East Midlands Gateway
Phase 2 (EMG2)

Document DCO 6.21/MCO 6.21

ENVIRONMENTAL STATEMENT

Main Statement

Chapter 21

Cumulative Impacts

August 2025

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The East Midlands Gateway Phase 2 and Highway Order 202X and The East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

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21. Cumulative Impacts

21.1. Introduction

21.1.1. This chapter presents an assessment of the likely cumulative effects of the EMG2 Project. It draws together conclusions from across the ES about the likely residual cumulative effects of the proposals.

21.1.2. In brief, the EMG2 Project comprises three main components as follows:

Table 21.1: The EMG2 Project Components

Main Component	Details	Works Nos.
DCO Application made by the DCO Applicant for the DCO Scheme		
EMG2 Works	Logistics and advanced manufacturing development located on the EMG2 Main Site south of East Midlands Airport and the A453, and west of the M1 motorway. The development includes HGV parking and a bus interchange. Together with an upgrade to the EMG1 substation and provision of a Community Park.	DCO Works Nos. 1 to 5 as described in the draft DCO (**Document DCO 3.1**). DCO Works Nos. 20 and 21 as described in the draft DCO (**Document DCO 3.1**).
Highway Works	Works to the highway network: the A453 EMG2 access junction works (referred to as the EMG2 Access Works); significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements), works to the wider highway network including the Active Travel Link, Hyam's Lane Works, L57 Footpath Upgrade, A6 Kegworth Bypass/A453 Junction Improvements and Finger Farm Roundabout Improvements, together with other works.	DCO Works Nos. 6 to 19 as described in the draft DCO (**Document DCO 3.1**).
MCO Application made by the MCO Applicant for the MCO Scheme		
EMG1 Works	Additional warehousing development on Plot 16 together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.	MCO Works Nos. 3A, 3B, 5A, 5B, 5C, 6A and 8A in the draft MCO (**Document MCO 3.1**).

21.1.3. In preparing this assessment, the advice and suggested methodology outlined in PINS' Advice on Cumulative Effects Assessment (Advice Note 17) has been taken into account. This includes the use of the template matrixes included with this guidance.

21.1.4. The completed matrixes have been included as appendices to this chapter. The full list of supporting appendices and the corresponding DCO/MCO Document References is as follows:

- **Appendix 21A: Long and short list of 'other developments' (Document DCO 6.21A/MCO 6.21A); and**
- **Appendix 21B: Assessment Matrix (Document DCO 6.21B/MCO 6.21B).**

21.1.5. This chapter considers the EMG2 Project as a whole in respect of both cumulative and combined effects which are explained in the next section on scope and methodology.

21.2. Scope and Methodology of Assessment

21.2.1. Schedule 4 Paragraph 5(e) of the EIA Regulations requires the Environmental Statement to include a description of the likely significant effects of the development on the environment resulting from:

> *"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"*

21.2.2. PINS Advice Note 17 recognises that the cumulative effects with 'other existing and, or approved developments' is separate from an assessment of the interrelationship between topics for the EMG2 Projects, which are referred to as 'in-combination', 'combined' or 'intra-project' effects. Both cumulative and in-combination (intra-project) effects are considered within this Chapter.

Intra-project effects (combined effects)

21.2.3. With regard to intra-project effects, PINS Advice Note 17 recommends that the ES should set out a table demonstrating where multiple impacts from the proposed development would combine to affect sensitive receptors. The combined (intra-project) effects should then be assessed in the specialist thematic (environmental aspect) chapters of the ES and this should include consideration of the proposed mitigation.

21.2.4. In accordance with PINS' advice, Section 21.3 of this Chapter considers whether multiple impacts identified in the ES would combine to affect sensitive receptors. It provides a holistic consideration of the in-combination effects in addition to the assessment undertaken within the individual assessment chapter of aspect-specific combined effects to ensure that no in-combination effects have been missed.

Inter-project effects (cumulative effects)

21.2.5. With regard to the assessment of the inter-project (cumulative) effects, PINS Advice Note 17 recommends an assessment process comprising four stages. These are:

- Stage 1: Establishing the long list – this will require the Applicant to define and document the spatial and temporal Zone of Influence (ZOI) for each environmental aspect considered in the ES. In light of the ZOIs, existing and/or approved developments in the form of planning applications, relevant development plans and any other available and relevant sources can then be identified.
- Stage 2: Establishing the short list – threshold criteria are then applied to establish a shortlist of the existing and/or approved developments to be considered through the subsequent stages of the assessment. The threshold should take temporal scope, scale and nature of the development, and other factors into account. A matrix is provided with the PINS Advice Note 17 to document this sifting process.
- Stage 3: Information gathering – the information collated for each shortlisted site should include but not be limited to proposed design and location information,

proposed programme of construction, operation and decommissioning, and environmental assessments information.

- Stage 4: Assessment – finally, the cumulative effects of the shortlisted projects should be assessed to determine significance considering the duration, extent, type and frequency of the effect, value and resilience of the receptor affected and likely success of mitigation. A matrix is attached to the PINS Advice Note 17 to assist in documenting the assessment process.

Zone of Influence (ZOI)

21.2.6. In accordance with PINS' Advice Note 17, to provide a framework for identifying existing and/or approved projects to consider as part of the Cumulative Effects Assessment (CEA), a Zone of Influence (ZOI) has been defined for each environmental aspect considered in this ES with regard to the EMG2 Project as set out at **Table 21.2** below and further explained within the individual assessment chapters.

