A358 Taunton to Southfields Dualling Scheme

Preliminary Environmental Information Report - Chapter 15
Assessment of Cumulative Effects

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15 Assessment of cumulative effects

15.1 Introduction

15.1.1 Cumulative effects are those that arise as a result of impacts from more than one project, or element of a single project, combining to have an effect on a receptor, or group of receptors, that may be larger than if the effect were considered separately.

15.1.2 The *Design Manual for Roads and Bridges* (DMRB) LA 104 *Environmental assessment and monitoring* [1] states that environmental assessments shall assess cumulative effects which include those from:

- A single project (for example, numerous different effects impacting a single receptor). These are known as 'combined' impacts/effects or 'impact interactions'.
- Different projects (together with the project being assessed). These are known as 'cumulative' effects with other existing development and/or approved development.

15.1.3 In addition, to align with the requirements of EU Directive 2014/52/EU [2] and the *Infrastructure Planning (Environmental Impact Assessment) Regulations 2017* [3] (the 'EIA Regulations'), the in-combination climate change impact (ICCI) assessment of the proposed scheme where the focus is on those effects of the proposed scheme identified by an environmental factor that are also affected by climate change is assessed on a case by case basis by the environmental factors. An ICCI assessment has not been undertaken for the Preliminary Environmental Information (PEI) Report but will be produced for the Environmental Statement (ES). We are working to the latest guidance and should new guidance emerge, we will incorporate this into the assessment as necessary.

15.1.4 This PEI Report chapter details the legislative context and methodology for the assessment of combined and cumulative effects. It presents the preliminary findings of the combined effects assessment, and where required, goes on to identify any preliminary design, mitigation and enhancement measures, and any ongoing monitoring requirements.

15.1.5 DMRB LA 104 *Environmental assessment and monitoring* notes that cumulative effects should be assessed when the conclusions of individual environmental factor assessments have been reached and reported. Therefore, cumulative effects are not reported in this PEI Report, but will be assessed and reported in the ES which will support the Development Consent Order (DCO) application.

15.2 Legislative context

15.2.1 The EIA Regulations set out in paragraph 5 of Schedule 4 that an ES should include:

"…the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources."

15.2.2 The requirement to consider cumulative effects is also outlined in planning policy. The *National Policy Statement for National Networks* (NPSNN) [4], paragraph 4.3 states that:

"In considering any proposed development, and in particular, when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State should take into account:

- *its potential benefits, including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits.*
- *its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts."*

15.3 Cumulative assessment methodology

15.3.1 There is currently no standard methodology for cumulative effects assessment (CEA) and combined effects assessment although there is a range of guidance available. The following standards and guidance have been taken into consideration during the preparation of the PEI Report:

- DMRB LA 104 *Environmental assessment and monitoring* (section 3.19 – 3.22), which sets out a high-level methodology for assessing cumulative effects on highways projects.
- Planning Inspectorate (PINS) *Advice note 17 Cumulative Effects Assessment* [5], which sets out a methodology, relevant to nationally significant infrastructure projects (NSIP).

15.3.2 Consistent with the distinction between combined effects and cumulative effects, as defined within DMRB LA 104 *Environmental assessment and monitoring*, and outlined in section 15.1 above, the assessment is split in to two sections:

- **Combined effects assessment:** comprising an assessment of the combined impact of a number of different impacts from the proposed scheme upon a single resource/receptor, which are individually assessed, and preliminary findings reported within each environmental factor chapter of this PEI Report.
- **Cumulative effects assessment:** comprising an assessment of cumulative impacts of a number of different projects within the vicinity, in combination with the environmental impact of the proposed scheme on a single resource/receptor.

15.3.3 The methodology for each of these assessments is described separately below.

Combined effects assessment

15.3.4 Combined impacts from the action of a number of different impacts upon a single resource/receptor are considered within the environmental factor chapters of the PEI Report as follows. The preliminary combined effects are summarised in section 15.4 and Table 15-6.

- Chapter 5 Air quality uses traffic data provided by the transport consultants for the air quality assessment that contains vehicle movements associated with committed developments at a strategic scale.
- Chapter 6 Cultural heritage considers effects from different sources on heritage resources, such as the removal of buried archaeological remains, or

impacts arising from changes to the setting of heritage resources as a result of visual or noise changes.

- Chapter 7 Landscape and visual considers effects from different sources on landscape and visual receptors, including landscape features and character areas, and visual amenity experienced by people.
- Chapter 8 Biodiversity considers the combined ecological effects on single receptors of a number of individual environmental impacts such as area of land required, disturbance due to noise, vibration and light, changes in air quality and airborne dust deposition, changes in the water environment due to surface run-off and pollution events and cumulative loss of certain habitat types.
- Chapter 12 Population and human health considers combined effects. For amenity impacts to community assets such as residential property, recreation infrastructure and existing businesses, the assessment draws on the conclusions of other environmental factors such as changes in traffic, severance, air quality, landscape, visual and noise impacts. The human health assessment considers combined effects since health determinants are influenced by a wide range of environmental factors such as air quality, noise and visual amenity.
- Chapter 13 Road drainage and the water environment considers combined effects such as the accumulation of impacts on water resources and receptors such as rivers and aquifers, which when considered together constitute a greater impact. It has also considered cumulative impacts on the water environment as a result of construction phasing.
- Chapter 14 Climate has not considered combined effects in the PEI Report as an ICCI assessment will be produced for the ES.

15.3.5 The combined effects outlined above are considered to adequately report on the full range of potential combined effects from the proposed scheme and further assessment is therefore not undertaken within this chapter.

Cumulative effects assessment

15.3.6 PINS's *Advice note 17 Cumulative Effects Assessment* provides a systematic approach to CEA which can be split into four distinct phases explained in Table 15-1. Paragraph 2.5 of the guidance notes that the recommended process focusses on cumulative effects with 'other existing development and/or approved development'.

Table 15-1 Stages of cumulative effects assessment (CEA)

CEA Stage	Activity
Stage 1: Establish the Zone of Influence (ZoI) of the proposed scheme and identify long list of other developments	• Identify the ZoI for each of the environmental factors covered by the ES. • Identify a long list of other developments in the vicinity of the proposed scheme which may have cumulative effects. • Undertake desktop review of available environmental information for identified cumulative developments.
Stage 2: Identify the short list of 'other developments'	• Identify which of the identified other developments from Stage 1 has the potential to give rise to significant cumulative effects by virtue of overlaps in temporal scope, due to the scale and nature of the 'other development'/receiving environment; or any other relevant factors.

