national highways

TR010060

Appendix G: Draft National Networks National Policy Statement Accordance Table

Rule 8(1)(k)

Planning Act 2008

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

Volume 9

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Infrastructure Planning

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Development Consent Order 202[ ]

Appendix G: Draft National Networks National Policy Statement Accordance Table

Regulation Reference	Regulation 8(1)(k)
Planning Inspectorate Scheme Reference	TR010060
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1 Introduction

The A12 Chelmsford to A120 widening scheme (the proposed scheme) comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles, as seen on the Location Plan [APP-005]. The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with a bypass between junctions 22 and 23 and a second bypass between junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and providing alternative provision for walkers, cyclists and horse riders (WCH) to existing routes along the A12, which would be removed. The proposed scheme is classed as a Nationally Significant Infrastructure Project (NSIP), and an Environmental Impact Assessment (EIA) has been submitted to support the application for a DCO.

National Highways, formerly known as Highways England, announced in October 2019 its preferred route from junction 19 to junction 23. In 2019 the Local Authorities of Colchester, Braintree and Tendring pursued a joint Local Plan which proposed several garden communities that could impact on the route options for junction 23 to junction 25. In May 2020, the Planning Inspectorate made the recommendation that the proposed Colchester/Braintree Border Garden Community be removed from the North Essex Authorities draft Section 1 local plan which is detailed in Chapter 3: Assessment of alternatives, of the Environmental Statement (ES) [APP-070] and in the Case for the Scheme (CftS) [APP-249]. This resulted in National Highways making a Preferred Route Announcement for the remaining section between junctions 23 and 25 (August 2020) based on October 2017 stakeholder consultation routes. Preliminary design (Project Control Framework Stage 3) then commenced for the entire route, initiating the DCO pre-application process with the intention of submitting the application for development consent in Summer 2022.

This draft National Networks National Policy Statement (NNNPS) Accordance Table is supplementary to 7.1 Appendix A: National Networks National Policy Statement Accordance Table [APP-250] as a result of the draft NNNPS being released for consultation in March 2023.

As the proposed scheme was accepted for examination before the designation of the 2023 amendments, the 2015 NNNPS will remain in force in its entirety and have affect as per paragraphs 1.16of the draft NNNPS. It is noted by the Applicant that the draft NNNPS is potentially capable of being important and relevant considerations in the decision making process and therefore has produced this document to assist the Secretary of State in considering the extent to which they are relevant.

Table 1.1 Draft NNNPS Chapter 4

Draft NNNPS paragraph number	Requirement of the Draft NNNPS	Compliance with the Draft NNNPS
4. General policies and considerations		
4.5 (Business Case)	Applications for road and rail projects (with the exception of those for strategic rail freight interchanges, for which the position is covered in paragraph 4.8 below) will normally be supported by a business case prepared in accordance with Treasury Green Book principles and the Department's Transport Business Case guidance and Transport Analysis Guidance. Transport Appraisal Guidance assesses the costs, benefits and risks of alternative ways to meet government objectives. It helps decision makers to understand the potential effects, trade-offs and overall impact of options by providing an objective evidence base for decision making. The purpose of the economic dimension of the business case is to identify the proposal that delivers best public value to society, including wider social and environmental benefits; however, the economic case is one of five cases that comprise the business case, and government decisions are based on all five. The information provided will be proportionate to the development. This information will be important for the Examining Authority and the Secretary of State's consideration of the benefits and adverse impacts of a proposed development. It is expected that schemes brought forward through the Development Consent Order process by virtue of section 35 of the Planning Act 2008, should also meet this requirement.	A business case has been prepared for the proposed scheme in line with HM Treasury's Green Book Principles and DfT's Transport Analysis Guidance (TAG). The results gathered for the Economics Case are presented in The Economic Appraisal Package Report, submitted as Appendix D to the Combined Modelling and Appraisal Report (ComMA) [APP-261 – APP-267]. This demonstrates that economic appraisal of the proposed scheme has been prepared in accordance with the Green Book - Appraisal and Evaluation in Central Government and explains that the appraisal covers the economic, environmental and social impacts of the proposed scheme. It concludes that, taking account of the wider impacts of the proposed scheme and journey time reliability benefits, the proposed scheme will deliver an adjusted benefit cost ratio of 1.7. This means that for every £1 spent on the proposed scheme there will be around £1.70 returned to society in benefits.