Table 21.2: Zone of Influence

ES Chapter	Zone of Influence
Chapter 5: Socio-economic (**Document DCO 6.5/MCO 6.5**)	The study area for the consideration of socio-economic matters comprising the Unitary and County Council areas of Leicester, Leicestershire, Derby, Derbyshire, Nottingham and Nottinghamshire.
Chapter 6: Transport (**Document DCO 6.6/MCO 6.6**)	The transport assessment factors in future committed growth and as such the cumulative effects in relation to transport are inherently built into the assessment. The scope of the transport modelling undertaken is described at **Appendix 6A (Document DCO 6.6A/MCO 6.6A)** to this ES.
Chapter 7: Noise & vibration (**Document DCO 6.7/MCO 6.7**)	A main consideration of operational noise arises from the traffic generated by the proposed development. As noted above, transport cumulative impacts are not considered separately as these are inherently built into the transport modelling work. With regard to the construction phase, the study area is 600m from the Order Limits.
Chapter 8: Air quality (**Document DCO 6.8/MCO 6.8**)	A main consideration of operational effects on air quality arises from the traffic generated by the proposed development. As noted above, transport cumulative impacts are not considered separately as these are inherently built into the transport modelling work. With regard to the construction phase, the study area is 500m from the Order Limits.

ES Chapter	Zone of Influence
Chapter 9: Ecology (**Document DCO 6.9/MCO 6.9**)	Study area of 2km for sites of national or regional importance and European protected species, 1km for sites and species of local importance. Study area is extended to 15km from the Order Limits for impacts on ecology sites of international importance.
Chapter 10: Landscape and visual (**Document DCO 6.10/MCO 6.10**)	Study area is based on the Zone of Theoretical Visibility (ZTV) which extends to circa 5km from the Order Limits.
Chapter 11: Lighting (**Document DCO 6.11/MCO 6.11**)	Study area of 4km from the Order Limits.
Chapter 12: Cultural Heritage (**Document DCO 6.12/MCO 6.12**)	Study area of 2km from the Order Limits.
Chapter 13: Flood risk and drainage (**Document DCO 6.13/MCO 6.13**)	Study area of 250m from the Order Limits.
Chapter 14: Ground conditions (**Document DCO 6.14/MCO 6.14**)	Site only has been considered as no off-site pollutant linkages were identified.
Chapter 15: Agriculture and soils (**Document DCO 6.15/MCO 6.15**)	Administrative area of North West Leicestershire District Council to provide basis for regional comparison
Chapter 16: Utilities (**Document DCO 6.16/MCO 6.16**)	Site-specific
Chapter 17: Population and human health (**Document DCO 6.17/MCO 6.17**)	Study area of 500m for environmental health aspects. Study area for socio-economic health aspects is the same as that considered as part of the assessment of socio-economic impacts.
Chapter 18: Materials and waste (**Document DCO 6.18/MCO 6.18**)	Study area of 30 miles (circa 50km) from the Order Limits to take account of availability of construction materials, and capacity of waste management infrastructure and remaining landfill void.
Chapter 19: Climate change (**Document DCO 6.19/MCO 6.19**)	All developments that emit, avoid or sequester greenhouse gases may have a cumulative impact on climate change. Consequently, cumulative impacts due to other specific local development projects are not considered individually but are taken into account when considering the impact of the **E**MG2 Project. There is therefore no specific cumulative assessment study area for climate change.

ES Chapter	Zone of Influence
Chapter 20: Major accidents and disasters (**Document DCO 6.20/MCO 6.20**)	Study area is defined by a number of buffers applied to external influencing manmade and natural features. The greatest buffers extend to 13km for the consideration of airports and airfields and up to 5km for Control of Major Accident Hazard facilities.

21.2.7. PINS Advice Note 17 stresses that the assessment of cumulative effects should be proportionate. In this context, a search area of 5km from the Order Limits for the DCO and MCO Applications has been set in order to identify existing and/or approved projects which may give rise to likely significant effects on the environmental aspects that have been assessed.

21.2.8. A 5km radius covers the study areas for most of the environmental aspects assessed as part of this ES with the exception of the socio-economic assessment and the closely linked population and human health assessment, ecology site of regional importance, and materials and waste. A more focused and proportioned approach is appropriate taking into account the following considerations:

- **Chapter 5: Socio-Economic (Document DCO 6.5/MCO 6.5)** and **Chapter 17: Population and Human Health (Document DCO 6.17/MCO 6.17)** consider a wide study area which is relevant to these assessments, but it would not be proportionate to use the same study area for the cumulative impact assessment given the potential long list of sites that would need to be taken into account and the fact that the socio-economic impacts of the EMG2 Project are overwhelmingly beneficial.
- **Chapter 9: Ecology (Document DCO 6.9/MCO 6.9)** considers a 15km radius with regard to sites of international importance. There is one such designated site within 15km, the River Mease Special Area of Conservation (SAC). The impact of the proposed EMG2 Project on the River Mease SAC is assessed as part of this ES, but as the development lies at some distance from the SAC and falls outside the River Mease Nutrient Neutrality Catchment Area, it was not considered necessary to extend the search area to include it. The assessment at Chapter 9 confirms that no significant direct or indirect effects are anticipated due to the distance from EMG2 Project and the lack of potential impact pathways. As a result, EMG2 is unlikely to combine with other developments to give rise to any cumulative effects.
- **Chapter 18: Materials and Waste (Document DCO 6.18/MCO 6.18)** shows that the volume of waste generated by the EMG2 Project compared to the waste management capacity is small and although other developments will increase the impacts from construction and operational waste, it would be disproportionate to extend the search area for this Cumulative Effects Assessment beyond the suggested 5km.

