

**Byers Gill Solar
EN010139**

6.2.13 Environmental Statement

Chapter 13 Cumulative Effects

Planning Act 2008

APFP Regulation 5(2)(a)

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

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13 Cumulative effects

13.1 Introduction

- 13.1.1 This Environmental Statement (ES) chapter considers the potential for cumulative effects arising from the construction, operation and decommissioning of the Proposed Development.
- 13.1.2 Cumulative effects are the result of multiple actions on environmental receptors or resources over time and are generally additive or interactive (synergistic) in nature. Two categories of cumulative effects are typically considered within the cumulative effects chapter of an ES:
- In-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) (Section 13.4); and
 - Cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) (Section 13.5).
- 13.1.3 In-combination effects, or intra-project effects, occur when a resource, receptor or group of receptors are potentially affected by more than one source of direct environmental impact resulting from the same development. For example, a community may be affected by noise and dust effects resulting from the construction phase activities of a single development.
- 13.1.4 Cumulative effects, or inter-project effects, occur when a resource, receptor or group of receptors are potentially affected by more than one development at the same time. For example, the construction traffic effects of a development in isolation may not be significant, but when combined with the construction traffic effects of another development (using the same geographical area at the same time) may result in significant cumulative effects on the surrounding highway network.
- 13.1.5 This ES chapter is supported by the following appendices:
- ES Appendix 13.1 In-combination Effects Table (Document Reference 6.4.13.1);
 - ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.1); and
 - ES Appendix 13.3 Short List of Committed Developments (Document Reference 6.4.13.3)
- 13.1.6 This ES chapter is also supported by ES Figures 13.1 and 13.2 (Document Reference 6.3.13.1 and 6.3.13.2).
- 13.1.7 An assessment of the impacts of the Proposed Development on in-combination climate change impacts has been scoped out of the EIA. For further information refer to ES Appendix 4.1 EIA Scoping Report (Document Reference 6.4.1). PINs did not provide comments on this matter of scoping and as such this has remained scoped out for the reasons outlined in ES Appendix 4.1 EIA Scoping Report.

13.1.8 This ES Chapter and the supporting ES Appendices and ES Figures have been prepared by competent experts. Topic lead authors from the technical topics presented in this ES have contributed to this cumulative assessment. Full details of these competent experts are provided in ES Appendix 1.1 Competent Expert Evidence (Document Reference 6.4.1.1).

13.2 Legislative and policy framework

13.2.1 This section identifies the key legislation, planning policy and guidelines relevant to the scope and methodology for the cumulative and in-combination effects assessments.

Legislation

13.2.2 The requirement to consider in-combination and cumulative effects is set out in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). Regulation 5(2)(e) requires the consideration of ‘interactions’:

“the interaction between the factors population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and landscape.”

13.2.3 Paragraph 5(e) of Schedule 4 of the EIA Regulations describes cumulative effects as:

“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.”

Policy

13.2.4 Under Section 104 of the Planning Act 2008 (the Act), the Secretary of State (SoS) is directed to determine a Development Consent Order (DCO) application with regard to the relevant National Policy Statement (NPS), the local impact report, matters prescribed in relation to the Proposed Development, and any other matters regarded by the SoS as important and relevant. Following their designation on 17 January 2024, there are three NPSs which are considered to be ‘relevant NPS’ under Section 104 of the Act:

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

13.2.5 It is considered that other national and local planning policy will be regarded by the SoS as ‘important and relevant’ to the Proposed Development. A detailed account of the planning policy framework relevant to the Proposed Development is provided in the Planning Statement (Document Reference 7.1). The Policy Compliance Document (Document Reference 7.1.1) evidences how this assessment has been informed by and is in compliance with the NPSs and relevant national and local planning policies. It provides specific reference to relevant sections of the ES which address requirements set out in policy.

Guidance

- 13.2.6 There is currently no standard methodology for a Cumulative Effects Assessment (CEA), however, there is a range of public sector and industry led guidance available.
- 13.2.7 The assessment is consistent with Planning Inspectorate (PINS) Advice Note Seventeen [1] which provides advice regarding a staged approach for documenting the CEA within an ES, relevant to Nationally Significant Infrastructure Projects (NSIPs). The Advice Note highlights the need to consider the potential for cumulative effects arising due to the interactions between different components of the development, as well as with other existing development and/or approved development.
- 13.2.8 The significance of effects has been determined in accordance with the criteria set out in Table 13-1, which is based on the guidance within ES Chapter 4 EIA Methodology (Document Reference 6.2.4).

Table 13-1 Combined and cumulative effects significance

| Significance category | Typical descriptors of effect |
|---|---|
| Major (Adverse or Beneficial) | <ul style="list-style-type: none"> ▪ Where the combined impacts of the Proposed Development or cumulative effects of the Proposed Development in association with other development upon an individual or collection of environmental receptors would be notably significant (positive or negative). This could be by virtue of their effect at a regional or district scale and/or potential concerns to the project, depending upon the relative importance attached to the issue during the decision-making process. They are generally, but not exclusively associated with sites and features of national importance and resources/features which are unique and which, if lost, cannot be replaced or relocated. ▪ Effects would be permanent for receptors of very high value. ▪ Effects at this level are material in the decision-making process. |
| Moderate (Adverse or Beneficial) | <ul style="list-style-type: none"> ▪ Where the combined impacts of the Proposed Development or cumulative effects of the Proposed Development in association with other development upon an individual or collection of environmental receptors could be significant (positive or negative). These effects are likely to be important locally. ▪ Effects at this level can be considered to be material decision-making factors. |
| Minor (Adverse or Beneficial) | <ul style="list-style-type: none"> ▪ Where the combined impacts of the Proposed Development or cumulative effects of the Proposed Development in association with other development upon an individual or collection of environmental receptors would be noteworthy but not significant (positive or negative). These effects are likely to be raised as issues locally but not particularly notable. ▪ Effects at this level are unlikely to be of a nature that would be material in the decision-making process. |
| Negligible | <ul style="list-style-type: none"> ▪ Where the combined impacts of the Proposed Development or cumulative effects of the Proposed Development in association with other development upon an individual or collection of environmental receptors would be negligible and not significant (positive or negative). Typically, these effects are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error. |

13.2.9 Effects which are moderate or major are deemed to be significant in EIA terms.

13.3 Scoping and Consultation

13.3.1 This section describes the scope of this cumulative effects assessment, including how the assessment has responded to the Scoping Opinion. A description of the consultation and engagement undertaken with relevant technical stakeholders to develop and agree this scope is also provided.

Scoping

13.3.2 The EIA Scoping Report set out the proposed scope and assessment methodologies to be employed in the EIA and is provided in ES Appendix 4.1 EIA Scoping Report (Document Reference 6.4.4.1).

13.3.3 In response to the EIA Scoping Report, a Scoping Opinion was received from PINS on 6 December 2022 and is provided in ES Appendix 4.2 EIA Scoping Opinion (Document Reference 6.4.4.2).

13.3.4 ES Appendix 4.3 EIA Scoping Opinion Response Matrix (Document Reference 6.4.4.3) contains a table that outlines all matters identified by PINS in the EIA Scoping Opinion and how these have been addressed in the ES or other DCO application documentation.

13.3.5 In-combination climate change impacts have been scoped out of the EIA as the Proposed Development is not anticipated to exacerbate climate parameters, as agreed through the EIA Scoping Report. Refer to ES Appendix 4.1 EIA Scoping Report (Document Reference 6.4.1) for further detail. It is noted that PINs did not provide comments on this matter of scoping and as such this has remained scoped out for the reasons outlined in ES Appendix 4.1 EIA Scoping Report.

Consultation

13.3.6 Engagement in relation to cumulative effects has been undertaken within a number of stakeholders throughout the EIA process. Stakeholders and local authorities had the opportunity to comment on the methodology of the cumulative assessment at EIA scoping, during statutory consultation and in September 2023 before the long and short lists of committed developments were finalised. The stakeholders consulted were:

- Darlington Borough Council;
- Stockton-on-Tees Borough Council; and
- Durham County Council.

13.3.7 Matters raised around cumulative effects during the statutory consultation were on the following:

- minimising disruption by scheduling cable laying with other schemes;

- landscape and visual impacts;
- impacts on the setting of heritage assets;
- impacts on groundwater levels; and
- sources of pollution including noise and vibration and light pollution.