CEA Stage	Activity
Stage 3: Information gathering	• Information related to the shortlisted cumulative developments is gathered and reviewed.
Stage 4: Assessment	• CEA of shortlisted cumulative development is undertaken. Each individual 'other development' is reviewed in turn to identify whether there is potential for significant cumulative effects. • Mitigation measures are identified.

Stage 1 establish the NSIP's zone of influence and long list of 'other development'

Establishing the zone of influence

15.3.7 The ZoI refers to the spatial area over which an effect from a project is likely to be experienced. The ZoI for the proposed scheme varies for each environmental factor and is set out in the study area for each environmental factor assessment, shown in Figure 15.1 Cumulative zone of influence.

Establishing the long list of 'other developments'

15.3.8 PINS's *Advice note 17 Cumulative Effects Assessment* recommends that a wide range of future projects is included within the CEA which can be tiered (from Tier 1-3) according to how far advanced the development is within the planning system and to the level of detail that is likely to be available for each tier. The tiers are set out in Table 15-2.

Table 15-2 Project tiering to assign certainty for the purpose of CEA (as provided in Table 2 within PINS's *Advice note 17 Cumulative Effects Assessment*)

Tier 1	• Projects under construction **[6]**. • Permitted application(s) but not yet implemented. • Submitted application(s) but not yet determined **[7]**.	**Decreasing level of detail likely to be available** ↓
Tier 2	• Projects on the PINS's Programme of Projects where a scoping report has been submitted [8].	
Tier 3	• Projects on the PINS's Programme of Projects where a scoping report has not been submitted [9]. • Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited [10]. • 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.	

15.3.9 The less information that is available for the future projects (for example environmental impacts predicted and project definition), the less likely that the CEA will be able to make any robust assessment in relation to these projects. Reasonable steps have been taken to review publicly available information when conducting the CEA.

15.3.10 Whilst projects that are Tier 2 and Tier 3, as defined by the PINS guidance are included within this assessment, it is considered that there is limited value in assessing developments for which there is no environmental assessment information available as it will be more challenging to identify environmental effects arising from those projects. Moreover, it will be challenging to determine

the timeframe (temporal scope) within which effects arising from these developments are likely to occur.

15.3.11 In accordance with the methodology outlined in DMRB LA 104 *Environmental assessment and monitoring* (section 3.21.2), the assessment of cumulative effects with other developments for the proposed scheme will report on:

- "*roads projects which have been confirmed for delivery over a similar timeframe* [11]
- *other development projects with valid planning permission or consent orders, and for which EIA is a requirement*
- *proposals in adopted development plans with a clear identified programme for delivery"*

15.3.12 Relevant 'other developments', as listed above, have been identified through a combination of consultation with the relevant authorities and directly from published sources [12]. Relevant planning authorities within 3.1 miles (5 kilometres) of the proposed scheme (the greatest ZoI) were included as follows, as shown on Figure 15.1 Cumulative zone of influence:

- PINS:
  - consented NSIPs within 3.1 miles (5km) of the proposed scheme [13]
- The Department for Transport (DfT):
  - approved Transport and Works Act Order (TWAO) applications [14] within 3.1 miles (5km) of the proposed scheme
- Somerset County Council (SCC):
  - approved planning applications (EIA development only) within 3.1 miles (5km) of the proposed scheme
  - site allocations within adopted planning policy (within 3.1 miles (5km) of the proposed scheme):
    - Somerset Minerals Plan (Up to 2030)
- Somerset West and Taunton District Council (SWTC) [15]:
  - approved planning applications (EIA development only) within 3.1 miles (5km) of the proposed scheme
  - site allocations within adopted planning policy (within 3.1 miles (5km) of the proposed scheme):
    - Taunton Deane Core Strategy 2011-2028
    - Taunton town centre area action plan 2008
    - West Somerset Local Plan to 2032
    - Site allocations and development management plan 2028
- South Somerset District Council (SSDC) [16]:
  - approved planning applications (EIA development only) within 3.1 miles (5km) of the proposed scheme
  - site allocations within adopted planning policy (within 3.1 miles (5km) of the proposed scheme):
    - South Somerset Local Plan 2006-2028

Stage 2 identify shortlist of 'other developments' for CEA

15.3.13 The 'long list' of other developments identified under Stage 1 has been subject to further threshold and criteria to identify a proportionate list of developments to be assessed within the CEA.

15.3.14 The threshold and criteria considered in shortlisting a development is outlined in Table 15-3. Criteria has been adapted from the PINS guidance within *Advice note 17 Cumulative Effects Assessment* and the EIA Regulations.

Table 15-3 Criteria for shortlisting 'other development'

Threshold	Description
The temporal scope of 'other development' potential for interaction	• consideration of relative construction, operation and decommissioning programmes of the 'other development' identified in the ZoI with the proposed scheme programme, to establish whether there is overlap, or similar temporal scope for construction and operation phases, and any potential for interaction
The scale and nature of 'other development'	• consideration of whether the scale and nature of the developments identified in the ZoI are likely to interact with the proposed scheme and to result in a cumulative effect • characteristics of other developments in relation to use of natural resources, pollution and nuisances, and risks to human health • the scale of developments which are more than 1 hectare of urban development which is not a dwelling development • the development includes more than 150 dwellings • the overall area of the development exceeds 5 hectares
Any other relevant factors	• nature and/or capacity of the receiving environment that would make a significant cumulative effect with 'other development'. The sensitivity of the receiving environment includes whether the sites are within: o wetlands, riparian areas, river mouths o coastal zones and the marine environment o mountain and forest areas o nature reserves and parks o European sites and other areas classified or protected under national legislation o areas in which there has already been a failure to meet the environmental quality standards, laid down in Union legislation and relevant to the project, or in which it is considered that there is such a failure o densely populated areas o landscapes and sites of historical, cultural or archaeological significance • the relative abundance, availability, quality and regenerative capacity of natural resources in the area • potential for creation of source-pathway-receptor impacts • the likely significance of effects where environmental assessments have been undertaken for the 'other developments' as having moderate to large significance

15.3.15 Professional judgement has been applied to 'other developments' that exceed the thresholds but do not give rise to discernible effects. Where relevant, the reasons for excluding any 'other development' from further consideration is outlined in Appendix 15.1 Consideration of cumulative effects.