Threshold criteria

21.2.9. To enable a reasonable and proportionate assessment to be undertaken, the following development thresholds have been used to identify projects that could result in potential cumulative effects with the EMG2 Project.

- Industrial/logistics development: 20+ ha
- Commercial development: 10,000+ sq.m
- Residential development: 1,000+ dwellings

21.2.10. These thresholds are based on the advice contained in the National Planning Practice Guidance on Environmental Statement on the scale and type of developments that are likely to result in significant environmental effects.

Information sources

21.2.11. The search area covers parts of the administrative areas of North West Leicestershire District Council (NWLDC), Rushcliffe Borough Council (RBC), Charnwood Borough Council (CBC), Erewash Borough Council (EBC) and South Derbyshire District Council (SDDC).

21.2.12. The following publicly available documents have been consulted to identify relevant projects:

- Local planning authority's online planning application database
- Monitoring reports for both housing and employment uses
- Housing trajectory information
- Adopted and emerging Local Plans
- PINS programme of NSIP projects

21.2.13. In addition, sites that have been identified through the EIA Scoping process have also been taken into account. This includes sites that fall outside the 5km ZOI, but have been specifically identified by consultees as being of relevance to the assessment of cumulative impacts.

Scope

21.2.14. PINS Advice Note 17 recognises that some assessments, such as transport and associated assessments of vehicle emissions (including air quality and noise), may inherently be cumulative as they may incorporate modelled traffic data growth for future traffic flows. It is noted that *"where these assessments are thorough and include a worst-case assessment, no additional cumulative assessment of these aspects is required."* A comprehensive Transport Assessment has been prepared based on traffic modelling, the scope of which was agreed with the Transport Working Group and takes account of an extensive list of both committed sites and planned growth. The assessment is inherently cumulative and provides a worst-case scenario. Transport matters are therefore not considered separately as part of this Cumulative Effects Assessment.

21.2.15. The Noise and Vibration, and Air Quality chapters which use data from the transport modelling take account of the cumulative effects of the commitments assumed in the Transport Assessment.

EIA Scoping

21.2.16. This assessment has been informed by the EIA Scoping process with PINS and the engagement with consultees through this process. The PINS Scoping Opinion is included as **Appendix 1D** to this ES (**Document DCO 6.1D/MCO 6.1D**) and a summary of the comments regarding the scope of the cumulative impact assessment is provided in **Table 21.3** below.

Tabel 21.3: EIA Scoping Opinion comments relevant to cumulative impacts

Comments	Response
PINS	
Given there are several ongoing developments within the vicinity of the Proposed Development, the ES should clearly state which developments are assumed to be part of the future baseline and which are included in the assessment of cumulative effects.	**Section 21.4** and associated **Appendix 21B** (**Document DCO 6.21B/MCO 6.21B)** clearly sets out the developments that have been considered as part of this cumulative impact assessment. Sites considered as part of the transport modelling work are identified at **Chapter 6** and the associated appendices.
It is recommended that the CEA follows the methodology set out in the Planning Inspectorate's advice note: Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment, links for which can be found in paragraph 1.0.7 above. A list of developments for inclusion in the cumulative assessment is not provided in the Scoping Report and so effort should be made to agree these with relevant consultation bodies including the relevant local planning authorities. The Applicant's attention is drawn to consultation body responses in Appendix 2 of this Scoping Opinion where these identify potential developments that should be considered in the ES CEA.	PINS Guidance has been followed in the preparation of this cumulative impact assessment. **Section 21.4** identifies the developments considered as part of the assessment of the inter-project cumulative effects. Consultee responses have been considered as further set out below.
The structure proposed for the ES within the Scoping Report does not identify where the assessment of cumulative effects would be provided. The structure of the ES should include specific sections on cumulative and inter-relationship effects, either as a standalone chapter on CEA, or as specific sections	Each ES chapter considers the residual cumulative (inter-project) and combined (intra-project) effects of the EMG2 Project relevant to the specific environmental aspect. This chapter draws together conclusions from across the ES about the likely residual cumulative effects of the proposals.

