

A12 Chelmsford to A120 widening scheme TR010060

6.1 ENVIRONMENTAL STATEMENT CHAPTER 16 CUMULATIVE EFFECTS ASSESSMENT

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ENVIRONMENTAL STATEMENT
CHAPTER 16 CUMULATIVE EFFECTS ASSESSMENT

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16 Cumulative effects assessment

16.1 Topic introduction

- 16.1.1 This chapter sets out the cumulative effects assessment (CEA) completed for the proposed scheme. This CEA has been undertaken following the guidance outlined in Advice Note Seventeen: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects (Planning Inspectorate, 2019) and Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (Highways England, 2020b).
- 16.1.2 Cumulative effects, as reported in this chapter, result from incremental environmental impacts caused by other developments together with the proposed scheme. Cumulative effects can be additive or interactive (synergistic) in nature. Cumulative effects can occur during both construction and operation of a development.
- 16.1.3 It should be noted that combined (intra-project) effects are not reported in this chapter. Combined effects of the proposed scheme can arise from interrelationships between environmental aspects (e.g. between ecology and hydrology, population and health), affecting a single resource or receptor. Combined effects have been reported within the relevant aspect chapters of the Environmental Statement, as set out in Chapter 5: Environmental assessment methodology [TR010060/APP/6.1].
- 16.1.4 The four-stage process applied for this CEA is illustrated on Plate 16.1.

Plate 16.1 Stages of cumulative effects assessment



- 16.1.5 This chapter reports on all four stages of the CEA.
- 16.1.6 Stages 1 and 2 relate to the identification of other developments for inclusion in the assessment. These stages were initially carried out in preparation for the statutory consultation in 2021, with draft long and short lists of other developments included in the Preliminary Environmental Information Report (PEIR) (Highways England, 2021a). During the development of this chapter of the Environmental Statement, Stages 1 and 2 have been repeated, and the lists have been updated to include more recent planning applications, any additional developments identified through consultation, and any other reasonably foreseeable developments which came forward during the interim period. Stages 3 and 4 of the CEA have been carried out using the updated short list. Further information about the methodologies for each stage is presented in Section 16.5 of this chapter.
- 16.1.7 This chapter is supported by the following figure [TR010060/APP/6.2]:
- Figure 16.1: Short List of Developments for Cumulative Effects Assessment

16.1.8 This chapter is supported by the following appendix [TR010060/APP/6.3]:

- Appendix 16.1: Long List and Short List of Developments

16.1.9 In addition to the above, the potential cumulative impacts from the proposed scheme on the socio-economic aspects of housing and access to services, facilities, employment, education and skills have been assessed. This assessment has been made in recognition that there are several Nationally Significant Infrastructure Projects (NSIPs) in the region beyond the population and human health study area, which may contribute to potentially significant cumulative effects for the proposed scheme. This assessment is reported at the end of Section 16.7 of this chapter.

16.2 Competent expert evidence

16.2.1 This CEA has been undertaken and reported by a team of competent cumulative effects specialists. The competent expert responsible for the assessment is a Technical Director, a full member of the Institute of Environmental Management and Assessment (IEMA) and a Chartered Environmentalist. They have 15 years' experience of undertaking cumulative effects assessments for major infrastructure and linear projects, including highways, for which the process of EIA (Environmental Impact Assessment) has been required. For each environmental aspect, the cumulative effects have been assessed by the competent experts responsible for Chapters 6 to 15 of the Environmental Statement [TR010060/APP/6.1].

16.3 Stakeholder engagement

16.3.1 Table 16.1 identifies the key feedback received with the Scoping Opinion (Planning Inspectorate, 2021).

Table 16.1 Key Scoping Opinion feedback for cumulative effects

Stakeholder	Comment	Applicant's response
Planning Inspectorate	Longfield Solar Farm is an NSIP and is proposed to be located adjacent to the A12 and the proposed scheme where the construction phase and possible glint or glare during operation may result in impacts to road users.	Carried forward into Stage 3: Information gathering and Stage 4: Assessment.
Essex County Council	In relation to the Beaulieu Park development and railway station, the main construction works for the station are anticipated in 2022, with the station opening in 2024. Reference should be made to the committed Beaulieu Central, which has planning permission and will contain 62,000m ² of commercial space including a hotel and a 40,000m ² business park. This will be located near the new railway station.	There are 18 applications identified as being associated with this development. These have been carried forward into Stage 3: Information gathering and Stage 4: Assessment of cumulative effects.

Stakeholder	Comment	Applicant's response
Chelmsford City Council	Strategic Growth Site 8: North of Broomfield – for 450 new homes. Masterplan has now been approved by the City Council and a planning application is expected at the end of 2021.	Carried forward into Stage 3: Information gathering and Stage 4: Assessment of cumulative effects.
Chelmsford City Council	Strategic Growth Site 6: Chelmsford Garden Community (CGC) – the 10,000 new homes in the adopted Chelmsford Local Plan should be classified as 'More than Likely' using National Highways' table to ascertain degrees of certainty for development proposals. A masterplan is due to be approved in 2022 for the CGC with planning applications for the first phase (3,000 homes) expected in late 2022.	Carried forward into Stage 3: Information gathering and Stage 4: Assessment of cumulative effects.
Essex County Council	Chelmsford North East Bypass (CNEB) – there are proposed improvements to J19 of the A12 resulting from the CNEB. It is likely the construction programme for the development could overlap with the construction programme for the proposed scheme starting in 2024.	CNEB (Phase 1) carried forward into Stage 3: Information gathering and Stage 4: Assessment of cumulative effects.
Essex County Council	The applicant must consider other large development proposals including the proposed Bradwell B Nuclear Power station, the CNEB, the A122 Lower Thames Crossing, junction 28 of the M25, and many large-scale residential developments proposed across Essex. All these developments in combination with the proposed scheme are likely to have many significant cumulative impacts on many aspects including the highway network across the County. Such cumulative impacts on the highway network and other topic areas therefore need to be investigated.	Other large development proposals have been further investigated as part of the EIA. With regards to Bradwell B and CNEB, both these developments have been progressed to Stage 4: Assessment. Other large-scale developments, including the A122 Lower Thames Crossing and junction 28 of the M25, have been subject to further investigation and discussion with the proposed scheme traffic modellers, and it has been determined that these developments would not be progressed to Stage 4: Assessment.

16.3.2 The full Scoping Opinion, as well as the Applicant's response regarding how and where comments have been addressed in the Environmental Statement and draft Development Consent Order (DCO), is included within Appendix 5.1 [TR010060/APP/6.3] of the Environmental Statement.

16.3.3 A PEIR was subsequently produced to support the pre-application statutory consultation (Highways England, 2021a). The PEIR included environmental information to enable consultees to understand the likely significant

environmental effects of the proposed scheme, and measures proposed to mitigate such effects, to help inform their consultation responses.

- 16.3.4 This CEA builds upon the information presented in the PEIR with additional design and assessment work, taking on board comments raised by stakeholders during the statutory consultation.
- 16.3.5 Table 16.2 identifies the key feedback received from the statutory consultation. All comments raised during the statutory consultation, as well as the Applicant's responses, are included in the Consultation Report [TR010060/APP/5.1].

Table 16.2 Key statutory consultation feedback for cumulative effects

Stakeholder	Comment	Response
Historic England	We would advise the cumulative impacts of the proposed A120 Braintree to A12 project should be assessed in the Environmental Statement. Two options were proposed in 2018 for the junction with the A12, one to the south of Kelvedon and the other between Kelvedon and Marks Tey, with a new junction with J23 of the A12 (south of Kelvedon) as the favoured route at that time. The project is currently being reviewed and updated, with a preferred route selection in March 2022. We would strongly advise that the cumulative impact of this scheme, and the new junction, is assessed for both proposed locations because a preferred route has not yet been announced.	The A120 Braintree to A12 project is scoped out of the CEA. It is included in the Road Investment Strategy (RIS) 3 pipeline and will therefore be implemented after the proposed scheme, which is being implemented under RIS2 (Department for Transport, 2020). It would be for the A120 Braintree to A12 project EIA to consider the cumulative effects in due course.
Braintree District Council	It is understood that the PEIR has reached stage 3 of 4 and the cumulative impact assessment will be completed for the Environmental Statement. We agree that a return to stage 1 is necessary to include the identification of new planning permissions and other reasonably foreseeable development, and request that we can fact-check the cumulative impact assessment in draft before submission into the DCO.	Both the long list and short list of developments included in the CEA were shared with Braintree District Council in February 2022.

- 16.3.6 Additional consultation outside of the Scoping Opinion and statutory consultation included sending a copy of the short-list of developments to Essex County Council to review. No response was received back from Essex County Council, so the list has been progressed into Stages 3 and 4 under the assumption that they believe that the list is complete.

16.4 Legislative and policy framework

- 16.4.1 The requirements for the assessment of cumulative effects in relation to NSIPs under the Planning Act 2008 (as amended) are set out in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations').

- 16.4.2 Schedule 4 of the EIA Regulations sets out the information for inclusion in an Environmental Statement. Schedule 4, paragraph 5 of the EIA Regulations requires 'A description of the likely significant effects of the development on the environment resulting from, inter alia: (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources', and that 'The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.'
- 16.4.3 The need to consider cumulative effects in planning and decision making is also set out in planning policy, in particular the National Networks National Policy Statement (NNNPS) (Department for Transport, 2014).
- 16.4.4 The NNNPS, under paragraph 4.16, stipulates 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)'.
- 16.4.5 The NNNPS, under paragraph 4.17, states that the Examining Authority should 'consider how significant cumulative effects and the interrelationship between effects might as a whole affect the environment, even though they may be acceptable when considered on an individual basis with mitigation measures in place'.

16.5 Assessment methodology

Assessment scope

- 16.5.1 The methodology for this CEA is the same as that presented in the Environmental Scoping Report (Highways England, 2020a). As well as the operation of the proposed scheme, works during construction of the proposed scheme, including construction traffic on haul roads, plant and site compounds, have the potential for cumulative effects with other identified developments included in the short list. As such, these have been assessed as part of the CEA.
- 16.5.2 Certain aspect chapters of the Environmental Statement, namely air quality and noise, as well as elements of the water quality assessment, which assess effects of operational vehicular emissions, are inherently cumulative assessments. This is because those aspects depend on traffic forecasts that consider the impacts of other developments and other highway projects. Future growth figures in the traffic model have made allowances for any developments that are already committed and so are cumulative. Therefore, in order to avoid double counting of effects, this CEA does not include effects arising from operational traffic from other developments.
- 16.5.3 Aspects that have been scoped out of this CEA are as follows:

- Material assets and waste – The assessment reported in Chapter 11: Material assets and waste, of the Environmental Statement [TR010060/APP/6.1] has considered the influence of constructing the proposed scheme on national material recovery targets, regional recycled aggregate targets, sub-regional minerals sterilisation and regional landfill capacity. Therefore, this aspect does not require further assessment in this CEA.
- Climate – The assessment reported in Chapter 15: Climate, of the Environmental Statement [TR010060/APP/6.1] has considered the proposed scheme's potential to affect the global climate and the ability of the Government to meet its carbon reduction targets at a national level (as a result of changes in greenhouse gas emissions) and the effect of changes in climate on the proposed scheme itself. Therefore, this aspect does not require further assessment in this CEA. Furthermore, the IEMA Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation (IEMA, 2020) advises that the extent to which climate exacerbates or ameliorates the effects of a project on the environment, referred to as 'in-combination' effects, should be considered. The IEMA guidance advises that the 'in-combination assessment' (where climate could exacerbate or conversely diminish the effect of an existing impact of a project) is best analysed in the existing environmental aspect chapters of an Environmental Statement and is suited to using traditional significance criteria from the respective aspect chapters.