13.3.8 The Consultation Report (Document Reference 5.1) submitted alongside the DCO application contains a full account of the previous statutory consultation process and issues raised in feedback. Matters raised regarding the scope, methodology or mitigation considered as part of the cumulative effects assessment were then subject to further discussions directly with stakeholders. Responses to the statutory consultation raised general concerns around the cumulative impacts of the Proposed Development alongside other renewable energy projects in the locality. As part of the DCO Application, this chapter has been prepared which considers and assesses the combined and cumulative impact on other proposed, in-planning or in-construction developments, and seeks to conclude the overall effect of these, should they all be built. The list of developments included in the assessment has been agreed in consultation with Durham County Council, Darlington Borough Council and Stockton-on-Tees Borough Council. Specific communication on this is outlined below.

13.3.9 Durham County Council requested inclusion of the following developments in September 2023, which have been included within the cumulative assessment:

- Aycliffe Quarry –
 - DM/17/01873/VOCMW - Variation of Conditions 1 (Approved plans) and 5 (Restoration of the site) to allow permanent retention of the Mechanical and Biological Treatment (MBT) Plant and associated infrastructure, of Planning Permission No. MRA/7/3.
 - DM/17/01872/VOCMW - Variation of Conditions 1 (Approved plans) and 3 (Duration of the permission) to allow permanent retention of the MBT Plant and associated infrastructure, of Planning Permission No. CMA/7/78.
- Land North of Hitachi Rail Europe Ltd, Millennium Way, Aycliffe Business Park, DL5 6UG (DM/21/01500/WAS) Construction and operation of a high temperature thermal treatment facility for clinical and hazardous wastes - APP/X1355/W/22/3292099

13.3.10 Although the applications are located within the Zone of Influence, as the Aycliffe Quarry is already operational, and the thermal treatment facility is less than 5 ha, these developments have not been taken forwards to the Short List of Committed Developments. For further information, see ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2).

13.3.11 Darlington Borough Council provided an updated list of Local Plan Allocations; as well as notes on cumulative effects in relation to LVIA in terms of Site 16 (22/00727/FUL Gately Moor), 21 (21/00958 Whinfield) and 41 (22/01329/FUL Long Pasture). ES Appendix 13.2 Long List of Developments (Document Reference 6.4.13.2) has been updated to include the information from the updated list of Local Plan Allocations.

Four new developments have been taken forwards to the Short List of Committed Developments. For further information, see ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2). In terms of comments received in relation to LVIA, these sites form part of the future baseline for the LVIA assessment and are therefore already inherently assessed within the assessment and have influenced the selection of viewpoints used.

13.3.12 Stockton-on-Tees Borough Council responded that they had no comment.

13.4 In-combination effects assessment (intra-project effects)

13.4.1 The interaction of two or more predicted environmental effects resulting from the Proposed Development may collectively cause a greater, or lesser, effect than each effect in isolation. Whilst some ES topics intrinsically assess in-combination effects as part of their assessment approach by virtue of their methodologies, as set out in Table 13-2, there is still the potential for other in-combination effects to arise which are not captured through topic assessments and as such need to be considered.

13.4.2 To consider where there is the potential for such in-combination effects to arise, first common receptors upon which an effect may be felt must be identified. The following receptors have been identified based on a review of the various topic assessments throughout the ES, and are split into broad receptor groups to determine where multiple factors might affect the same receptor type.

- Human receptors in proximity to the works – local residential properties, businesses and recreational resources (including PRoW) could experience multiple adverse/beneficial impacts associated with changes to views, traffic and noise and vibration during construction, operation and decommissioning;
- Ecological designated sites including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar, Sites of Special Scientific Interest (SSSI), Local Nature Reserves, as well as county and local level designations and priority habitats – These designations could be affected by direct habitat loss, fragmentation, disturbance from changes to noise and human activity, changes to water quality and flow regimes during construction, operation and decommissioning;
- Protected species - Changes to water quality and noise and vibration can impact on the behaviour of protected species. In addition, impacts to habitats through direct loss or degradation can cause severance of populations; and
- Designated heritage features - Changes to the value of cultural heritage receptors through changes to their setting through impacts to views, and noise and vibration during construction, operation and decommissioning. Changes to hydrology which could lead to impacts on unknown archaeological remains during construction and decommissioning.

13.4.3 An assessment upon in-combination effects upon these receptor groups is then undertaken and presented in ES Appendix 13.1 In-combination Effects Table (Document Reference 6.4.13.3).

13.4.4 Table 13-2 provides a summary of the combined effects which have already been identified intrinsically as part of the assessments reported within the ES, and as such do not need to be drawn into further in-combination assessment.

Table 13-2 Effects already assessed intrinsically as part of the standard assessment approach for each topic

| Environmental factor and scope of combined effects assessed within ES Chapters |
|---|
| ES Chapter 6 Biodiversity (Document Reference 6.2.6) considers the in-combination ecological effects on receptors such as area of land required, disturbance due to noise, changes in water quality, and loss of habitats. |
| ES Chapter 7 Landscape and Visual (Document Reference 6.2.7) considers effects on landscape and visual receptors from different sources such as ecological and noise effects. |
| ES Chapter 8 Cultural Heritage and Archaeology (Document Reference 6.2.8) considers effects from different sources on archaeological and heritage assets such as visual and noise impacts affecting the setting of a heritage asset or hydrological impacts on below ground features. |
| ES Chapter 9 Land use and Socioeconomics (Document Reference 6.2.9) considers the conclusions of other environmental factors such as changes, in traffic, severance, landscape, visual and noise impacts in the assessment of amenity impacts to community assets such as residential property, recreation infrastructure and existing businesses. Alterations to soils are also considered as a result of degradation, compaction, erosion which for instance may be altered by changes to flood risk and hydrology. |
| ES Chapter 11 Noise and Vibration (Document Reference 6.2.11) considers the effects of noise and vibration impacts on human, community, non-residential, commercial, and business receptors |
| ES Chapter 12 Traffic and Transport (Document Reference 6.2.12) considers the effects of changes in traffic and severance on people and community assets such as residential property, recreation infrastructure and existing businesses. |

13.5 Cumulative effects assessment

13.5.1 The EIA Regulations require the EIA to consider cumulative effects, i.e. the cumulative effect of the Proposed Development being carried out alongside other existing and/or approved developments.

13.5.2 PINS Advice Note Seventeen provides a systematic approach to cumulative effects assessment, which can be split into four distinct phases as detailed in Table 13-3.

Table 13-3 Stages of Cumulative Assessment

| CEA Stage | Key Activities |
|---|---|
| Stage 1: Establish the Zone of Influence (Zoi) and establish the long list of ‘other existing development and/or approved development’ | <ul style="list-style-type: none"> ▪ identify the Zoi (study area) for each environmental aspect considered within the ES; ▪ identify a long list of other developments in the vicinity of the Proposed Development which may have cumulative effects in consultation with the relevant local authority; and ▪ undertake desktop review of available environmental information for identified cumulative developments. |
| Stage 2: Establish the short list of ‘other existing development and/or approved development’ | <ul style="list-style-type: none"> ▪ identify which of the identified other developments from Stage 1 has the potential to give rise to significant cumulative effects by virtue of overlaps in temporal scope, due to the scale and nature of the other development/receiving environment; or any other relevant factors. |

| CEA Stage | Key Activities |
|---------------------------------------|--|
| Stage 3: Information gathering | <ul style="list-style-type: none"> information relating to each of the other developments is gathered and reviewed. |
| Stage 4: Assessment | <ul style="list-style-type: none"> an assessment of the cumulative effects is undertaken. Each individual other development is reviewed in turn to identify whether there is potential for significant cumulative effects; and mitigation measures are identified. |

Stage 1: Establishing the Zone of Influence and long list of ‘other developments’

Zone of Influence

- 13.5.3 The Zol refers to the spatial area over which an effect from a project is likely to be experienced.
- 13.5.4 The Zol for each environmental topic was identified as the study area in each of the individual topic chapters (ES Chapters 5 to 12 (Document References 6.2.5 to 6.2.12)). The Zol was identified in line with industry specific guidance along with professional judgement and knowledge of the local area relevant to each environmental topic.
- 13.5.5 The Zol for the Proposed Development varies for each environmental topic and these are presented in ES Figures 13.1 and 13.2 (Document References 6.3.13.1 and 6.3.13.2) and set out in Table 13-4 below along with the identification of what type of impact is likely.