Comments	Response
within each aspect chapter that detail the assessments undertaken.	It also considers whether there are any impact interactions or in-combination impacts affecting sensitive receptors.
The Inspectorate notes the Proposed Development lies within the EMAGIC and East Midlands Freeport site and considers there is potential for a range of changes to occur within close proximity to the Proposed Development site as a result of other development proposals in the surrounding locality. The Applicant should consider the use of visualisations / photomontages to illustrate potential cumulative effects from changes to views and visual amenity.	Landscape and visual impacts are considered at **Chapter 10** of this ES (**Document DCO 6.10/MCO 6.10**) and associated appendices. This includes consideration of the likely cumulative effects.
Historic England	
Consider that cumulative impacts should be taken into account.	The assessment of likely cultural heritage impacts (**Chapter 12, Document DCO 6.12/MCO 6.12**) includes consideration of cumulative effects with further consideration given to both in-combination and cumulative effects within this Chapter.
National Highways	
The Traffic and Transport section of the Environmental Statement will be informed by a Transport Assessment which should address the cumulative impacts of the proposed development (as mentioned elsewhere in the scoping report).	Sites considered as part of the transport modelling work are identified at **Chapter 6** (**Document DCO 6.6/MCO 6.6**) and the associated appendices.
With regard to Air Quality, it is understood that the three distinct elements of the proposed development may have to be considered separately. However, the cumulative impact will also need to be understood.	Each chapter of the ES has assessed the impacts arising from the DCO Application and MCO Application separately and then together as the EMG2 Project.
Natural England	
The ES should include a thorough assessment of potential cumulative and 'in combination' effects of the whole scheme, including all supporting infrastructure, with other proposals. Natural England are aware of plans or projects that might need to be considered in the ES. This includes the following schemes: Oaklands Farm, Isley Woodhouse site allocation, and land south of A453 Ashby Road. This is not necessarily an exhaustive list and a further	PINS Guidance has been followed in the preparation of this cumulative impact assessment and includes consideration of intra-project (in-combination) and inter-project effects. The projects highlighted by Natural England have been considered as set out at **Section 21.4** and associated **Appendix 21A** (**Document DCO 6.21A/MCO 6.21A**).

Comments	Response
search should be undertaken to identify any additional relevant schemes.	
Leicestershire County Council (LCC)	
Para 4.9 any mitigation strategy should include for the wider cumulative impacts of growth in this area and the LHA would support the comprehensive planning and delivery of necessary mitigation works and associated transport strategies. The cumulative development proposals to be considered should be listed by the Applicant and agreed by stakeholders including by LCC in its capacity as Local Highway Authority (LHA). This should match the uncertainty log used for Pan Regional Transport Model (PRTM) strategic modelling exercise.	Sites considered as part of the transport modelling work are identified at **Chapter 6** (**Document DCO 6.6/MCO 6.6**) and the associated appendices and has been agreed with the Transport Working Group.
Specific consideration of cumulative impacts of this development in combination with other development within the area on ecology, air quality and noise should be included in the ES.	Each ES chapter considers the residual cumulative effects of the EMG2 Project relevant to the specific environmental aspect. This Chapter draws together conclusions from across the ES about the likely residual cumulative effects of the proposals.
Consideration should be given to the cumulative impacts on the health and wellbeing of local residents during both construction and operational phases.	Population and human health is considered at **Chapter 17** (**Document DCO 6.17/MCO 6.17**) of this ES.
North West Leicestershire District Council (NWLDC)	
It is considered that the cumulative impacts with the Freeport designations at Uniper's Ratcliffe on Soar site and the East Midlands Intermodal Park should be considered. The committed developments at Land at Sawley Crossroads (District Council references 15/00015/FULM and 17/00366/VCIM), Site of Former Sawley Crossroads Service Station (District Council reference: 18/01115/FUL), Land at East Midlands Point (Junction 23A) (District Council reference 18/02227/FULM) and Land North and South of Park Lane, Castle Donington (District Council references 09/01226/OUTM and 16/00465/VCUM) should also be considered in respect of the cumulative impacts.	The projects highlighted by NWLDC have been considered as set out at **Section 21.4** and associated **Appendix 21A** (**Document DCO 6.21A/MCO 6.21A**).

Comments	Response
Rushcliffe Borough Council (RBC)	
We agree with this statement and consider that any transport modelling and mitigation measures that support a future EIA and DCO application should include all of the freeport locations and relevant committed developments as appropriate. For Rushcliffe, this should include Ratcliffe on Soar Power Station (22/01339/LDO) and the strategic allocation South of Clifton (14/01417/OUT) as a minimum.	Sites considered as part of the transport modelling work are identified at **Chapter 6** and the associated appendices. This includes both Uniper's Ratcliffe-on-Soar site and the strategic allocation South of Clifton.
UK Health Security Agency	
We recommend that a separate chapter on population and human health be produced to set out clearly how the proposal will impact up on the population, in particular intra-project cumulative effects. This will need to draw upon the topic specific chapter findings. The assessment of significance should follow the guidance issued by the Institute for Environmental Management and Assessment (IEMA).	A separate assessment has been included in the ES adhering to the IEMA guidance to assess the impacts on population and human health (**Chapter 17, Document DCO 6.17/MCO 6.17**).
Kegworth Parish Council	
The accumulative impact of increased traffic movements from the development of Ratcliffe on Soar Power station and the effect of the yearly Download festival and other events at Donington Park should be taken into account. This will have a massive impact on volumes of road traffic locally.	Sites considered as part of the transport modelling work are identified at **Chapter 6** (**Document DCO 6.6/MCO 6.6**) and the associated appendices. This includes the proposed development at Uniper's Ratcliffe-on-Soar site. Donington Park is considered as part of the baseline.

21.3. Intra-projects effects (in-combination effects)

21.3.1. To undertake an assessment of likely in-combination effects, receptors that are affected by two or more residual effects have been identified. It is not intended to address each and every individual receptor which has been covered in the technical ES chapters, but to focus on broad receptors and those likely to be affected by more than one environmental aspect. This includes the following:

- Local residents;
- Road users;
- East Midlands Airport;
- Water resources;
- On-site occupiers and users/visitors.

21.3.2. For each of these broad receptors, **Table 21.4** sets out the residual impacts that have been identified based on the individual assessment chapters. The assessment considers residual impacts as each assessment chapter has sought to identify ways to effectively minimise or eliminate adverse effects on the key receptors.