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4.7 (Local Transport Model)	Applications for road and rail projects should be supported by a local transport model to provide sufficiently accurate detail of the impacts of a project. The modelling will usually include national level factors around the key drivers of transport demand such as economic growth, demographic change, travel costs and labour market participation, as well as local factors. The Examining Authority and the Secretary of State do not need to be concerned with the national methodology and national assumptions around the key drivers of transport demand. An assessment of the benefits and costs of schemes under a range of scenarios should reflect future uncertainty, in addition to the core case. The modelling should be proportionate to the scale of the scheme and include appropriate sensitivity analysis to consider the impact of uncertainty on project impacts.	A local transport model has been developed as outlined in the Combined Modelling and Appraisal Report (ComMA) [APP-261 – APP-267]. Details of the modelling and assessment findings are contained in the ComMA and the model has been developed so that it is proportionate to the scale of the proposed scheme. This has been prepared in line with the DfT's TAG, and methodologies and results have been discussed with the DfT's (modelling and economics) specialists. Assessments of the costs and benefits have been undertaken under low and high growth scenarios. Details of the modelling and assessment findings are contained in the ComMA.
4.9 (Wider Strategies)	The Examining Authority should only recommend, and the Secretary of State should only impose, requirements in relation to a development consent, that are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects. Development consent obligations should only be sought where they are necessary to make the development acceptable in planning terms, directly related to the proposed development and fairly and reasonably related in scale and kind to the development. Community Infrastructure Levy (or any successor to it) may also be payable on NSIP applications.	Schedule 2 of the draft DCO [REP3-002] includes suggested requirements that are considered necessary, relevant to both planning and the proposed scheme, enforceable, precise, and reasonable in all other respects. The Explanatory Memorandum [REP3-005] explains the purpose and effect of each provision in the draft DCO.
4.10 (Environment Assessment)	NSIP applications need to include an environmental assessment. This assessment is undertaken under the	The proposed scheme is an EIA development falling within the description of paragraph 7(3) of Schedule 1 to the

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	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) framework which requires projects to be accompanied by an Environmental Statement. Regulation 14 of and Schedule 4 to the Environmental Impact Assessment (EIA) Regulations set out the information that should be included in the environmental statement.	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the EIA Regulations). The proposed scheme is therefore subject to mandatory EIA procedures as set out in those regulations. In accordance with paragraph 4.15 of the NNNPS, an EIA has been undertaken which assesses the effects of the proposed scheme on humans, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage. The findings of the EIA are presented in the ES [APP-068 – APP-085] which includes a description of the proposed scheme, the likely significant environmental effects of the proposed scheme, the measures to avoid, reduce or offset such effects and the alternatives considered. Combined effects of the different aspects are reported within individual chapters of the ES as set out in Chapter 5: Environmental assessment methodology, of the ES [APP-072]. The scope of the ES complies with the Scoping Opinion as presented in Appendix 5.1: Scoping Opinion Detailed Response, of the ES [APP-096].
4.11	A key part of environmental assessment is the consideration of cumulative effects. The applicant should provide information on how the effects of the proposal would combine and interact with the effects of other development, where relevant. For most practical purposes this means that the applicant should consider the impact of other existing and committed developments within an appropriate geographical area and assess the additional impact of their own development. Other evidence for example, from a Transport Business Case, appraisals of sustainability of relevant NPSs or strategic environmental	The cumulative assessment can be found in Chapter 16: Cumulative effects assessment, of the ES [APP-083]. It has been carried out in accordance with the Planning Inspectorate's (2019) Advice Note Seventeen: Cumulative Effects Assessment. The assessment sets out how the effects of the proposed scheme would combine and interact with the effects of other development projects, whether existing, awaiting consent, already consented or otherwise reasonably foreseeable.