16.5.4 As discussed in Chapter 2: The proposed scheme, of the Environmental Statement [TR010060/APP/6.1], there is an existing high pressure gas main that runs parallel to the A12 that would be affected by the proposed scheme and would therefore need to be diverted (the 'gas main diversion'). This gas main diversion could result in significant environmental effects. Therefore, it is a Nationally Significant Infrastructure Project in its own right (but included within the proposed scheme DCO application). As this gas main diversion is included within the proposed scheme DCO application, it has not been considered in this CEA but has been assessed in Chapters 6 to 15 of the Environmental Statement [TR010060/APP/6.1].

General approach

16.5.5 DMRB LA 104 Environmental Assessment and Monitoring (Highways England, 2020b) notes that the CEA should report on:

- road projects which have been confirmed for delivery over a similar timeframe
- other development projects with valid planning permissions or consent orders, and for which EIA is a requirement
- proposals in adopted development plans with a clear identified programme for delivery

16.5.6 For the purpose of this CEA, it is considered that the categories of development identified in DMRB LA 104 would cover existing plans and projects that are

‘reasonably foreseeable’. However, the Planning Inspectorate’s (2019) Advice Note Seventeen lists broader types of developments to be included in the CEA, as it lists developments which have been submitted for planning but have yet to be determined, and it also does not restrict it to planning applications for which EIA is a requirement. Advice Note Seventeen has been taken into account in the methodology to be applied for this CEA.

16.5.7 DMRB LA 104 notes that the assessment of cumulative effects shall:

- establish the zone of influence (ZOI) of the proposed scheme together with other developments
- establish a list of projects which could result in cumulative impacts
- obtain further information and detail on the lists of identified projects to support further assessment

16.5.8 DMRB LA 104 notes that there are no defined limits or criteria for selecting the list of projects for cumulative assessment, and professional judgement using Annex III of the EIA Directive should be applied and justification provided for developments selected (and excluded). Furthermore, DMRB LA 104 notes that the temporal and spatial scope, together with characteristics of the identified projects, are key considerations in identifying projects that require further assessment as part of the CEA.

16.5.9 Therefore, given the above, the proposed CEA methodology captures the guidance outlined in DMRB together with the staged approach and broader interpretation set out in Advice Note Seventeen (Planning Inspectorate, 2019). The four-staged approach applied for this CEA is illustrated in Plate 16.1 and is outlined in further detail below.

Stage 1: Establishing the long list

16.5.10 The long list of ‘other existing development and/or approved development’ was identified by determining the zone of influence (ZOI) for each environmental aspect and using this to form a study area within which to identify reasonably foreseeable development.

16.5.11 The criteria for determining the ZOIs are presented in Table 16.3.

Table 16.3 Criteria for determining the ZOI for each environmental aspect

Environmental aspect	ZOI	Reasoning
Air quality	<p>Construction dust – within 200m of all construction activity.</p> <p>Construction traffic emissions – within 200m of the construction Affected Road Network (defined in Chapter 6: Air quality [TR010060/APP/6.1]).</p> <p>Operational emissions – n/a.</p>	<p>Based on relevant guidance, DMRB LA 105 Air Quality (Highways England, 2019a) and the study area used for Chapter 6: Air quality, of the Environmental Statement [TR010060/APP/6.1].</p>

Environmental aspect	ZOI	Reasoning
Cultural heritage	<p>Setting of designated heritage assets (construction and operation) – within 1km of the Order Limits.</p> <p>Designated and non-designated heritage assets and their settings (operation and construction) – 300m from the Order Limits.</p> <p>Beyond 1km, a selection of heritage assets has been assessed for setting impacts based on professional judgement, informed by the zone of theoretical visibility and viewpoint analysis provided in the landscape and visual impact assessment (Chapter 8: Landscape and visual [TR010060/APP/6.1]).</p>	<p>Based on relevant guidance, DMRB LA 106 Cultural Heritage Assessment (Highways England, 2020c) and the study area used for Chapter 7: Cultural heritage, of the Environmental Statement [TR010060/APP/6.1].</p>
Landscape and visual	<p>Construction and operation effects – The study area incorporates a buffer of approximately 2km from the proposed scheme centreline, and a minimum of 1km from the Order Limits</p>	<p>The study area incorporates the full extent of the Order Limits and the wider landscape setting within which the proposed scheme could cause significant landscape and visual effects. The study area is considered to be proportionate to the nature and scale of the proposed scheme and to encompass the likely significant landscape and visual effects, as well as effects unlikely to be significant. This is in accordance with the NNNPS, which states the landscape and visual assessment will focus on those receptors '<i>significantly affected by the project</i>'.</p> <p>Developments included for consideration within this chapter that fall outside the study area for landscape and visual effects have been considered in terms of cumulative landscape and visual effects. However, only developments that would lead to cumulative effects are presented within this chapter.</p>

Environmental aspect	ZOI	Reasoning
Biodiversity	<ul style="list-style-type: none"> • 2km from the Order Limits for general construction and operational effects for any receptor–. • 2km for European designated sites. • 30km for European sites where bats are a qualifying feature. • Where there is a hydrological connectivity between the proposed scheme and the European sites. • Mobile species-specific distances (bats and barn owls) within 5km of the Order Limits • Protected and notable species within 2km of the Order Limits 	Based on relevant guidance, DMRB LA 108 Biodiversity (Highways England, 2020d), study areas used for Chapter 9: Biodiversity, of the Environmental Statement [TR010060/APP/6.1], and likely significant effects.
Geology and soils	Construction and operational effects on geology and soil receptors – 250m from the Order Limits.	Based on relevant guidance and professional judgement (in the absence of a defined study area in DMRB LA 109 Geology and Soils (Highways England, 2019b)). It is not considered likely that significant effects would arise beyond this distance.
Noise and vibration	<p>Construction noise – 300m from Order Limits.</p> <p>Construction vibration – 100m from Order Limits.</p> <p>Operational noise – n/a.</p> <p>Operational vibration – scoped out.</p>	Based on relevant guidance, DMRB LA 111 Noise and Vibration (Highways England, 2020e). Operational vibration scoped out in accordance with DMRB LA 111.

Environmental aspect	ZOI	Reasoning
Population and human health	<p>Construction and operational land use and accessibility – 500m from the Order Limits, and for community health effects – 600m from the Order Limits.</p> <p>Construction and operational effects on physical activity opportunities – 10km from the Order Limits.</p>	<p>Based on DMRB LA 112 Population and Human Health (Highways England, 2020f), DMRB LA 111, DMRB LA 105 and professional judgement that likely significant effects on land use and population health from noise, air quality, visual intrusion and local disruption would be typically up to 600m.</p> <p>Based on Department for Transport (2017) guidance that cycle commutes are typically up to 10km, and therefore cumulative impacts from major developments and changes to cycling accessibility within this range are potentially significant to health and sustainable transport policy objectives.</p>
Road drainage and the water environment	<p>Groundwater, hydromorphology, Water Framework Directive and water quality (operation and construction) – 2km from the Order Limits.</p> <p>Flood risk (operation and construction) – study area of 2km has been revised locally at each watercourse.</p>	<p>Based on the study areas used for Chapter 14: Road drainage and the water environment, of the Environmental Statement [TR010060/APP/6.1], which are based on professional judgement.</p>

- 16.5.12 The 2km ZOIs extend into the following local planning authority (LPA) areas: Essex County Council, Colchester Borough Council, Maldon District Council and Braintree District Council.
- 16.5.13 The 10km ZOI extends into a further four LPA areas. These are Suffolk County Council, Babergh District Council, Uttlesford District Council and Tendring District Council.
- 16.5.14 The identification of the long list of 'other existing development and/or approved development' was based on a review of the following:
- Planning applications registered with the relevant LPAs (Town and Country Planning Act 1990) since January 2016
 - Development allocations proposed in an approved or emerging Local Plan (with at least a draft having been submitted to the Planning Inspectorate) and/or Neighbourhood Plan
 - NSIPs listed on the Planning Inspectorate's register of projects on the National Infrastructure Planning website:
<https://infrastructure.planninginspectorate.gov.uk/projects/register-of-applications/>

- Development for transport systems authorised by Transport and Works Act Order (Transport and Works Act 1992)
- Hybrid bills currently before parliament
- Reserved matter applications and discharge of conditions

16.5.15 A cut-off point for adding new development applications to the long list was established at the end of September 2021. This has allowed enough time to complete this CEA and compile the Environmental Statement prior to the submission of the DCO.

16.5.16 The long list of 'other existing development and/or approved development' includes 319 records of planning applications and relevant development plan allocations. The information was captured in a table format based on Appendix 1 of Advice Note Seventeen (Planning Inspectorate, 2019). The long list is provided in Appendix 16.1 of the Environmental Statement [TR010060/APP/6.3].

16.5.17 Developments were categorised into Tier 1 to Tier 3 based on Advice Note Seventeen, with the level of available information decreasing between each tier:

- Tier 1 developments comprise those currently under construction or have a permitted or submitted planning application under the relevant planning regime.
- Tier 2 developments comprise those projects on the Planning Inspectorate's register of projects where a scoping report has been submitted, or projects that have requested a scoping opinion from the relevant LPA which is accompanied by a scoping report.
- Tier 3 developments comprise those developments identified in a relevant Development Plan (including emerging Development Plan) or for which a scoping or screening opinion has been sought from the Planning Inspectorate or relevant LPA.

Stage 2: Establishing the short list

16.5.18 The next stage of the CEA was to create a short list of 'other existing development and/or approved development', by determining which of the long-listed projects could give rise to significant effects in combination with the proposed scheme. This potential was identified based on the scale and nature of development and any overlap in temporal scope.

16.5.19 Professional judgement was used in the shortlisting process, guided by the inclusion and exclusion criteria presented in Table 16.4.

Table 16.4 Determining significance of cumulative effects

Consideration	Criteria
Temporal scope	Other developments with overlapping construction (2024–2027) and operational periods (2027–2042) with the proposed scheme were considered further. Other developments with temporal scopes outside these periods were not shortlisted for the CEA.
Scale and nature of development	Other developments identified as Schedule 1 and 2 developments in the EIA Regulations were considered further. Other developments not identified as Schedule 1 or 2 developments were reviewed against Schedule 3 of the EIA Regulations and were added to the short list only if, based on the Schedule 3 criteria, they had the potential to be Schedule 2 developments.
Sensitivity of the receiving environment	Where there are potential source-pathway-receptor linkages between other developments and the proposed scheme, cumulative effects were considered further. Other developments with no clear source-pathway-receptor linkage were not shortlisted for the CEA.

16.5.20 Developments with the potential to contribute to significant cumulative effects were shortlisted for further assessment in Stages 3 and 4 of the CEA. Table 16.2 (Short list of developments) in Appendix 16.1 of the Environmental Statement shows the 47 developments that were shortlisted [TR010060/APP/6.3]. See Figure 16.1 [TR010060/APP.6.2] for the locations of the 47 developments that have been shortlisted [TR010060/APP/6.2]. Justification for the inclusion or exclusion of each development is provided in Table 16.1 (Long list of developments) in Appendix 16.1 of the Environmental Statement [TR010060/APP/6.3].

