

A303 Sparkford to Ilchester Dualling Scheme TR010036

6.1 Environmental Statement

Chapter 14 Combined and Cumulative Effects

APFP Regulation 5(2)(a)
Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009
July 2018

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Infrastructure Planning

Planning Act 2008

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

**A303 Sparkford to Ilchester Dualling
Scheme**

Development Consent Order 201[X]

**6.1 Environmental Statement
Chapter 14 Combined and Cumulative Effects**

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14 Combined and Cumulative Effects

14.1 Introduction

- 14.1.1 This chapter presents the assessment of likely significant effects of combined and cumulative effects for the A303 Sparkford to Ilchester Dualling scheme (hereafter referred to as 'the scheme').
- 14.1.2 This assessment has been undertaken in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11 Section 2 Part 5: *Assessment and Management of Environmental Effects*¹ and the Planning Inspectorate's Advice Note Seventeen: *Cumulative Effects Assessment*².
- 14.1.3 Combined and cumulative effects result from multiple actions on receptors over time and are generally additive or interactive (synergistic) in nature. They can also be considered as effects resulting from incremental changes caused by other past, present or reasonably foreseeable actions together with the scheme, identified as:
- Combined effects from a single project (the inter-relationship between different environmental factors).
 - Cumulative effects from different projects (with the project being assessed).
- 14.1.4 Chapter 2 The Scheme of Volume 6.1 contains a detailed description of the scheme. The drawings references in this chapter can be found in Volume 6.2, while the technical appendices are presented in Volume 6.3.

14.2 Competent expert evidence

- 14.2.1 The competent expert is an Environmental Coordinator with a BSc in Physical Geography, MSc in Environmental Science and 4 years post-graduate professional work experience in the field of Environmental Impact Assessment (EIA) specialising in highways projects. The competent expert is a Practitioner Member of the Institute of Environmental Management and Assessment (IEMA). The competent expert has completed Combined and Cumulative Effects chapters for Environmental Assessment Reports and an assessment for a Nationally Significant Infrastructure Project (NSIP) Environmental Statement.

¹ Highways England (2008) Design Manual for Roads and Bridges Volume 11, Section 2, Part 5 *Assessment and Management of Environmental Effects*.

² The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: *Cumulative Effects Assessment relevant to nationally significant infrastructure projects* [online] available at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (last accessed May 2018).

14.3 Legislative and policy framework

National Policy Statement for National Networks

- 14.3.1 The need to consider cumulative effects in planning and decision making is set out in planning policy, in particular the *National Policy Statement for National Networks* (NPSNN)³.
- 14.3.2 Paragraph 4.16 states that “*When considering significant cumulative effects, any Environmental Statement should provide information on how the effects of the applicant’s proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence)*”.

Highways England policy

- 14.3.3 The Highways England *Delivery Plan*⁴ states that, in complying with Section 4.2(g) and its general duty under Section 5(2) of the *Infrastructure Act 2015* to have regard for the environment, the Licence holder must ‘*consider the cumulative environmental impact of its activities across its network and identify holistic approaches to mitigate such impacts and improve environmental performance*’.

14.4 Assessment methodology

- 14.4.1 This section describes the methodology which has been used for the assessment of combined and cumulative effects which may affect, or be affected by, the construction of the scheme.
- 14.4.1 The methodology was presented within Chapter 16 of the ***Environmental Impact Assessment (EIA) Scoping Report (Document Reference: HE551507-MMSJV-EGN-000-RP-LP-0014)*** issued to the Planning Inspectorate in November 2017. The Scoping Opinion is contained within Appendix 4.1 of Volume 6.3. A schedule of responses detailing how each of the Scoping Opinion comments have been considered as part of this chapter is contained within Appendix 4.2 of Volume 6.3. No amendments to the methodology as presented within the EIA Scoping Report has been necessary.

³ Department for Transport (2014) *National Policy Statement for National Networks*: Presented to Parliament pursuant to Section 9 (8) and Section 5 (4) of the Planning Act Department for Transport (2008) *National Policy Statement for National Networks*. [online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/387222/npsnn-print.pdf (Last Accessed April 2016).

⁴ Highways England (2015) *Highways England Deliver Plan* [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/424467/DSP2036-184_Highways_England_Delivery_Plan_FINAL_low_res_280415.pdf (last accessed July 2018).

- 14.4.2 A proposal for a Garden Settlement (South West Strategic Developments)⁵ has been identified from Grass Roots Planning Limited. The EIA Scoping Opinion (Appendix 4.1 of Volume 6.3) highlighted this development and requested the assessment of this proposal within this chapter. However, this development proposal has not been identified within the South Somerset Local Plan⁶ and no planning application has been submitted. The proposals therefore, do not meet the criteria detailed within paragraph 14.4.8, and have not been considered further within this cumulative effects assessment.
- 14.4.3 The assessment has been undertaken in accordance with the principles set out in Chapter 4 Environmental Assessment Methodology in Volume 6.1. The approach for combined and cumulative effects follows the guidance presented within DMRB Volume 11 Section 2 Part 5: *Assessment and Management of Environmental Effects*⁷ and the Planning Inspectorate's Advice Note Seventeen: *Cumulative Effects Assessment*⁸, along with professional judgment. The outcome has been used to aid the development of appropriate mitigation measures in order to avoid or reduce potential adverse effects.

Combined effects

- 14.4.4 The methodology for the assessment of combined effects follows DMRB Volume 11 Section 2 Part 5: *Assessment and Management of Environmental Effects*⁷. The methodology involves the identification of impact interactions associated with the scheme upon separate environmental receptors, in order to better understand the overall environmental effect of the proposed scheme. The significance of construction and operational phase environmental effects are brought forward from the preceding chapters of this ES (Chapter 5 to 13 of Volume 6.1) into a matrix, providing an overview the potential effects on individual receptors. The significance of combined effects upon each environmental resource has then been made based upon the balance of scores and using professional judgement (refer to section 14.4.13 to 14.4.17 below).

⁷ Highways England (2008) Design Manual for Roads and Bridges Volume 11, Section 2, Part 5 *Assessment and Management of Environmental Effects*.

⁸ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: *Cumulative Effects Assessment relevant to nationally significant infrastructure projects* [online] available at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (last accessed May 2018).

Cumulative effects

14.4.5 The assessment methodology for cumulative effects involves the identification of incremental changes likely to be caused by other developments together with the scheme.

14.4.6 This assessment follows the methodology outlined in PINS Advice Note Seventeen: *Cumulative Effects Assessment*⁹ with the 4 stages of assessment followed:

- Stage 1: Establish the ZOI and a Long List of 'Other Development'.
- Stage 2: Identify a Short List of 'Other Development' for assessment.
- Stage 3: Information gathering.
- Stage 4: Assessment.

14.4.7 For the purposes of this assessment, the following criteria, based on the type and scale of potential effects generated by a proposed development, were used to determine other developments. This criterion is based on the screening criteria as part of the amendments to the *Town and Country Planning (Environmental Impact Assessment) Regulations 2017*¹⁰. This criteria has been selected as the majority of other developments being considered fall under the Town and Country Planning regime. Other developments include those that are classified as NSIPs.

- The development includes more than 1 hectare of development which is not dwelling house development.
- The development includes more than 150 dwelling houses.
- The area of the development exceeds 5 hectares.

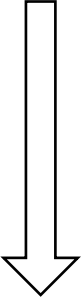
14.4.8 It is important to note that proposed developments that are close to the threshold limits but have characteristics likely to give rise to significant cumulative effects, or for which could give rise to a cumulative effect by virtue of its proximity to the proposed scheme, have also been considered in this assessment, as recommended by The Planning Inspectorate's *Advice Note Seventeen: Cumulative Effects*.

⁹ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: *Cumulative Effects Assessment relevant to nationally significant infrastructure projects*. Available online at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (Last accessed May 2016).

¹⁰ Statutory Instrument (2017) The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

14.4.9 The other developments are grouped into tiers, reflecting the likely degree of certainty attached to each development, with Tier 1 being the most certain, as shown in Table 14.1. Other development falling into Tier 3 is least certain and most likely to have limited publicly available information to inform assessments.

Table 14.1: Likely degree of certainty assigned to each tier

Tier	Likely degree of certainty	<p>Decreasing level of detail likely to be available</p> 
Tier 1	<ul style="list-style-type: none"> Under construction*. Permitted application(s), whether under the <i>Planning Act 2008</i> or other regimes, but not yet implemented. Submitted application(s) whether under the <i>Planning Act 2008</i> or other regimes but not yet determined. 	
Tier 2	<ul style="list-style-type: none"> Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has been submitted. 	
Tier 3	<ul style="list-style-type: none"> Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has not been submitted. Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as the move closer to adoption) recognising that much information on any relevant proposals will be limited. 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. 	

* Where other projects are expected to be completed before construction of the proposed scheme and the effects of those projects are fully determined, effects arising from them should be considered as part of the baseline and may be considered as part of both the construction and operational assessment.

Source: The Planning Inspectorate (2015) Advice Note Seventeen: *Cumulative Effects Assessment relevant to nationally significant infrastructure projects*.

14.4.10 In addition to the tier system outlined in Table 14.1 above, the traffic model includes a scoping criteria that was used to decide which developments should be included within the traffic model, based on the certainty of outcome, shown in Table 14.2 below. The traffic model only includes those developments that are considered as being Near Certain and More Than Likely. In addition to this a search for Tier 3 developments has been conducted to align with The Planning Inspectorate's *Advice Note Seventeen: Cumulative Effects* as per Table 14.1 above.