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	assessment of development plans, may assist the Secretary of State in reaching decisions on proposals and on mitigation measures that may be required. The Secretary of State should consider how the accumulation of, and interrelationship between, effects identified in the environmental assessment might affect the environment, economy, or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.	In addition, an assessment has been made of potential cumulative impacts from the proposed scheme on the socio-economic aspects of housing and access to services, facilities, employment, education and skills. This assessment has been made in recognition that there are several NSIPs in the region beyond the population and human health study area, which may contribute to potentially significant cumulative impacts for the proposed scheme. Chapter 16 of the ES also assesses the significance of cumulative effects for both the construction and operational phases of the proposed scheme.
4.13 (Habitats Regulation Assessment for internationally important nature sites)	The applicant should seek the early advice of the appropriate Statutory Nature Conservation Body and provide the Secretary of State with such information as the Secretary of State may reasonably require, to determine whether or not the plan or project should proceed to the Appropriate Assessment stage of Habitats Regulation Assessment.	The Applicant has sought the advice of Natural England throughout the development of the proposed scheme. A Stage 1 Screening Assessment concluded that no likely significant effects on any European sites are anticipated when considered alone or in combination with other plans and projects. The response received from Natural England is contained in Appendix E of the Habitats Regulations Assessment No Significant Effects Report [APP-201], which states that they are in agreement with the assessment.
4.14 – 4.15	Where a proposed plan or project is considered likely to have a significant effect on a habitats site, the applicant must provide sufficient information with the application to enable the Secretary of State to make an appropriate assessment of these likely effects in view of the site's conservation objectives. The assessment may consider the effect of any mitigation measures and the Statutory Nature Conservation Body must be formally consulted on the assessment and its advice considered. The applicant	The Habitats Regulations Assessment No Significant Effects Report [APP-201] is included within the DCO application. This considers whether the proposed scheme has the potential to result in significant effects on European sites of biodiversity interest. The Habitats Regulations Assessment (HRA) concludes that no likely significant effects on any European sites are anticipated, when considered alone or in-combination with other plans and projects. It is therefore not

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	should also consider agreeing an Evidence Plan with the Statutory Nature Conservation Body to help determine the information required. Such plans or projects may only proceed if the assessment concludes they will not adversely affect the integrity of the site or, notwithstanding a negative assessment, there are no alternative solutions, and they must proceed for imperative reasons of overriding public interest […].	considered relevant for an Evidence Plan to be produced for the proposed scheme.
4.17 (Alternatives)	Applicants should comply with all legal requirements, and any policy requirements set out in this NPS, on the assessment of alternatives. For example, current requirements include: • The Infrastructure Planning (Environmental Impact Assessment) 2017 Regulations requires projects with significant environmental effects to include an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects • There may also be other specific legal requirements for the consideration of alternatives, for example, under the Conservation of Habitats and Species Regulations 2017 (as amended) and Water Environment (Water Framework Directive) (England and Wales) Regulations 201778 • There may also be policy requirements in this NPS, for example the flood risk sequential test and the assessment of alternatives for developments in National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB) - where there is a policy or legal requirement to consider	Chapter 3: Assessment of alternatives, of the ES [APP-070] sets out the main alternatives considered by the Applicant and how the preferred option was determined through consideration of environmental effects at different stages in the design development process. This is in line with the requirements of the EIA Directive. The Consultation Report [APP-045] also sets out the options that the public were consulted on. A Detailed Water Environment Regulations (WFD Regulations) Compliance Assessment has been carried out and is presented in Appendix 14.2 of the ES [APP-159]. It shows compliance for all designated water bodies assessed, so no consideration of WFD alternatives is required. A Habitats Regulations Assessment (HRA) has been carried out and is presented in the Habitats Regulations Assessment No Significant Effects Report [APP-201]. It concludes that no likely significant effects on any sites within the National Site Network are anticipated, when considered alone or in combination with other plans or projects. Therefore, no consideration of alternatives is required.