Stage 3: Information gathering

16.5.21 Environmental information was gathered on the 47 shortlisted developments. This information came from the following sources:

- Consultation with specific LPAs on the Stage 2 short list
- Planning application documentation and supporting environmental assessments obtained from the LPAs' planning portals
- Local Development Plans prepared by the respective LPAs
- The Planning Inspectorate's (no date) National Infrastructure Planning website, including EIA documents prepared for NSIPs

16.5.22 Information gathered included the following, in so far as it was available for each of the short-listed developments:

- Proposed design and location

- Construction, operation and decommissioning activities
- Predicted environmental effects

Stage 4: Assessment

- 16.5.23 Stage 4 was the assessment of cumulative effects that would result from the proposed scheme together with the short-listed developments.
- 16.5.24 For each environmental aspect, the short list was filtered to just those developments within the relevant ZOI. The potential for cumulative effects was then assessed by reviewing the available environmental information and identifying potential impacts at shared sensitive receptors. The assessments were completed by the same team of environmental specialists who carried out the individual aspect assessments reported in Chapters 6 to 15 of the Environmental Statement [TR010060/APP/6.1]. The CEA findings are presented in Table 16.6 (in Section 16.7 of this chapter).
- 16.5.25 DMRB LA 104 (Highways England, 2020b) states that the significance of an effect should be determined by the extent to which the impacts can be accommodated by the resource. For this assessment of cumulative effects, the significance of effects has been determined according to the criteria set out within the respective environmental aspect chapters of the Environmental Statement.
- 16.5.26 For the short-listed developments, whose own environmental assessments may have used different significance criteria or terminology, their effects have been interpreted using professional judgement, based on the available environmental documents. No new assessment of the effects of individual developments has been carried out.
- 16.5.27 Where the significance of a cumulative effect would be moderate or above (adverse or beneficial), it has been deemed to be 'significant'. The need for additional mitigation measures has been considered, with the resulting residual significance of effects identified.
- 16.5.28 Typical descriptors of significance are outlined in Table 16.5 and are based on the criteria detailed in DMRB LA 104. These descriptors have been applied to the assessment using professional judgement.

Table 16.5 Determining significance of cumulative effects

Significance	Effect
Very large (adverse or beneficial)	<p>Effects at this level are a material consideration in the decision-making process.</p> <p>Where the balance of the effects of the proposed scheme or combined effects of the proposed scheme in association with 'other existing development and/or approved development' upon an individual or collection of environmental receptors would be very highly significant (adverse or beneficial).</p> <p>Effects would be permanent and far reaching, affecting the integrity of receptors or resources of very high value.</p>

Significance	Effect
Large (adverse or beneficial)	<p>Effects at this level are likely to be a material consideration in the decision-making process.</p> <p>Where the balance of the effects of the proposed scheme or combined effects of the proposed scheme in association with 'other existing development and/or approved development' upon an individual or collection of environmental receptors would be highly significant (adverse or beneficial).</p> <p>Effects would be:</p> <ul style="list-style-type: none"> • permanent and far reaching, affecting the integrity of receptors or resources of high value • noticeable permanent effects on a receptor of very high value
Moderate (adverse or beneficial)	<p>Effects at this level can be a material consideration in the decision-making process.</p> <p>Where the balance of the effects of the proposed scheme or combined effects of the proposed scheme in association with 'other existing development and/or approved development' upon an individual or collection of environmental receptors would be significant (adverse or beneficial).</p> <p>Effects would be:</p> <ul style="list-style-type: none"> • permanent and far reaching, affecting the integrity of receptors or resources of medium value • localised and/or temporary for receptors of high or very high value
Slight (adverse or beneficial)	<p>Effects at this level are not a material consideration in the decision-making process.</p> <p>Where the balance of the effects of the proposed scheme or combined effects of the proposed scheme in association with 'other existing development and/or approved development' upon an individual or collection of environmental receptors would be noteworthy but not significant (adverse or beneficial).</p> <p>Effects would be:</p> <ul style="list-style-type: none"> • permanent and far reaching, affecting the integrity of receptors or resources of low value • localised and/or temporary for receptors of medium value
Neutral	<p>No effects, or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.</p>

16.6 Assessment assumptions and limitations

16.6.1 Judgements have been made as to whether future developments might be subject to EIA, with reference to the EIA Regulations' Schedule 3 selection criteria for screening Schedule 2 developments:

- greater than 150 residential dwellings
- greater than 1ha for non-dwelling urban development

- area of land required exceeds 5ha overall

- 16.6.2 It has been assumed that if future developments exceed the above criteria they are likely to be an EIA development and therefore could have significant cumulative effects.
- 16.6.3 It has been assumed that a medium-sized housing development (100+ dwellings) would be constructed at a rate of 50 dwellings per year. This has allowed the assessment to make assumptions about the duration of the construction activity.
- 16.6.4 For all types of development, the timing of discharged pre-commencement planning conditions has been used as an indicator as to whether there has been or would be sufficient time for the development's construction to be completed prior to construction starting on the proposed scheme. It has been assumed that construction would normally start within two years of discharging all pre-commencement planning conditions.
- 16.6.5 The above assumptions were consulted on as part of the consultation exercise for the short list with LPAs (within the PEIR) as described in Section 16.3 of this chapter. The updated short list was later shared with Essex County Council and Braintree District Council during the preparation of this CEA.
- 16.6.6 As part of the information-gathering exercise (Stage 3 of the CEA), differences in the amounts of information that LPAs report and include on their planning portals were identified. The assessment has relied on the available information, which in some cases is limited. No additional work has been done to identify potential receptors and impacts not evident from their application documents. Professional judgement has been used where necessary to interpret the available information for use in the assessment of cumulative effects.
- 16.6.7 It is possible that there will be future planning applications for developments which could result in cumulative effects with the proposed scheme, about which there is currently limited or no information. Developments about which there is limited information have been identified in the long list, but noted as being too early in the planning process to include in the short list. Developments that are not yet known about cannot feature in this assessment. However, any cumulative effects assessments completed in due course for relevant future planning applications would be expected to consider the effects of the proposed scheme.

16.7 Assessment of likely significant effects

- 16.7.1 Table 16.6 below is based on Appendix 2 of the Planning Inspectorate's (2019) Advice Note Seventeen and has been used to record the results of the assessment for all environmental aspects, except those that have been scoped out as described in Section 16.5 of this chapter.
- 16.7.2 Table 16.6 deals with each environmental aspect in turn. Effects of neutral or negligible significance have been excluded, as they are not considered to contribute to cumulative effects.

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- 16.7.3 For each development in Table 16.6, the shared receptors have been listed, the cumulative effect has been described, the requirement for any additional mitigation measures has been considered, and the likely significant cumulative effects have been stated.