Stage 3 information gathering

15.3.16 In line with PINS's *Advice note 17 Cumulative Effects Assessment*, the following information on the 'other developments' has been compiled from publicly available information as outlined under Stage 1 above:

- *"proposed design and location information*
- *proposed programme of construction, operation and decommissioning*
- *environmental assessments that set out baseline data and effects arising from the 'other existing development and/or approved development".*

Stage 4 assessment

15.3.17 The assessment of significance of the cumulative effects is determined in accordance with the significance assessment as detailed within Chapter 4 Environmental assessment methodology.

15.3.18 For the purposes of the CEA, the value of a resource and magnitude of impact is determined according to the criteria set within the preceding chapters of this PEI Report (Chapters 5-14). The significance of effect is then carried forward from preceding chapters to identify the significance of cumulative effects with other developments.

15.3.19 The significance criteria for cumulative effects has been derived from guidance set out within DMRB LA 104 *Environmental assessment and monitoring*. This is set out in Table 15-4 and will be used in the assessment to be reported in the ES.

15.3.20 Where significant cumulative effects beyond those identified as residual significant effects from the proposed scheme in isolation are identified, an assessment of the need for additional mitigation (further to that already set out in the preceding chapters) (Chapters 5-14) will be undertaken.

Table 15-4 Determining significance of cumulative effects

Significance category	Typical Description
Very Large (Adverse or Beneficial)	Effects as this level are material in the decision-making process
Large (Adverse or Beneficial)	Effects at this level are likely to be material in the decision-making process
Moderate (Adverse or Beneficial)	Effects at this level can be considered to be material decision-making factors
Slight (Adverse or Beneficial)	Effects at this level are not material in the decision-making process
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

15.3.21 The assessment of cumulative effects will vary depending on each environmental factor's individual assessment criteria and thresholds for significant effects.

Zone of Influence

15.3.22 Table 15-5 explains the rationale for the ZoI extent for potential cumulative impacts with other developments used by each environmental factor. These individual ZoIs were subsequently combined to define an overall ZoI representing the search area within which other development has been identified, as shown

on Figure 15.1. The ZoI for Air quality (from the affected road network) and Biodiversity (for impacts on Bats) has been limited to 6.2 miles (10 kilometres (km)) and Material Assets and Waste has been limited to 3.1 miles (5km) due to the study area for those factors encompassing areas much greater than would be feasible to identify other development. Climate impacts (i.e. those as a consequence of global heating) are observable at a national/global scale. Climate has therefore been scoped out of the CEA in combination with other local/regional developments.

Table 15-5 ZoI extents for assessment of potential cumulative impacts

Environmental factor	Zone of influence (ZoI)
Air quality	Up to 200m from the proposed scheme (for construction dust) and up to 200m (0.1 miles) from the affected road network (ARN) once operational. [Note that other development for inclusion within the CEA is only identified out to 3.1 miles (5km) from the proposed scheme.]
Cultural heritage	Setting of designated heritage assets (construction and operation) up to 0.6 miles (1km). Designated and non-designated heritage assets (operation and construction) up to 0.19 miles (300m).
Landscape and visual	Construction and operation effects up to 1.2 miles (2km).
Biodiversity	ZoIs vary depending on the ecology of the habitat or species being assessed, generally construction and operation effects are considered up to 1.2 miles (2km) or 6.2 miles (10km) where rare bat species are present; however, where European protected sites lie close to the proposed scheme, the following study areas or criteria are used: • 18.6 miles (30km) where bats are a qualifying feature of the European site. • 12.4 miles (20km) where wildfowl and wader birds are a qualifying feature of the European site. • Where there is a hydrological connectivity between the proposed scheme and the European sites.
Geology and soils	Construction and operational effects on geology and soil receptors within the limits of the land to be used temporarily or permanently. For other receptors such as controlled waters, human health, up to 0.16 miles (250m) for construction and operational effects from pollution incidents and 0.3 miles (500m) for landfill and waste management sites (historical and current).
Material assets and waste	Construction footprints/project boundary. Study area for material supply and waste infrastructure in the county of Somerset where the proposed scheme is located although consideration has also been included for the wider South West region (i.e. Cornwall, Devon, Dorset, Gloucestershire, Somerset and Wiltshire). Consideration of other developments for CEA limited to 3.1 miles (5km).
Noise and vibration	Construction noise up to 0.2 miles (300m) and construction vibration up to 0.06 miles (100m). However, in the event that another development is located 300m beyond a receptor located in the ZoI, then the ZoI would be extended to a maximum of 600m (i.e. 300m to the receptor plus 300m beyond to the other development). Similarly for vibration, the ZoI could be increased to 200m where there is another development 100m beyond a receptor in the ZoI. Operational noise up to 0.4 miles (600m) from scheme roads and up to 50m from non-scheme roads experiencing a greater than negligible noise change.
Population and human health	Construction and operation land use and accessibility up to 0.3 miles (500m). Cyclists, recreational walkers and horse riders up to 3.1 miles (5km). Health effects within wards considered in the assessment.

Environmental factor	Zone of influence (ZoI)
Road drainage and the water environment	Groundwater, Geomorphology, Water Framework Directive (WFD), flood risk, and Water quality for operation and construction) up to 0.6 miles (1km). The ZoI will be extended beyond 0.6 miles (1km) where surface water or groundwater features are identified as further than 0.6 miles (1km) from the proposed scheme but still have a hydraulic connection with the proposed scheme.
Climate change	Vulnerability to climate change is limited in spatial extent to the footprint of the Proposed Scheme, therefore no cumulative impacts with other developments is considered. Greenhouse gas (GHG) emissions contribute cumulatively with all sources of GHG emissions globally to cause climate change. This assessment has considered GHG emissions in the context of the UK carbon budgets and no further consideration of the Proposed Scheme's GHG emissions with other sources of GHGs is necessary.

15.4 Preliminary assessment of combined effects

15.4.1 This section provides a summary of the potential combined effects which have been identified as part of the preliminary assessments reported within the relevant environmental factor chapters of the PEI Report (Chapter 5 Air quality, Chapter 6 Cultural heritage, Chapter 7 Landscape and visual, Chapter 8 Biodiversity, Chapter 9 Geology and soils, Chapter 10 Material assets and waste, Chapter 11 Noise and vibration, Chapter 12 Population and human health, Chapter 13 Road drainage and the water environment and Chapter 14 Climate), and which are considered likely to affect a single resource or receptor. These preliminary in-combination assessments are summarised in Table 15-6.