Table 14.2: Certainty of outcome and development status

Certainty of outcome	Development status
Near Certain: The outcome will happen or there is a high probability of it occurring.	<ul style="list-style-type: none"> • Intent announced by proponent to regulatory agencies. • Approved development proposals. • Projects under construction.
More Than Likely: The outcome is likely to happen but some uncertainty.	<ul style="list-style-type: none"> • Development application within the consent process and in accordance with development plan.
Reasonably Foreseeable: The outcome may happen but significant uncertainty.	<ul style="list-style-type: none"> • Identified within a development plan and, although not directly associated with the project, may occur if the project is implemented.
Hypothetical: There is considerable uncertainty whether the outcome would ever happen.	<ul style="list-style-type: none"> • Conjecture based upon currently available information. • Discussed on a conceptual basis. • One of a number of possible inputs in an initial consultation process.

14.4.11 Rather than reporting every interaction, the methodology for the assessment of cumulative effects concentrates on the likely significant effects, and aims to differentiate between permanent, temporary, direct, indirect and secondary effects, positive or negative.

Significance criteria

14.4.12 For the purposes of this combined and cumulative effects assessment, the value of a resource and magnitude of impact is determined according to the criteria set within the preceding chapters of this ES. Typically, the greater the environmental sensitivity or value of the receptor or resource, and the greater the magnitude of impact, the greater the effect. The significance of effect is then carried forward from preceding chapters to enable an assessment of combined and cumulative significance upon environmental receptors, as well as to identify the significance of cumulative effects with other developments. Typical descriptors of combined and cumulative significance are included within Table 14.3, which reflects this approach.

14.4.13 Overall significance is determined with mitigation included, in accordance with Table 14.4 and outlined in DMRB Volume 11, Section 2, Part 5 (HA 205/08)¹¹. A “cumulative adverse effects” approach to assigning overall significance has been applied, with reference to guidelines included within TAG Unit A3 Environmental Impact Appraisal¹². This principle states that ‘where it is clear that there is a cumulative effect across a range of key environmental resources,

¹¹ Highways Agency (2007) Design Manual for Roads and Bridges, Volume 11, Section 2, Part 5, (HA 205/08)

¹² Department for Transport (2015) TAG Unit A3 Environmental Impact Appraisal [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/638648/TAG_unit_a3_envir_imp_app_dec_15.pdf (last accessed June 2018).

then the scheme as a whole should be scored in a higher category than the key environmental resources in isolation. The existence of cumulative effects will usually depend on there being some similarity in the characteristic features or attributes of the affected key environmental resources’.

14.4.14 Nine significance descriptors have also been aligned with the considerations included within The Planning Inspectorate’s Advice Note Seventeen: *Cumulative Effects*¹³. Effects can be additive (such as the loss of 2 pieces of woodland of 1 hectare, resulting in 2 hectares cumulative woodland loss) or synergistic (2 discharges combining to have an effect on a species not affected by discharges in isolation).

14.4.15 For the purposes of this assessment, effects that are Moderate Adverse or Beneficial and above are considered to be significant.

14.4.16 Where significant combined and cumulative effects, beyond those identified as residual effects from the proposed scheme in isolation, have been identified, additional mitigation measures have been proposed.

Table 14.3: Combined and cumulative effects significance definitions

Significance category	Typical descriptors of effect
Very Large (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain future major development upon an individual or collection of environmental receptors would be very highly significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of very high value.
Large (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain major future developments upon an individual or collection of environmental receptors would be highly significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of high value. • Localised for a receptor of very high value. • Temporary for receptor of very high value.
Moderate (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain major future developments upon an individual or collection of environmental receptors would be significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of medium value. • Localised for receptors of high value. • Temporary for a receptor of high value.
Slight (Adverse or Beneficial)	Where the balance of the effects of the Scheme or combined effects of the Scheme in association with other existing or more than likely / near certain major development upon an individual or collection of environmental

¹³ The Planning Inspectorate (PINS) (2015) Advice Note Seventeen: *Cumulative Effects Assessment relevant to nationally significant infrastructure projects* [online] available at: <http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> (last accessed May 2018).

Significance category	Typical descriptors of effect
	receptors would be noteworthy but not significant (positive or negative). Effects would be: <ul style="list-style-type: none"> • Permanent and far reaching for receptors of low value. • Localised for receptors of medium value. • Temporary for a receptor of medium value.
Neutral	Where the positive or negative effects of the Scheme or the combined effects of the Scheme in association with other existing or more than likely / near certain future major developments would balance.

Source: Based on Table 2.3 of DMRB Volume 11 Section 2 Part 5 HA 205/08

Table 14.4: Matrix for the assessment of significance of effects

Value / Sensitivity	Magnitude of impact				
	No change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Large or Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Slight or Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Consultation

14.4.17 The Planning Teams at South Somerset District Council and Somerset County Council were consulted with to review the long list of proposed developments and to provide any additional developments / further details to aid the assessment. The email correspondence confirming this consultation is contained within Appendix 4.9 of Volume 6.3.

14.4.18 Scheme-wide consultation details are provided in Section 5.5, Chapter 4, Volume 6.1.

14.5 Assessment assumptions and limitations

14.5.1 The cumulative effects assessment has been based on the description of the scheme detailed in Section 2.5 of Chapter 2 (Volume 6.1), including the horizontal and vertical limits of deviation.

14.5.2 This assessment has been carried out using professional judgement and based on currently available information. It is likely that some of the environmental effects of the other developments outlined within this chapter will be

superseded as detailed design for the other developments continues. However, where limited information was available a worst-case approach has been taken to identifying the likely environmental effects of the other developments, and therefore the overall conclusions are unlikely to change (specifically worsen) if further detailed assessment is undertaken for the developments.

- 14.5.3 The list of other developments has been identified through analysis of the planning portal, and confirmed through consultation with South Somerset District Council and Somerset County Council¹⁴. The South Somerset Local Plan¹⁵ was reviewed to check if any of the proposed developments would meet the screening criteria, none were identified. However, it should be highlighted that although every care has been made to include every relevant development, it cannot be guaranteed that all have been included. For the purpose of this assessment the cut-off date for including additional developments was 12 April 2018.
- 14.5.4 The cumulative effects assessment relies on environmental information submitted as part of the other development planning applications. Therefore, where an assessment has not been undertaken for an environmental topic, it has been assumed that the environmental topic has been scoped out, and as such, no effects are anticipated. It should also be noted that the assessment of likely significant environmental effects will differ slightly across the proposed developments as assessments have been undertaken by multiple parties with variations in professional opinion. In addition, some assessments may have taken a balanced approach to the assessment of effects, whilst other assessments may take a worst-case approach.
- 14.5.5 In some instances, the construction start and finish dates are not available for the other developments, and despite consultation with South Somerset District Council and Somerset County Council, have not been confirmed. In these instances, it has been assumed that either part or all of the construction phase would fall within the construction phase, reflecting a worst-case scenario approach.

¹⁴ <https://www.southsomerset.gov.uk/planning-and-building-control/view-a-planning-application-online/>

¹⁵ South Somerset District Council (2015) South Somerset Local Plan (2006-2028) [online] available at: https://www.southsomerset.gov.uk/media/707200/south_somerset_local_plan_2006-2028_adoption_version_march_2015.pdf (last accessed June 2018).

14.6 Study area

Combined effects

- 14.6.1 The study area for the assessment of combined effects reflects the study areas, also termed the spatial Zones of Influence (ZOI), identified within the relevant topic chapters of this ES (Chapters 5 to 13 of Volume 6.1). These study areas are shown in Figure 14.1 of Volume 6.2.

Cumulative effects

- 14.6.2 DMRB Volume 11, Section 2, Part 5, states that the study area for the assessment of cumulative effects should be defined on a case-by-case basis reflecting the scheme in question and the area over which significant effects can reasonably be considered to have the potential to occur from both the scheme and in combination with other developments. On this basis, given the scope and scale of the proposed works, the study area used for the identification of other developments for the assessment of cumulative effects reflects a 2 kilometres Zone of Influence (ZOI) around the boundary of the scheme.
- 14.6.3 In addition, the individual ZOIs of the topic chapters, outlined in Table 14.5 below, have been used to define the study area for environmental resources included in the assessment of cumulative effects. These environmental resources have been aligned with the requirements of Regulation 5(2) of the *Infrastructure Planning (EIA) Regulations 2017*¹⁶.
- 14.6.4 Table 14.5 below includes just the construction stage study areas for air quality and noise and vibration, and does not include the operational study areas, as the operational cumulative effects have been assessed in Chapter 5 Air Quality and Chapter 11 Noise and Vibration, Volume 6.1. This is because the air quality and noise operational assessments have used the traffic model which includes all the relevant proposed developments and by default cumulative effects are included in their operational assessments, although not explicitly mentioned within Chapter 5 Air Quality and Chapter 11 Noise and Vibration, Volume 6.1. The air quality and noise assessments (presented in Chapter 5 Air Quality and Chapter 11 Noise and Vibration, Volume 6.1) have calculated and assessed the traffic emissions and traffic noise from the scheme together with the developments, upon receptors. Therefore, a cumulative assessment has already been undertaken within the air quality and noise chapters during operation.

¹⁶ Statutory Instruments (2017) Infrastructure Planning (EIA) Regulations 2017 [online] available at: http://www.legislation.gov.uk/uksi/2017/571/pdfs/uksi_20170571_en.pdf (last accessed June 2018).