Table 16.6 Cumulative effects assessment matrix

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
Air quality								
All developments where a planning application has been submitted have been included in the traffic model; therefore, cumulative impacts from construction and operational road traffic emissions have been assessed in Chapter 6: Air quality, of the Environmental Statement [TR010060/APP/6.1]. With standard construction phase mitigation measures in place (as detailed in Chapter 6: Air quality) it is unlikely that there would be significant air quality effects resulting from construction dust; hence, there would be no significant cumulative effects relating to dust.								
Cultural heritage								
3	Tier 1	Countryside Zest (Beaulieu Park) LLP	09/01314/EI A	Outline application for mixed use development including dwellings (approximately 3,600), business park, retail, hotel, leisure, education & community etc. Also includes pumping station, foul water sewer route, Radial Distributor Road, and railway station.	Asset 57 – Generals, Asset 67 – Boreham House, registered park and garden Asset 69 – Boreham House (grade I listed building)	Temporary moderate impacts during construction of the proposed scheme are predicted for Assets 57, 67 and 69. The Beaulieu Park application has assessed either beneficial or neutral effects on these assets, and therefore the cumulative effects remain as moderate adverse for Assets 57, 67 and 69.	No mitigation proposed, as the cumulative effect would be no greater than from the proposed scheme itself.	Temporary moderate effect on Assets 57, 67 and 69 during construction (significant)
Landscape and visual (based on operational assessment at year 15)								
1	Tier 2	Essex County Council	CC/CHL/14/20/SPO	CNEB: A single carriageway road between Roundabout 4 of the Beaulieu Park Radial Distributor Road (RDR1) and a new roundabout on the A131 at Chatham Green plus dualling of the existing A131 between Chatham Green and Deres Bridge roundabout.	Local landscape character area (LCA) B21 Boreham Farmland Plateau	There would be a moderate adverse effect in this area from the proposed scheme due to an increase in highways infrastructure. The other development would also increase highways infrastructure in the area. It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in highways infrastructure would cause severance to the landscape, change the land use and field pattern, and erode the rural character.	None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].	Moderate adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
3	Tier 1	Countryside Zest (Beaulieu Park) LLP	09/01314/EI A	Outline application for mixed use development including dwellings (approximately 3,600), business park, retail, hotel, leisure, education & community etc. Also includes pumping station, foul water sewer route, Radial Distributor Road, and railway station.	Local LCA B21 Boreham Farmland Plateau	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)
8	Tier 2	EDF Renewables and Padero Solar Ltd (Longfield Solar Farm)	Longfield Solar Farm	Longfield Solar Farm – a new solar photovoltaic array generating station (500MW). North-east of Chelmsford and north of the A12 between Boreham and Hatfield Peverel.	Local LCA B21 Boreham Farmland Plateau	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
15	Tier 2	Gladman Developments Limited	20/01264/O UT	Outline planning application with all matters reserved except access for the demolition of the existing buildings and for the redevelopment of the site for up to 110 dwellings, including 40% affordable housing, with public open space, structural planting and landscaping, surface water flood mitigation and attenuation, and vehicular access point from Maldon Road.	Local LCA B21 Boreham Farmland Plateau	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)
19	Tier 1	Barkley Projects (Kelvedon) LLP	17/00679/O UT	Construction of up to 250 dwellings, a school site, health centre, employment area, local retail area, open space and landscape buffers, with two accesses onto London Road.	Local LCA A9 Blackwater River Valley	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
20	Tier 1	CALA Homes (North Home Counties) Ltd	19/01025/F UL	Construction of 238 new dwellings with associated garden and parking provision, dedicated improved access from Coggeshall Road including the demolition of two existing residential properties (Kings Villas) to facilitate this access, new public open space, a sustainable drainage system, and associated development.	Local LCA A9 Blackwater River Valley	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)
21	Tier 2	Meeson on behalf of Countryside Properties	19/01896/O UT	Construction of up to 450 residential dwellings, commercial floorspace, residential care home and day nursery with all associated access, servicing, parking, drainage infrastructure, landscaping, open space and utilities infrastructure.	Local LCA B21 Boreham Farmland Plateau	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
22	Tier 1	Mr. Simon Boulton	20/00128/O UT	Construction of B1c (Light Industrial), B2 (General Industry) and B8 (Storage and Distribution) uses, comprising a maximum gross internal floor space of 15,470 square metres (166,518 square feet), with associated service yards, heavy goods vehicle and trailer parking, car parking provision, revised landscape provision and new service road with access onto Eastways.	Local LCA A9 Blackwater River Valley	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)
24	Tier 1	Bellway Homes Limited	20/02060/O UT	Outline application with all matters reserved for up to 230 dwellings including affordable homes; public open space including sports pitches and facilities, neighbourhood equipped area for play, parkland and alternative natural greenspace; vehicular access via Forest Road and Evans Way; a bus, cycle and pedestrian connection to Rickstones Road; sustainable drainage systems; landscaping; and all associated infrastructure and development.	Local LCA A9 Blackwater River Valley	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
25	Tier 2	Brice Aggregated Limited	ESS/36/21/BTE	Proposed western extension to the current site using existing approved facilities (site access, plant site, mineral processing plant and other ancillary facilities), including for the diversion of the Burghey Brook, with restoration to arable land using imported inert restoration materials, and onsite materials in advance of the proposed scheme.	Local LCA A9 Blackwater River Valley and representative viewpoints 11 and 11a	<p>Local LCA A9 – There would be a cumulative increase in development and disruption to the landscape as a result of the proposed scheme combined with restored arable land post excavation, which would cause changes to land use and field pattern, and erode the rural character.</p> <p>Representative viewpoint 11 (users of national cycle route) – The presence of major infrastructure and lighting at J22 would remain a noticeable feature of the view combined with disruption to the landscape caused by the other development (which would comprise restored arable land in advance of the proposed scheme).</p> <p>Representative viewpoint 11a (users of the public right of way (PRoW)) – The change in view resulting from the introduction of J22 and the offline bypass between J22 and J23 would be perceptible for visual receptors combined with disruption to the landscape caused by the other development (which would comprise restored arable land in advance of the proposed scheme).</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	<p>Local LCA A9 – moderate adverse (significant)</p> <p>Representative viewpoint 11 (users of national cycle route) – large adverse (significant)</p> <p>Representative viewpoint 11a (users of the PRoW) – moderate adverse (significant)</p>
26	Tier 1	Aquila Estates Ltd	21/00031/0 UT	Outline planning permission with all matters reserved for the demolition of the existing dwelling and buildings on the site and the erection of B2/B8 Industrial and Distribution units with associated parking, servicing and landscaping.	Local LCA A9 Blackwater River Valley	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change to the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
27	Tier 1	Parker Strategic Land	21/01631/S CO	Town and Country Planning Act 1990 (as amended), Town and Country Planning (Environmental Impact Assessment) Regulations 2017 – Scoping Opinion request – The development includes up to 600 homes, land for a primary school, landscaping, infrastructure, including a pedestrian/cycle link from Kelvedon to Coggeshall and a new access from Coggeshall Road.	Local LCA A9 Blackwater River Valley	<p>There would be a moderate adverse effect from the proposed scheme due to an increase in developments in this area.</p> <p>The other development would also increase the developed land in the area.</p> <p>It is likely that there would be a moderate adverse cumulative effect from both projects. The increase in development would cause a change in the land use and field pattern, and erode the rural character.</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	Moderate adverse (significant)
28	Tier 1	Essex County Council	ESS/39/14/BTE	Extraction of sand and gravel at Colemans Farm	Local LCA A9 Blackwater River Valley and representative viewpoints 11 and 11a	<p>Local LCA A9 – There would be a cumulative increase in development and disruption to the landscape as a result of the proposed scheme combined with the restored landscape post excavation, which would cause changes to land use and field pattern, and erode the rural character.</p> <p>Representative viewpoint 11 (users of national cycle route) – The presence of major infrastructure and lighting at J22 would remain a noticeable feature of the view combined with disruption to the landscape caused by the other development (which would comprise restored land by operation year 15 in accordance with the approved restoration plan illustrated on Indicative Restoration Concept, drawing number C45/01/05 (Brice Aggregates, 2014)).</p> <p>Representative viewpoint 11a (users of the PRow) – The change in view resulting from the introduction of J22 and the offline bypass between J22 and J23 would be perceptible for visual receptors combined with disruption to the landscape caused by the other development (which would comprise restored land by operation year 15, as described above).</p>	<p>None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].</p>	<p>Local LCA A9 – moderate adverse (significant)</p> <p>Representative viewpoint 11 (users of national cycle route) – large adverse (significant)</p> <p>Representative viewpoint 11a (users of the PRow) – moderate adverse (significant)</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
Biodiversity								
For biodiversity, all receptors that would be affected by the proposed scheme have been checked against all the short-listed developments. Based on the available information, although there are receptors within the ZOI for the proposed scheme and other developments, none of those would experience individual residual effects of at least slight significance, and there is therefore no potential for cumulative effects.								
Geology and soils								
1	Tier 2	Essex County Council	CC/CHL/14/20/SPO	CNEB: A single carriageway road between Roundabout 4 of the Beaulieu Park Radial Distributor Road (RDR1) and a new roundabout on the A131 at Chatham Green plus dualling of the existing A131 between Chatham Green and Deres Bridge roundabout.	Agricultural land	<p>Permanent loss of agricultural land associated with the proposed scheme and this other development.</p> <p>From the proposed scheme, there would be the permanent loss of the following agricultural land:</p> <p>Grade 2 – 69.0ha Grade 3a – 263.5ha Grade 3b – 126.2ha</p> <p>From the other development, there would be the permanent loss of the following agricultural land:</p> <p>Grade 2 – 48ha Grade 3a – 18.83ha Grade 3b – 9.02ha</p>	None in addition to the mitigation proposed for the proposed scheme in Chapter 10: Geology and soils, of the Environmental Statement [TR010060/APP/6.1]. Further measures could not mitigate the cumulative effects described here.	Very large adverse (significant)
3	Tier 1	Countryside Zest (Beaulieu Park) LLP	09/01314/EI A	Outline application for mixed use development including dwellings (approximately 3,600), business park, retail, hotel, leisure, education & community etc. Also includes pumping station, foul water sewer route, Radial Distributor Road, and railway station.	Agricultural land	<p>Permanent loss of agricultural land associated with the proposed scheme and this other development.</p> <p>From the proposed scheme, there would be permanent loss of the following agricultural land:</p> <p>Grade 2 – 69.0ha Grade 3a – 263.5ha Grade 3b – 126.2ha</p> <p>From the other development, there would be permanent loss of the following agricultural land:</p> <p>Grade 2 – 8.3ha Grade 3a – 141.4ha Grade 3b – 96.8ha</p>	None in addition to the mitigation proposed for the proposed scheme in Chapter 10: Geology and soils, of the Environmental Statement [TR010060/APP/6.1]. Further measures could not mitigate the cumulative effects described here.	Very large adverse (significant)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
8	Tier 2	EDF Renewables and Padero Solar Ltd (Longfield Solar Farm)	Longfield Solar Farm	Longfield Solar Farm – a new solar photovoltaic array generating station (500MW). North-east of Chelmsford and north of the A12 between Boreham and Hatfield Peverel.	Agricultural land	<p>Permanent loss of agricultural land associated with the proposed scheme and this other development.</p> <p>From the proposed scheme, there would be permanent loss of the following agricultural land:</p> <p>Grade 2 – 69.0ha Grade 3a – 263.5ha Grade 3b – 126.2ha</p> <p>From the other development, there would be long-term temporary loss of 289ha of agricultural land. None of this land is best and most versatile land. In addition, the other development would retain 15ha permanently, as it would be converted to habitat, and would not be returned to agricultural use at the end of the operation of the solar farm.</p>	None in addition to the mitigation proposed for the proposed scheme in Chapter 10: Geology and soils, of the Environmental Statement [TR010060/APP/6.1]. Further measures could not mitigate the cumulative effects described here.	Very large adverse (significant)
Noise and vibration								
For noise and vibration, all receptors that would be affected by the proposed scheme have been checked against all the short-listed developments. Based on the available information, no shared receptors have been identified.								
Population and human health								
1	Tier 2	Essex County Council	CC/CHL/14/20/SPO	CNEB: A single carriageway road between Roundabout 4 of the Beaulieu Park Radial Distributor Road (RDR1) and a new roundabout on the A131 at Chatham Green plus dualling of the existing A131 between Chatham Green and Deres Bridge roundabout.	<p>Land use and accessibility</p> <p>Hanson Aggregates</p>	<p>Land use and accessibility</p> <p>Construction of the other development and the proposed scheme may affect Hanson Aggregates, as both would potentially affect access via Generals Lane and the unnamed lane heading to Hanson Aggregates if construction of the two projects occurs at the same time or in close succession.</p>	<p>Land use and accessibility</p> <p>Access arrangements for use during construction are subject to negotiation between National Highways, its contractors and the site landowner.</p>	<p>Land use and accessibility</p> <p>Moderate adverse (significant)</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
3	Tier 1	Countryside Zest (Beaulieu Park) LLP	09/01314/EI A	Outline application for mixed use development including dwellings (approximately 3,600), business park, retail, hotel, leisure, education & community etc. Also includes pumping station, foul water sewer route, Radial Distributor Road, and railway station.	Land use and accessibility Hanson Aggregates Generals Lane Paynes Lane/BR123_23 and BR123_45 BR 213_48	<p>Land use and accessibility</p> <p><u>Hanson Aggregates:</u> The construction phases of the other development and the proposed scheme may affect Hanson Aggregates, as both would potentially affect access via Generals Lane if construction of both projects occurs at the same time or in close succession.</p> <p><u>Generals Lane:</u> The other development and the proposed scheme overlap with Generals Lane so may both cause cumulative impacts on access via the footway or for cyclists on this lane.</p> <p><u>Paynes Lane/BR123_23 and BR123_45:</u> This other development overlaps with BR213_23 which is connected to Payne's Lane and BR213_45 on the other side of the A12. No notable cumulative impact on this bridleway is anticipated during construction. However, during operation it is anticipated that this route would become more important as a means of access for new residents at the estate, and a cumulative beneficial impact is anticipated from the proposed scheme design which addresses past severance through the proposed Paynes Lane Bridge for walkers, cyclists and horse riders.</p> <p><u>BR 213_48:</u> This bridleway overlaps with the other development and the Order Limits of the proposed scheme. Construction vehicles from the proposed scheme would be using this route, causing disruption, which may be further exacerbated by the construction of the other development if construction of both projects occurs at the same time or in close succession.</p>	<p>Land use and accessibility</p> <p><u>Hanson Aggregates:</u> Access arrangements for use during construction is subject to negotiation between National Highways, its contractors and the site landowner (although no mitigation identified in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1].</p> <p><u>Generals Lane:</u> Mitigation as detailed in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1].</p> <p><u>Paynes Lane/BR123_23 and BR123_45:</u> None proposed</p> <p><u>BR 213_48:</u> Mitigation as detailed in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1].</p>	<p>Land use and accessibility</p> <p><u>Hanson Aggregates:</u> Moderate adverse (significant)</p> <p><u>Generals Lane:</u> Moderate adverse (significant)</p> <p><u>Paynes Lane/BR123_23 and BR123_45:</u> Large beneficial (significant)</p> <p><u>BR 213_48:</u> Slight adverse (not significant)</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
8	Tier 2	EDF Renewables and Padero Solar Ltd	Longfield Solar Farm	Longfield Solar Farm – a new solar photovoltaic array generating station (500MW). North-east of Chelmsford and north of the A12 between Boreham and Hatfield Peverel.	<p>Human health</p> <p>Communities in Boreham and The Leighs ward and Hatfield Peverel & Terling ward – residents and users of PRow on outskirts of Boreham and west side of Hatfield Peverel.</p>	<p>Human health</p> <p>Main pathway to cumulative impact on human health would be change of access to greenspace and outdoor recreation, particularly for existing residents in Boreham. The proposed scheme itself helps to improve access to greenspace with the proposed Paynes Lane Bridge. The Longfield Solar Farm also proposes improvements to the PRow network. The proposed scheme would not result in a notable loss of greenspace in this locality, and improvements to the PRow network are likely to improve access to outdoor recreation.</p> <p>A positive effect on health and wellbeing is anticipated.</p>	<p>Human health</p> <p>No mitigation required as the cumulative effect would be beneficial and not adverse.</p>	<p>Human health</p> <p>Positive effect (not significant) on human health relating to access to outdoor recreation due to proposed cumulative enhancements to PRow network.</p>
15	Tier 1	Gladman Developments Limited	20/01264/O UT	Outline planning application with all matters reserved except access for the demolition of the existing buildings and for the redevelopment of the site for up to 110 dwellings, including 40% affordable housing, with public open space, structural planting and landscaping, surface water flood mitigation and attenuation, and vehicular access point from Maldon Road.	<p>Land use and accessibility</p> <p>Fishing lake south of A12 near Hatfield Peverel</p> <p>Human Health</p> <p>Residents of Hatfield Peverel</p>	<p>Land use and accessibility</p> <p>Construction stage of ID 15 would affect the amenity of lake Bovington 2 (Colchester Angling Preservation Society), whereas the proposed scheme would affect the amenity of Ashbury Fisheries (Syndicate). Since it is understood these lakes are used by different fishing clubs, no likely significant cumulative effect is predicted (i.e. no single club has more than one lake affected).</p> <p>Human Health</p> <p>There is the potential for cumulative impacts from construction noise and dust for residents in the Gleneagles Way of Hatfield Peverel. The health impacts would likely mainly relate to psychosocial responses such as annoyance.</p>	<p>Land use and accessibility</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], and in the first iteration of the EMP [TR010060/APP/6.5].</p> <p>Human Health</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Land use and accessibility</p> <p>Slight adverse (not significant)</p> <p>Human Health</p> <p>Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents at Gleneagles Way area.</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
19	Tier 1	Barkley Projects (Kelvedon) LLP	17/00679/O UT	Construction of up to 250 dwellings, a school site, health centre, employment area, local retail area, open space and landscape buffers, with two accesses onto London Road.	<p>Land use and accessibility</p> <p>Braintree Planning application (ref:17/01979/OUT)</p> <p>Knights Group</p> <p>Human Health</p> <p>Residents of London Road, Kelvedon</p>	<p>Land use and accessibility</p> <p><u>Braintree Planning application (ref:17/01979/OUT):</u></p> <p>Construction stage of both ID 19 and the proposed scheme may affect the proposed planning application due to the proximity of both projects should the construction periods coincide. There would be a cumulative impact on access on B1024 London Road.</p> <p><u>Knights Group:</u></p> <p>Construction stage of both ID 19 and the proposed scheme may affect the access for commercial properties due to the proximity of both projects. Access via London Road may be disrupted by both projects if construction of both projects occurs at the same time or in close succession.</p> <p>Human Health</p> <p>There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents on London Road, Kelvedon. The health impacts would likely mainly relate to psychosocial responses such as annoyance.</p>	<p>Land use and accessibility</p> <p><u>Braintree Planning application (ref:17/01979/OUT):</u></p> <p>None currently identified.</p> <p><u>Knights Group:</u></p> <p>Maintain access for business and customers where practicable.</p> <p>Human Health</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Land use and accessibility</p> <p><u>Braintree Planning application (ref:17/01979/OUT):</u></p> <p>Slight adverse (not significant)</p> <p><u>Knights Group:</u></p> <p>Slight adverse (not significant)</p> <p>Human Health</p> <p>Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents on London Road, Kelvedon.</p>
21	Tier 1	Meeson on behalf of Countryside Properties	19/01896/O UT	Construction of up to 450 residential dwellings, commercial floorspace, residential care home and day nursery with all associated access, servicing, parking, drainage infrastructure, landscaping, open space and utilities infrastructure.	<p>Land use and accessibility</p> <p>Kings Centre (Bethel Witham Church)</p> <p>Woodend Farm and Mayfield Cottages</p> <p>Commercial premises within King's Wood Gateway area</p> <p>Footway alongside eastbound A12 carriageway between Hatfield Peverel and Witham and onto B1389 Hatfield Road</p>	<p>Land use and accessibility</p> <p><u>Kings Centre (Bethel Witham Church):</u></p> <p>Construction phases of both ID 21 and the proposed scheme would potentially affect the church due to the proximity of both projects and the nature of the asset. Access to the church via the small unnamed lane may be cumulatively affected by both projects if construction of both projects occurs at the same time or in close succession. It is anticipated that construction activities would not take place on a Sunday (except for exempted off-peak activities) so would not affect key worship times.</p>	<p>Land use and accessibility</p> <p><u>Kings Centre (Bethel Witham Church), Woodend Farm and Mayfield Cottages, and Commercial premises within King's Wood Gateway area:</u></p> <p>Access would be maintained throughout the construction phase where practicable.</p>	<p>Land use and accessibility</p> <p><u>Kings Centre (Bethel Witham Church):</u></p> <p>Slight adverse (not significant)</p> <p><u>Woodend Farm and Mayfield Cottages:</u></p> <p>Slight adverse (not significant)</p> <p><u>Commercial premises within King's Wood Gateway area:</u></p> <p>Slight adverse (not significant)</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
					<p>Human Health Residents of western edge of Witham</p>	<p><u>Woodend Farm and Mayfield Cottages:</u> Construction phases of both ID 21 and the proposed scheme may affect the access to the properties via the small unnamed lane which would be affected by both projects if construction of both projects occurs at the same time or in close succession.</p> <p><u>Commercial premises within King's Wood Gateway area:</u> Construction phases of both ID 21 and the proposed scheme would potentially cumulatively affect the access to the businesses. However, ID 21 completely takes commercial premises in development area, so previous agreement/demolition/land-take may have already occurred prior to proposed scheme.</p> <p><u>Footway alongside eastbound A12 carriageway between Hatfield Peverel and Witham and onto B1389 Hatfield Road:</u> Potential cumulative disruption of access along the footway due to the construction phases of ID 21 and the proposed scheme.</p> <p>Human Health There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents on western side of Witham e.g. north of Hatfield Road. The health impacts would likely mainly relate to psychosocial responses such as annoyance.</p>	<p><u>Footway alongside eastbound A12 carriageway between Hatfield Peverel and Witham and onto B1389 Hatfield Road:</u> Mitigation has been included in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1]. All walking, cycling and horse riding (WCH) routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. Traffic management measures would be implemented to ensure safe access. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends.</p> <p>Human Health Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p><u>Footway alongside eastbound A12 carriageway between Hatfield Peverel and Witham and onto B1389 Hatfield Road:</u> Large adverse (significant)</p> <p>Human Health Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents on new development north of B1389 Hatfield Road, Witham.</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
22	Tier 1	Mr. Simon Boulton	20/00128/O UT	Construction of B1c (Light Industrial), B2 (General Industry) and B8 (Storage and Distribution) uses, comprising a maximum gross internal floor space of 15,470 square metres (166,518 square feet), with associated service yards, heavy goods vehicle and trailer parking, car parking provision, revised landscape provision and new service road with access onto Eastways.	<p>Land use and accessibility</p> <p>Rosewood Business Park/Eastways Industrial Estate</p> <p>Human health</p> <p>Employees of Rosewood Business Park/Eastways Industrial Estate and residents of Burghey Brook</p>	<p>Land use and accessibility</p> <p>Construction phases of this other development and the proposed scheme would further affect access to the receptor if construction of both projects occurs at the same time or in close succession.</p> <p>Human health</p> <p>There is potential for cumulative impacts from construction noise, dust and visual intrusion for employees of the industrial estate and residents of Burghey Brook, if construction of junction 22 of proposed scheme and ID 22 take place simultaneously or in close succession. However, it is not likely that employees would be particularly sensitive given the nature of work in a light industrial estate, and there are very few residents, so impacts would be very localised. The health impacts would likely mainly relate to psychosocial responses such as annoyance. Vulnerable groups would be those more likely to spend more of the day in their homes, e.g. people with long-term disability or illness, parents with pre-school children and retired people.</p>	<p>Land use and accessibility</p> <p>Maintain access for business and customers where practicable.</p> <p>Human health</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], and in the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction phase.</p>	<p>Land use and accessibility</p> <p>Moderate adverse (significant)</p> <p>Human health</p> <p>Negative (not significant) – localised, short-term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to employees on east side of Eastways Industrial Estate and residents of Burghey Brook poultry farm and Burghey Brook cottages.</p>
23	Tier 1	GHL (Witham) Developments Ltd	20/01754/F UL	Erection of two warehouse buildings to provide multiple industrial units, with ancillary mezzanines, of flexible use (Use Class B2, B8, E(g) and Sui-Generis). Retention of existing vehicular accesses off Freebournes Road and Wheaton Road with reconfigured car parking, service yards and associated landscaping.	<p>Land use and accessibility</p> <p>Businesses on Freebournes Road, Western Industrial Estate</p>	<p>Land use and accessibility</p> <p>Construction phases of the other development and the proposed scheme would further affect access to the receptor via Wheaton Road if construction of both projects occurs at the same time or in close succession.</p>	<p>Land use and accessibility</p> <p>Maintain access for businesses and customers where practicable.</p>	<p>Land use and accessibility</p> <p>Slight adverse (not significant)</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
24	Tier 1	Bellway Homes Limited	20/02060/O UT	Outline application with all matters reserved for up to 230 dwellings including affordable homes; public open space including sports pitches and facilities, neighbourhood equipped area for play, parkland and alternative natural greenspace; vehicular access via Forest Road and Evans Way; a bus, cycle and pedestrian connection to Rickstones Road; sustainable drainage systems; landscaping and all associated infrastructure and development. Phase 4 land north-east of Rectory Lane, Rivenhall, Essex	<p>Human health</p> <p>Residents in north-eastern edge of Witham (north of the Great Eastern Main Line)</p>	<p>Human health</p> <p>The Great Eastern Main Line, new housing development and Eastways Industrial Estate provide a degree of separation between the proposed scheme and the site of this other development. It is not anticipated that combined impacts from the two projects would be particularly noticeable in terms of noise, dust and general disruption compared to each under construction in isolation. The incremental loss of greenspace from development would have an operational cumulative effect. On this basis, the cumulative impact on wider determinants during construction is judged to be negligible and unlikely to affect health outcomes, whereas the incremental loss of greenspace is judged to be negative for residential communities on the urban fringe of Witham.</p>	<p>Human health</p> <p>Landscape and visual mitigation as set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1], and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], and in the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction phase. No additional measures for cumulative effect.</p>	<p>Human health</p> <p>Negative (significant) for operation (up to 15 years) – incremental development around the edge of Witham would negatively affect visual access to greenspace (a protective factor for mental wellbeing) for existing residents at settlement edge. This would be partially mitigated by landscaping proposals for each new development.</p>
25	Tier 2	Brice Aggregated Limited	ESS/36/21/BTE	Proposed western extension to the current site using existing approved facilities (site access, plant site, mineral processing plant and other ancillary facilities); including for the diversion of the Burghey Brook; with restoration to arable land using imported inert restoration materials, and on-site materials in advance of the A12 road widening and improvement national infrastructure project	<p>Human health</p> <p>Rural residents in Little Braxted area and users of PRow network south-east of Witham, and users of NCN route 16</p>	<p>Human Health</p> <p>There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents in rural community of Little Braxted, active travellers on cycle route and users of PRow for outdoor recreation. Developments would be unlikely to be simultaneous, but the timespan of disruption would be medium term. Residents would be most at risk of adverse health outcomes, particularly those more likely to spend more of the day in their homes, e.g. people with long term disability or illness, parents with pre-school children and retired people. On the basis that ID 25 would be restored to its previous agricultural use, no likely significant cumulative impact on loss of greenspace is anticipated post-construction.</p>	<p>Human Health</p> <p>Landscape & visual mitigation as set out in Chapter 8 of the Environmental Statement [TR010060/APP/6.1] and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Human Health</p> <p>Negative (not significant) - relatively few residents would be impacted on and cumulative effect would be confined to construction stage, therefore on a population health basis the cumulative effect is not anticipated to be significant.</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
26	Tier 1	Aquila Estates Ltd	21/00031/O UT	Outline Planning Permission with all matters reserved for the demolition of the existing dwelling and buildings on the site and the erection of B2/B8 Industrial and Distribution units with associated parking, servicing and landscaping.	Human health Residents of Burghey Brook Cottages, near Witham	Human health There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents of Burghey Brook Cottages during construction. There would also be a loss of visual access to greenspace during both construction and operation. The health impacts during construction would likely mainly relate to psychosocial responses such as annoyance.	Human health Landscape & visual mitigation as set out in Chapter 8 of the Environmental Statement [TR010060/APP/6.1] and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.	Human health Negative (not significant) - relatively few residents would be impacted on and cumulative effects would be confined to construction stage, therefore on a population health basis the cumulative effect is not anticipated to be significant.
27	Tier 1	Parker Strategic Land	21/01631/S CO	Town and Country Planning Act 1990 (as amended), Town and Country Planning (Environmental Impact Assessment) Regulations 2017 – Scoping Opinion Request – The development includes up to 600 homes, land for a primary school, landscaping, infrastructure, including a pedestrian/cycle link from Kelvedon to Coggeshall and a new access from Coggeshall Road.	Human health Residents of Kelvedon, users of PRoW and local lane network for outdoor recreation	Human health ID 27 would be on the northern side of Kelvedon while the proposed scheme would be predominantly on the southern side of Kelvedon, with some minor works on Kelvedon High Street. This would limit the likelihood of cumulative impacts affecting specific receptors. However, the incremental loss of greenspace would affect the wider community seeking outdoor recreation. This would be a construction and operational impact. This would potentially affect mental wellbeing associated with greenspace and physical exercise outdoors.	Human health Landscape and visual mitigation as set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1], and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], and in the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction phase.	Human health Negative (significant) for operation (up to 15 years)