Table 15-6 Combined effects as assessed and reported in environmental factor assessment chapters

Environmental factor and scope of combined effects assessed within chapter	Residual significant effects
Chapter 5 Air quality: Traffic data provided by the transport consultants used in the air quality assessment contains vehicle movements associated with committed developments at a strategic scale.	See summary of preliminary residual significant effects in Table 15-7 of this chapter.
Chapter 6 Cultural heritage considers effects from different sources on heritage resources, such as the removal of buried archaeological remains, or impacts arising from changes to the setting of heritage resources as a result of visual or noise changes.	See summary of preliminary residual significant effects in Table 15-7 of this chapter.
Chapter 7 Landscape and Visual considers effects from different sources on landscape and visual receptors, including landscape features and character areas, and visual amenity experienced by people.	See summary of preliminary residual significant effects in Table 15-7 of this chapter.
Chapter 8 Biodiversity considers the combined ecological effects on single receptors of a number of individual environmental impacts such as area of land required, disturbance due to noise, vibration or light, changes in air quality and airborne dust deposition, changes in water quality due to surface run-off and pollution events and cumulative loss and fragmentation of certain habitat types.	See summary of preliminary residual significant effects in Table 15-7 of this chapter.
Chapter 12 The population assessment considers the combined effects from other environmental factors (noise, air quality, traffic, landscape and visual) which could affect people's enjoyment of private property and housing, community land and assets, development land and businesses, agricultural land holdings and routes used by walkers, cyclists and horse riders. The assessment of human health considers the environmental determinants of health including air quality, noise, ground conditions such as contaminated land, climate change and landscape and visual amenity. It also considers impacts to other material assets such as community and transport facilities as a result of the proposed scheme.	See summary of preliminary residual significant effects in Table 15-7 of this chapter.
Chapter 13 Road drainage and the water environment considers combined effects such as the accumulation of impacts on water resources and receptors such as rivers and aquifers, which when considered together constitute a greater impact.	See summary of preliminary residual significant effects in Table 15-7 of this chapter.
Chapter 14 Climate has not considered combined effects. The ES will consider the ICCI of the proposed scheme where the focus is on those effects of the proposed scheme identified by an environmental factor that are also affected by climate change.	Not applicable

15.5 Preliminary assessment of cumulative effects

15.5.1 Table 15-7 provides a summary of the preliminary significant effects of the proposed scheme (as assessed by each PEI Report chapter) and sensitive receptors identified as potentially affected by the other developments. The longlist and short-list of other developments is provided within Appendix 15.1 Consideration of cumulative effects of this PEI Report.

Table 15-7 Preliminary significant effects and key receptors for environmental factors

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
Air quality	**Construction** • No likely significant effects anticipated from construction activities. [*Note: An assessment of construction traffic emissions is still to be undertaken and will be reported in the ES.*] **Operation** • No likely significant effects anticipated	**Construction** • Sensitive human and ecological receptors within 200m of the draft DCO boundary. **Operation** • Residential properties, schools, hospitals, care homes and designated ecological sites within 200m of the ARN.
Cultural heritage	**Construction** • Temporary adverse effect on Henlade House resulting from the change to designed views from the front of the Grade II* Listed Building. • Temporary and permanent adverse effects on Musgrave Farmhouse Grade II* Listed Building resulting from the proposed scheme altering the rural setting of the resource and the change to its farmyard. • Temporary and permanent adverse effects on Grade II listed Ashe Farmhouse arising from increased noise both during construction and from the operation of the proposed scheme. • Temporary adverse effect on The Thatch Grade II Listed Building resulting from increased noise altering the rural setting of the resource. • Permanent adverse effect on Ruishton House Grade II Listed Building resulting from the scheme altering the immediate setting of the resource. • Permanent adverse effect on the Grade II Listed Road Bridge (located at NGR ST 2815 2249) from construction of new road embankment under the bridge arch. • Temporary and permanent adverse effect on non-designated historic parkland at Hatch Park and Jordans from ground excavation.	**Construction and operation** • Church of the Blessed Virgin Mary, Ashill – a Grade II* Listed Building.

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
	• Permanent adverse effect on the historic landscape character of the central part of the proposed scheme, where there would be the loss of several anciently enclosed fields. • Permanent adverse effect on the removal of three non-designated historic milestones (Capland Spa, Ash Cross, Three Oaks Cross). • Permanent adverse significant effects on below ground archaeology (known and unknown) within the footprint of the proposed scheme. **Operation** • Potential significant adverse effects identified on Ashe Farmhouse and The Thatch, both Grade II listed buildings, which are likely to experience increased operational noise altering their currently quiet rural settings.	
Landscape and visual	**Construction** • Temporary adverse significant effects on local landscape character areas (LLCA) that are directly affected by the proposed development, including: Vale of Taunton Deane and North Curry Sandstone Ridge;. • Temporary adverse significant effects experienced by residential properties located near the engineering footprint, such as those around Henlade and Ashill, and individual properties with clear views across open fields towards vegetation alongside the existing A358 corridor. From public rights of way (PRoW), significant effects are likely from elevated positions in relatively close proximity to the scheme, such as from Stoke Hill and Thorn Hill, where a length of the proposed scheme will be visible in the middle distance across a large proportion of the view. **Operation** • Permanent adverse significant effects on local landscape character areas (LLCA) that are directly affected by the proposed development, including: Vale of Taunton Deane (years 1 and 15) and North Curry Sandstone Ridge (years 1 and 15).	• Vale of Taunton Deane LLCA. • Residential properties west of Henlade, in Kenny, and in Ashill. • Visual receptors within 'other developments'. • PRoW around Henlade, Ashill, Kenny, and at Herne Hill.

