statutory designated sites: 2km from order limits ; • Protected/Priority/Notable species records: 2km from order limits; • Protected/Priority/Notable species records: 2km from order limits; • Habitat, water vole & otter and invertebrate scoping surveys: within the order limits; • Great crested newt survey: order limits and extending to 250m; • Breeding bird survey: order limits and extending to 100m; • Non-breeding bird survey: order limits and extending to 600m; • Nightjar survey; focussed within Thorne & Hatfield Moors situated within and adjacent to the order limits; and, • Badger survey: order limits and extending to 30m
Cultural Heritage	Cultural heritage receptors: 5km
Ground Conditions	Cumulative development within 2km of the order limits.
Water Resource	Hydrological and hydrogeological receptors within a 5km radius from the scheme, based on the hydrological and hydrogeological connectivity of water bodies located in the vicinity of the scheme.
Socio Economic	Administrative areas of host local planning authorities
Transport and Access	Extent of the local road network affected by the construction and decommissioning phases up to the M180, as well as any identified sensitive receptors.
Noise and vibration	The study area for the construction phase assessment is defined by the noise and vibration sensitive receptors that have the potential to be affected by noise and vibration caused by construction activities. The study area for the operational assessment includes noise sensitive receptors (NSRs) in the local area that are most likely to be affected by the operation of the scheme.
Air quality	The air quality assessment considers the potential for impacts from construction and operational traffic on roads considered within the transport assessment. For construction dust, the assessment considers up to 350 m from the Order Limits and within 50 m of the routes used by construction vehicles up to 500 m from the site exits. GHG emissions from the scheme contributes to climate change globally, not just locally, and therefore it is not appropriate to define a zone of influence

Agricultural circumstances	Agricultural land and soils within the Order Limits

3.7.7. The assessment will consider all relevant project types, including other DCO projects registered with the Inspectorate's National Infrastructure Team. Any operational schemes will be assessed as part of the relevant baseline study. This will be kept under review until the application is submitted.