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
28	Tier 1	Essex County Council	ESS/39/14/BTE	Extraction of sand and gravel at Colemans Farm	<p>Land use and accessibility</p> <p>Colemans Cottage Fishery</p> <p>Human health</p> <p>Rural residents in Little Braxted area and users of PRow network south-east of Witham, and users of NCN route 16</p>	<p>Land use and accessibility</p> <p>Access to the fishery may be affected by both projects due to the proposed works on Little Braxted Lane, if construction of both projects occurs at the same time or in close succession.</p> <p>Human health</p> <p>There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents in rural community of Little Braxted, active travellers on cycle route and users of PRow for outdoor recreation. Cumulative disruption of rural environment would be medium term. Residents would be most at risk of adverse health outcomes, particularly those more likely to spend more of the day in their homes, e.g. people with long term disability or illness, parents with pre-school children and retired people. On the basis that ID 28 would be restored to its previous agricultural use, no likely significant cumulative impact on loss of greenspace is anticipated post-construction.</p>	<p>Land use and accessibility</p> <p>Maintain access to the fishery throughout the construction phase where practicable.</p> <p>Human health</p> <p>Landscape & visual mitigation as set out in Chapter 8 of the Environmental Statement [TR010060/APP/6.1] and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Land use and accessibility</p> <p>Slight adverse (not significant)</p> <p>Human health</p> <p>Negative (not significant) - relatively few residents would be impacted on and cumulative effect would be confined to construction stage, therefore on a population health basis the cumulative effect is not anticipated to be significant.</p>
37	Tier 2	Mr Taylor	190699	Erection of Business Park, comprising 3,009 sqm of B1(a) Offices in Three Two-Storey Blocks with associated Parking. (AMENDED PARKING DETAILS & TRANSPORT ASSESSMENT	<p>Human health</p> <p>Residents of Copford, particularly Queensbury Avenue area.</p>	<p>Human health</p> <p>There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents in Copford. The health impacts would likely mainly relate to psychosocial responses such as annoyance</p>	<p>Human health</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Human health</p> <p>Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents in Copford.</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
40	Tier 1	Strutt & Parker	211878	Erection of building for use as builders' merchants (sui generis) and/or B8 storage and distribution use, ancillary office space, provision of external yard for use associated with builders' merchants and/or B8 storage and distribution use, with associated access, infrastructure and parking. Clearance of existing site and demolition of remaining buildings/structures	<p>Land use and accessibility</p> <p>Existing footway/cycleway along London Road, Feering Dobbies Lane</p> <p>Human health</p> <p>Residents of London Road, Marks Tey (notably The Crescent)</p>	<p>Land use and accessibility</p> <p><u>Existing footway/cycleway along London Road:</u></p> <p>Access to footway would be disrupted by the proposed scheme, and the construction of the other development may further disrupt this footway or the proposed diversions due to its proximity to the footway.</p> <p><u>Dobbies Lane:</u></p> <p>Access to Dobbies Lane would be disrupted by the proposed scheme, and the construction of the other development may further disrupt access in a westbound direction if construction activity affects or obstructs the access via Old London Road and if construction of both projects occurs at the same time or in close succession.</p> <p>Human health</p> <p>There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents in Copford. The health impacts would likely mainly relate to psychosocial responses such as annoyance.</p>	<p>Land use and accessibility</p> <p><u>Existing footway/cycleway along London Road and Dobbies Lane:</u></p> <p>Mitigation is set out in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1]. All WCH routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends.</p> <p>Human health</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Land use and accessibility</p> <p><u>Existing footway/cycleway along London Road:</u></p> <p>Large adverse (significant)</p> <p><u>Dobbies Lane:</u></p> <p>Slight adverse (not significant)</p> <p>Human health</p> <p>Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents in Marks Tey.</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
41	Tier 1	Marks Tey Ltd.	211788	Development of the site for commercial, business and service (Class E c) and g)), general industrial (Class B2) and storage and distribution (Class B8) purposes with associated access, parking and landscaping, including diversion of a PRow.	<p>Land use and accessibility</p> <p>Existing footway/cycleway along London Road, Feering Dobbies Lane</p> <p>Human health</p> <p>Residents of London Road, Marks Tey (notably The Crescent)</p>	<p>Land use and accessibility</p> <p><u>Existing footway/cycleway along London Road:</u></p> <p>Access to footway would be disrupted by the proposed scheme, and the construction of the other development may further disrupt this footway or the proposed diversions due to its proximity to the footway.</p> <p><u>Dobbies Lane:</u></p> <p>Access to Dobbies Lane would be disrupted by the proposed scheme, and the construction of the other development may further disrupt access in a westbound direction if construction activity affects or obstructs the access via Old London Road and if construction of both projects occurs at the same time or in close succession.</p> <p>Human health</p> <p>There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents in Copford. The health impacts would likely mainly relate to psychosocial responses such as annoyance.</p>	<p>Land use and accessibility</p> <p><u>Existing footway/cycleway along London Road and Dobbies Lane:</u></p> <p>Mitigation set out in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1]. All WCH routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends.</p> <p>Human health</p> <p>Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.</p>	<p>Land use and accessibility</p> <p><u>Existing footway/cycleway along London Road:</u></p> <p>Large adverse (significant)</p> <p><u>Dobbies Lane:</u></p> <p>Slight adverse (not significant)</p> <p>Human health</p> <p>Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents in Marks Tey.</p>