21.3.3. The subsequent section then sets out the residual effects in combination and considers whether any additional mitigation measures are required as a result of impact interactions. Where only neutral or negligible effects are identified, it is considered that there is no potential for likely significant in-combination (intra-project) effects, and no further considerations is given to these in the summary of in-combination effects below. Where there is only one aspect with greater than negligible effects, it is considered that the residual effects remain unchanged from those already assessed within the individual ES chapters, and no further assessment is carried out in this section.

21.3.4. In-combination effects form an integral component of the technical assessment for some environmental aspects. This is the case for the assessment of ecology and biodiversity (**Chapter 9: Ecology and Biodiversity; Document DCO 6.9/MCO 6.9**) as the assessment considers the direct and indirect impacts on habitats and wildlife arising from increased disturbance (noise and light) and through local changes in soils, drainage and hydrology etc. The assessment of population and human health effects at **Chapter 17: Population and Human Health (Document DCO 6.17/MCO 6.17)** also considers in-combination effects as an inherent element of the assessment including matters such as socio-economic impacts, air quality, noise and visual change and how these affect the local population and human health. Ecology and population and human health impacts are therefore not considered further as part of the consideration of intra-project cumulative impacts in this chapter. An assessment of the climate change impacts of the proposed development is set out at **Chapter 19: Climate Change (Document DCO 6.19/MCO 6.19)** and is not further considered here as greenhouse gas emissions have a global effect rather than affecting any specific local receptor.

Table 21.4: Consideration of in-combination (intra-project) effects

Receptor Category	Environmental aspect	Residual effect significance	
		Construction	Operation
Residents	Socio-economic	Minor beneficial	Moderate-major beneficial
	Transport	Negligible	Negligible to minor beneficial
	Noise and vibration	Negligible	Negligible
	Air quality	Minor adverse	Negligible
	Landscape and visual	Major adverse	Moderate-major adverse
	Lighting	Minor adverse	Minor adverse
Road users	Transport	Negligible	Major beneficial
	Landscape and visual	Moderate-major adverse	Minor-moderate adverse
	Lighting	Neutral	Neutral
	Major accidents and disasters	Negligible	Negligible
East Midlands Airport	Lighting	Negligible	Negligible
	Major accidents and disasters	Negligible	Negligible
Water resources	Flood Risk and Drainage	Negligible to minor-moderate beneficial	Negligible to minor-moderate beneficial
	Ground conditions	Negligible	Negligible
On-site occupiers and users	Noise	Negligible	Negligible
	Socio-economic	None	Major beneficial
	Major accidents and disasters	Negligible	Negligible

21.3.5. As shown above, many of the likely impacts on the identified receptors are in a range from negligible to minor, with some of larger significance including both adverse and beneficial impacts. The impacts represent the worst case as the individual assessment chapter might have identified a range of environmental effects but the receptors within each broad receptor category most significantly impacted has been selected.

21.3.6. The intra-project effects can be difficult to quantify as impact interactions tend to be indirect, and can be subjective. As a result of these complexities, intra-project impacts are dealt with qualitatively in the subsequent section of this chapter.

Construction phase in-combination (intra-project) effects

21.3.7. With regard to the construction phase, in-combination (intra-project) effects on the following receptors, potentially affected by more than one impact of more than negligible significance, are further considered below:

- Residents – consideration of in-combination effects of traffic, noise/vibration, air quality, landscape and visual, and lighting; and
- Road users – consideration of in-combination effects of traffic, landscape and visual, and major accidents and disasters.

Residents

21.3.8. Local residents may be subject to adverse in-combination effects from construction traffic, noise, dust and lighting as well as visual impacts during the construction phase of the EMG2 Project. Local residents are likely to be particularly affected during the earthworks phase of the EMG2 Main Site. During these works, the majority of interactions would arise from emissions such as dust and noise from plant and vehicles and additional HGVs on the local highway network. As works proceed above ground and conclude with fit out and landscaping, the magnitude of impacts would start to reduce. Properties in close proximity and with the clearest views towards the construction activities will experience the most impacts in visual terms. They are also most likely to be affected by an increase in the visibility of lighting, although night working is not likely to be required for the majority of construction works.

21.3.9. With regard to beneficial impacts, residents in the socio-economic study area will have the opportunity to take up construction jobs on the EMG2 Project. Construction workers could be exposed to contaminants, although the potential risks will be minimised through the implementation of measures set out in the Construction Environmental Management Plan (CEMP) (**Document DCO 6.3A**) and the Construction Management Framework Plan for EMG1.

Road users

21.3.10. **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6)** provides an estimate of the construction traffic associated with the EMG2 Project and concludes that, following the implementation of the Construction Traffic Management Plan (appended to CEMP, **Document DCO 6.3A**), there will be a minor impact on local road users. The increase in HGVs on the road network could increase the risk of accidents but this is considered to be negligible. Depending on which part of the network road users are travelling on and the views afforded from the network towards the construction works, the degree of visual impact will vary. Road users that are likely to experience the most significant visual effects are users of the A453 across the northern edge of the EMG2 Main Site and users of smaller roads to the south and west with views towards the EMG2 Works.