Table 13-4 Zol, potential impacts and receptors for EIA topics (construction, operation and decommissioning)


| Environmental topic | Zol for assessments |
|-------------------------------------|--|
| Biodiversity | <ul style="list-style-type: none"> international and national statutory designated sites of ecological importance within 10km of the Site Area (Ramsar sites, special protection areas (SPA) and special areas of conservation (SAC); and nationally designated sites (sites of special scientific interest (SSSIs) and nature reserves), within 2km of the Order Limits; and non-statutory designated sites (local wildlife sites (LWS’s), protected species and noteworthy species within 1 km of the Order Limits. |
| Landscape and Visual | <ul style="list-style-type: none"> 3km from the Panel Areas. |
| Cultural heritage | <ul style="list-style-type: none"> 5km from the Order Limits for the purposes of the cumulative assessment |
| Land use and Socio-economics | <ul style="list-style-type: none"> immediate authority areas of Darlington, Stockton-on-Tees and Durham, as well as the wider North East Region, for economic effects; all other land-use and socio-economic cumulative effects are taken as 500m from the Order Limits for the purposes of the cumulative assessment to ensure potential cumulative effects beyond the Order Limits are captured. |

| Environmental topic | Zol for assessments |
|------------------------------|---|
| Hydrology | <ul style="list-style-type: none"> ▪ flood risk: any area hydrologically linked to the Order Limits; ▪ water quality: impacts investigated up to 1km downstream of the Order Limits; and ▪ groundwater: any principal aquifers or source protection zone with hydrological connectivity to the Proposed Development. |
| Noise and Vibration | <ul style="list-style-type: none"> ▪ 1km from the Order Limits for the purposes of the cumulative assessment |
| Traffic and Transport | <ul style="list-style-type: none"> ▪ the network of access routes to Panel Areas A-F. This extends from the A1(M) to the west, to the A689 and A19 to the north and east, and the A66 running horizontally to the south. In addition, the Order Limits and surrounding Local Road Network (LRN) - Lime Lane, Lodge Lane and the unnamed road running through Great Stainton to Bishopton are key local roads which link all the Panel Areas together and are included within the study area. |
| Climate Change | <ul style="list-style-type: none"> ▪ it is not considered appropriate to include this topic in the cumulative assessment. As detailed in ES Chapter 5 Climate Change (Document Reference 6.2.5), greenhouse gas emissions are not restricted to a geographical area. |

Establishing the long list of ‘other developments’

- 13.5.6 The PINS Advice Note [1] recommends that a wide range of future projects is included within the CEA which can be tiered (from Tier 1-3) according to how far advanced the development is within the planning system and to the level of detail that is likely to be available for each tier. These different tiers are set out in Table 13-5, adapted to the context of the Proposed Development.
- 13.5.7 It should be noted that whilst the tiers set out below focus on NSIPs, the same approach can be and is applied to planning applications under other planning regimes (e.g. Town and Country Planning Act 1990 (TCPA)). In respect of applications under the TCPA, information can be and has been obtained via the Planning Portal for projects that are in the planning process, consented or under construction. Less information is often available for those projects that are in the public domain but not yet in the planning process.

Table 13-5 Project tiering for the purpose of CEA

| CEA Tier | Description | |
|----------|---|--|
| Tier 1 | <ul style="list-style-type: none"> ▪ projects under construction; ▪ permitted application(s) whether under the Planning Act 2008 or other regimes but not yet implemented; and ▪ submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined. | Decreasing level of detail likely to be available  |
| Tier 2 | <ul style="list-style-type: none"> ▪ project on the PINS programme of Projects where an EIA Scoping Report has been submitted. | |
| Tier 3 | <ul style="list-style-type: none"> ▪ projects on the PINS Programme of Projects where an EIA 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; and ▪ 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. | |

13.5.8 The earlier the stage of a project, such as those in Tier 2 and 3, the less information is typically in the public domain and as such cumulative effects assessment is less likely to be able to make a robust assessment in relation to these projects. Where relevant information for these is available, further investigation is undertaken. However, where detail is not available to carry out a robust assessment, these developments have not been assessed any further and justification given for this in ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2). It is noted that any future works planned at Norton substation by National Grid are not considered as part of the cumulative assessment as no detail is currently known on the scope of these works. Consideration of these works in combination with the Proposed Development would be undertaken by the relevant party seeking consent for such works at a time that it was appropriate to do so.

13.5.9 Where ‘other existing development and/or approved development’ are expected to be completed before construction of the Proposed Development and the effects of those ‘other existing developments and/or approved developments’ are understood, those effects are considered within the ES as part of the future baseline within environmental topics and will therefore be included as part of both the construction, operation and decommissioning assessment. This specifically includes the following constructed / operational solar and wind farms:

- High Meadow Farm (Letch Lane) Solar Farm;
- Aldi Distribution Centre Solar Farm;
- Field at School Aycliffe Land Solar Farm;
- Eaglescliffe Solar Farm;
- Lambs Hill Wind Farm;

- Stob House Solar Farm;
- Red Gap Moor Wind Farm;
- Walkway Wind Farm;
- Land West of Hunger Hill Solar Farm; and
- Land at Bluehouse Solar Farm.

- 13.5.10 Searches for relevant ‘other development’ were conducted online. Searches were undertaken for planning authorities, which are within 10 kilometres of the Proposed Development. ES Figure 13.1 Long List of Committed Developments (Document Reference 6.3.13.1) shows the location of each local planning authority and Zol applied.
- 13.5.11 Information on planning applications and local plan allocations were gathered from the following data sources:
- PINS; National Infrastructure Planning – Projects website [2];
 - The Department for Transport; Transport and Works Act Order applications website [3];
 - Darlington Borough Council; Planning Portal [4];
 - Stockton-on-Tees Borough Council; Planning Portal [5];
 - Durham County Council; Planning Portal [6]; and
 - Hartlepool Borough Council; Planning Portal [7].
- 13.5.12 Withdrawn or refused applications were included in the long list as a precautionary approach at PEIR stage. However, withdrawn or refused applications have not been included in the short list (Stage 2) at ES stage.
- 13.5.13 The developments which met the criteria given in Table 13-7 were included in the initial long list.

Table 13-6 Long list of ‘other development’ inclusion criteria

| Development | | Housing unit (no) | Housing land (ha) | Non-residential (ha) | Distance from Order Limits |
|--|--------------|-------------------|-------------------|----------------------|----------------------------|
| Nationally Significant Infrastructure Projects | | All | All | All | 10km |
| Transport and Works Act Orders (TWAO) | | All | All | All | 10km |
| Mineral and Waste EIA applications | | All | All | All | 10km |
| Applications or allocations | Large scale | 200+ | 4+ | 2+ | 10km |
| | Medium scale | 10-199 | 0.5-4 | 1-2 | 2km |
| | Small scale | 1-9 | Less than 0.5 | Less than 1 | 200m |

13.5.14 ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2) presents the identified long list of existing and/or approved developments within the search area and sets out the threshold criteria applied to identify the short list of existing and/or approved developments for each environmental topic. The geographical location of the long list of developments is shown on ES Figure 13.1 (Document Reference 6.3.13.1).

13.5.15 The long list was frozen in January 2024.

Stage 2: Establishing the short list of ‘other developments’

13.5.16 The long list of potential ‘other developments’ identified under Stage 1, and presented in ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2), has been subject to further threshold criteria to identify a proportionate list of developments for assessment within the CEA.

13.5.17 The threshold criteria considered in shortlisting a development is outlined in Table 13-8. The criteria were defined in line with PINS Advice Note Seventeen and the EIA Regulations.

13.5.18 Professional judgement has been applied to ‘other existing developments and/or approved developments’ that exceed the thresholds but do not give rise to discernible effects. Where relevant, the reasons for excluding any ‘other development and/or approved development’ from further consideration is outlined in ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2).

13.5.19 The short list identifies the other developments that may give rise to significant cumulative effects by virtue of overlaps in temporal scope, due to the scale and nature of the ‘other development’/receiving environment, or any other relevant factors., The shortlisted ‘other developments’ that may give rise to cumulative effects are presented in Table 13-10 and shown in ES Figure 13.2 (Document Reference 6.3.13.2).