Planning ID (from short list)	Tier	Applicant or proponent	Application reference	Description	Shared receptors	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
48	Tier 1	Weston Homes	212507	Outline Planning Application (with all matters reserved except access) for the erection of up to 600 dwellings, land for a co-located 2FE primary school and early years nursery, public open space and associate infrastructure. Vehicular access from London Road (B1408) and Red Panda Road.	Human health Residents of Copford, particularly Queensbury Avenue area.	Human health There is the potential for cumulative impacts from construction noise, dust and visual intrusion for residents in Copford. The health impacts would likely mainly relate to psychosocial responses such as annoyance.	Human health Standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1], as well as the first iteration of the EMP [TR010060/APP/6.5]. Additionally, access would be maintained throughout the construction period.	Human health Negative (not significant) - localised, short term mental wellbeing outcomes related to potential concern over disruption from two construction projects close to residents in Copford.
<p>Road drainage and the water environment</p> <p>Cumulative effects are not anticipated for water quality as all developments would be required to achieve the legal standards for discharges to surface waters along with any other national and local policy requirements.</p> <p>Cumulative effects are not anticipated for flood risk as none of the other developments or the proposed scheme would cause an increase in flooding.</p> <p>Cumulative effects are not anticipated for geomorphology. The effects of the short-listed developments would not be on receptors that are shared with the proposed scheme.</p> <p>Cumulative effects assessed for groundwater are set out below.</p>								
28	Tier 1	Essex County Council	ESS/39/14/BTE	Extraction of sand and gravel at Colemans Farm	Groundwater Licensed groundwater abstraction LGA-24 at Rose Cottage Various surface watercourses with connections to groundwater Areas of potential contaminated land Residential, industrial and heritage assets Water resources and quality in superficial Secondary A and Secondary Undifferentiated aquifer	Groundwater Cumulative effects may include changes to groundwater flow directions, levels and/or quality due to combined dewatering if assumed to occur concurrently. However, Colemans Farm Quarry will have a much more significant effect on LGA-24 as it is located adjacent to the development. It is possible that Colemans Farm Quarry's own dewatering activity would lower the water table sufficiently for the purposes of the proposed scheme's construction activities in this area, depending on timing. It is expected that restoration of the quarry site will be in 2034, so the temporary effects of the proposed scheme would not have a temporal overlap with the restoration, and therefore there would be no significant effect on the future wetland site.	Groundwater The Principal Contractor would review groundwater levels at proposed scheme dewatering locations in the vicinity of Colemans Farm Quarry prior to construction works to inform dewatering strategies. This would not affect the significance of the effect.	Groundwater Slight adverse (not significant)

Significance of cumulative effects

16.7.4 Whereas Table 16.6 above considers each development in turn, the text below describes the overall cumulative effects on receptors and receptor groups.

Air quality

16.7.5 Cumulative effects of changes in construction emissions and road traffic emissions, during both construction and operation, from the proposed scheme and other cumulative developments are incorporated into the assessment in Chapter 6: Air quality, of the Environmental Statement [TR010060/APP/6.1], and are therefore not assessed in this chapter. With standard construction phase mitigation in place (as detailed in Chapter 6: Air quality), it is not likely that there would be significant cumulative air quality effects from construction dust.

Cultural heritage

16.7.6 There would be a moderate adverse effect on the settings of heritage Assets 57 (Generals), 67 (Boreham House, Landscape Park) and 69 (Boreham House, (Grade I listed building)) during the construction of planning ID 3 and the proposed scheme.

16.7.7 The Beaulieu Park application has assessed either beneficial or neutral effects on these three assets, and therefore the cumulative effects remain as moderate adverse as reported for the proposed scheme.

16.7.8 No additional mitigation has been proposed beyond mitigation proposed for the proposed scheme, as the cumulative effect would be no greater than from the proposed scheme itself.

16.7.9 Although several other developments have been identified within the ZOI for cultural heritage, none of those would affect shared receptors. Therefore, there would be no further cumulative effects from the other 46 developments in the short list.

Landscape and visual

16.7.10 There would be a moderate adverse cumulative effect on local LCA B21 Boreham Farmland Plateau. As a result of the developments identified as planning ID 3, ID 8, ID 15 and ID 21 and the proposed scheme, the cumulative effect would arise from an increase in development infrastructure in the area which would cause severance to the landscape, changes to the surrounding land use and field pattern, and erode the rural character. This cumulative effect would be permanent.

16.7.11 Also affecting local LCA B21, the cumulative effect of the proposed scheme with planning ID 1 result from an increase in highways infrastructure which would cause severance to the landscape, changes to the surrounding land use and field pattern, and erode the rural character. This cumulative effect would be permanent.

16.7.12 Local LCA A9 Blackwater River Valley would experience a cumulative effect as a result of planning ID 25 and ID 28 and the proposed scheme. There would be a cumulative increase in development and disruption to the landscape as a

result of the proposed scheme combined with restored land post-excavation of Colemans Farm Quarry, which would cause changes to land use and field pattern, and erode the rural character. This would result in a moderate adverse cumulative effect on this local LCA which would be permanent.

- 16.7.13 There would also be a cumulative effect of large adverse significance as a result of planning ID 25 and ID 28 and the proposed scheme on representative viewpoint 11 (users of national cycle route), and a cumulative effect of moderate adverse significance as a result of planning ID 25 and ID 28 and the proposed scheme on representative viewpoint 11a (users of PRow). This would be due to increased views of development and highways infrastructure from the projects listed above. This cumulative effect would be permanent through operation of the proposed scheme and the other development.
- 16.7.14 There would be a moderate adverse cumulative effect as a result of planning ID 19, ID 20, ID 22, ID 24, ID 26 and ID 27 and the proposed scheme on local LCA A9 Blackwater River Valley. This is due to a cumulative increase in development within LCA A9 which would cause changes to land use and field pattern, and erode the rural character in this area. This cumulative effect would be permanent.
- 16.7.15 None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed in addition to the landscape and visual mitigation applicable to the proposed scheme as illustrated on Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].