14.6.5 As such, the assessment of cumulative effects has been undertaken on a topic-by-topic basis, with the assessment of other developments in combination with the scheme undertaken where the ZOIs for the same topic chapter overlap. Figure 14.1 shows the ZOIs and additional receptors included in the assessment.

Table 14.5: ZOI for environmental factors and associated DMRB topics

Environmental factor	DMRB topic	Zone of Influence (Zoi)
Population and human health	Air Quality	<ul style="list-style-type: none"> • Construction: <ul style="list-style-type: none"> ○ 200m from the site boundary as the ZOI for construction dust.
	Noise and Vibration	<ul style="list-style-type: none"> • Construction: <ul style="list-style-type: none"> ○ 300m from the site boundary as the ZOI for construction noise and vibration.
	People and Communities	<ul style="list-style-type: none"> • Construction and Operation: <ul style="list-style-type: none"> ○ 250m ZOI for Public Rights of Way (PRoWS), footpaths, cycleways, bridleways, restricted byways, and Non-Motorised Users (NMU) crossings as well as roads (and subsequent impact on Driver Stress) private assets, community land, development land, agricultural land, and community severance. ○ A ZOI of all vehicles and non-motorised vehicles that use, meet or cross the scheme extents. • See Chapter 12 People and Communities of Volume 6.1 for more information.
Biodiversity	Biodiversity	<ul style="list-style-type: none"> • Construction and Operation: A 2km ZOI which is the maximum ZOI extent used within the Biodiversity Assessment. • See Chapter 8 Biodiversity of Volume 6.1 for more information.
Land, soil, water, air and climate	Geology and Soils	<ul style="list-style-type: none"> • Construction and Operation: All locations where physical works and ground disturbance would take place, plus a 250m buffer. • Chapter 9 Geology and Soils of Volume 6.1 for more information.
	Climate	<ul style="list-style-type: none"> • Construction and Operation: For the purposes of the vulnerability to climate assessment, the study area has been defined as the physical infrastructure assets associated with the scheme (such as earthworks, structures, pavement), contained within the red line boundary identified on Figure 14.1 of Volume 6.2. The study area for the assessment of effects on the scheme on climate includes the construction carbon from emissions associated with project construction activities and associated travel and for operation, the lifecycle carbon of scheme assets*. • See Chapter 13 Climate of Volume 6.1 for further information.
Material assets, cultural heritage, and the landscape	Cultural Heritage	<ul style="list-style-type: none"> • Construction and Operation: A 1km ZOI which is the maximum ZOI extent used within the Cultural Heritage assessment, allowing a full understanding of the context and setting of the heritage assets. In addition, 3

Environmental factor	DMRB topic	Zone of Influence (Zoi)
		additional Heritage Assets (Scheduled Monuments) within 14km of the scheme have been included. <ul style="list-style-type: none"> • See Chapter 6 Cultural Heritage of Volume 6.1 for more information.
	Landscape	<ul style="list-style-type: none"> • Construction and Operation: 1km ZOI for landscape and visual impacts. In addition, 3 elevated views within 3.4km of the scheme have been included. • See Chapter 8 Landscape of Volume 6.1 for further information.
	Materials*	<ul style="list-style-type: none"> • Construction: ZOI defined by the influence of the scheme, rather than through a set geographical location – quantity of materials required and generation of waste, therefore not shown on Figure 14.1. • Operational phase not assessed. • See Chapter 10 Materials of Volume 6.1 for more information.

*Due to the nature of the study area being non-geographical and non-visual, no study area is shown on Figure 14.1 of Volume 6.2.

14.7 Baseline conditions

Combined effects

14.7.1 The baseline for the combined effects is described in the individual environmental topic chapters that precede this chapter (Chapters 5 to 13 of Volume 6.1).

Cumulative effects

14.7.2 As part of Stage 1 in the cumulative effects assessment (see paragraph 14.4.4 for a description of the stages of assessment), a list of developments has been identified from those developments included in the traffic uncertainty log and the Planning Inspectorate's Programme of Projects¹⁷. The list of developments has been confirmed through consultation with the Planning Teams at South Somerset District Council and Somerset County Council. These developments are identified in Table 14.6 under Stage 1 and represent the Long List of 'other developments'.

¹⁷ <https://infrastructure.planninginspectorate.gov.uk/projects/>

Table 14.6: Long list – identification of other development for the cumulative effects assessment

Other development details				Stage 1				Stage 2			
ID	Application name and reference	Applicant for other development and brief description	Distance from scheme	Status	Tier	Within ZOI	Progress to Stage 2	Overlap in temporal scale?	Scale and nature of development likely to have a significant effect?	Other factors	Progress to Stage 3 / 4
1	Haynes Publishing (16/00725/OUT)	Boon Brown Architects (agent). Outline planning application seeking permission for mixed use redevelopment (residential / commercial) together with associated works and access ways.	204m east	Planning application approved in April 2017.	Tier 1	Yes: • Geology and Soils • People and Communities • Landscape • Cultural Heritage • Biodiversity • Material Assets and Waste • Climate • Air quality • Noise	Yes	Unknown so assumed yes	Yes, over 2.2ha of non-residential development.	Not applicable	Yes
2	Proposed solar farm and associated equipment (18/00295/EIASS)	Intelligent Alternatives. Proposed solar farm and associated equipment.	907m south	Planning application submitted to SSDC on January 17 2018.	Tier 1	Yes: • Biodiversity • Landscape • Material Assets and Waste • Climate	Yes	Unknown	Unknown, EIA screening concluded that EIA was not required.	Not applicable	Yes
3	Longhazel Farm (14/01958/FUL)	Applicant: Mr Richard Mead. Erection of 28 dwelling houses and 1 commercial unit all with associated highways and landscaping.	0m south	Decision of application permitted with conditions made on 17 March 2016.	Tier 1	Yes: • Geology and Soils • People and Communities • Landscape • Cultural Heritage • Biodiversity • Material Assets and Waste • Climate	Yes	Unknown	No, does not meet the screening criteria as described in section 14.4.5.	Not applicable	No
4	Land Rear of the Burrows (14/05052/FUL)	Applicant: Mr & Mrs Nigel Tucker. Residential development of 11 dwellings.	0m south	Decision of application permitted with conditions made on 25 September 2017.	Tier 1	Yes • Geology and Soils • People and Communities • Landscape • Cultural Heritage • Biodiversity • Material Assets and Waste • Climate	Yes	Unknown	No, does not meet the screening criteria as described in section 14.4.5.	Not applicable	No
5	Land at South Street (16/00269/REM)	Applicant: Val Russell R.I.B.A. (agent) The erection of a detached dwelling with garage.	561m south	Decision of application permitted with conditions made on 25 April 2016.	Tier 1	Yes: • Landscape • Biodiversity • Material Assets and Waste • Climate	Yes	Unknown	No, does not meet the screening criteria as described in section 14.4.5.	Not applicable	No
6	Land North of Troubridge Park / Land North of Dragonfly Chase (15/00024/OUT)	Rev. D G H Young, J J H Young & P W Young.	2.3km south	Decision of application permitted made on 03 November 2016.	Tier 1	No – none of the Zols overlap.	No due to none of the Zols overlapping, therefore no cumulative interactions are expected.	Not applicable	Not applicable	Not applicable	Not applicable

Other development details				Stage 1				Stage 2			
ID	Application name and reference	Applicant for other development and brief description	Distance from scheme	Status	Tier	Within ZOI	Progress to Stage 2	Overlap in temporal scale?	Scale and nature of development likely to have a significant effect?	Other factors	Progress to Stage 3 / 4
7	A303 Stonehenge	Highways England	Over 30km east	EIA Scoping report submitted to the Planning Inspectorate.	Tier 3	No – none of the Zols overlap.	No due to none of the Zols overlapping, therefore no cumulative interactions are expected.	Not applicable	Not applicable	Not applicable	Not applicable
8	A358 Taunton to Southfields	Highway England	Over 30km west	Within the Highways England Road Investment Strategy (RIS) 2015 - 2010 ¹⁸ .	Tier 3	No – none of the Zols overlap.	No due to none of the Zols overlapping, therefore no cumulative interactions are expected.	Not applicable	Not applicable	Not applicable	Not applicable

¹⁸ Department for Transport (2016) Road Investment Strategy: for the 2015/16 – 2019/20 Road Period [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408514/ris-for-2015-16-road-period-web-version.pdf (last accessed June 2018).

14.7.3 As part of Stage 2, the Long List of other developments identified in Stage 1 has been reduced to a Short List using the inclusion / exclusion criteria described above in paragraph 14.1.15.

14.7.4 Figure 14.2 and 14.3 Volume 6.2 and Table 14.7 show the locations of the other developments contained within the Short List in relation to the overall study area for cumulative effects (consisting of the 2 kilometre ZOI around the scheme) used in this assessment.

Table 14.7 Short List of other developments

List other developments identified at Stage 2		Short List taken forward to Stage 3?
ID	Other development name and reference	
1	Haynes Publishing (16/00725/OUT)	Yes
2	Proposed solar farm and associated equipment (18/00295/EIASS)	Yes

14.8 Potential impacts

Combined effects

14.8.1 During construction and operation, there is the potential for combined effects to all receptors including geology and soils, landscape, cultural features, communities, vehicle travellers, ecology, and material resources, due to the potential effects reported in Chapters 5 to 13 of Volume 6.1.