Table 13-7 Criteria for shortlisting ‘other development’

| Threshold | Description |
|---|---|
| <p>The temporal scope of ‘other development’ potential for interaction</p> | <ul style="list-style-type: none"> ▪ consideration of relative construction, operation and decommissioning programmes of the ‘other development’ identified in the Zol with the scheme programme, to establish whether there is overlap, or similar temporal scope for construction and operation phases, and any potential for interaction. |
| <p>The scale and nature of ‘other development’</p> | <ul style="list-style-type: none"> ▪ consideration of whether the scale and nature of the developments identified in the Zol are likely to interact with the scheme and to result in a cumulative effect; ▪ characteristics of other developments in relation to use of natural resources, pollution and nuisances, and risks to human health; ▪ the scale of developments which are more than 1 hectare of urban development which is not a dwelling development; ▪ the development includes more than 150 dwellings; and ▪ the overall area of the development exceeds 5 hectares. |

| Threshold | Description |
|--|---|
| <p>Any other relevant factors</p> | <ul style="list-style-type: none"> ▪ nature and/or capacity of the receiving environment that would make a significant cumulative effect with ‘other development’. The sensitivity of the receiving environment includes whether the sites are within: <ul style="list-style-type: none"> • wetlands, riparian areas, river mouths; • coastal zones and the marine environment; • mountain and forest areas; • nature reserves and parks; • European sites and other areas classified or protected under national legislation; • areas in which there has already been a failure to meet the environmental quality standards, laid down in Union legislation and relevant to the project, or in which it is considered that there is such a failure; • densely populated areas; and • landscapes and sites of historical, cultural or archaeological significance. ▪ the relative abundance, availability, quality and regenerative capacity of natural resources in the area; ▪ potential for creation of source-pathway-receptor impacts; and ▪ the likely significance of effects where environmental assessments have been undertaken for the ‘other developments’ as having moderate to large significance. |

13.5.20 The long list has been reviewed by each technical topic in relation to the relevant ZoI to identify ‘other existing development and/or approved developments’ which have the potential to result in cumulative effects with the Proposed Development. Generally, only ‘other existing developments and/or approved developments’ where an EIA is required, or environmental assessment information is available, are considered appropriate for inclusion in the cumulative assessment but topics have considered all of the factors in ES Appendix 13.3 Short List of Committed Developments (Document Reference 6.4.13.3).

Stages 3 and 4: Information gathering and assessment

13.5.21 For each identified ‘other development’, consideration has been made as to the likelihood that any impacts from the other development could occur at the same time as the scheme or affect similar receptors or resources. ES Appendix 13.2 (Document Reference 6.4.13.2) presents the long list of other developments identified along with justification for those screened out of the assessment. ES Figure 13.1 (Document Reference 6.3.13.1) presents the location of these developments in relation to the Proposed Development.

13.5.22 The number of developments to be considered within each environmental factor has been condensed between Stage 1 and Stage 2 assessments using the criteria listed in

Tales 13-5 to 13-8 and is presented in ES Appendix 13.3 Short List of Committed Developments (Document Reference 6.4.13.3) and ES Figure 13.2 Short List of Committed Developments (Document Reference 6.3.13.2).

- 13.5.23 A summary of the shortlisted development and the topics considered against each of these is set out in Table 13-8.

Table 13-8 Shortlisted committed developments

| Committed development planning reference and name | Within the Zol for the following topic |
|---|---|
| EN010150 Lighthouse Green Fuels Project | Biodiversity |
| EN070009 H2Teesside | Biodiversity |
| EN010103 The Net Zero Teesside Project | Biodiversity |
| 22/0334/EIS Summerville Farm | All topics |
| 22/01342/FULE Burtree Garden Village | Biodiversity, landscape and visual, cultural heritage and archaeology |
| 22/00727/FUL Gately Moor | All topics |
| 22/1511/FUL California Farm | All topics |
| DM/21/02816/FPA (21/00958/FUL) Whinfield | All topics |
| 21/01086/FUL Bishopton Lakes | All topics |
| 21/2290/FUL High Meadow 2 | Biodiversity, landscape and visual, cultural heritage and archaeology, land use and socio-economics, hydrology, noise and vibration |
| 20/2692/FUL Middlefield Farm | All topics |
| DM/19/00283/OUT Forrest Park | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology, noise and vibration, traffic and transport |
| 22/00146/OUT Beaumont Hill | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology, noise and vibration |
| 15/00804/OUT Berrymead Farm 1 | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology |
| 21/3097/FUL Harrowgate Lane 2 | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology |
| 22/00213/FUL Burtree Lane Solar | Biodiversity, landscape and visual, cultural heritage and archaeology |
| 15/01050/OUT Burtree Lane (S) | Biodiversity, landscape and visual, cultural heritage and archaeology |

| Committed development planning reference and name | Within the Zol for the following topic |
|---|--|
| 20/2131/FUL Thorpe Bank | Biodiversity, landscape and visual, cultural heritage and archaeology |
| 22/01329/FUL Long Pasture | Biodiversity, landscape and Visual, cultural heritage and archaeology, hydrology, noise and vibration, traffic and transport |
| DM/20/01991/FPA Cowley House Farm | Biodiversity, cultural heritage and archaeology |
| 17/00632/OUTE Land north of Coniscliffe Road | Biodiversity |
| 23/00782/FUL Site of former Blackwell Grange Golf Club (East) | Biodiversity |
| 22/00423/FUL Land east of Lingfield Estate | Biodiversity, cultural heritage and archaeology |
| 18/00033/DC / 21/00987/DC Ingenium Parc | Biodiversity |
| 19/00036/OUT DB Symmetry Phase 2 Land east of Lingfield Estate Lingfield Point | Biodiversity, cultural heritage and archaeology |
| 23/00733/SCO Proposed new NWL Water Main Ketton Lane | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology, noise and vibration, traffic and transport |
| DM/23/02331/FPA Land north east of Ricknall Grange Farm Ricknall Lane Preston-le-Skerne | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology |
| DM/23/02905/FPA Plot 3B Merchant Park Millennium Way Aycliffe Business Park | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology |
| DM/23/03701/WAS Aycliffe Quarry Aycliffe Village Newton Aycliffe | Biodiversity, landscape and visual, cultural heritage and archaeology, hydrology, noise and vibration, traffic and transport |
| 23/2102/FUL Land Off Cygnet Drive Bowesfield Lane Stockton-on-Tees | Biodiversity |
| 23/1819/FUL Land at Westland Way Stockton-On-Tees | Biodiversity |
| 23/0261/OUT Land at Wynyard Village Wynyard | Biodiversity, cultural heritage and archaeology |
| 20/2408/OUT Land west of Maynard Grove Wynyard | Biodiversity, cultural heritage and archaeology |

Climate change

- 13.5.24 Climate impact and effects for the Proposed Development itself include:
- Release of GHG emissions during construction and decommissioning considered to be minor adverse effect (not significant in EIA terms);
 - Production of low carbon energy during operation considered to be a beneficial effect (significant in EIA terms); and
 - Impact of climate change on construction and decommissioning works considered to be a very low – low effect (not significant in EIA terms), and operation of the Proposed Development considered to be a low effect (not significant in EIA terms).
- 13.5.25 Climate impacts (that is those as a consequence of global heating) are observable at a national and global scale. Assessment of significance is based on whether a project's Greenhouse Gas (GHG) emissions cumulatively represent a considerable contribution to the global atmosphere. The net GHG effect of the Proposed Development has been assessed and reported within the context of baseline local and regional GHG emissions, as well as future carbon budgets. As such, the approach to climate assessment within the IEMA Guidance: "Assessing Greenhouse Gas Emissions and Evaluating their Significance" is inherently cumulative as consideration of the Proposed Development against the UK carbon budgets allows the Planning Inspectorate to take a holistic view of all other NSIP development carbon contributions against the Proposed Development's and the UK Carbon Budgets. Whilst no further cumulative assessment is therefore required, it is noted that cumulative effects with other renewable energy production developments are reasonably expected to provide a notable beneficial effect in the UK's journey towards net-zero as this is intrinsic to their need. It is reasonable to assume this could be considered significant in EIA terms due to its potential national influence.

Biodiversity

- 13.5.26 Biodiversity impacts and effects for the Proposed Development include:
- Construction disturbance and displacement of wintering wildfowl considered to be a negligible effect (not significant in EIA terms);
 - Indirect impacts during construction and operation to designated sites and habitats through noise, water quality, lighting or visual considered to be a negligible to low adverse effect (not significant in EIA terms);
 - Pollution to watercourses during construction and operation considered to be a negligible to low adverse effect (not significant in EIA terms);
 - Disturbance to and loss of foraging and breeding habitat during construction for bats, wintering and nesting birds considered to be a low adverse effect (not significant in EIA terms); and

- Potential increase in foraging habitat and habitat enhancement during operation for bats, wintering and nesting birds considered a low adverse to moderate beneficial effect depending on the efficacy of mitigation (not significant in EIA terms).
- It is also noted that from a biodiversity net gain perspective, the Proposed Development is achieving approximately 88% in terms of habitat units and 108% in terms of hedgerow units.