Biodiversity

- 16.7.16 Although several developments have been identified within the ZOI for biodiversity, no shared receptors were identified (i.e. receptors that would experience individual residual effects of at least slight significance). Therefore, there would be no cumulative effects.

Geology and soils

- 16.7.17 The cumulative effect of the permanent loss of agricultural land associated with the proposed scheme and the developments identified as planning ID 1, ID 3 and ID 8 would be of very large adverse significance. This permanent loss of agricultural land would amount to 796.05ha, as detailed in Table 16.6.
- 16.7.18 The proposed scheme would also use some areas of agricultural land temporarily during construction; however, the effects associated with such use would not be significant and would not contribute to a cumulative effect. Therefore, any short-term temporary use of agricultural land by other developments is also excluded from this CEA. It is, however, noted that planning ID 8 would involve some long-term temporary loss of agricultural land (through both construction and operation of the solar farm). The amount of agricultural land affected in this way would be 289ha, and although it would be required for a long period, it remains temporary and so is not accounted for in the permanent cumulative effect identified in this chapter.

- 16.7.19 Wastage of any soils would be avoided where practicable, and soils would be reused elsewhere as per the standard mitigation measures, but there would remain a very large adverse cumulative effect. Due to the nature of these effects, it is not possible to mitigate for loss of agricultural land as the proposed scheme, as well as planning ID 1, ID 3 and ID 8, are permanent developments.

Noise and vibration

- 16.7.20 Although several developments have been identified within the ZOI for noise, no shared receptors were identified. Therefore, there would be no cumulative effects.

Population and human health: land use and accessibility

- 16.7.21 There would be a moderate adverse cumulative effect on Hanson Aggregates during construction of planning ID 1 and ID 3 and the proposed scheme. This is because the construction of all three would affect access to Hanson Aggregates via Generals Lane. To mitigate this effect, access should be maintained where practicable, or alternative access routes provided. The cumulative effect would be temporary during construction as it is expected that access would be reinstated after construction is complete.
- 16.7.22 There would be a moderate adverse effect on Generals Lane from planning ID 3 and the proposed scheme. The development and the proposed scheme both overlap with this lane, so during construction there would be cumulative effects on access to the lane via the footway, or for cyclists on this lane. Mitigation includes temporary diversion routes provided that are appropriately signed. The cumulative effect would be temporary during construction.
- 16.7.23 There would be a large beneficial effect on Paynes Lane and Bridleway (BR) 123_23 from planning ID 3 and the proposed scheme. During operation, it is anticipated that this route would become more important as a means of access for new residents. The proposed scheme design addresses past severance through the proposed Paynes Lane Bridge and proposes integration into walking/cycling routes included for planning ID 3. Therefore, a large beneficial cumulative effect is predicted during operation.
- 16.7.24 For BR 213_48 there would be a slight adverse effect from planning ID 3 and the proposed scheme. This bridleway overlaps with this development and the Order Limits of the proposed scheme. Construction vehicles from the proposed scheme would be using this route, causing disruption, which may be exacerbated by the construction of the other development. Mitigation would include appropriately signed temporary diversions where practicable. The cumulative effect would be temporary, during construction of the development and the proposed scheme.
- 16.7.25 For the fishing lakes south of the A12, near Hatfield Peverel, there would be a slight adverse effect from Planning ID 15 and the proposed scheme. The construction of Planning ID 15 would affect the amenity of Lake Bovington 2, used by Colchester Angling Preservation Society. Whereas the proposed scheme would affect the amenity of Ashbury Fisheries Syndicate). The cumulative effect would be temporary, during construction of the development and the proposed scheme.

- 16.7.26 There would be a slight adverse cumulative effect on Braintree planning application (ref: 17/01979/OUT) during construction of planning ID 19 and the proposed scheme. There would be a cumulative effect on access to the site of Braintree planning application (ref:17/01979/OUT via B1024 London Road. Currently, there is no mitigation proposed. This cumulative effect would be temporary during the construction of the proposed scheme and the other two developments.
- 16.7.27 There would be a slight adverse effect on Knights Group. The construction of the proposed scheme and planning ID 19 would affect the access for commercial properties via London Road due to the proximity to the development and the proposed scheme. Where practicable, access for businesses and customers would be maintained throughout construction. This cumulative effect would be temporary during construction of the development and proposed scheme.
- 16.7.28 The construction phases of planning ID 21 and the proposed scheme would potentially affect Bethel Witham Church due to the proximity of the development and the proposed scheme and the nature of the receptor. It is anticipated that construction activities would not take place on a Sunday so would not affect key worship times. Where practicable, access to the church would be maintained. It is expected that the cumulative effect would be slight adverse and would be temporary during construction of the proposed scheme and the development.
- 16.7.29 There would be a slight adverse effect on access to Woodend Farm and Mayfield Cottages during the construction phases of planning ID 21 and the proposed scheme. Access to the properties is via a small unnamed lane which would be affected by the proposed scheme and the development. Where practicable, access to these properties would be maintained. It is expected that this cumulative effect would be temporary during construction.
- 16.7.30 There would be a slight adverse effect on commercial premises within King's Wood Gateway during the construction of planning ID 21 and the proposed scheme by cumulatively affecting the access to the businesses. Where practicable, access to businesses would be maintained. It is expected this cumulative effect would be temporary during construction.
- 16.7.31 There would be a large adverse effect on the footway alongside the A12 carriageway eastbound between Hatfield Peverel and Witham and onto B1389 Hatfield Road. There is the potential for a cumulative disruption of access along the footway during the construction phases of planning ID 21 and the proposed scheme. The proposed mitigation is to maintain the route where safe and reasonably practicable to do. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. Traffic management measures would be implemented to ensure safe access. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends. It is expected that this cumulative effect would be temporary and access along the footway would be reinstated after construction has been complete.
- 16.7.32 There would be a moderate adverse cumulative effect on Rosewood Business Park and Eastways Industrial Estate from the proposed scheme and planning ID 22. The construction of both projects would affect access to the business

park and industrial estate. Where practicable, access to businesses would be maintained. This cumulative effect is expected to be temporary during construction.

- 16.7.33 There would be a slight adverse effect on businesses on Freebournes Road, Western Industrial Estate, during the construction of planning ID 23 and the proposed scheme by cumulatively affecting the access to the businesses via Wheaton Road. Where practicable, access to businesses would be maintained. This cumulative effect is expected to be temporary during construction.
- 16.7.34 There would be a slight adverse effect on Colemans Cottage Fishery during the construction of planning ID 28 and the proposed scheme by cumulatively affecting the access to the fishery due to works on Little Braxted Lane, which is the road used to access the fishery. Where practicable, access to businesses would be maintained. This cumulative effect is expected to be temporary during construction.
- 16.7.35 There would be a large adverse effect on the existing footway and cycleway along London Road in Feering during the construction of planning ID 40, ID41, and the proposed scheme by cumulatively affecting access to the footway. All WCH routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends. This cumulative effect is expected to be temporary during construction.
- 16.7.36 There would be a slight adverse effect on Dobbies Lane during the construction of planning ID 40, ID 41, and the proposed scheme by cumulatively affecting access to the lane. All WCH routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends. This cumulative effect is expected to be temporary during construction.

Population and human health: human health

- 16.7.37 There would be a positive cumulative effect, in terms of human health, on the communities in Boreham, The Leighs ward and Hatfield Peverel & Terling ward, as well as residents and users of PRowS on the outskirts of Boreham and the west side of Hatfield Peverel, from planning ID 8 and the proposed scheme. Both projects propose to improve access to proposed greenspace and improve PRow networks. This would be a permanent effect once both projects are complete, but is not likely to be a significant effect.
- 16.7.38 There would be a negative short-term localised effect on the mental wellbeing of residents of Hatfield Peverel, especially residents in the Gleneagles Way area, due to noise, dust and visual intrusion during the construction of planning ID 15 and the proposed scheme. The health effects would likely mainly relate to psychosocial responses such as annoyance. Standard mitigation practices to reduce dust and construction noise are set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement

- [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction, and is not likely to be a significant effect.
- 16.7.39 There would be negative short-term localised effects on residents on London Road Kelvedon due to construction noise, dust and visual intrusion from Planning ID 19 and the proposed scheme. The health effects would likely mainly relate to psychosocial responses such as annoyance. Standard mitigation practices to reduce dust and construction noise are set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction and will not be a significant effect.
- 16.7.40 There would be negative short-term localised cumulative effects on residents on the western edge of Witham, due to construction of planning ID 21 and the proposed scheme. The health effects would likely mainly relate to psychosocial responses such as annoyance. Standard mitigation practices to reduce dust and construction noise are set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction and will not be a significant effect. There would be a negative short-term localised effect on the mental wellbeing of employees of Rosewood Business Park, Eastways Industrial Estate and residents of Burghey Brook due to the noise, air quality and visual impacts during the construction of planning ID 22 and the proposed scheme. The health effects would likely mainly relate to psychosocial responses such as annoyance. However, it is not likely that employees would be particularly sensitive given the nature of work in a light industrial estate, and there are very few residents, so any effects would be very localised. Standard mitigation practices to reduce dust and construction noise are set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction, and is not likely to be significant.
- 16.7.41 There would be negative significant cumulative effects on residents in the north-eastern edge of Witham (north of the Great Eastern Main Line) as a result of planning ID 23, planning ID 24 and the proposed scheme. The incremental loss of greenspace from development would have a permanent operational cumulative effect.
- 16.7.42 There would be negative short-term localised cumulative effects on rural residents in Little Braxted area, users of PRow network south-east of Witham and users of NCN route 16. This is due to noise, dust and visual intrusion during the construction of planning ID 25 and the proposed scheme. On the basis that after Planning ID 25 is constructed it is restored to its previous agricultural use no likely significant cumulative impact on loss of greenspace is anticipated post-construction. For the rural residents in Little Braxted, the health effects would likely mainly relate to psychosocial responses such as annoyance. Standard mitigation practices to reduce dust and construction noise are set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction and will not be a significant effect. There would also be negative cumulative effects for residents of Burghey Brook Cottages

from noise, dust and visual intrusion during construction of planning ID 26 and the proposed scheme. There would also be a loss of visual access to greenspace during both construction and operation. The health effects during construction would likely mainly relate to psychosocial responses such as annoyance. Landscape and visual mitigation is set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1] and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1].

- 16.7.43 There would be negative cumulative effects due to construction noise, dust and visual intrusion for rural residents in the Little Braxted area, as well as for users of the PRoW network south-east of Witham and users of National Cycle Route 16 used for outdoor recreation, during the construction of planning ID 28 and the proposed scheme. Mitigation proposed is set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1] and standard mitigation practices to reduce dust and construction noise as set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1].
- 16.7.44 There would be negative cumulative effects on residents of Kelvedon, and users of the PRoW and local lane network for outdoor recreation. Planning ID 27 would be on the northern side of Kelvedon while the proposed scheme would be predominantly on the southern side of Kelvedon, with some minor works on Kelvedon High Street. This would limit the likelihood of cumulative effects affecting specific receptors. However, the incremental loss of greenspace would affect the wider community seeking outdoor recreation. This would potentially affect mental wellbeing associated with greenspace and physical exercise outdoors. Landscape and visual mitigation is set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. This would be a likely significant construction and operational effect resulting in a permanent loss of greenspace. However, after 15 years, as planting proposals become established, the impact would be reduced.
- 16.7.45 There would be negative short-term localised cumulative effects on residents in Copford, particularly in the Queensbury Avenue area, due to construction noise, dust and visual intrusion during construction of Planning ID 37 and the proposed scheme and also Planning ID 48 and the proposed scheme. The health effects would likely mainly relate to psychosocial responses such as annoyance. Standard mitigation practices to reduce dust and construction noise are set out in Chapter 6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction and will not be a significant effect.
- 16.7.46 There would be negative short-term localised cumulative effects on Residents of London Road, Marks Tey, due to construction noise, dust and visual intrusion during construction of Planning ID 40 and the proposed scheme, as well as Planning ID 41 and the proposed scheme. The health effects would likely mainly relate to psychosocial responses such as annoyance. Standard mitigation practices to reduce dust and construction noise are set out in Chapter

6: Air quality and Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. This cumulative effect is expected to be temporary during construction and will not be a significant effect.