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
	• Permanent adverse significant effects experienced by residential properties for year 1 located near the engineering footprint, such as those around Henlade and Ashill, and individual properties with clear views across open fields towards vegetation alongside the existing A358 corridor. From PRoW, significant effects for year 1 are likely from elevated positions in relatively close proximity to the proposed scheme, such as from Stoke Hill and Thorn Hill, where a length of the proposed scheme would be visible in the middle distance across a large proportion of the view. For year 15, likely significant visual effects are anticipated to be limited to those residential properties or rights of way: ○ With views towards new elevated structures or junctions and the offline sections of the proposed scheme. ○ In close proximity and facing the online section of the proposed scheme. ○ Users of PRoW around the offline section of the proposed scheme, including from Stoke Hill.	
Biodiversity	**Construction** ○ Adverse significant effects on Road Verges West of Hatch Beauchamp (Local Wildlife Site) LWS, Jordans Park LWS and River Rag LWS due to direct habitat loss within these designated sites. ○ Adverse significant effect on Bickenhall Wood and Saltfield Copse LWS ancient woodlands due to direct habitat loss. ○ Adverse significant effect on veteran trees due to the loss of up to three veteran trees. ○ Adverse significant effect on semi-natural broadleaved woodland due to habitat loss. ○ Beneficial significant effect on semi-natural broadleaved woodland due to habitat creation. ○ Adverse significant effect on species-rich hedgerows due to habitat loss.	• Designated sites – South Taunton Stream Local Nature Reserves (LNR), Children's Wood/Riverside Park LNR, potential effects and cumulative effects on internationally important designated sites (Special Area for Conservation (SAC), Special Protection Area (SPA), Ramsar) will be reported in the ES following completion of the Habitats Regulations Assessment (HRA) • Non-statutory designated sites • Ancient woodland and veteran trees • Semi-natural broadleaved woodland • Scattered trees • Hedgerows • Semi-improved neutral grassland • Marsh grassland

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
	○ Beneficial significant effect on species-rich hedgerows due to habitat creation and management. ○ Beneficial significant effect on species-rich neutral grassland due to habitat creation. ○ Adverse significant effect on bat assemblages due to loss and fragmentation of foraging and commuting habitats. **Operation** • Adverse significant effect on Bickenhall Wood ancient woodland due to vehicular related nitrogen deposition causing habitat degradation.	• Watercourses • Orchid assemblage • Bats including all for Annex II species • Hazel dormouse (*Muscardinus avellanarius*) • Breeding birds and wintering birds • Barn owls • Great crested newts (GCN) (*Triturus cristatus*) • Otters (*Lutra lutra*) • Water voles (*Arvicola amphibius*) • Brown hairstreak butterfly (*Thecla betulae*) • Badgers (*Meles meles*) • Reptiles • Terrestrial invertebrates • Fish • Aquatic macroinvertebrates • Section 41 species of principal importance
Geology and soils	**Construction** ○ A permanent adverse moderate effect has been identified to off-site residential site users, as a result of contamination from historical landfills. Further investigations and risk assessments would be required to identify the requirement for remedial/mitigation measures. These further assessments are to be undertaken on completion of planned site investigation. ○ The construction of the proposed scheme would result in significant, temporary and permanent very large adverse effect on best and most versatile agricultural land in grade 2 and subgrade 3a, and a significant large adverse effect of subgrade 3b agricultural land. **Operation** • No likely significant effects identified.	○ The other development identified which are within the geology and soils ZoI, are in the majority residential developments which brings in additional potential highly sensitive human receptors. The industrial land use classes associated with the Horlicks and Nexus 25 developments would also introduce human health receptors, although these are of lower sensitivity. ○ The redevelopment of the Horlicks site could also potentially create additional potential land contamination pathways, during its construction phase. Ultimately, development of the Horlick's site would remove potential contamination sources as it is expected that relevant planning conditions will be applied, requiring remediation of potential contamination.

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
Material assets and waste	**Construction** • No likely significant effects anticipated. **Operation** • No likely significant effects anticipated.	• Capacity of waste management infrastructure (including waste treatment facilities and landfill sites) in the county of Somerset due to the volume of estimated waste arisings from the proposed scheme.
Noise and vibration	**Construction** ○ Based on reasonable 'worst-case' assumptions for typical road construction activities, temporary direct significant adverse noise effects have been identified at 345 residential and non-residential noise sensitive receptors located within the study area. ○ A quantitative vibration assessment has not been undertaken for the PEI Report however, significant vibration effects are possible up to 100m from vibratory works including piling and compaction works. **Operation** ○ 439 residential and non-residential noise sensitive receptors (NSR) are assessed as being subject to direct permanent likely significant adverse effects where there is an increase in noise levels with the proposed scheme. These NSR are situated in Henlade, Thornfalcon, Mattocks Tree Green, West Hatch, Hatch Beauchamp, Hatch Green, Ashill, Rapps and Horton Cross. ○ 374 NSR are assessed as being subject to indirect permanent likely significant adverse effects. This is because of changes in road traffic noise associated with non-scheme roads. These NSR are situated in North Curry, Meare Green, Curload, Burrowbridge, Curry Mallet, Broadway and Horton. ○ 113 NSR would experience a noise reduction which are assessed as being subject to direct permanent likely significant beneficial effects, located in Ruishton, Henlade, Thornfalcon, Mattock's Tree Green, Hatch Green and Ashill. • 211 NSR are assessed as being subject to indirect permanent likely significant beneficial effects, located in Orchard Portman, Staple Fitzpaine, Buckland St Mary and Horton.	**Construction** ○ Residential and non-residential noise receptors situated within 300m of the other developments and within 300m of the proposed construction works. ○ Residential and non-residential noise receptors situated within 100m of the other developments and within 100m of the proposed construction works. **Operation** ○ Residential and non-residential noise receptors affected by cumulative traffic changes from the proposed scheme and other developments. [*Note: other developments are included in the traffic modelling and therefore noise effects are picked up in the noise assessment as reported in Chapter 11 Noise and vibration*.]

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
Population and human health [17]	**Construction** *Land use and accessibility:* • Three private properties will experience permanent large adverse impacts during construction due to demolition. A further six private properties will experience temporary moderate adverse effects through the introduction of severance or discernible changes in environmental quality. • There are no demolitions resulting in large adverse effects for either community assets or businesses. • There is one very large adverse effects, one temporary large adverse, and four moderate adverse effects on community assets as a result of access changes or discernible changes in environmental quality. • There are moderate adverse effects to 20 businesses as a result of access changes or discernible changes in environmental quality. • Slight adverse effects will be experienced by all walker, cyclists, and horse riders as a result of construction activities. *Agricultural land holdings:* • 23 agricultural land holdings will experience significant adverse temporary effects, with 16 agricultural land holdings experiencing significant adverse permanent effects once construction is complete. *Health:* • Neutral health outcomes identified for all health determinants except for air quality which is assessed as negative within all wards. **Operation** *Land use and accessibility:* • Four private properties are anticipated to experience permanent moderate adverse effects due to severance or substantial environmental changes.	*Land use and accessibility:* • Land and access assets. *Agricultural land holdings:* • One agricultural land holding (Summerfield Estate) would also be affected by the Nexus 25 development. *Health:* • Residential properties across all wards in relation to air quality during construction.