- 13.5.27 The Proposed Development includes appropriate avoidance and retention of ecological features, as detailed in ES Chapter 6 Biodiversity (Document Reference 6.2.6) with design, mitigation and enhancement measures detailed in Section 6.9 of this Chapter. Biodiversity enhancement areas are detailed in ES Chapter 7 Landscape and Visual (Document Reference 6.2.9). Biodiversity enhancement areas and mitigation will ensure that significant effects on ecological receptors, such as ground nesting birds, are minimised or avoided with no significant residual effects anticipated.
- 13.5.28 All of the 'other developments' identified in ES Appendix 13.3 Short List of Committed Developments (Document Reference 6.4.13.3) which were considered to have the potential to interact cumulatively with the Proposed Development have followed good design principles to minimise and avoid significant effects on ecological receptors. There is the potential for overlapping spatial and temporal interactions during construction, particularly with the large scale residential and proposed solar farms. Notably spatial interactions include habitat loss of a similar type (agricultural land) suitable for ground-nesting birds and foraging bats species.
- 13.5.29 Those 'other developments' that have been approved have, like the Proposed Development, adequately mitigated for their direct impacts. For those 'other developments' not yet consented mitigation will be required to fully offset their impacts.
- 13.5.30 As such whilst cumulative effects would occur in relation to habitat loss of a similar type (such as agricultural land), and the knock-on impacts this would have locally to fauna such as ground nesting birds and bats, these would not be at a scale that are significant in EIA terms given the mitigation measures that are required to be in place to manage such impacts. It is noted specifically that DM/23/02331/FPA Land north east of Ricknall Grange Farm Ricknall Lane Preston-le-Skerne is for the conversion of agricultural land to wetland habitats. Whilst agricultural land will be lost and as such its cumulative impact of such would be as noted above, the reason for the change in land use is purely for biodiversity enhancement, and as such would provide an overall benefit to the local area.
- 13.5.31 In terms of biodiversity net gain, it is reasonable to assume that a notable cumulative benefit could be delivered to biodiversity receptors across the Proposed Development and 'other developments' given the incoming national requirement to deliver a 10% minimum net gain. This could be considered significant in EIA terms due to its potential influence both locally and more nationally in terms of halting the decline of biodiversity and encouraging its restoration.

Landscape and visual

- 13.5.32 Landscape and visual impacts and effects for the Proposed Development include:
- Impacts upon landscape character during construction, operation and decommissioning ranging from negligible-substantial adverse effect (not significant/significant in EIA terms);
 - Impacts upon landscape fabric during construction, operation and decommissioning considered not significant in EIA terms;
 - Changes to views for visual receptors during construction, operation, and decommissioning ranging from negligible-substantial adverse effect (not significant / significant in EIA terms); and
 - Changes to valued qualities of designations during construction, operation, and decommissioning ranging from negligible – moderate effect (not significant in EIA terms).
- 13.5.33 Due to the way the landscape and visual assessment is undertaken, some of the shortlisted developments are already captured as future baseline under the topic assessment, and not assessed separately in this cumulative assessment. For the avoidance of doubt, the assessment methodology for landscape and visual effects is presented in ES Appendix 7.1. (Document Reference 6.4.7.1) which describes how existing and proposed development is considered, with a summary of the criteria for assessment presented in Table 13-9.

Table 13-9 Criteria for the assessment of cumulative effects for LVIA

| Criteria | Rationale |
|--|---|
| All existing development within the Zol | Forms part of the baseline for the main LVIA. |
| Consented development within the Zol | Included within the future baseline for the main LVIA unless there is good reason to believe it will not be constructed (or that it will not be constructed before the proposed development). Those included in the future baseline are described in 13.5.38. Where consented development is not included within the future baseline, but becomes consented during assessment, it will be considered within the assessment of cumulative effects. At the time of writing there are no developments that sit within these criteria as they have either been captured in the future baseline, or are in planning awaiting determination. |
| Development in planning within the Zol | Considered within the assessment of cumulative effects. |
| Developments in scoping within the Zol | Generally presumed to be excluded but will be agreed on a case-by-case basis with consultees. |
| Site allocations in the local plan (without applications) | Agreed on a case-by-case basis with consultees. |
| All EIA development within 3km of the Panel Areas | Any EIA scale project within 3km may interact with the Proposed Development in terms of landscape and visual effects on receptors within the 3km LVIA study area. |

| Criteria | Rationale |
|--|---|
| Non-EIA linear or area-based development within 2km of the Panel Areas | Development within 2km which does not have significant landscape and visual effects in its own right may interact with the proposed development in terms of landscape and visual effects on receptors within the 2km LVIA study area. (This category would include e.g., developments of new residential or commercial properties, smaller solar farms, phone masts and/or local electricity transmission lines). |
| All smaller scale planning applications and changes, and developments which are unlikely to generate significant cumulative effects with the Proposed Development | Exclude – smaller scale changes, and those with limited/no above ground-built form as they are unlikely to generate significant cumulative effects with the Proposed Development. |

- 13.5.34 The EIA Scoping Opinion consultation responses from Durham County Council and Darlington Borough Council requested cumulative assessment in terms of potential landscape and visual effects for: Gately Moor (ID 16), Lime Lane (Whinfield) (ID 21) and Cowley House Farm (ID 42). These ‘other developments’, in addition to those meeting the LVIA scoping criteria presented in Table 13-9, have been included in ES Appendix 13.2 Long List of Committed Developments (Document Reference 6.4.13.2).
- 13.5.35 A site visit was undertaken to determine the likelihood of potential cumulative impacts for landscape and visual. A number of the ‘other developments’ listed were noted on site as having very localised effects due to their small scale and would not warrant consideration of cumulative effects and are therefore not taken forward to the short list presented in ES Appendix 13.3 Short List of Committed Developments (Document Reference 6.4.13.3). These included:
- The solar panels at the Durham Way sewage works (ID 17);
 - Two small leisure developments (IDs 22, 24); and
 - The smaller housing developments (IDs 19, 25 and 35).
- 13.5.36 Further all developments beyond 3km from the Panel Areas, except for Net Zero Teeside Power (ID 3) were excluded. In addition, 23/00733/SCO Proposed New NWL Water Main Ketton Lane (ID 65); and DM/23/02331/FPA Land north east of Ricknall Grange Farm Ricknall Lane Preston-le-Skerne (ID 66) were excluded due their lack of above ground built form, and the smaller scale of resulting change respectively.
- 13.5.37 Some short-listed developments are within 3km of the Proposed Development in relation to the cable route only and are not within 3km of the Panel Areas. Given the very limited landscape and visual effects arising from the cable route construction, these are not considered to be within the Zol for potential landscape and visual effects and are excluded from the assessment. These include both Summerville Farm (ID14) and Harrowgate Lane 2 (ID34). Both are proposed housing developments at the edge of Stockton and located more than 3.5km east of the nearest panel area.
- 13.5.38 Short-listed developments that are part of the future baseline for the landscape and visual assessment are presented in Table 7-6 in ES Chapter 7 Landscape and visual

(Document Reference 6.7). As summarised in Table 13-10 these are all consented schemes, some of which are under construction, with others actively progressing the discharge of planning conditions, and are not therefore assessed further in this cumulative assessment. These include IDs 16, 18, 21, 26, 28, 29, 33, 36, 37, 40, 41, and 42 from ES Appendix 13.3 Short List of Committed Developments (Document Reference 6.4.13.3).

Table 13-10 Projects included in ES Chapter 7 Future Baseline

| Project ID (see Appendix 13.3) | Planning Reference and Name | Status |
|--------------------------------|---|---|
| 16 | 22/00727/FUL – Gately Moor Solar Farm | Approved Nov 2022 with condition discharge active. |
| 18 | 22/1511/FUL – California Farm Solar Farm | Approved March 2023 with condition discharge active. |
| 21 | DM/21/02816/FPA / 21/00958/FUL – Whinfield Solar Farm | Approved October 2022 and under construction. |
| 26 | 21/2290/FUL – High Meadow 2 Solar Farm | Approved December 2021 with condition discharge active and construction proposed to commence in 2025. |
| 28 | 20/2692/FUL – Middlefield Solar Farm | Approved April 2021 with condition discharge active. |
| 29 | DM/19/00283/OUT – Forrest Park Mixed Use Development | Approved November 2019 with condition discharge active and an NMA submitted in 2024. |
| 33 | 15/00804/OUT – Berrymead Farm 1 Housing | Approved June 2022 with more recent NMA submitted and approved in 2024. |
| 36 | 22/00213/FUL – Burtree Lane Solar Farm | Approved January 2023 and construction proposed to commence in summer 2025 |
| 37 | 15/01050/OUT – Burtree Lane (S) Housing | Approved August 2020 with more recent MNA submitted and approved in 2022 |
| 40 | 20/2131/FUL – Thorpe Bank Solar Farm | Approved December 2020 with condition discharge active. |
| 41 | 22/01329/FUL – Long Pasture Solar Farm | Approved August 2023 with conditions. |
| 42 | DM/20/01991/FPA – Cowley House Farm Solar Farm | Approved January 2021 with condition discharge active. |

13.5.39 Short-listed developments that are further considered in terms of cumulative effects for landscape and visual include:

- Net Zero Teesside power (ID3);
- Burtree Garden Village (ID15);
- Bishopton Lakes (ID23);
- Beaumont Hill (ID32);

- Plot 3B Merchant Park (ID 67);
- Aycliffe Quarry (ID68).