Road drainage and the water environment

- 16.7.47 There may be cumulative effects on groundwater during construction of planning ID 28 and the proposed scheme. Cumulative effects may include changes to groundwater flow directions, levels and/or quality due to combined dewatering if assumed to occur concurrently.
- 16.7.48 However, Colemans Farm Quarry would have a much more significant effect on LGA-24 as it is located adjacent to the development. It is possible that Colemans Farm Quarry's own dewatering activity would lower the water table sufficiently for the purposes of the proposed scheme's construction activities in this area, depending on timing.
- 16.7.49 It is expected that restoration of the quarry site would be in 2034, so the temporary effects of the proposed scheme would not have a temporal overlap with the restoration, and there would be no significant effect on the future wetland site.

Regional socio-economic effects

- 16.7.50 In addition to the effects described in Table 16.6, the potential socio-economic impacts from the proposed scheme in combination with NSIPs in the region have been assessed. This assessment addresses potential cumulative effects on the following:
- Housing
 - Services, facilities, employment, education and skills
- 16.7.51 NSIPs that are outside the population and human health study areas for the proposed scheme include the following:
- Sizewell C (NSIP ref: EN010012)
 - Bradwell B Nuclear Power Station (NSIP ref: EN010111)
 - A122 Lower Thames Crossing (NSIP ref: TR010032)
 - M25 junction 28 improvements (NSIP ref: TR010029)
 - Nautilus Interconnector (NSIP ref: EN020023)
 - North Falls Offshore Windfarm (NSIP ref: EN010119)
 - East Anglia One North (NSIP ref: EN010077)
 - East Anglia Two (NSIP ref: EN010078)

- 16.7.52 According to the Office for National Statistics Business Register and Employment Survey 2020, there were 49,000 employees in Essex working in the construction industry in 2020, which was 8.4% of the total Essex workforce (Office for National Statistics, 2020). This is a higher percentage than for the East of England generally (6.4%) and substantially higher than for Great Britain (4.8%). Time series data from Nomis indicates that employment in the construction sector has been higher than the Great Britain average for some years, but that there was a relatively sharp increase from 7% (41,000) in 2018, to 8.4% (49,000) in 2020 (Nomis, 2021). This indicates a cumulative response within Essex to the demand from the construction industry across the county and region.
- 16.7.53 For the proposed scheme, it is estimated that peak construction would be during summer 2025. At this time, it is estimated there would be approximately 1,500 construction workers involved at peak construction, of whom around 20% (approximately 300 staff) would be local, and 80% (approximately 1,200 staff) would not be local.
- 16.7.54 During construction of the proposed scheme, the bulk of the work would be delivered by supply chain organisations to the Principal Contractor. Supply chain organisations would provide specialist services for particular construction tasks, for example fencing; earthworks; diversions of electric, gas or water mains and services; surfacing; and traffic management measures. Teams providing specialist services would be onsite for the required period within the programme for delivering specific construction tasks. Due to the nature of the proposed scheme and specific skills required for certain aspects of construction, it is unlikely that many workers would be present for a duration of more than three months. This limits the likelihood of significant impacts on local housing and services.
- 16.7.55 Of those workers who are not local, it is estimated that 70% (approximately 840 staff) would stay locally, for example in hotels or bed and breakfasts, while 30% (approximately 360 staff) would commute.
- 16.7.56 Data from the England Occupancy Survey indicated that, in August 2019, there was 79% room occupancy and 60% bedspace occupancy in tourist accommodation in East England (which includes large hotels to small bed and breakfasts, and farmhouses). In August 2021, there was 77% room occupancy and 57% bedspace occupancy in East England. The same survey showed that occupancy rates were much higher in seaside and countryside locations than towns and cities (VisitEngland, 2021). This would indicate that, during summer, there would be capacity in local accommodation to house the non-local workforce, since the local accommodation would be in towns and the cities of Chelmsford and Colchester, where baseline occupancy rates are typically lower.
- 16.7.57 Due to the limited duration that most workers would be required onsite during the construction phase, it is unlikely that the construction workforce for the proposed scheme would contribute any significant cumulative demand on the local housing and rental market.

- 16.7.58 There are no plans to provide temporary worker accommodation for the proposed scheme. There are several major towns or cities close to the proposed scheme: the city of Chelmsford at the western end, the towns of Witham and Braintree centrally, and Colchester to the eastern end of the proposed scheme. These areas were assessed to have suitable capacity for proposed scheme staff to stay overnight, close to the proposed scheme, so the provision of onsite accommodation has not been considered.
- 16.7.59 No likely significant cumulative impacts relating to the construction workforces are anticipated between the proposed scheme and the proposed nuclear new build projects of Sizewell C and Bradwell B. The likely significant impacts of Sizewell C would be restricted to the 60-minute area around the proposed nuclear site, which is outside of the study area for the proposed scheme. It is not likely that the construction phases for the proposed scheme and Bradwell B would overlap, based on current anticipated timescales.
- 16.7.60 No likely significant cumulative impacts relating to construction workforces are anticipated between the proposed scheme and the Nautilus Interconnector, East Anglia One North, East Anglia Two and North Falls Offshore Windfarm projects. As with Sizewell C, the potential impacts of these other NSIPs would be focused more towards the coast, and are geographically remote from the settlements most likely to be affected by the proposed scheme.
- 16.7.61 The A122 Lower Thames Crossing and the M5 Junction 28 projects would both potentially draw on the Essex workforce as well as from the London area. The A122 Lower Thames Crossing is anticipated to require some 10,000 workers at peak construction (Highways England, 2021b). As with the proposed scheme, there is a large pool of labour within commuting distance of these projects, so there is limited likelihood that these projects would place cumulative pressure on accommodation within the proposed scheme study area. On this basis, it is assessed that the proposed scheme would have a neutral effect on housing during the construction phase.
- 16.7.62 There could be cumulative impacts on health and education services if multiple projects draw construction workers to the area. As noted above, it is estimated that at peak construction of the proposed scheme, there would be approximately 840 construction workers from outside the area who would be temporarily accommodated locally. Due to the nature of the proposed scheme and specific skills required for certain aspects of construction, it is unlikely that many of these workers would be present for a duration of more than three months. Workers would be supported by their respective companies' occupational health schemes, and due to the relatively short duration of stay, it is unlikely that many would register with local GPs or other health services. Most of these workers would return to their permanent homes at weekends and would likely access their home health services if needing medical attention. Furthermore, as working age adults, this cohort is less likely to seek healthcare than other age groups. It is also unlikely that workers would relocate with their families due to the relatively short duration that most workers would be engaged with the construction for the proposed scheme. On the above basis, it is not considered that there would be a likely significant contribution to cumulative demand on health or education services from the proposed scheme.

- 16.7.63 As noted in Section 13.17 of Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1], it is proposed to include recruitment commitments to advertise permanent job openings locally. However, it is currently uncertain how many new job opportunities would be provided by the proposed scheme, as it depends on the capacity of supply chain companies to provide specific expertise at relevant points in the construction programme, which would be influenced by the demands of other construction projects at the time and the available supply of labour. There are also Employment & Skills requirements in all RDP Delivery Integration Partner contracts (the contract under which the proposed scheme is being delivered). As set out in Section 13.19 of Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1], it is proposed that the Principal Contractor engages stakeholders such as Essex County Council and sets monitoring targets for employment and skills performance for the proposed scheme. Effective monitoring would help to address current uncertainty over the level of benefit likely to be provided in terms of employment opportunities, skills and training from the proposed scheme. This would also help to provide information on the cumulative contribution to employment and training opportunities that the proposed scheme would provide.
- 16.7.64 On the basis of the above, there would be no likely significant cumulative effect on access to services (including health services), facilities and education from the proposed scheme during construction, since there is a limited likelihood of large numbers of construction workers being drawn into the local area for an extended period of time.
- 16.7.65 The proposed scheme could provide a cumulative beneficial effect on employment and skills in the construction industry, building on the current trend for increased numbers of employees in Essex who are involved in the construction industry. Local people could gain skills and training in construction through the proposed scheme, and then go on to work on other planned construction projects in the area. However, the likely level of benefit is currently uncertain, so it is proposed to monitor these aspects (see Section 13.19 of Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1]).

16.8 Mitigation

- 16.8.1 No further mitigation or monitoring is proposed, beyond the measures set out in Chapters 6 to 15 of the Environmental Statement [TR010060/APP/6.1].

16.9 References

Brice Aggregates (2014). Brice Indicative Restoration Concept, drawing number C45/01/05.

Department for Transport (2014). National Policy Statement for National Networks. Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-national-networks>. Accessed May 2022.

Department for Transport (2017). Local Cycling and Walking Infrastructure Plans – Technical Guidance for Local Authorities. Available at: <https://www.gov.uk/government/publications/local-cycling-and-walking-infrastructure-plans-technical-guidance-and-tools>. Accessed May 2022.

Department for Transport (2020). Road Investment Strategy 2: 2020–2025. Available at: <https://www.gov.uk/government/publications/road-investment-strategy-2-ris2-2020-to-2025>. Accessed May 2022.

Highways England (2019a). Design Manual for Roads and Bridges, LA 105 Air Quality. Revision 0.

Highways England (2019b). Design Manual for Roads and Bridges, LA 109 Geology and Soils. Revision 0.

Highways England (2020a). A12 Chelmsford to A120 Widening Scheme: Environmental Scoping Report. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000006-A12%20-%20Environmental%20Scoping%20Report.pdf>. Accessed May 2022.

Highways England (2020b). Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring. Revision 1.

Highways England (2020c). Design Manual for Roads and Bridges, LA 106 Cultural Heritage Assessment. Revision 1.

Highways England (2020d). Design Manual for Roads and Bridges, LA 108 Biodiversity. Revision 1.

Highways England (2020e). Design Manual for Roads and Bridges, LA 111 Noise and Vibration. Revision 2.

Highways England (2020f). Design Manual for Roads and Bridges, LA 112 Population and Human Health. Revision 1.

Highways England (2021a). A12 Chelmsford to A120 Widening Scheme: Preliminary Environmental Information Report.

Highways England (2021b). Press release: More than 22,000 people to work on Lower Thames Crossing project. Available at: <https://www.gov.uk/government/news/more-than-22000-people-to-work-on-lower-thames-crossing-project>. Accessed May 2022.

Institute of Environmental Management and Assessment (2020). IEMA Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation.

NOMIS (2021). Employee Jobs by Industry 2020 (Essex). Available at: <https://www.nomisweb.co.uk/reports/lmp/la/1941962833/report.aspx?town=Essex#tabempocc>. Accessed May 2022.

Office for National Statistics (2020). Business Register and Employment Survey 2020. Available at:

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/regionbybroadindustrygroupsicbusinessregisterandemploymentsurveybrestable4>. Accessed May 2022.

Planning Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects. Version 2. Available at:

<https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>. Accessed May 2022.

Planning Inspectorate (no date). National Infrastructure Planning website. Available at:

<https://infrastructure.planninginspectorate.gov.uk/>. Accessed May 2022.

Planning Inspectorate (2021). Scoping Opinion: A12 Chelmsford to A120 Widening Scheme. Case Reference TR010060. Available at:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000016-CHLM%20-%20Scoping%20Opinion.pdf>. Accessed May 2022.

VisitEngland (2021). England Occupancy Survey – August 2021 Results. Available at:

<https://www.visitbritain.org/accommodation-occupancy-latest-results>. Accessed May 2022.