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
	• There will be slight beneficial effects to all community assets as a result of improved accessibility from the overall reduction in the number of vehicles passing through communities. • There will be slight beneficial effects to all business receptors as a result of improved journey time reliability and safety. • There is one large adverse impact to one bridleway where the route has been stopped up, with a further 15 routes experiencing moderate adverse effects as a result of longer journey times as a result of the diversions. *Agricultural land holdings* • No significant operational effects. *Health:* • Positive health outcomes identified for all wards in relation to transport and connectivity, air quality and employment and training. • Positive health outcome for North Curry and Stoke St Gregory ward in relation to noise (all other wards neutral health outcome in relation to noise). • Neutral health outcomes are identified across all wards in relation to the remaining health determinants.	
Road drainage and the water environment	**Construction** • No likely significant effects identified. **Operation** • No likely significant effects identified based on the preliminary assessment provided in the PEI Report. • The potential impact of the proposed scheme on pollution risk to water receptors will be determined using HEWRAT and reported in the ES. • The potential impacts of the proposed scheme on flood risk (for Black Brook Tributaries 1-3, River Tone Tributary 1, West Sedgemoor Main Drain, Fivehead River Main Channels 1 and 2, Venner's Water, River Ding and Tributaries 1 and 2 and	• The 'other developments' identified within the road drainage and water environment ZoI that have the potential to result in cumulative effects on the following road drainage and water environment receptors, comprising: ○ Surface water flow path at Ashill ○ River Isle ○ River Ding ○ Flood risk receptors in Kenny (residential properties and Wood Road)

Environmental factor	Summary of preliminary significant effects (as reported in environmental factor chapter)	Key receptors provisionally identified as being potentially affected by 'other developments'
	Back Stream) will be assessed in the ES utilising hydraulic modelling.	
Climate	• Based on the preliminary assessment presented in this PEI Report, no significant effects in relation to GHG emissions or vulnerability of the proposed scheme to climate change are predicted during the construction and operation phases.	• Not applicable.

Identification of other developments to be assessed

15.5.2 For each identified ‘other development’, consideration has been made as to the likelihood that any impacts from the development could occur at the same time as the proposed scheme or affect similar receptors or resources. Appendix 15.1 Consideration of cumulative effects presents the list of other developments identified along with confirmation and justification for those screened out of the assessment.

15.5.3 The long list of developments is given in Appendix 15.1 Consideration of cumulative effects. The number of developments to be considered within each environmental factor has been condensed between stage 1 and stage 2 assessments using the criteria listed in Table 15-3.

15.5.4 Table 15-8 provides the shortlist of development projects used for this CEA and Figure 15.2 Location of other developments shows the location of each development.

Table 15-8 Preliminary short listed 'other developments' with the potential to result in cumulative impacts (for assessment in the CEA)

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
68	A303 Sparkford to Ilchester Dualling NSIP (PINS)	18.5 A303 Sparkford to Ilchester Dualling	Application by Highways England for an Order Granting Development Consent for the A303 Sparkford to Ilchester Dualling	Scheme approved. End date of construction 2023-24. Although construction programme scheduled for 2024 completion, scheme left in CEA as a worst-case scenario as the programme would likely be delayed due to the nature of the scheme.	**Air Quality** (within 0.1 miles [200m] of the ARN). **Health** (within study ward)
51	34/16/0014 – subject to approval (SWTDC)	3.6 Land at Staplegrove (East), Taunton, Somerset	Outline permission (with all matters reserved except for access) for the erection of up to 915 residential units, a primary school, 1 ha of employment land, local centre, open space including allotments and sports pitches, green infrastructure, landscaping, woodland planting, sustainable drainage systems and associated works; including provision of an internal spine road to connect A358 Staplegrove Road to Kingston Road on land at Staplegrove (East), Taunton, Somerset.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material Assets & Waste** (3.1 miles [5km]).
52	34/16/0007 (SWTDC)	4 Land at Staplegrove (West), Taunton, Somerset	Outline permission (with all matters reserved except for access) for a residential-led, mixed use urban extension to include up to 713 dwellings, 1 ha of employment land comprising use classes B1(a) (up to a maximum of 2500sqm), B1(b), B1(c), B2, B8 together with green infrastructure, landscaping, play areas, sustainable drainage systems (SUDS) and associated works. An internal spine road is proposed to connect the A358 Staplegrove Road	Phasing is based on delivery of the Spine Road. No timescales provided.	**Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material**

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
			and Taunton Road at land at Staplegrove (West), Taunton, Somerset		**Assets & Waste** (3.1 miles [5km]).
53	42/14/0069 (SWTDC)	5 Land at comeytrowe / trull	Outline planning application with all matters reserved (except points of access) for a residential and mixed use urban extension at comeytrowe/trull to include up to 2000 dwellings, up to 5.25 hectares of employment land, 2.2 hectares of land for a primary school, a mixed use local centre, and a 300 space 'park and bus' facility on land at comeytrowe/trull amended and additional information received 04 September 2015.	Under construction – delivery expected over the next 10 years.	**Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material Assets & Waste** (3.1 miles [5km]).
70	Nexus 25 LDO (SWTDC)	0.05 Located at J25 of the M5	Development of Strategic Employment Site 'Nexus 25' (25ha). 6 Plot development proposal with B1(a), B1(b), B2, B8 and ancillary uses.	No timescales defined for delivery. The Adopted Nexus 25 LDO includes the aim for 'To facilitate the delivery of a new high quality strategic employment site for Taunton at M5 junction 25 – aiming for first phase occupiers on site by late 2018', however, there have been some delays to development. From aerial photography, construction of the road slipway off M5 junction 25 appears to be already underway, although there are no buildings as yet.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles [1km]); **Material Assets & Waste** (3.1 miles [5km]); **Climate Change** (footprint of Proposed Scheme).