- 13.5.40 Netzero Teeside power includes a proposal for a new gas-fired power station, which would be a large new structure potentially visible from areas within 2km of the Proposed Development. It would be located approximately 20km to the east of the nearest Panel Area, on the far side of the Teesside industrial area. Where seen from within the LVIA study area it would form a minor element within an existing cluster of industrial buildings and would not alter the effects arising from the Proposed Development.
- 13.5.41 Burtree Garden Village and Beaumont Hill are proposed housing developments around the north and western edges of Darlington. Burtree Garden Village would be located 2.6km to the southeast of Panel Area A and directly to the south of the consented Burtree Lane Solar Farm which would be situated between the proposed housing and the Proposed Development. Given this context, it is considered that Burtree Garden Village would not alter the effects arising from the Proposed Development.
- 13.5.42 Beaumont Hill is a proposal for housing behind existing housing to the east of the A167 and to the west of the railway. The proposed housing would extend to within 1km south of Panel Area A. It would be located within Darlington LCA 5 Upper Skerne Valley. Cumulative effects likely to arise from the addition of the Proposed Development to a baseline including the development at Beaumont Hill would include:
- No changes to effects on landscape character: LCA 5 Upper Skerne Valley would be the only character area where different effects would be likely to arise and the presence of the housing to the south, beyond the railway and proposed planting around the edge of the housing, would not alter the limited effects arising from the Proposed Development at the northeast edge of the LCA.
 - The open views currently experienced from homes at Beaumont Hill as represented by Viewpoint 7, would be enclosed by the new housing. New homes and potentially some streets and open spaces within the housing development are likely to have some visibility towards the Proposed Development although that will depend on the final design (the application for housing is currently Outline). Given the distance and based on the viewpoint analysis set out within Chapter 7, changes to views from the housing development as a result of the Proposed Development would be expected to be Negligible.
 - Changes to views in which both the housing at Beaumont Hill and the proposed Development may be visible would be expected to be most likely to arise between Panel Area A and the site at Beaumont Hill. However, as shown by Figures 7.2 and 7.3, there is little visibility of the Proposed Development in this area, and views tend to include screening by trees (e.g. at viewpoint 6, where the Proposed Development would be visible, but the housing at Beaumont Hill would not). In more distant elevated views (such as viewpoint 8), both developments are likely to be visible but the distant views of housing (slightly closer than the existing housing

at Beaumont Hill), would not alter the effects arising from the Proposed Development.

- 13.5.43 Bishopton Lakes (ID23) is a proposal for 24 holiday lodges adjacent to an existing lake to the south of Bishopton. The lodges would be set within a low-lying area of the landscape and would only be noticeable in some close views where the roofs of the lodges would be seen among trees (as they mature). Given the very localised effects of the holiday lodges, there may be some locations to the south of Bishopton where both they and the Proposed Development would be visible (e.g. near viewpoint 29 on the road south of Bishopton, and from the footpath to the south of viewpoint 22 southwest of Bishopton. The site entrance for the holiday lodges would be close to Panel Area E, near viewpoint 22, and visitors to the lodges would have close views of the solar farm as they approach the entrance via Folly Bank, regardless of travel direction. The presence of the holiday lodges would not alter the effects arising from the Proposed Development, and these limited glimpses would not alter the effects arising from the Proposed Development.
- 13.5.44 Plot 3B Merchant Park forms part of a development with outline consent located close to the edge of the 3km study area amongst other industrial buildings and would have negligible interaction with the effects of the Proposed Development. The application at Aycliffe Quarry is part retrospective and the addition of the wash plant within the quarry which is surrounded by vegetation would have a negligible interaction with the effects of the Proposed Development.
- 13.5.45 Overall it is considered that the cumulative effect of the Proposed Development in combination with 'other developments' would be limited by virtue of the surrounding topography, glimpsed views, intervening distances and screening both from the Proposed Development itself and the presence of screening not associated with the Proposed Development. As such cumulative effects upon landscape character and changes to views would not be significant in EIA terms.
- 13.5.46 Chapter 7 of the Environmental Statement [APP-030] was updated in December 2024 following a Rule 17 request. The updates made to the assessment (Document Reference 6.2.7, Revision 2) have not led to a change in the conclusions of this cumulative assessment in relation to landscape and visual receptors.

Cultural Heritage and Archaeology

- 13.5.47 Cultural Heritage and Archaeology impacts and effects for the Proposed Development include:
- Disturbance of known and unknown archaeological remains during construction ranging from negligible to minor adverse effect, not significant in EIA terms.
 - Change in setting during operation upon assets within Bishopton village and Bishopton Conservation Area, considered to be a negligible effect, not significant in EIA terms.
 - Change in setting during operation upon Scheduled monument motte and bailey castle 400m south east of Bishopton, considered to be a negligible effect, not significant in EIA terms.
- 13.5.48 Cumulative effects on Cultural Heritage and Archaeology can take place in one of two ways:
- Through direct impacts during construction from ‘other developments’ on archaeological assets which continue, or may continue, into the Order Limits; and
 - Through indirect impacts during operation where the presence of the Proposed Development and ‘other developments’ would, in-combination, result in a reduction in the appreciation of the heritage significance of those heritage assets through a change in setting.
- 13.5.49 None of the ‘other developments’ will have a direct impact on any archaeological remains, standing earthworks or buildings that lie within the Order Limits. There will also be no change to the heritage significance of any archaeological remains, standing earthworks or buildings outside of the Order Limits which may be related to those within the Order Limits.
- 13.5.50 Cumulative effects on heritage assets through indirect impacts can occur where an effect from the Proposed Development, either a significant or a not significant effect, has been assessed and where a committed development has the potential to increase the magnitude of change to the heritage significance of an asset.
- 13.5.51 Cumulative effects are therefore possible on the following heritage assets, all of which have been assessed as receiving a Negligible Effect (not significant for the purposes of EIA) from the Proposed Development:
- Asset Group 3: Bishopton;
 - Bishopton Conservation Area; and
 - Scheduled monument motte and bailey castle 400m south east of Bishopton.
- 13.5.52 Of the committed developments within the short list, none lie within the setting of Asset Group 3: Bishopton or the Bishopton Conservation Area and there will therefore be no cumulative effects with the Proposed Development.

- 13.5.53 Two of the committed developments have the potential to lead to a cumulative effect on the Scheduled monument motte and bailey castle 400m south east of Bishopton through a change in setting in combination with the Proposed Development:
- Gately Moor Solar Farm 22/00727/FUL; and
 - Bishopton Lakes 21/01086/FUL

Scheduled monument motte and bailey castle 400m south east of Bishopton.

- 13.5.54 The setting of the Scheduled monument motte and bailey castle 400m south east of Bishopton which, in part, comprises the landscape around the asset has remained generally rural in character since the medieval period, albeit with identifiable changes in the settlement centres and from modern introductions.
- 13.5.55 This element of the landscape contributes to the significance of the asset as it demonstrates the source of power for the lords who occupied the motte and bailey castle during the medieval period. That relationship is still understandable and appreciable despite the changes in the landscape, principally during enclosure and later modern additions.
- 13.5.56 The assessment within the ES has concluded that while there will necessarily be an alteration in the landscape around Bishopton from the Proposed Development, this will not be noticeable nor appreciable from the asset, or in conjunction with the asset.
- 13.5.57 Gately Moor Solar Farm is located approximately 1 km south east of the asset. Proposals comprise of a solar farm and energy storage facility together with associated works, equipment and infrastructure covering approximately 123 hectares.
- 13.5.58 Bishopton Lakes is located approximately 600 m to the south of the asset. Proposals comprise of a change of use of land for the siting of 24 new holiday cottages along with new access tracks across an area of approximately 5 ha.
- 13.5.59 The two committed developments will be noticeable, visible introductions into the setting of the asset which contributes to its significance. This will change that setting and diminish the understanding of the important relationship the landscape had with the asset. This, however, will be very limited as the alterations brought by enclosure have changed the landscape from its original character and the vast majority of the landscape around the asset will remain unaltered.
- 13.5.60 While there will be a noticeable change from these two ‘other developments’, the magnitude of change will not be increased cumulatively with the Proposed Development.
- 13.5.61 The Proposed Development is not perceptible within the setting of the asset and does not have any effect on the appreciation of the key relationship between the asset and the surrounding landscape. The Proposed Development will not appear in any views in conjunction with the two committed developments, it will not be a noticeable additional introduction into the same landscape as the ‘other developments’, nor will it

alter the understanding of the significance of the assets setting. Any change in setting which has an effect on the significance of the asset, would come from the 'other developments' on their own, if any.