Operational-phase in-combination (intra-project) effects

21.3.11. With regard to the operational phase, in-combination (intra-project) effects on the following receptors, potentially affected by more than one impact of more than negligible significance, are further considered below:

- Residents – consideration of in-combination effects of traffic, noise/vibration, air quality, landscape and visual, and lighting
- Road users – consideration of in-combination effects of traffic, landscape and visual, lighting, and major accidents and disasters

Residents

21.3.12. Local residents may be subject to combined effects of traffic, noise, air quality and visual impacts (including lighting) during the operational development phase which would be long term in nature. The effects of these impact interactions on human health have been assessed at **Chapter 17: Population and Human Health (Document DCO 6.17/MCO 6.17)** of this ES and are not repeated here. The impacts on human health include negligible health effects from changes in air quality and noise and vibration, community safety and changes in the visual environment. Although there will be some synergy between the effects, the overall impact on local resident's health would not be significantly greater overall.

21.3.13. Properties in close proximity to the EMG2 Works will experience the most impacts in visual terms. They are also most likely to be affected by an increase in the visibility of lighting . As set out at **Chapter 10: Landscape and Visual (Document DCO 6.10/MCO 6.10)**, the visual effects principally result from views towards the higher parts of the proposed buildings on the western side of the EMG2 Main Site and the associated mitigation mounding and landscape proposals. Where the proposals are visible for residents, the proposed buildings will be seen set back beyond the Community Park incorporated as part of the EMG2 Works. The lower parts of the proposed buildings and the active building surrounds (including parking and service yards) will be effectively mitigated and screened from these properties by the outer mounding and landscape proposals which will also reduce the visibility of luminaires and lighting. The increase in lighting will form part of the visual change experienced by local residents, and there would therefore be no significant increase to the overall effects set out at **Chapter 10: Landscape and Visual (Document DCO 6.10/MCO 6.10)**.

21.3.14. With regard to beneficial impacts, new job opportunities will be opened up to residents within the study area at the completed EMG2 Main Site and Plot 16. The Community Park and footpath network will provide informal recreation benefits. The new bus interchange at the EMG2 Main Site and active travel links will improve sustainable transport access to the local area, particularly benefitting the residents of Diseworth.

Road users

21.3.15. The EMG2 Project will add new traffic to the local and strategic road network, but the proposed Highway Works, particularly the proposed J24 Improvements, will relieve the section of the A453 from Junction 23A to the A50 and J24 roundabout itself. This will provide

capacity on the network to accommodate the increase in traffic arising from the EMG2 Project.

21.3.16. Similarly to the construction-phase impacts, the degree of visual impact will vary depending on which part of the network road users are travelling on. Road users that are likely to experience the most significant visual effects are users of the A453 across the northern edge of the EMG2 Main Site and users of smaller roads to the south and west with views towards the EMG2 Main Site. As set out in **Chapter 10: Landscape and Visual (Document DCO 6.10/MCO 6.10)**, the maturing and management of existing and new planting will assist to varying degrees in filtering and assimilating the proposed buildings in the landscape and reducing views towards the development.

Conclusions on in-combination (intra-project) effects

21.3.17. Based on the assessment outlined above, it is considered that there are no additional in-combination effects to those already assessed within the individual assessment chapters which would be significant and require additional mitigation.

21.4. Inter-project effects

21.4.1. The inter-project effects have been assessed based on the methodology outlined in PINS Advice Note 17.

Identifying existing and/or approved developments

21.4.2. A list of other existing and/or approved developments was drawn up combining Stages 1 and 2 of the PINS methodology. This has included sites within a 5km radius of the Order Limits that meet the threshold criteria specified at Para 21.2.9 above. In line with the PINS methodology, the identified projects were categorised into the following three tiers:

- Tier 1: existing commitments (i.e. projects under construction or with unimplemented extant planning permission) and sites subject to current planning application or appeal where a decision is pending
- Tier 2: proposals included on the PINS programme of projects
- Tier 3: projects on the PINS's programme of projects where a scoping report has not been submitted; allocations in the adopted and emerging Development Plan; and projects identified in other plans and programmes (as appropriate)

21.4.3. A total of 24 sites were initially identified, and following a review of whether the identified projects would overlap in temporal scope, and/or in light of the location and scale of development proposed would be likely to have significant cumulative effects with the EMG2 Project, this list was reduced to 12 sites. This sifting process has resulted in a short list of projects to be taken forward to Stage 3. The long list and process of filtering schemes to arrive at a short list is shown in **Appendix 21A (Document DCO 6.21A/MCO 6.21A)**.

Assessment of cumulative effects

21.4.4. The short listed projects were reviewed in light of the ZOI for each individual environmental aspects to identify those projects relevant to each topic. Information was then gathered with regard to the short listed projects and an assessment was carried out of the cumulative effects of the EMG2 Project with these identified projects as part of each individual assessment chapter.

21.4.5. The conclusions on inter-projects effects from across the ES have informed the preparation of **Appendix 21B** (**Document DCO 6.21B/MCO 6.21B**) which provides a summary of the cumulative effects for each of the short-listed projects. The table at **Appendix 21B** focuses on those environmental aspects where cumulative impacts are likely. The key outcomes of this process are summarised in **Table 21.5** below.