14.8.2 These effects would potentially include the culmination of disturbance from construction dust, noise, vibration, and lighting or other visual intrusions on sensitive wildlife, human and visual receptors in addition to construction traffic and disruption to journeys. However, during construction effects would be temporary in nature and best practice mitigation measures included in the Construction Environmental Management Plan (CEMP) would ensure that combined effects are reduced as far as possible.

14.8.3 During operation potential effects would include adverse effects to the landscape and historic features due to the combination of impacts on single sensitive receptors including viewpoints, landscape character areas and historic assets. Combined effects during operation, although permanent, would be reduced as far as possible through best practice mitigation.

Cumulative effects

14.8.4 During construction, there would be the potential for cumulative effects on all receptors, as a result of the proposed scheme cumulatively with any of the other developments, for which the construction stages overlap. These effects could include (but not limited to) a culmination of disturbance from construction dust, noise, vibration, and lighting or other visual intrusions on sensitive wildlife,

human and visual receptors in addition to construction traffic and disruption to journeys through the impact of overlapping construction periods. However, effects would be temporary in nature and it is assumed that best practice measures would be included in a CEMP for each of the other developments, reducing the likelihood of significant cumulative effects.

- 14.8.5 Once operational there would be the potential for cumulative effects to receptors, including (but not limited to) habitats, protected species, agricultural land, noise and air quality. These impacts could include adverse effects on the landscape due to a change in the landscape character area culminating from the synergistic change in landscape or the synergistic interaction from impacts on biodiversity. However, it is assumed that mitigation would be provided by the other developments to offset any significant environmental effects brought about as a result of the development, and monitoring of significant effects would also be in place for those other developments that have gone through the statutory EIA process, which would reduce the likelihood of significant cumulative effects during operation.

14.9 Design, mitigation and enhancement measures

- 14.9.1 Chapters 5 to 13 of Volume 6.1 describe the mitigation that has been embedded in the design, construction stage mitigation and operational stage mitigation. No additional mitigation measures are required for combined effects.
- 14.9.2 There are no specific mitigation measures required to manage cumulative effects. However, it is anticipated that construction activities for each of the other developments would be undertaken in accordance with best practice measures to be implemented through a CEMP, ensuring that any adverse effects to the environment are avoided or reduced wherever possible. This would be in accordance with the developers' and contractors' environmental management system (EMS) and to adhere to national programmes and industry bodies such as the Considerate Constructors Scheme¹⁹ and CIRIA's guidance²⁰.
- 14.9.3 In addition, it is anticipated that plans including a Traffic Management Plan (TMP) and a Site Waste Management Plan (SWMP) would be implemented for the other developments during construction to avoid or reduce adverse effects to road users and the local community, and material resources and waste arisings. As part of this Development Consent Order (DCO) application, an ***Outline Environmental Management Plan (OEMP) (document reference***

¹⁹ Considerate Constructors (2018) [online] available at: <https://www.ccscheme.org.uk/> (last accessed May 2018).

²⁰ CIRIA (2018) *Environmental Good Practice on Site* [online] available at: https://www.ciria.org/Training/Training_courses/Environmental_good_practice_on_site.aspx (last accessed May 2018).

TR010036/APP/6.7) has been produced, which contains an **Outline TMP (Annex B.6 to the OEMP)**, and an **Outline SWMP (Annex B.1 to the OEMP)**.

14.10 Assessment of likely significant effects

Combined effects

Construction

- 14.10.1 The overall significance of the combined effects for the scheme during the construction phase has been assessed as being Moderate Adverse. Table 14.7 provides a matrix summary of the effects and the overall combined effects, which are described below.
- 14.10.2 For cultural heritage a combined Large Adverse effect is predicted. The detailed assessment presented in Chapter 6 Cultural Heritage (Volume 6.1) concluded that after mitigation, there would be significant adverse effects during construction for identified heritage assets due to construction activities impacting on the setting through increased noise and adverse visual effects. A range of significant adverse effects have been reported for Eyewell House, Hazlegrove Park Group and associated assets, Hazlegrove House and associated assets, the Roman-British Settlement at Camel Hill, a milestone on the A303 (MM30), Pepper Hill Cottage, Camel Hill, and The Spinney. The construction of the scheme and associated infrastructure would also have the potential to result in the destruction and permanent removal of a number of buried archaeological remains, resulting in a range of significant adverse effects.
- 14.10.3 The assessment in Chapter 7 Landscape (Volume 6.1) details a number of significant visual effects during construction. The specific heritage receptors relevant to this combined assessment with the potential to experience combined effects include views from Glebe Farm Grade II Listed Building and Annis Hill Farm residential receptors which would experience Large Adverse effects, and views from Hazlegrove House Gateway Grade II Listed Building (Registered Park and Garden) which would experience a Moderate Adverse effect. The assessment in Chapter 6 Cultural Heritage (Volume 6.1) does not list any significant effects to Glebe Farm Grade II Listed Building, therefore no combined effects are anticipated. For Hazlegrove House Gateway Grade II Listed Building (Registered Park and Garden) Moderate Adverse effects have been reported in both Chapter 6 Cultural Heritage and Chapter 7 Landscape (Volume 6.1), therefore a combined Large Adverse effect to this heritage asset is anticipated.
- 14.10.4 A combined Moderate Adverse effect is anticipated to the landscape of the area during construction. The assessment in Chapter 7 Landscape (Volume 6.1)

concluded that during construction LCA1 West Camel Hill would experience Slight Adverse effects, LCA 2 Hazlegrove experiencing a Large Adverse effect and LCA 6 West Camel and Wales would experience a Moderate Adverse effect, on balance this has been evaluated as Moderate Adverse. All other LCAs would experience Non-Significant effects with the majority being Neutral. The historic landscape would also experience Moderate Adverse effects on balance during construction as a result of the preceding factors. Chapter 6 Cultural Heritage (Volume 6.1) has reported that given the fact that the existing route of the A303 is along an ancient route and there has been limited truncation of individual fields and character areas, the impact of the proposed scheme would be limited and not result in a significant effect. This also takes into consideration the combined effects of climate change on the landscape in terms of vulnerability to climate. It is not expected that climate change would result in a change in the risk of severe weather during the construction period. Therefore, a combined Moderate Adverse effect is anticipated on the landscape due to the Moderate Adverse effects on the LCAs and historic landscape however there are no specific receptors that would experience additional combined effects from landscape and heritage as the cultural heritage assessment does not report any significant effects.

14.10.5 A combined Slight Adverse effect would be anticipated on biodiversity receptors during the construction period for the scheme. Chapter 6 Biodiversity of Volume 6.1 has reported an overall on balance Slight Adverse effect on biodiversity as a result of the scheme. This is due to the Slight Adverse effect during construction on Hazlegrove Park LWS, Camel Hill Transmitter Site LWS, Gason Lane Field LWS, Ridge Copse LWS, Downhead Manor Farm LWS, bats, badgers, barn owls, great crested newts, breeding birds, reptiles and invertebrates, and a Moderate Adverse effect during construction on hedgerows. The combined effect takes into consideration the on balance Slight Adverse effect on flora reported within Chapter 9 Geology and Soils of Volume 6.1, included within this category due to the potential for impairment of landscape and grassland redevelopment; however, effects are not considered to be significant. It is anticipated there would be no significant construction dust impacts to ecological receptors, as described in Chapter 5 Air Quality of Volume 6.1. The combined effect also takes into consideration the combined effects of climate change on biodiversity in terms of vulnerability to climate. It is not expected that climate change would result in a change in the risk of severe weather during the construction period. Therefore, combined effects would be likely on flora receptors associated with all the LWS mentioned above due to the combined Slight Adverse effect from the geology and soils assessment and the biodiversity assessment.

14.10.6 In terms of the geology and soils of the local area, a combined Moderate Adverse effect would be anticipated during construction. Slight Adverse effects

have been reported as a result of the potential for permanent removal / sterilisation of Superficial Deposits and high-quality site soil during construction. Soil deterioration and consolidation also add to the Slight Adverse effects due to poor storage and handling. In addition to vehicle movements and loading, as well as the potential for excess material to be generated requiring off-site disposal / transport and re-use with associated waste / carbon generation impacts. This combined Moderate Adverse effect also takes into consideration the Moderate Adverse impact on agricultural land as a national resource during construction predicted within Chapter 12 People and Communities of Volume 6.1. Therefore, agricultural land and the associated soils as a receptor are anticipated to potential combined Moderate Adverse effects.

14.10.7 A combined Slight Adverse effect is anticipated for materials during construction, largely due to the potential for Not Significant effects reported within Chapter 10 Material Assets and Waste, Volume 6.1. The combined effect also takes into consideration the combined effects of climate change on materials in terms of vulnerability to climate. It is not expected that climate change would result in a change in the risk of severe weather during the construction period. It is also important to note the Neutral effects to materials reported within Chapter 9 Geology and Soils of Volume 6.1 Therefore no specific combined effects on individual material receptors are noted.

14.10.8 A combined Slight Adverse effect is anticipated for communities. The assessment from Chapter 12 People and Communities (Volume 6.1) has shown that on balance there would be a Slight Adverse effect on the community. Specific People and Community receptors that this is associated with include Non-Motorised Users (NMUs), Private Property and Land, Community Land, Community Facilities, Development Land, and Agricultural Land. In addition, effects associated with noise and vibration as a result of construction activities are anticipated Not Significant Adverse, with best practice mitigation measures in place. It is unlikely that there would be any significant effects to the local air quality as a result of the construction phase, due to the temporary nature of the works. Chapter 7 Landscape (Volume 6.1) has reported that there would be Moderate Adverse effects to a small number of residential receptors and PRoWs. The combined effect also takes into consideration the combined effects of climate change on people and communities in terms of vulnerability to climate. It is not expected that climate change would result in a change in the risk of severe weather during the construction period. Therefore, the combined effect is anticipated to be Slight Adverse to the following receptors NMUs, Private Property and Land, Community Land, Community Facilities, Development Land, and Agricultural Land.