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
37	38/20/0285 – subject to approval (SWTDC)	3 59-63 High Street, Taunton	Redevelopment of site with re-configuration of ground floor commercial use and the erection of a third and fourth floor with conversion into a total of 62 No. apartments (60 additional) over 4 floors at 59-63 High Street, Taunton	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material Assets & Waste** (3.1 miles [5km]).
86	48/21/0033 – subject to approval (SWTDC)	2 156 Bridgwater Road, Monkton Heathfield, TA2 8BP	Application for outline planning with all matters reserved, except for access, for the demolition of employment buildings and erection of 40 No. dwellings with associated parking, cycle storage, refuse storage and private/communal amenity space at AMP Access.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material Assets & Waste** (3.1 miles [5km]).
15	16/02874/FUL – subject to approval (SSDC)	7.7 Land Adjoining Holbear Forton Road Chard, Somerset TA20 2HS	Proposed residential development with associated access and infrastructure. Development of up to 263 units.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); and **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only).
57	18/04057/OUT – subject to approval	5.7 Land East Of Mount Hindrance Farm	Outline application for mixed development comprising residential development of up to 295 dwellings, provision of a floodlit full size football pitch, unlit full size training pitch and community	Construction start date subject to approval. To be reviewed prior to	**Air Quality** (within 0.1 miles [200m] of the ARN); **Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
	(SSDC)	Mount Hindrance Lane Chard Somerset	sports pitch with associated multi use clubhouse, spectator facilities and vehicular parking area; hub for local neighbourhood facilities and other community uses, public open space, landscaping, drainage and other facilities; associated vehicular and pedestrian accesses, land regrading, associated infrastructure and engineering works	the production of the ES.	are a qualifying feature of the European site only); and **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only).
60	16/05500/OUT – subject to approval (SSDC)	0.9 Land South West of Canal Way Ilminster Somerset	Outline application for residential development for up to 400 dwellings with associated access.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Population & Human Health** (3.1 miles [5km]); and **Material Assets & Waste** (3.1 miles [5km]).
20	17/03409/OUT (SSDC)	0.4 Lamb Inn Horton Cross, Ilminster, Somerset, TA19 9PY	Erection of 24 bed residential home and formation of new vehicular access (outline application)	Construction programme unspecified. Works have not started.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); and **Material Assets & Waste** (3.1 miles [5km]).
21	17/03800/OUT 20/03697/REM (SSDC)	0.01 Land Os 3727 Part Windmill Hill Lane, Ashill, Ilminster, Somerset, TA19 9PA	Erection of 25 dwellings and formation of access (outline application)	Construction programme unspecified. Works have not started.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
					[1km]); **Material Assets & Waste** (3.1 miles [5km]); **Climate Change** (footprint of proposed scheme).
24	19/03418/FUL – subject to approval (SSDC)	0.01 Stewley Cross Caravan Park Wood Road Ashill Ilminster TA19 9NP	Erection of 10 No. dwellings with garages and ancillary parking.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles [1km]); **Material Assets & Waste** (3.1 miles [5km]).
28	20/03697/REM – subject to approval (SSDC)	0.2 Land Os 3727 Part Windmill Hill Lane Ashill Ilminster Somerset TA19 9PA	Application for approval of appearance, landscaping and scale ('the reserved matters'), landscaping (condition 4), ecological mitigation (condition 5), access details (condition 9), cycle and footpath links (condition 16) and foul and surface water drainage (condition 20) pursuant to outline planning permission ref. 17/03800/OUT for the erection of 25 dwellings and formation of access	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Construction noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles [1km]); **Material Assets & Waste** (3.1 miles [5km]).
32	19/03505/FUL – subject to approval (SSDC)	2 Land Os 3875 Part St Peters Close Ilton	The erection of 15 dwellings, formation of new access and associated works.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
		Ilminster Somerset TA19 9ET			European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material Assets & Waste** (3.1 miles [5km]).
61	18/00082/FUL – subject to approval (SSDC)	1.6 Land South West Of Canal Way Ilminster Somerset	Erection of 144 No. dwelling houses with open space, landscaping and other associated works. Formation of access.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only); and **Material Assets & Waste** (3.1 miles [5km]).
62	19/00012/OUT – subject to approval (SSDC)	0.08 Horlicks Farms And Dairies Ltd, Station Road, Ilminster Somerset, TA19 9PR	Outline planning application for the erection of flexible class B1 (B1a or B1b) building (or buildings) and up to 150 No. dwellings on the land to the north of Station Road; and for class B1(C), B2, B8, D1, A3, A4 , A5 or Motor Dealership uses on the land to the South of Station Road; and details of accesses off of Station Road together with other road infrastructure, engineering works, landscaping all to facilitate phased redevelopment	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles [1km]); **Material Assets & Waste** (3.1 miles [5km]); **Climate Change** (footprint of Proposed Scheme).
13	19/01219/FUL (SSDC)	6.4	Proposed offices, warehousing, research and development buildings, totalling 13,308 m^2 net floorspace.	Construction programme	**Air Quality** (within 0.1 miles [200m] of the ARN); **Biodiversity** (6.2 miles [10km] – bats, wildfowl

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
		Land At Crewkerne Road Chard TA20 1HA		unspecified. Works have not started.	and wading birds only where they are a qualifying feature of the European site only); and **Population & Human Health** (3.1 miles [5km] – cyclists, recreational walkers and horse riders only).
66	20/00405/REM 17/04328/OUT (SSDC)	0.3 Land West Of School Lane Ashill Ilminster Somerset, TA19 9PB	Erection of 10 dwellings and associated works including the formation of 2 No. accesses (outline)	Construction programme unspecified. Works have not started.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles [1km]); **Material Assets & Waste** (3.1 miles [5km]).
67	19/03070/FUL – subject to approval (SSDC)	1 Land Rear Of The Bell Inn Broadway Road Broadway Ilminster Somerset, TA19 9RG	The erection of 25 No. dwellings along with associated vehicular access and landscaping	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Population & Human Health** (3.1 miles [5km]); **Water Environment** (0.6 miles [1km]); and **Material Assets & Waste** (3.1 miles [5km]).
23	19/02812/OUT – subject to approval (SSDC)	<0.02 The Builders Yard Wood Road Ashill	Outline application with all matters reserved save for access for the erection of 2No. dwellings	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
		Ilminster Somerset, TA19 9NP			[10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Material Assets & Waste** (3.1 miles [5km]).
25	20/01902/PIP (SSDC)	<0.02 Total Butler Ashill Ilminster Somerset TA19 9NQ	Permission in principle for the demolition of former office building previously used in association with fuel storage and distribution business and erection of 6 No. dwellings.	Construction programme unspecified. Works have not started.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Material Assets & Waste** (3.1 miles [5km]).
26	20/03456/FUL – subject to approval (SSDC)	<0.02 The Builders Yard, Wood Road Ashill, Ilminster, TA19 9NP	Erection of two detached dwelling houses.	Construction start date subject to approval. To be reviewed prior to the production of the ES.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Cultural Heritage** (0.6 miles [1km]); **Landscape & Visual** (1.2 miles [2km]); **Biodiversity** (6.2 miles [10km]); **Geology & Soils** (0.16 miles [250m]); **Noise & Vibration** (0.4 miles [600m]); **Population & Human Health** (3.1 miles [5km]); **Material Assets & Waste** (3.1 miles [5km]).
58	21/00393/NMA 19/00074/FUL (SSDC)	6.1 Chard, TA20 1LS	The erection of 142 dwellings together with associated infrastructure including access/highway improvements, drainage and attenuation, play area, open space and landscaping.	Construction programme unspecified. Works have not started.	**Air Quality** (within 0.1 miles [200m] of the ARN); **Biodiversity** (6.2 miles [10km] – bats, wildfowl and wading birds only where they are a qualifying feature of the European site only); and

ID	Application reference and local planning authority	Approximate distance (km) from proposed scheme and location	Proposal summary	Proposed programme of construction, operation and decommissioning	Relevant environmental factor (development is within respective ZoI)
					Population & Human Health (3.1 miles [5km] – cyclists, recreational walkers and horse riders only).