Table 21.5: Summary of inter-project cumulative effects

Environmental aspect	Cumulative Impacts	
	Construction	**Operation**
Socio-economic	The construction of the cumulative sites would help support construction firms operating in the region and provide jobs in the construction industry. The resulting effect is considered to be minor-moderate beneficial over the short and medium term.	Cumulatively, the sites are estimated to generate circa 29,000 net additional jobs during operation; this equates to circa 33% of the unemployed labour force in the study area. The resulting effect is predicted to remain moderate to major beneficial over the long term. In combination, the cumulative schemes may face a labour shortage in the study area in some occupation categories, though there will be opportunities to offer up-skilling, re-skilling and training opportunities to meet the skills needs. The cumulative effect is predicted to become moderate-minor adverse. The cumulative schemes will deliver approximately 585,000 sq.m of industrial and logistics floorspace, which equates to 145 ha of employment land (assuming a 40% plot ratio). This is in addition to the 111 ha delivered by the EMG2 Project. The resulting effect is expected to remain major beneficial over the long term. The estimated on-site operational jobs delivered by the cumulative schemes are expected to generate circa £700m annually in GVA in addition to the £148m per annum generated by the EMG2 Project. This results in a major beneficial effect over the medium to long term. As such, the effect is expected to remain major beneficial over the medium and long term.
Transport	A comprehensive transport assessment has been prepared based on traffic modelling, the scope of which was agreed with the Transport Working Group and takes account of an extensive list of both committed sites and planned growth. The assessment is inherently cumulative and provides a worst-case scenario. Transport matters are therefore not considered separately as part of this Cumulative Effects Assessment.	

Environmental aspect	Cumulative Impacts	
	Construction	**Operation**
Noise and Vibration	There will be no cumulative impacts associated with any of the identified developments within the area from a noise and vibration perspective, either during the construction or operation phase of the EMG2 Project.	
Air Quality	No cumulative impacts have been identified during the construction period with any of the identified schemes within 500m of the Order Limits.	**Chapter 8** uses data from the transport modelling and is therefore inherently cumulative.
Ecology and Biodiversity	The cumulative losses of arable land across the local area will remove potential habitat for farmland specialist birds including skylark and yellow wagtail. Given the abundance of farmland within the locality, the scale of the impact on additional habitat loss on bird assemblages is expected to remain as minor adverse.	With regard to locally designated sites the principal cumulative impacts would relate to traffic and increases in pollution. Habitats which are sensitive to nitrogen pollution include broadleaved and mixed woodlands, and freshwater habitats which are constituent parts of several of the locally designated sites. The potential effect from increased pollution is a decrease in habitat quality. Given the locations of these sites are already within a highly urbanised areas with existing levels of pollution, the cumulative effects are likely to remain as minor adverse. The new bus terminal will be connected into the existing local footpath/cycle networks. As such it is expected to attract users from the surrounding area. This will increase the expected levels of littering and potential disturbance to wildlife. The increased pedestrian/cyclist traffic is assessed to lead to, at most, a minor adverse impact to surrounding habitats.
Landscape and Visual	There will be some cumulative landscape and visual effects arising from the EMG2 Project when assessed with the identified projects. The most notable cumulative landscape effects will arise from the DCO Scheme (principally the EMG2 Main Site) and the Isley Woodhouse project. It is likely that in the combination of these projects will have a significant impact upon the local landscape surrounding and principally to the east and west of Diseworth. Other cumulative landscape effects will be less marked and not significant yet will include the cumulative effects upon the local landscape surrounding Junction 24, as a result of the Highway Works component of the DCO Scheme and the MCO Scheme in	

Environmental aspect	Cumulative Impacts	
	Construction	**Operation**
	combination with the proposed employment development projects to the east of the M1 motorway at Junction 24 (Project Refs 14 and 15). The most notable cumulative visual effects will arise for a number of visual receptors with potential views towards the EMG2 Main Site component of the DCO Scheme when combined with the Isley Woodhouse project. This will include: a potential limited number of residents at Diseworth and other scattered properties in the surrounding landscape with views towards both proposed developments; users of some PROW across the landscape around Diseworth and principally to the east, west and south of the settlement; and some road users, including the A453 and the roads leading out of Diseworth to the north and west. The cumulative visual effects for those PROW users and residents with the clearest views towards the EMG2 Main Site and the Isley Woodhouse project are likely to be significant. Other cumulative visual effects will be less marked and not significant yet will include some cumulative visual effects arising from the Highway Works component of the DCO Scheme and the MCO Scheme when combined with the proposed employment development projects to the east of the M1 motorway at Junction 24 (Project Refs 14 and 15). These cumulative visual effects will be experienced by a limited number of residents on the north west edge of Kegworth; users of some short stretches of PROW; and by major road users approaching and around Junction 24 of the M1 motorway.	
Lighting	No cumulative impacts have been identified during the construction period.	Taking all the cumulative sites into account there will be an urbanising change from lighting within the lighting ZOI. This change will take place with or without the EMG2 Project if all the cumulative sites are built. This change will not, however, result in a change to the environmental zone of the area from E2 (rural) to E3 (suburban).
Cultural Heritage	During construction, the overlapping timelines of the Isley Woodhouse project and the EMG2 Project are likely to extend and intensify adverse effects on the rural character around the EMG2 Main Site, Community Park, and Diseworth, resulting in a low cumulative adverse construction impact to both the rural setting east and west of the Diseworth Conservation Area (BH2), and to the setting of The Bulwarks Scheduled Monument (AR10).	Operationally, the combined presence of the EMG2 Project and Isley Woodhouse Development (Site 12) is expected to progressively erode the rural setting of the Diseworth Conservation Area, especially along its eastern, western, and southern approaches, as well as the setting of The Bulwarks Scheduled Monument (AR10). Where both sites are visible, either together or sequentially, this will cumulatively diminish the rural character, leading to a low adverse cumulative operational effect on the Conservation Area