14.10.9 A combined Slight Adverse effect has been assessed for vehicle travellers. The assessment from Chapter 12 People and Communities of Volume 6.1 has

shown that there would be a Slight Adverse effect on driver stress during construction.

14.10.10 A combined Slight Adverse effect is anticipated for the human health and wellbeing receptors during construction. This is as a result of Neutral potential effects anticipated for air quality and geology and soils on human health receptors, the Not Significant Adverse noise and vibration effects and the Slight Adverse effects anticipated on people and communities in terms of Community Land and Community Facilities. Therefore, combined human health and wellbeing receptors would experience Slight Adverse combined effects.

14.10.11 The overall combined effect on climate is anticipated to be Not Substantially Adverse. This takes into consideration the potential effects to climate change reported within Chapter 13 Climate of Volume 6.1, which are anticipated to be Not Substantially Adverse. This also takes into consideration the combined effects of climate change on the scheme in terms of vulnerability to climate. It is not expected that climate change would result in a change in the risk of severe weather during the construction period. Extremes of weather may occur during construction but would be expected to have a minimal adverse effect at worst on the environmental receptors including landscape, biodiversity and people and communities. Therefore, changes in climate are not expected to greatly impact on the scheme construction.

14.10.12 In summary, the potential temporary combined effects as a result of the proposed scheme, are anticipated to be on balance Moderate Adverse as shown in Table 14.7. Moderate Adverse effects are significant, however these effects would only last during the construction period, therefore they are temporary. The Large Adverse effects to the landscape and cultural heritage receptors are the main contributors to this Moderate Adverse effect. However, the competent experts for landscape and cultural heritage have been working closely throughout the EIA process to ensure appropriate mitigation is included to ensure construction stage effects are reduced as far as possible. Chapter 6 Cultural Heritage and Chapter 7 Landscape (Volume 6.1) describe the mitigation measures required during construction.

14.10.13 Table 14.8 presents a summary of the assessment of combined effects during construction.

Table 14.8: Assessment of combined effects during construction

Receptor	DMRB topic area									Significance of combined effects
	Air Quality	Cultural Heritage	Landscape	Biodiversity	Geology and Soils	Material Assets and Waste	Noise and Vibration	People and Communities	Climate	
Cultural heritage		Moderate Adverse	Moderate Adverse							Large Adverse
Landscape		Moderate Adverse	Moderate Adverse						Not Significant Adverse (vulnerability to climate)	Large Adverse
Biodiversity	Neutral			Slight Adverse	Slight Adverse				Not Significant Adverse (vulnerability to climate)	Slight Adverse
Geology and soils					Slight Adverse			Moderate Adverse		Moderate Adverse
Material resources					Neutral	Not Significant				Slight Adverse
Communities	Neutral		Moderate Adverse				Not Significant Adverse	Slight Adverse	Not Significant Adverse (vulnerability to climate)	Slight Adverse
Vehicle travellers								Slight Adverse		Slight Adverse
Human health	Neutral				Neutral		Not Significant Adverse	Slight Adverse		Slight Adverse
Climate									Not Substantially adverse (effects on climate)	Slight Adverse
Overall significance of combined effects during construction										Moderate Adverse

* For Chapter 12 People and Communities (Volume 6.1), effects assessed for driver stress are included within the receptor 'vehicle travellers' row, effects assessed for agricultural land are included within the receptor 'geology and soils' row, and effects assessed for Non-Motorised Users, Amenity, Severance, Individual Farm Businesses, Demolition of Private Property, Land Take, and Motorised travellers view from the road are included within the receptor 'communities' row.

Operation

- 14.10.14 The overall significance of the combined effects during operation has been assessed as Slight Adverse. Table 14.9 provides a matrix summary of the effects and the overall combined effects on receptors during operation, and are detailed below.
- 14.10.15 For cultural heritage a combined Moderate Adverse effect is predicted. The detailed assessment described in Chapter 6 Cultural Heritage of Volume 6.1 concluded that after mitigation, there would be Moderate Adverse effects during operation for identified heritage assets. This is because of increased traffic noise and the potential for the scheme bringing the A303 and associated junctions closer to the assets resulting in adverse visual effects. Moderate adverse effects have been reported for Hazlegrove Park Group and associated assets and Hazlegrove House Registered Park and Garden. The assessment in Chapter 7 Landscape (Volume 6.1) details a number of significant visual effects during operation. The specific heritage receptors relevant to this combined assessment with the potential to experience combined effects include the Hazlegrove Registered Park and Garden experiencing Moderate Adverse effects in Year 1, reducing to Slight Adverse effects in Year 15. For Hazlegrove House Registered Park and Garden Moderate Adverse effects have been reported in both Chapter 6 Cultural Heritage and Chapter 7 Landscape (Volume 6.1), therefore combined Moderate Adverse effects to this heritage asset are anticipated.
- 14.10.16 For landscape a combined Slight Adverse effect is anticipated during operation. Chapter 7 landscape (Volume 6.1) has reported that 2 of the 7 LCAs within the study area would experience significant effects during operation. LCA1 West Camel Hill and LCA 2 Hazlegrove would experience a Moderate Adverse effect in Year 1. All other LCAs would experience Non-Significant effects with the majority being Neutral. In Year 15, as mitigation planting has established to settle the scheme in the wider environment, the significant effects experienced in LCA1 and LCA2 would be reduced to non-significant effects. The cultural heritage assessment in Chapter 6 Cultural Heritage of Volume 6.1 has reported that given the fact that the existing route of the A303 is along an ancient route and there has been limited truncation of individual fields and character areas, the impact of the scheme would be limited and not result in a significant effect, therefore there are no specific receptors within landscape that would experience a combined effect from heritage and landscape effects. In terms of vulnerability to climate an increase in temperature and changing precipitation patterns would potentially have a detrimental effect on the landscape as new planting would be vulnerable to failure. Existing, more mature plants with a well-established root network are unlikely to be as vulnerable to change so quickly and any adverse impact could be mitigated by selecting more

climate resilient species, meaning any impacts will not be significant. Overall a combined Slight Adverse effect to landscape is anticipated during Year 15.

- 14.10.17 A combined Slight Adverse effect would be anticipated on ecological receptors during operation. Chapter 8 Biodiversity of Volume 6.1 has reported an overall on balance Slight Adverse effect on biodiversity as a result of the scheme. This is due to the Slight Adverse effect during operation on Hazlegrove Park LWS, Camel Hill Transmitter Site LWS, Gason Lane Field LWS, Ridge Copse LWS, Downhead Manor Farm LWS, bats, badgers, barn owls, great crested newts, invertebrates and hedgerows. Chapter 5 Air Quality of Volume 6.1 reports a Neutral effect on ecological receptors during operation due to modelled annual NO_x concentrations being below the annual objective at designated sites assessed. In terms of vulnerability to climate, changes in temperature and precipitation would impact on biodiversity through changes in species distribution and abundance and effects on habitats and ecosystems. With mitigation planting and appropriate drainage design effects would not be significant. Therefore, combined effects are not anticipated on specific ecological receptors and a combined Slight Adverse effect would be anticipated during operation.
- 14.10.18 In terms of geology and soils, a combined Slight Adverse effect would be anticipated during operation to the receptor of agricultural land and associated soils. This on balance combined effect has been reached because although Chapter 9 Geology and Soils of Volume 6.1 has scoped out effects during operation, agricultural land would be anticipated to be Moderate Adverse during operation, as reported in Chapter 12 People and Communities of Volume 6.1.
- 14.10.19 There are not anticipated to be any residual adverse effects to materials once in operation, however combined with the Slight Adverse reported in materials in Chapter 14 Climate of Volume 6.1 there would be a combined not Slight Adverse effect.
- 14.10.20 There would be a combined Neutral effect on human health and wellbeing. The noise assessment in Chapter 11 Noise and Vibration of Volume 6.1 reported that in the short-term the scheme would produce 2 Significant Adverse effects. Compensation in the form of secondary glazing would be offered. All other receptors would be subject to minor or moderate increases in the short term and minor increase in the long term, none of which are considered to be significant, therefore on balance a Not Significant Adverse effect was assessed. Chapter 5 Air Quality of Volume 6.1 has reported that no receptors are expected to experience exceedances of the local air quality objectives therefore, a Neutral effect is anticipated. Chapter 12 People and Communities of Volume 6.1 has assessed that there will Slight Beneficial effects on communities during operation. Therefore, due to the Neutral effects associated with Air Quality, Slight Beneficial effects for People and Communities and the
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very small number of Slight Adverse effects to receptors reported for noise and vibration a combined Neutral effect on human health and wellbeing would be anticipated during operation.