- 13.5.62 As such, there is considered to be no cumulative effects on the Scheduled monument motte and bailey castle 400m south east of Bishopton.

Land use and Socio economics

- 13.5.63 Land use and socioeconomic impacts for the Proposed Development include:
- The potential for new / additional employment and supply chain opportunities during all construction and decommissioning considered to be minor beneficial (not significant);
 - Maintained access to recreational and community facilities during construction and decommissioning considered to be negligible (not significant);
 - Sterilisation of potential development land during construction during construction and operation considered to be minor (not significant);
 - Diversion and closure of PRow during construction and operation considered to be minor (not significant);
 - Loss of land for agricultural production during construction considered to be moderate adverse (significant); and
 - Disturbance of soil resource during construction and decommissioning considered to be moderate adverse (significant) during construction, but with the opportunity for improved soil health following the decommissioning of the Proposed Development.
- 13.5.64 The 'other developments' will, cumulatively with the Proposed Development, generate additional construction and decommissioning employment and wider localised economic related benefits within the Zol and further afield. The scale of the construction employment demand generated cannot be readily quantified based on the information available for each scheme as this information is commercially sensitive and not available. However, the Proposed Development is providing a benefit to the local employment in isolation, and employment potentially provided by the other developments would only cumulatively increase this benefit. Displacement has been taken into consideration when considering the extent of employment benefits.
- 13.5.65 With regards to recreational and community facilities, it is considered that cumulatively, there would be no change in effect. A CTMP would be in place to ensure continued access would remain under the construction works for the Proposed Development and as such there is limited impact from the Proposed Development to act cumulatively with. The same can be considered true for decommissioning. A CTMP is expected for 'other developments' to ensure similar access continuation. The same statement can be made for development land, in that there would be no effects felt on allocated land during the construction and operation of the Proposed Development, and therefore cumulatively, would not result in a change in effect of that receptor type.

- 13.5.66 The overall cumulative effect on PRoWs is likely to remain temporary in nature during the construction and operational stages only, and will remain minor in significance. This is because there are no other proposed or in-construction developments within the Order Limits of the Proposed Development. For those at earlier planning stages there is not enough information available to consider impacts on PRoW any further, however it is reasonable to assume any impacts on PRoW would be managed by a PRoW management plan or similar to maintain or divert access where possible.
- 13.5.67 In terms of impacts upon agricultural land, the 'other developments' within the Zol for land use and socioeconomics affect additional agricultural land. The vast majority of these 'other developments' are solar related, and as such the land will mostly be taken out of agricultural production for the duration of these solar farms up to the point of decommissioning when it is expected this land would be returned to agricultural use. Even though this loss will therefore not be permanent, there would be a cumulative temporary loss for the duration of the Proposed Development if all 'other developments' go ahead during the same temporal scope. This could result in a high magnitude of impact.
- 13.5.68 As with the Proposed Development, the vast majority of agricultural land within the 'other developments' has been confirmed through survey as subgrade 3b with small areas confirmed as subgrade 3a. As a result, the sensitivity is considered low. These impacts are expected to be managed through individual Soil Resource Management Plans for each 'other development', however due to the temporary loss of agricultural land it is considered that there is still the potential for a cumulative effect that is moderate adverse in nature, which is significant. It is noted that although this is no worse from a significance perspective than the individual effect assessed for the Proposed Development, the impact would be notably greater due to the additional extent of land potentially lost temporarily. There is no further mitigation available to reduce this effect.

Hydrology and Flood Risk

- 13.5.69 Hydrology and flood risk impacts and effects for the Proposed Development include:
- Risk of increased pollution to watercourses, groundwater and public water supply during construction, operation and decommissioning considered to be a negligible – minor adverse effect (not significant in EIA terms); and
 - Increased flood risk and altered flow pathways during construction, operation and decommissioning considered to be a negligible – minor adverse effect (not significant in EIA terms).
- 13.5.70 The Proposed Development includes appropriate measures to mitigate the risk of flood risk increasing downstream and increased pollution loading to waterbodies, as detailed in ES Chapter 10 Hydrology and Flood Risk (Document Reference 6.2.10).
- 13.5.71 If the Proposed Development were to occur in parallel with the 'other developments' listed in ES Appendix 13.3 Short List of Committed Developments (Document

Reference 6.4.13.3) without mitigations, adverse impacts related to flooding and water quality could be amplified. However, it is noted that all 'other developments' have been or will be approved on the basis that a suitable Flood Risk Assessment and Surface Water Drainage Strategy have been prepared. These would detail how for each of the 'other developments' surface water will be managed and restricted to greenfield runoff rates during operation and where applicable, mitigations to prevent increased flood risk to third parties. A Construction Environmental Management Plan should also have been prepared or consented that details necessary mitigation measures to attenuate and manage surface water runoff during construction.

13.5.72 Thus, even if construction were to occur simultaneously, provided the appropriate measures are implemented in a timely manner, no cumulative detrimental effects to flood risk would occur. On that basis there is not expected to be any significant cumulative effect between developments that may collectively increase flood risk during construction or operation.

13.5.73 Regarding water quality, the Surface Water Drainage Strategy would outline how runoff would be treated during operation to prevent pollutants entering any water bodies. A Construction Environmental Management Plan for each development would also outline mitigations required during construction to ensure there are no adverse significant effects on water quality, primarily regarding the risk of spillages and mobilisation of sediment. Each 'other development' would also require a spillage response plan which would be adhered to during the construction phase. On that basis there is not expected to be any significant cumulative effect between developments that may collectively reduce water quality during construction or operation.

Noise and Vibration

13.5.74 Noise and vibration impacts and effects for the Proposed Development include:

- Traffic noise and vibration during construction, operation and decommissioning considered to be a negligible effect (not significant in EIA terms); and
- Construction, operational and decommissioning activities noise and vibration considered to be a low effect (not significant in EIA terms).

13.5.75 During construction and decommissioning there is the potential for some interactive noise, including from traffic, if 'other developments' are constructed and/or decommissioned at the same time as the Proposed Development. There is also the potential for cumulative operational noise to occur from the Proposed Development and 'other developments' from elements such as inverters or other equipment, and vehicles accessing the Proposed Development to maintain it.

13.5.76 For the Proposed Development, during construction and decommissioning, a low level of traffic is predicted. The Proposed Development will, in most locations, see less than a 10% change in current traffic levels, which is not discernible in terms of noise levels. A Construction Traffic Management Plan (CTMP) and CEMP would be produced to manage traffic levels and any potential noise and vibration impacts associated with site

preparation, plant installation, substation construction and cable laying. The CTMP would ensure construction traffic planning is cognisant of 'other development' ongoing. The CEMP will ensure best practical means are followed to minimise noise from activities. It is noted that all 'other developments' have been or will be approved also on the basis that a suitable CEMP and CTMP have been prepared, and similar documents associated with the decommissioning of the Proposed Development. For this reason, noise associated with the Proposed Development is not anticipated to have a discernible cumulative impact on any common nearby sensitive receptors during construction or decommissioning.

- 13.5.77 During operation, no more than one vehicle per day on average will be required to operate and maintain the Proposed Development, and as such this would not be of a level to increase existing background traffic noise levels discernibly. It is also noted that shortlisted 'other developments' have already been considered through the traffic modelling and as such are part of the future baseline scenario upon which the noise topic assessment is undertaken.
- 13.5.78 In terms of operational elements on the Proposed Development which may emit noise such as inverters, these will be operated in line with BS4142: Methods for Rating and Assessing Industrial and Commercial Sound guidelines; and as such will be operated within standards and would not increase existing noise levels experience by nearby sensitive receptors. This is considered to be the same for 'other developments' as this is standard best practice. Further the location of 'noisy' equipment on the Proposed Development is designed to be placed as far as practicable from receptors. Therefore, there is not considered to be any noticeable cumulative impact from operational noise on any common nearby sensitive receptors.
- 13.5.79 There are no vibration sources associated with the Proposed Development, therefore there will be no cumulative impact associated with vibration.