Environmental aspect	Cumulative Impacts	
	Construction	**Operation**
		(BH2), and a low to moderate adverse cumulative operational effect to The Bulwarks Scheduled Monument (AR10), due to the loss of their rural context.
Flood Risk and Drainage	There will be no cumulative impacts associated with any of the identified developments within the area from a flood risk and drainage perspective during the construction or operational phase of the EMG2 Project. All new developments are required to adhere to the same principles as outlined in the NNNPS, NPPF, PPG and WFD with regard to reducing flood risk, limiting surface water runoff, and protecting the quality of water bodies. The only cumulative impacts may be beneficial in terms of further attenuating and restricting surface water runoff into the nearby watercourses, and improvements in water quality from appropriate SuDS designs, and a general reduction in agricultural land management leading to a reduction in phosphate and nitrate diffuse pollution.	
Ground Conditions	There will be no cumulative impacts during the construction and operational phase associated with any of the identified developments within the area from a ground condition perspective.	
Agriculture and Soils	The development of the EMG2 Main Site and resultant loss of 35.2ha of best and most versatile (BMV) agricultural land will have a significant cumulative effect at the regional level. At the national level, the loss is considered not to be significant. Although detailed data is not available, it can be assumed that the other projects considered as part of the inter-project cumulative impact assessment will result in the loss of additional BMV (extent unknown). Cumulatively, the overall loss will remain significant at the regional level, but is not significant considering BMV loss at the national level.	
Utilities	There will be no cumulative impacts associated with any of the identified developments within the area from a utilities perspective.	There will be no cumulative impacts associated with any of the identified developments within the area from a utilities perspective. The consultation and liaison required with asset owners and local authorities prior to the installation of utility connections ensures that the process is coordinated with other developments in the area.
Population and Human Health	The cumulative developments are considered to be located too far away from the DCO Order Limits for cumulative changes in environmental determinants of health and wellbeing, such as air quality and noise.	Changes in environmental factors with the potential to influence health and wellbeing (i.e. air quality and noise) rely on modelling outputs from Chapter 6 that are inherently cumulative.

Environmental aspect	Cumulative Impacts	
	Construction	**Operation**
	As the construction of the cumulative sites would have cumulative socio-economic benefits, this is associated with cumulative health and wellbeing benefits. The resulting effect is considered to be minor beneficial over the short and medium term.	Cumulatively, the sites are estimated to generate circa 29,000 net additional jobs during operation; this equates to circa 33% of the unemployed labour force in the study area. While there may be labour shortages in some occupation categories, there is potential for training opportunities to address this. Overall, in relation to socio-economic determinants of health, there would be a moderate beneficial effect.
Materials and Waste	The assessment of construction waste is included in the baseline assessment with a review of capacity capturing the effects from any other schemes currently operating and feeding the landfill sites.	During operation, the cumulative schemes will also generate waste which requires disposal/processing at local and regional waste management facilities, impacting on the available capacity of the facilities. The volume of waste generated by the EMG2 Project in combination with other projects compared to the waste management capacity is small and the effects is therefore assessed to be not significant.
Climate Change	All developments that emit Green House Gases (GHGs) have the potential to impact the atmospheric mass of GHGs as a receptor, and so may have a cumulative impact on climate change. Consequently, cumulative effects due to other specific local development projects are not individually predicted but are considered when considering the impact of the EMG2 Project by defining the atmospheric mass of GHGs as a high sensitivity receptor.	
Major Accidents and Disasters	All identified cumulative schemes will be subject to health and safety requirements, to ensure that the risk of accidents is ‘as low as reasonably possible’ (ALARP). As such, there are predicted to be no cumulative effects from a Major Accidents and Disasters’ perspective during the construction and operational phase of the EMG2 Project.	

21.5. Summary and Conclusions

21.5.1. This chapter has presented an assessment of the likely cumulative effects of the EMG2 Project drawing together conclusions from across the ES. This has included an assessment of both in-combination (intra-project) effects, the combination of individual effects from a development on a particular receptor; and inter-project effects, the impacts from other developments together with the EMG2 Project.

21.5.2. In respect of in-combination (intra-project) effects, the main sensitive receptors to consider are residents who are affected, both adversely and beneficially, by a number of potential impacts. The main impact interactions relate to health and these are considered at **Chapter 17: Population and Human Health (Document DCO 6.17/MCO 6.17)** of this ES. Ecology and biodiversity is another key consideration with in-combination effects forming an inherent part of the assessment set out at **Chapter 9: Ecology and Biodiversity (Document DCO 6.9/MCO 6.9)**. The consideration of in-combination effects within the individual assessment chapters did not identify any significant residual in-combination effects. No additional in-combination effects have been identified by the overarching assessment undertaken in Chapter 21.

21.5.3. In relation to inter-project effects, the assessment shows that the EMG2 Project when combined with other identified developments will result in cumulative effects (both adverse and beneficial) with regard to impacts on socio-economic, transport and associated noise and air quality, ecology, landscape and visual, lighting, and waste and materials. Mitigation is proposed where necessary in each environmental aspect chapter and the identified cumulative impacts do not necessitate additional mitigation beyond the measures already included as part of the EMG2 Project.