- 14.10.21 A combined Neutral impact has been assessed for communities. The assessment from Chapter 12 People and Communities (Volume 6.1) has shown that an on balance Slight Beneficial effect is predicted during operation for NMUs. A Moderate Beneficial effect is predicted on amenity during operation for NMUs due to the new overbridge. During operation there would be a Moderate Beneficial effect on Community Land and Community Facilities due to improved access. Chapter 7 Landscape (Volume 6.1) has reported that of the 45 visual receptors (including residential properties and PRoW) identified, 6 receptors would experience significant adverse effects during Year 1 of operation. By Year 15, mitigation planting would have matured to aid the integration and screening of the scheme and the surrounding area. As such by Year 15, no visual receptors would experience significant effects and only 6 would experience Slight Adverse effects. In terms of vulnerability to climate communities could be impacted through climate change effects on the scheme including traffic and delays due to flooding, impacts are however not anticipated to be significant. Therefore, on balance an overall Neutral effect is anticipated for the receptors of NMUs, Community Land, Community Facilities, and Development Land.
- 14.10.22 A combined Slight Beneficial effect is anticipated for vehicle travellers during operation. The assessment within Chapter 12 People and Communities of Volume 6.1 has shown that a Moderate Beneficial effect on driver stress is anticipated due to reduced traffic. A Slight Adverse effect is anticipated for motorised travellers view from the road during operation. Therefore, on balance these effects combined would give rise to a Slight Beneficial effect to the receptor of vehicle travellers.
- 14.10.23 It is not anticipated there would be any residual combined effects to the climate during operation because Chapter 13 Climate of Volume 6.1 reported effects on climate are anticipated to be Neutral. In terms of vulnerability to climate there is not expected to be a significant adverse effects to receptors as a result of climate change.
- 14.10.24 The potential combined effects are considered to be on balance Slight Adverse, as shown in Table 14.9.
- 14.10.25 Table 14.9 shows the combined effects anticipated during operation.

Table 14.9: Assessment of combined effects during operation

Receptor	DMRB topic area									
	Air Quality	Cultural Heritage	Landscape	Biodiversity	Geology and Soils	Material Assets and Waste	Noise and Vibration	People and Communities	Climate	Significance of combined effects
Cultural Heritage		Moderate Adverse	Slight Adverse (Year 15)							Moderate Adverse
Landscape		Slight Adverse	Slight Adverse (Year 15)						Not Significant Adverse (vulnerability to climate)	Slight Adverse
Biodiversity	Neutral			Slight Adverse					Not Significant Adverse (vulnerability to climate)	Slight Adverse
Geology and Soils					Neutral					Slight Adverse
Material Resources						Not assessed (scoped out)				Slight Adverse
Communities			Slight Adverse					Slight Beneficial	Not Significant Adverse (vulnerability to climate)	Neutral
Vehicle Travellers								Slight Beneficial		Slight Beneficial
Human Health	Neutral						Not Significant Adverse	Slight Beneficial		Neutral
Climate									Neutral (effects on climate)	Neutral
Overall significance of combined effects during construction										Slight Adverse
* For Chapter 12 People and Communities (Volume 6.1), effects assessed for driver stress are included within the receptor 'vehicle travellers' row, effects assessed for agricultural land are included within the receptor 'geology and soils' row, and effects assessed for Non-Motorised Users, Amenity, Severance, Individual Farm Businesses, Demolition of Private Property, Land Take, and Motorised travellers view from the road are included within the receptor 'communities' row.										

Cumulative effects

- 14.10.26 The assessment of cumulative effects for both construction and operation can be found in Table 14.10 below.
- 14.10.27 Only those developments that have been included in the Short List (Table 14.7) have been brought through to the assessment of cumulative effects, which represents Stages 3 and 4 of the methodology outlined in the Planning Inspectorate's Advice Note Seventeen: *Cumulative Effects* (see paragraph 14.4.4 for a description of the stages of assessment). As such there are only 2 proposed development that has been included in the cumulative effects assessments.
- 14.10.28 The planning application for Haynes Publishing (16/00725/OUT) included in the cumulative assessment has been permitted with conditions. An Environmental Statement was not submitted as part of the application, however documents submitted alongside the application have been analysed to inform this assessment. These documents are listed in Table 14.10 and are considered sufficient to inform the assessment of cumulative effects since they were sufficient to enable a planning decision to be reached and for consent to be granted.
- 14.10.29 For the proposed solar farm (18/00295/EIASS) the planning application was submitted to South Somerset District Council on 17 January 2018 and a decision that statutory EIA and therefore an Environmental Statement was not required was made on 5 February 2018. Therefore, for this cumulative effects assessment, information within the EIA Screening Opinion and supporting information, including emails from consultees, has been used.
- 14.10.30 The assessment has been divided by environmental topic, and the effects of the other developments have been assessed where the ZOIs for each environmental topic overlaps. Figure 14.2 of Volume 6.2 shows the location of the Haynes Publishing (16/00725/OUT) site other development and the overlapping ZOIs with the proposed scheme and Figure 14.3 of Volume 6.2 shows the location of the Solar Farm (18/00295/EIASS) site other development and the overlapping ZOIs with the proposed scheme.
- 14.10.31 An overall cumulative effect of Slight Adverse is anticipated as a result of the other development and the proposed scheme during construction. As such, no further mitigation is required as there are no significant cumulative effects predicted.
- 14.10.32 An overall cumulative residual effect of Slight Adverse is anticipated as a result of all of the other development and the proposed scheme during operation. As such, no further mitigation is required as there are no significant cumulative effects predicted.
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Table 14.10: The cumulative effects assessment for the other developments and the proposed scheme

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
Air Quality The effects on air quality as a result of the proposed scheme have been assessed in Chapter 5 Air Quality of Volume 6.1. The residual effects on Air Quality are as follows: Proposed scheme residual effects during construction: Neutral				
1	1	Haynes Publishing (16/00725/OUT)	<u>Haynes Publishing residual effects</u> Documents available to inform the assessment: <ul style="list-style-type: none"> Planning Statement There has been no assessment on construction dust, based on professional judgement and due to the small size of the Haynes Publishing proposed development a Neutral impact has been allocated. Construction Neutral <u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u> Hayes Publishing proposed scheme only overlaps a small section of the proposed scheme to the East near Sparkford. Due to the Neutral impacts reported by both there is not anticipated to be any cumulative impacts. Construction: Neutral	Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted. Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.
Noise The effects on noise as a result of the proposed scheme have been assessed in Chapter 11 Noise and Vibration of Volume 6.1. The residual effects on Noise are as follows: Proposed scheme residual effects during construction: Not Significant Adverse				
1	1	Haynes Publishing (16/00725/OUT)	<u>Haynes Publishing residual effects</u> Documents available to inform the assessment: <ul style="list-style-type: none"> Planning Statement Noise Assessment The noise assessment was undertaken for operational noise and impact that the Haynes Publishing receptors would have rather than construction noise. Therefore,	Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>based on professional judgement and due to the small size of the Haynes Publishing proposed development a Neutral impact has been allocated.</p> <p>Construction Neutral</p> <p><u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u></p> <p>Hayes Publishing proposed scheme only overlaps a small section of the proposed scheme to the East near Sparkford. Due to the Slight Adverse impacts reported by the proposed scheme there is the potential for a Slight Adverse non-significant cumulative impact, therefore the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Slight Adverse</p>	<p>Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p>
<p>Cultural Heritage The effects on cultural heritage as a result of the proposed scheme have been assessed in Chapter 6 Cultural Heritage of Volume 6.1. The residual effects on cultural heritage are as follows: Proposed scheme residual effects during construction: Moderate Adverse Proposed scheme residual effects during operation: Moderate Adverse</p>				
1	1	Haynes Publishing (16/00725/OUT)	<p><u>Haynes Publishing residual effects</u></p> <p>Documents available to inform the assessment:</p> <ul style="list-style-type: none"> • Planning Statement • Email from Somerset Heritage Centre <p>There has been no assessment on Cultural Heritage assets. The Planning Statement states that the proposed development aligns with the South Somerset Local plan policy stating that <i>"Heritage assets will be conserved and where appropriate enhanced for their historic significance and important contribution to local distinctiveness, character and sense of place."</i> The Local Authority Planning Portal includes a letter from Somerset Heritage Centre as a consultee. Their response to the planning application is that <i>"As far as we are aware there are limited or no archaeological implications to this proposal and we therefore have no objections on archaeological grounds."</i></p>	<p>Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p> <p>Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant</p>

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>Based on the information above a Neutral effect has been allocated, to Haynes Publishing Development.</p> <p>Construction Built heritage: Neutral Archaeology: Neutral</p> <p>Operation: Built heritage: Neutral Archaeology: Neutral</p>	Adverse cumulative effects are predicted.
			<p><u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u></p> <p>The majority of the Haynes Publishing ZOI would overlap with the proposed scheme's ZOI, but due to the small size of Haynes Publishing house only small section east of the proposed scheme is overlapped by Haynes Publishing house. Hazlegrove Park Group Registered Park and Garden, and 14 listed Buildings are the receptors that are in the overlapping ZOI. The additional Heritage Assets outside the ZOI which were included in Chapter 6 Cultural Heritage would not be subject to any cumulative effects. The heritage assets that have been identified as having the potential for significant adverse effects from the proposed scheme are not anticipated to be subject to any effects from Haynes Publishing site as neutral effects have been reported. Therefore, on balance the cumulative effect would be Slight Adverse for construction and operation. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Slight Adverse</p> <p>Operation: Slight Adverse</p>	
<p>Landscape The effects on landscape as a result of the proposed scheme have been assessed in Chapter 7 Landscape, Volume 6.1. The residual effects on landscape are as follows: Proposed scheme residual effects during Construction: Moderate Adverse Proposed scheme residual effects during Operation: Slight Adverse</p>				