Significance of cumulative effects

15.5.5 DMRB LA 104 *Environmental assessment and monitoring* notes that cumulative effects should be assessed when the conclusions of individual environmental factor assessments have been reached and reported. Therefore, cumulative effects are not reported in this PEI Report, but will be assessed and reported in the ES by considering whether:

- there would be any change in magnitude of the significant effects from the proposed scheme, as identified within the environmental factor assessments, taking into consideration any impacts from the other developments. For example, *a slight adverse significant effect becoming a large adverse significant effect*; or
- the impacts of the proposed scheme on key receptors potentially affected by 'other developments', as identified in Table 15-7, in combination with any impacts of the other developments would trigger a significant effect where the impacts of the proposed scheme in isolation would not, i.e. a *non-significant effect becoming a significant effect*.

15.5.6 Where available, the relevant ES for each development will be assessed.

15.6 Monitoring

15.6.1 If the assessment of cumulative effects identifies any likely new significant effects, or any requirement for additional mitigation above the measures that will be identified and proposed within the ES and stated in the Environmental Management Plan (EMP), then appropriate monitoring will be identified.

15.7 Summary

15.7.1 In line with DMRB LA 104 *Environmental assessment and monitoring*, cumulative effects will be assessed based on the conclusions of individual environmental factor assessments.

15.7.2 For this PEI Report, a full CEA and combined effects assessment has not been undertaken as the proposed scheme environmental assessments are still being undertaken at this stage. Therefore, this chapter presents the methodology and short list of 'other developments' to be assessed, which will be assessed and reported in the ES.

15.7.3 The CEA will identify any significant cumulative or combined effects which would result in any new or different significant effects to those identified in each environmental factor chapter of the ES. It will also identify any requirement for mitigation measures further to those set out in the individual environmental factor chapters and EMP.

Abbreviations List

Please refer to PEI Report Chapter 17 Abbreviations.

Glossary

Please refer to PEI Report Chapter 18 Glossary.

References

[1] Highways England, “DMRB: LA 104 Environmental Assessment and Monitoring,” HE, 2020.

[2] European Union, “DIRECTIVE 2014/52/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment,” EU, 2014.

[3] Secretary of State, “Infrastructure Planning (Environmental Impact Assessment) Regulations 2017,” HMSO, London, 2017.

[4] Department for Transport, “National Policy Statement for National,” December 2014. [Online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387223/npsnn-web.pdf#:~:text=The%20National%20Networks%20National%20Policy%20Statement%20%28NN%20NPS%29%2C,the%20national%20road%20and%20rail%20networks%20in%2. [Accessed 07 June 2021].

[5] Planning Inspectorate, “Advice Note Seventeen: Cumulative Effects Assessment,” August 2019. [Online]. Available: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf. [Accessed 07 June 2021].

[6] *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 are considered as part of the baseline or future baseline and will be considered.*

[7] *(1) Applications which are still to be determined at the time of undertaking the assessment are not shortlisted for assessment in the CEA due to uncertainty and limited detailed information available..*

[8] *No projects of this type have been identified within 5km of the proposed scheme..*

[9] *No projects of this type have been identified within 5km of the proposed scheme..*

[10] *In line with the DMRB methodology, only adopted planning policy has been included in the CEA..*

[11] *Roads projects are limited to those which require planning permission or development consent and does not include maintenance of the existing road network, which is typically carried out under permitted development rights..*

[12] *Publicly available published sources such as planning applications on local authority websites, published local authority plans, data published on the Planning Inspectorate website and Transport and Works Act (TWA) applications published by the Department.*

[13] Planning Inspectorate, “Welcome to National Infrastructure Planning,” PINS, 2021. [Online]. Available: https://infrastructure.planninginspectorate.gov.uk/. [Accessed 07 June 2021].

[14] Department for Transport, “Transport and Works Act (TWA) applications and decisions,” DfT, 2021. [Online]. Available: https://www.gov.uk/government/collections/twa-inspector-reports-and-decision-letters#2020-twa-decisions-and-applications. [Accessed 07 June 2021].

[15] Somerset and West Taunton District Council, “Adopted Local Plans,” Somerset and West Taunton District Council, 2021. [Online]. Available: https://www.somersetwestandtaunton.gov.uk/planning-policy/adopted-local-plans/. [Accessed 07 June 2021].

[16] South Somerset District Council, “Local Plan: South Somerset Local Plan 2006-2028,” SSDC, 05 March 2015. [Online]. Available: https://www.southsomerset.gov.uk/your-council/your-council-plan-and-strategies/planning-policy/local-plan/. [Accessed 07 June 2021].

[17] *The human health assessment only allows for adverse or beneficial effects, rather than.*

[18] Highways England, “Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring,” 2019. [Online]. Available: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section2/la104.pdf.

[19] The Planning Inspectorate, “Cumulative Effects Assessmnet, Advide note seventeen: Cumulative effects assessment relative to nationally significant infrastructure projects,” August 2019. [Online]. Available: Available: https:/infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note17V4.pdf .

[20] *3 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 are considered as part of the baseline or future baseline and will be consider.*

[21] *Applications which are still to be determined at the time of undertaking the assessment are not shortlisted for assessment in the CEA due to uncertainty and limited detailed information available..*

[22] Department for Transport, “Transport and Works Act (TWA) applications and decisions.,” [Online]. Available: https:/www.gov.uk/goverment/collections/twa-inspector-reports-and-decisionletters#2020-twa-decisions-and-applications.

[23] Planning Inspectorate, “National Infrastructure Planning,” [Online]. Available: https:/infrastructure.planninginspectorate.gov.uk/.

[24] *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 are considered as part of the baseline or future baseline and will be considered.*