Traffic and Transport

- 13.5.80 Traffic and transport impacts and effects for the Proposed Development include:
- Impacts upon severance and amenity during construction, operation and decommissioning to pedestrians, horse riders and cyclists considered to be a negligible effect (not significant in EIA terms);
 - Car driver and passenger driver delay during construction, operation and decommissioning considered to be a negligible effect (not significant in EIA terms); and
 - Car driver and passenger accidents and safety during construction, operation and decommissioning considered to be a negligible effect (not significant in EIA terms).
- 13.5.81 The traffic modelling used for the Proposed Development has inherently assessed the cumulative impacts already of the following shortlisted 'other developments' within the Zol for traffic and transport as part of its future baseline scenario –
- Gately Moor Solar Farm (22/00727/FUL)

- Whinfield Solar Farm (21/00958/FUL)
- Forrest Park (DM/19/00283/OUT)
- Plot 3B Merchant Park Millenium Way Aycliffe Business Park (DM/23/02905/FPA)
- Concrete plant Aycliffe Quarry (DM/23/03701/WAS)

13.5.82 The future baseline has also considered the remaining shortlisted ‘other developments’, but has not included any traffic associated with these in the future baseline for the following reasons:

- Summerville Farm Housing Development (22/0334/EIS) – The available information notes that HGVs will travel via Letch Lane to access this site during the construction period. The information notes that construction is likely to take around 8-9 years starting in 2022 so there is a probability of some overlap with the construction of the Proposed Development. However, no specific detail in terms of the number of construction vehicles has been provided and Letch Lane is just outside the Zol of the Proposed Development. Trips from the Summerville Farm development will be dispersed along routes outside the Zol including the A177 and Harrowgate Lane and therefore any additional traffic within the Zol is expected to be negligible.
- California Farm Solar Farm (22/1511/FUL) – Approved in 2023, this Solar Farm development is located south-east of Carlton with access gained off Drovers Lane and Letch Lane. The CTMP for the development outlines that trips using the Letch Lane access will travel via the A19 to the east of the site and travel onto the A1027 and Harrowgate Lane to access Letch Lane; these routes are all to the south and east of the Zol. Access to Drovers Lane will be via the A66 and Yarm Back Lane, again to the south of the Zol.
- Bishopton Lakes (21/01086/FUL) – This development, which is still awaiting a decision on planning, is located south of Bishopton village and includes the development of 24 holiday lodges and a new access track. There is no formal transport documentation provided with the application but the highway officer response notes that it could generate an additional 3 movements through Bishopton Village (within the Zol) which is not considered a material impact. Given the lack of information, the conclusions of the highway officer and the location of the site to the south of the Zol, the development has not been included in the Future Baseline.
- Middlefield Farm (20/2692/FUL) – This Solar Farm development is located east of the Zol and all traffic is routed via the A177, which is outside the Zol of the Proposed Development.
- Long Pasture (22/01329/FUL) – This proposed Solar Farm is located south of the Proposed Development and would be accessed via the A66 and Darlington Back Lane. All traffic would utilise routes to the west and would not cross into the Zol.
- DB Symmetry Phase 2 Land East of Lingfield Estate Lingfield Point (19/00036/OUT) – The traffic from Lingfield Estate is not expected to use the same routes as Byers Gill construction traffic and is therefore outside the Zol of the Proposed Development.
- Proposed new NWL Water Main Ketton Lane (23/00733/SCO) - The construction traffic will use some of the same access routes as Byers Gill and will intersect

Byer’s Gill Access Routes in a handful of locations. However, due to this application only being at the scoping stage, it is unlikely that the two projects will be in construction simultaneously.

- Land north east of Ricknall Grange Farm Ricknall Lane Preston-le-Skerne (DM/23/02331/FPA) – The development is located west of the Proposed Development and associated access is set to be via a new temporary access road.
- Land off Cygnet Drive Bowesfield Lane Stockton-on-Tees (23/2102/FUL) – The proposed housing development is located west of the Proposed Development and would be accessed via the A135, which is outside the Zol of the Proposed Development.
- Land at Westland Way Stockton-On-Tees (23/1819/FUL) – The proposed industrial unit is located west of the Proposed Development and would be accessed via the A135, which is outside the Zol of the Proposed Development.
- Land at Wynyard Village Wynyard (23/0261/OUT) –This development, which is still awaiting a decision on planning, is located north of the Proposed development, in Wynyard. There is no formal transport documentation provided with the application, but the highway officer response recommends that it should not be given planning permission. Therefore, given the lack of information, the conclusions of the highway officer and the location of the site to the north of the Zol, the development has not been included in the Future Baseline.
- Land west of Maynard Grove Wynyard (20/2408/OUT) – The application for 130 dwellings and a new local centre is located to the north of the Zol. 100% of the predicted residential trips are to gain access to the A689 network via the A689 Hartlepool Road, The Wynd, The Meadows roundabout. Therefore, the development has not been included in the future baseline.

13.5.83 Due to the nature of the traffic and transport assessment, no further cumulative assessment is required in this chapter as all ‘other developments’ have already been considered, and either accounted for or discounted with justification under the topic assessment for traffic and transport.

13.6 Summary

13.6.1 Table 13-11 provides a summary of the identified cumulative effects of the Proposed Development.

Table 13-11 Cumulative effects summary

| Topic | Conclusion |
|----------------|---|
| Climate change | Due to the nature of the climate change assessment, no further cumulative assessment is required. However, it is noted that cumulative effects with other renewable energy production developments are reasonably expected to provide a notable beneficial effect in the UK’s journey towards net-zero as this is intrinsic to their need. It is reasonable to assume this could be considered significant in EIA terms due to its potential national influence. |

| Topic | Conclusion |
|-----------------------------------|---|
| Biodiversity | <p>Cumulative effects are expected in relation to habitat loss, and the knock-on impact to fauna, but these would be local in nature and are not significant in EIA terms.</p> <p>A notable cumulative benefit in terms of biodiversity net gain is reasonable to assume given the incoming national requirement to deliver a 10% minimum net gain. This could be considered significant in EIA terms due to its potential influence both locally and more nationally in terms of halting the decline of biodiversity and encouraging its restoration.</p> |
| Landscape and visual | <p>As outlined, a number of the short-listed developments are included within the future baseline as part of the assessment in Chapter 7, Landscape and Visual (Document Reference 6.2.7, Revision 2) with consideration of cumulative effects therefore inherent within the topic specific assessment and not repeated within this chapter. This cumulative assessment is therefore focussed on those schemes which are listed at paragraph 13.5.39. Adverse cumulative effects with these proposed developments are limited by virtue of the surrounding topography, glimpsed views, intervening distances and screening both from the Proposed Development itself and the presence of screening not associated with the Proposed Development. As such cumulative effects upon landscape character and changes to views would not be significant in EIA terms.</p> |
| Cultural heritage and archaeology | <p>No cumulative effects identified on heritage assets or archaeological remains.</p> |
| Land use and socioeconomics | <p>Generation of additional construction and decommissioning employment and wider localised economic related benefits is considered a benefit, but cannot be quantified.</p> <p>Limited cumulative effect upon recreational and community facilities, as such this is not significant in EIA terms.</p> <p>Limited cumulative effect on PRoWs which will be temporary in nature, as such this is not significant in EIA terms.</p> <p>The cumulative extent of temporary loss of agricultural land is considered to be potentially significant in EIA terms. There is no essential mitigation available to reduce this effect.</p> |
| Hydrology and flood risk | <p>Limited cumulative effect between developments that may collectively increase flood risk, or reduced water quality, during construction or operation. Not significant in EIA terms.</p> |
| Noise and vibration | <p>Noise associated with the Proposed Development is not anticipated to have a discernible cumulative impact on any common nearby sensitive receptors during construction, operation or decommissioning. Not significant in EIA terms.</p> <p>There are no vibration sources associated with the Proposed Development, therefore there will be no cumulative impact associated with vibration.</p> |
| Traffic and transport | <p>Due to the nature of the traffic and transport assessment, no further cumulative assessment is required as all 'other developments' have already been considered and their cumulative impacts understood under the future baseline scenario within the topic specific assessment.</p> |

13.6.2 Table 13-12 provides a summary of the identified in-combination effects of the Proposed Development.

Table 13-12 In-combination effects summary

| Receptor group | Conclusion |
|---|---|
| Human receptors in proximity to the works | No significant effect interactions expected – not significant in EIA terms. |
| Ecological Designated Sites and county level designations and priority habitats | No in-combination effects identified, intrinsically assessed in the biodiversity assessment. |
| Protected Species | No significant effect interactions expected – not significant in EIA terms. |
| Designated Heritage features | No in-combination effects identified, intrinsically assessed in the cultural heritage assessment. |

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