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
1	1	Haynes Publishing (16/00725/OUT)	<p><u>Haynes Publishing residual effects</u></p> <p>Documents available to inform the assessment:</p> <ul style="list-style-type: none"> • Planning Statement • Emails from South Somerset District Council Landscape Architect • Tree Report <p>The Planning Statement states that “<i>no matters are raised such as to preclude the sensitive re-development of the site</i>” in terms of trees or landscape. The Local Authority Planning Portal includes 2 letters from a Landscape Architect consultee from South Somerset District Council. Their response to the planning application is that “<i>As there appears to be potential within the proposal plan for meaningful retention and protection of the better tree species within and bounding the site, then I have no specific issues to raise at this outline stage.</i>”</p> <p>Therefore, due to the lack of assessment, it is assumed that Haynes Publishing Development would have neutral impacts on Landscape and Visual Effects.</p> <p>Construction Landscape: Neutral Visual Effects: Neutral</p> <p>Operation: Landscape: Neutral Visual Effects: Neutral</p> <p><u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u></p> <p>The majority of the Haynes Publishing ZOI is overlapped by the proposed scheme’s ZOI, but due to the small size of Haynes Publishing house only a small section east of the proposed scheme is overlapped by Haynes Publishing. The Landscape Character Areas that are within the ZOI overlap include LCA1, LCA2, LCA3, LCA4 and LCA6. There would be no cumulative effects on the 3 elevated views outside of the ZOI. Haynes Publishing development would have Neutral effects on Landscape and Visual Effects therefore, no cumulative effects are anticipated.</p>	<p>Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p> <p>Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p>

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>A cumulative effect of Slight Adverse has been assessed during both construction and operation due to the Slight Adverse impact of the proposed scheme together with the Neutral impacts of Haynes publishing. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Slight Adverse</p> <p>Operation: Slight Adverse</p>	
2	1	Proposed solar farm and associated equipment (18/00295/EIASS)	<p><u>Proposed Solar Farm residual effects</u></p> <p>Documents available to inform the assessment:</p> <ul style="list-style-type: none"> • Solar Farm EIA Screening Opinion • Email from South Somerset District Council Landscape Architect <p>The EIA Screening Opinion has stated that due to the <i>“low-level nature of the proposal, they will not result in significant landscape impacts on the immediate vicinity of the Site or the wider landscape”</i> in addition the proposal <i>“will not have significant visual impacts on dwellings due to the distance between houses and the Site”</i>.</p> <p>Construction Landscape: Neutral Visual Effects: Neutral</p> <p>Operation: Landscape: Neutral Visual Effects: Neutral</p>	
			<p><u>Cumulative residual effects for the solar farm and the proposed scheme</u></p> <p>There is only a small area of overlap between the proposed solar farm and the proposed scheme. This area can be seen on Figure 14.3 of Volume 6.2 and covers the town of Queen Camel. The overlap of zone of influence crosses the landscape receptors of LCA4, LCA5 and LCA6. There will be no cumulative impacts on the 3 elevated views outside of the ZOI. Given the low level non-significant impacts reported</p>	

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>in the screening opinion and given the context of the existing landscape, where the proposed solar farm will be built next to an existing solar farm, it is not anticipated there will be any cumulative effects.</p> <p>A cumulative effect of Slight Adverse has been assessed during both construction and operation due to the Moderate Adverse impact of the proposed scheme together with the Neutral impacts from the solar farm. This shows that the significance of the effect is not materially worse when combining it with the solar farm.</p> <p>Construction: Slight Adverse</p> <p>Operation: Slight Adverse</p>	
<p>Biodiversity</p> <p>The effects on biodiversity as a result of the proposed scheme have been assessed in Chapter 8 Biodiversity, Volume 6.1. The residual effects on biodiversity are as follows:</p> <p>Proposed scheme residual effects during Construction: Slight Adverse</p> <p>Proposed scheme residual effects during Operation: Slight Adverse</p>				
1	1	Haynes Publishing (16/00725/OUT)	<p><u>Haynes Publishing residual effects</u></p> <p>Documents available to inform the assessment:</p> <ul style="list-style-type: none"> • Planning Statement • Ecological Appraisal <p>An Ecological Appraisal of Haynes Publishing development has been conducted. The appraisal has concluded that habitats are limited and include trees, hedgerows, ruderals and scrub. The site is likely to support nesting birds and small numbers of reptiles. Bat surveys identified a possible bat roost within one of the buildings. The report concluded that site is considered to have ecological value at a local level and recommended that as part of the works the following is undertaken:</p> <ul style="list-style-type: none"> • Precautionary works in relation to birds and bats. • Reptile mitigation strategy before works commence. • Installation of bird nesting boxes and new landscape planting. 	<p>Construction:</p> <p>No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p> <p>Operation:</p> <p>No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant</p>

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>In addition, the report noted that new landscape planting schemes would aim to maintain and enhance the sites component value to bats as well as other wildlife.</p> <p>The Planning Statement stated that <i>“The location for the proposed housing does not have any significant habitat value at present and a landscaping scheme would add environmental benefits in terms of additional tree and hedge planting. The application is accompanied by an Ecological appraisal that reports no matters of concern in respect of the redevelopment of the site and makes recommendations in respect of clearance method and planting in improve biodiversity on site.”</i></p> <p>Therefore, due to the low ecological value of the site and surrounding area and assuming the development will maintain and enhance the sites component value to bats as well as other wildlife as promised, it is assumed there will be a Slight Adverse effect during construction and a Neutral effect during operation.</p> <p>Construction: Slight Adverse</p> <p>Operation: Neutral</p> <p><u>Cumulative Residual Effects for Haynes Publishing and the proposed scheme</u></p> <p>Most of the 2 kilometre ZOI around Haynes Publishing House is overlapped by the eastern section of the proposed scheme's ZOI. Therefore, receptors that have the potential to be subject to cumulative effects are bats, reptiles and breeding birds as mentioned in the Ecological Appraisal of Haynes Publishing Site described above. In terms of designated sites, Sparkford Wood SSSI and a number of LWSs (Hazlegrove Park, Gason Lane Filed, Camel Hill Transmitter Site, Ridge Copse and Sparkford Hill Copse) are in the overlapping ZOI.</p> <p>The Slight Adverse effects from the proposed scheme together with the Neutral effects anticipated at Haynes Publishing site would result in an on-balance Slight Adverse cumulative effect on biodiversity during both construction and operation because there would be no cumulative impact but carrying forward the Slight Adverse effect from the proposed scheme. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p>	Adverse cumulative effects are predicted.

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			Construction: Sight Adverse Operation: Slight Adverse	
2	1	Proposed solar farm and associated equipment (18/00295/EIASS)	<u>Proposed Solar Farm residual effects</u> Documents available to inform the assessment: <ul style="list-style-type: none"> • Solar Farm EIA Screening Opinion • Email from South Somerset District Council Landscape Architect The Solar Farm EIA Screening Opinion states that the proposed site is currently in agricultural use and is not in a sensitive area, the main field areas are not expected to be of special value in ecological terms and that the boundaries and margins, including mature trees, hedges and other areas of flora, would be protected during construction and operation. It was concluded that the proposal would not result in significant effects. Construction: Neutral Operation: Neutral	
			<u>Cumulative Residual Effects for the solar farm and the proposed scheme</u> The northern section of the solar farm's ZOI for biodiversity overlaps with the proposed scheme's ZOI, however due to the Neutral effect the solar development would have on biodiversity, no cumulative impacts are anticipated. The Slight Adverse effects from the proposed scheme together with the Neutral effects anticipated for the solar farm site would result in an on-balance Slight Adverse cumulative effect on biodiversity because there would be no cumulative impact but carrying forward the Slight Adverse effect from the proposed scheme. This shows that the significance of the effect is not materially worse when combining it with the solar farm.	

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			Construction: Sight Adverse Operation: Slight Adverse	
Geology and Soils The effects on geology and soils as a result of the proposed scheme have been assessed in Chapter 9 Geology and Soils, Volume 6.1. The residual effects on geology and soils are as follows: Proposed scheme residual effects during Construction: Slight Adverse Proposed scheme residual effects during Operation: No effect (scoped out)				
1	1	Haynes Publishing (16/00725/OUT)	<u>Haynes Publishing residual effects</u> Documents available to inform the assessment: <ul style="list-style-type: none"> • Planning Statement • Preliminary Geo-Environmental and Geotechnical Assessment A Preliminary Geo-Environmental and Geotechnical assessment has been conducted. The assessment concluded that the site represents a low to moderate risk for both geo-environmental liability and geotechnical risk due to underlying geology being designated a secondary A aquifer and storm water reservoirs. The assessment concluded that further ground investigation is required. Due to the lack of available information it has been assumed this work has not been conducted yet. Therefore, taking the precautionary approach a Slight Adverse effect has been assumed during construction and a Neutral effect once operational. Construction: Slight Adverse Operation: Neutral	Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted. Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.
			<u>Cumulative Residual Effects for Haynes Publishing and the proposed scheme</u> Due to the small 250m ZOI, only a small section (less than half of the ZOI) overlaps with a section of the proposed scheme's ZOI. It has been assumed that the secondary A aquifer and storm water reservoirs are receptors that overlap. During construction the Slight Adverse effect from the proposed scheme together with the Slight adverse	

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>effect from Haynes Publishing site would result in a cumulative Slight Adverse effect due to the overlap in influence of receptors and carrying forward both Slight Adverse impacts. During operation the lack of effects as a result of the scheme (effects were scoped out of Chapter 9 Geology and Soils, Volume 6.1) the Neutral effect from Haynes Publishing site would result in a cumulative Neutral effect. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Slight Adverse Operation: Neutral</p>	
<p>Material Assets and Waste The effects on materials as a result of the proposed scheme have been assessed in Chapter 10 Material Assets and Waste, Volume 6.1. The residual effects on material are as follows: Proposed scheme residual effects during Construction: Not Significant Proposed scheme residual effects during Operation: Not applicable</p>				
1	1	Haynes Publishing (16/00725/OUT)	<p><u>Haynes Publishing residual effects</u></p> <p>An assessment on Materials has not been conducted for Haynes Publishing proposed development, therefore, it has been assumed that the development would have a Neutral effect based on professional judgement.</p> <p>Construction: Neutral Operation: Neutral</p> <p><u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u></p> <p>During construction, the on balance Not Significant effect from the proposed scheme together with the Neutral effect from Haynes Publishing site would result in a cumulative Not Significant effect. Although a Significant effect is reported as a result of the generation and management of inert waste due to the limited remaining capacity of inert landfill in Somerset, no cumulative effects are anticipated due to the Neutral impact of the Haynes Publishing on waste. During operation there would be no cumulative effects; all effects have been reported as Neutral and therefore overall the</p>	<p>Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p> <p>Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p>

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>cumulative effect during operation would be Neutral. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Not Significant</p> <p>Operation: Neutral</p>	
2	1	Proposed solar farm and associated equipment (18/00295/EIASS)	<p><u>Proposed Solar Farm residual effects</u></p> <p>Documents available to inform the assessment:</p> <ul style="list-style-type: none"> Solar Farm EIA Screening Opinion <p>An assessment on Material Assets and Waste has not been conducted for the solar farm proposed development, therefore, it has been assumed that the development would have a Neutral effect based on professional judgement.</p> <p>Construction: Neutral</p> <p>Operation: Neutral</p>	
			<p><u>Cumulative residual effects for the solar farm and the proposed scheme</u></p> <p>During construction and operation, the Not Significant effect from the proposed scheme together with the Neutral effect from the solar farm site would result in a cumulative Not Significant effect, taking the precautionary principle into account. However a Significant effect is reported as a result of the generation and management of inert waste due to the limited remaining capacity of inert landfill in Somerset, due to the Neutral impact of the solar farm on waste, no cumulative effects are anticipated. During operation there would be no cumulative effects and all effects have been reported as Neutral therefore overall the assessment is Neutral. This shows that the significance of the effect is not materially worse when combining it with the solar farm.</p> <p>Construction: Not Significant</p>	

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			Operation: Neutral	
People and Communities The effects on people and communities as a result of the proposed scheme have been assessed in Chapter 12 People and Communities, Volume 6.1. The residual effects on people and communities are as follows: Proposed scheme residual effects during Construction: Slight Adverse Proposed scheme residual effects during Operation: Neutral				
1	1	Haynes Publishing (16/00725/OUT)	<u>Haynes Publishing Residual Effects</u> The Planning Statement states the following in terms of people and communities: <i>“Open Space and Recreational land: The illustrative layout plan demonstrates how the north west sector of the site can be developed to provide a formal open space area which it is envisaged can provide a central point to the village and a sense of place whilst also enhancing views through to the listed building beyond. Residential Amenity: The proposed layout of the houses and road layout will ensure that there are no adverse impacts upon residential amenity between the existing and proposed houses and the commercial area. Private amenity space will be provided to the rear of all of the dwellings”.</i> Therefore, a neutral impact during construction and operation has been assumed based on professional judgement. Construction: Neutral Operation: Neutral	Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted. Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.
			<u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u> Due to the small 250m ZOI, only a small section (less than half of the ZOI) overlaps with a small section of the proposed schemes ZOI. The majority of the Haynes Publishing development ZOI would be overlapped by the proposed scheme's Landscape ZOI (in terms of visual impact effects), but due to the small size of Haynes	

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>Publishing house only small section east of the proposed scheme would be overlapped by Haynes Publishing house. Due to the Neutral effects that Haynes Publishing house would have during both construction and operation it is not anticipated to contribute any cumulative effects on the receptors in the overlapping ZOIs. Therefore, for construction a Slight Adverse effect is anticipated based on the Slight Adverse effect assessed for the proposed scheme. During operation effects are anticipated to be Neutral due to the Neutral effects for both developments. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Slight Adverse</p> <p>Operation: Neutral</p>	
<p>Climate</p> <p>The effects on people and communities as a result of the proposed scheme have been assessed in Chapter 13 Climate, Volume 6.1. The residual effects on people and communities are as follows:</p> <p>Proposed scheme residual effects during Construction: Not Substantially Adverse (Effects on climate), Not Significant Adverse (Vulnerability to climate)</p> <p>Proposed scheme residual effects during Operation: Neutral (Effects on climate), Not Significant Adverse (Vulnerability to climate)</p>				
1	1	Haynes Publishing (16/00725/OUT)	<p><u>Haynes Publishing residual effects</u></p> <p>An assessment on Climate has not been conducted for Haynes Publishing proposed development, therefore, it has been assumed that the development would have a Neutral effect based on professional judgement.</p> <p>Construction: Neutral (Effects on climate) Neutral (Vulnerability to climate)</p> <p>Operation: Neutral (Effects on climate) Neutral (Vulnerability to climate)</p> <p><u>Cumulative residual effects for Haynes Publishing and the proposed scheme</u></p> <p>In terms of effects on climate, during construction and operation, the Not Substantially Adverse effect from the proposed scheme together with the Neutral effect from</p>	<p>Construction: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant Adverse cumulative effects are predicted.</p> <p>Operation: No additional mitigation on top of the individual mitigation specified in the Environmental Statements is considered necessary, as no Significant</p>

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p>Haynes Publishing site would result in a cumulative Not Substantially Adverse effect because no cumulative effects are anticipated but taking the precautionary principle based on the Slight Adverse construction impacts reported for the proposed scheme. During operation there will be no cumulative effects and all effects have been reported as Neutral therefore overall the assessment is Neutral.</p> <p>In terms of vulnerability to climate there is not expected to be a significant adverse effect to receptors as a result of climate change in cumulation between Haynes Publishing Site and the proposed scheme. This is due to no significant effects being reported for the proposed scheme and vulnerability to climate not being assessed for Haynes Publishing therefore assumed Neutral. This shows that the significance of the effect is not materially worse when combining it with Haynes Publishing.</p> <p>Construction: Not Substantially Adverse (Effects on climate) Not Significant Adverse (Vulnerability to climate)</p> <p>Operation: Neutral (Effects on climate) Not Significant Adverse (Vulnerability to climate)</p>	Adverse cumulative effects are predicted.
2	1	Proposed solar farm and associated equipment (18/00295/EIASS)	<p>Solar farm residual effects An assessment on Climate has not been conducted for Haynes Publishing proposed development, therefore, it has been assumed that the development would have a Neutral effect based on professional judgement.</p> <p>Construction: Neutral (Effects on climate) Neutral (Vulnerability to climate)</p> <p>Operation: Neutral (Effects on climate) Neutral (Vulnerability to climate)</p>	

ID	Tier	Application name and reference	Assessment of cumulative effects	Need for additional mitigation
			<p><u>Cumulative residual effects for the solar farm and the proposed scheme</u></p> <p>During construction and operation, the Not Substantially Adverse effect from the proposed scheme together with the Neutral effect from the solar farm site would result in a cumulative Not Substantially Adverse effect because no cumulative effects are anticipated but taking the precautionary principle based on the Slight Adverse construction impacts reported for the proposed scheme. During operation there will be no cumulative effects and all effects have been reported as Neutral therefore overall the assessment is Neutral.</p> <p>In terms of vulnerability to climate there is not expected to be a significant adverse effect to receptors as a result of climate change in cumulation between the solar farm Site and the proposed scheme. This is due to no significant effects being reported for the proposed scheme and vulnerability to climate not being assessed for the solar farm therefore assumed Neutral. This shows that the significance of the effect is not materially worse when combining it with the solar farm.</p> <p>Construction: Not Substantially Adverse (Effects on climate) Not Significant Adverse (Vulnerability to climate)</p> <p>Operation: Neutral (Effects on climate) Not Significant Adverse (Vulnerability to climate)</p>	

14.11 Conclusion

- 14.11.1 The assessment for combined effects has involved the identification of impact interactions associated with the proposed scheme upon separate environmental receptors. The methodology for the assessment of combined effects followed DMRB Volume 11 Section 2 Part 5: Assessment and Management of Environmental Effects.
- 14.11.2 In summary, the residual combined effect during construction for the proposed scheme is anticipated to be Moderate Adverse. This is significant although would be temporary in nature and covered by mitigation described in section 14.9, and therefore no additional mitigation would be required. The residual combined effect of the proposed scheme during operation is anticipated to be Slight Adverse and therefore, not considered to be significant.
- 14.11.3 The assessment for cumulative effects has involved the identification of incremental changes likely to be caused by other developments together with the proposed scheme. Two developments were identified which met the criteria for inclusion in this assessment. This assessment has followed the methodology outlined in the Planning Inspectorate's Advice Note Seventeen: *Cumulative Effects Assessment*.
- 14.11.4 The residual cumulative effects during construction as a result of all of the other developments with the proposed scheme would be anticipated to be Slight Adverse. During operation, residual cumulative effects for the proposed scheme would be anticipated to be Slight Adverse. These impacts show that the cumulative effects are not materially worse when combined with the 2 proposed developments, therefore no additional mitigation is required in respect to identified cumulative impact pathways.
- 14.11.5 The evidence provided in the ES supports the accordance statement provided in the **Case for the Scheme (document reference TR010036/APP/7.1)**.