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	alternatives, the applicant should describe the alternatives considered in compliance with these requirements and in a proportionate manner.	A flood risk Sequential Test has been carried out and is reported within Appendix 14.5: Flood Risk Assessment, of the ES [APP-162]. Subsequently, an Exception Test was required, the results of which show that the proposed scheme passes the requirements of the test. The proposed scheme is not located within or near any National Park, the Broads or any Areas of Outstanding Natural Beauty (AONB). Therefore, no alternatives assessment relating to these features is required.
4.18	National road or rail schemes that have been identified in relevant Road or Rail Investment Strategies will have been subject to an options appraisal process where relevant in line with existing Transport Appraisal Guidance, and proportionate consideration of alternatives will have been undertaken as part of the investment decision making process. The options appraisal may include other viable options for achieving the objectives of the project, including (where appropriate) other modes of travel, regulation, or other ways of influencing behaviour in line with Department for Transport guidance. The Examining Authority and the Secretary of State should satisfy themselves that the options appraisal process has been undertaken.	The proposed scheme is identified in both RIS1 (2015–2020) and RIS2 (2020–2025). Therefore, option-testing does not need to be considered by the Examining Authority or the decision maker as this assessment has already been undertaken. Design options considered and appraised as part of the proposed scheme's development process are presented in Chapter 3: Assessment of alternatives, of the ES [APP-070] and Section 3.2 of the CftS [APP-249]. The main development stages included the following: • Initial options identification, assessment and sifting • Options development and shortlisting • Assessment of shortlisted options to identify viable options for consultation • Consultation and option selection • Preferred Route Announcement • Design development for statutory consultation

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		Continued design development post statutory consultation
4.20 (Biodiversity net gain)	Biodiversity net gain is an approach to development that delivers measurable improvements for biodiversity by creating or enhancing habitats in association with developments. Applicants should therefore not just look to mitigate direct harms, but also identify and deliver appropriate opportunities for nature recovery and wider environmental opportunities for enhancements by providing net gains for biodiversity.	The Applicant has sought to maximise biodiversity delivery, with the proposed scheme forecasting an overall net gain of 25% for habitats, 36% for hedgerows and 157% for rivers (Table 9.32 of Chapter 9 Biodiversity [APP-076]) on-site post-construction. This includes habitat retention, creation and enhancement. One example of seeking enhancement opportunities relates to hedgerows, whereby a detailed assessment identified 45 hedgerows across the proposed scheme with potential for enhancement. The aim would therefore be to increase their overall condition, with the added benefit of improving diversity for the species they support and connectivity across the landscape (paragraph 9.10.121 of Chapter 9 [APP-076]). Full details of proposed enhancements are provided in Section 9.10 of Chapter 9 [APP-076].
4.21	Applicants should use the most appropriate version of the Department of Environment, Food and Rural Affairs (Defra) biodiversity metric (as advised by Defra) to calculate their biodiversity baseline and inform their biodiversity net gain outcomes, and to present this data as part of their application. Biodiversity net gain should be applied in conjunction with the mitigation hierarchy and does not change or replace existing environmental obligations.	Biodiversity Net Gain (BNG) for the proposed scheme has been calculated using Natural England's Biodiversity Metric 3.0 Calculation Tool, which was the latest version of the metric available at the time (Appendix 9.14 Biodiversity Net Gain Report [APP-138]). This is an updated version of the original Defra Biodiversity Metric. It is noted that the Biodiversity Metric 3.1 has since been released (April 2022). This tool will be considered for future metric calculations.
4.22	Biodiversity net gain can be delivered onsite or wholly or partially off-site and should also be set out within the application for development consent. When delivering	As per Appendix 19.4 Biodiversity Net Gain of the ES [APP-138] and shown in Table 3, b the baseline for the proposed scheme was assessed on-site and would be delivered on-site

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	biodiversity net gain off-site, developments should do this in a manner that best contributes to the achievement of relevant wider strategic outcomes, for example by increasing habitat connectivity or enhancing other ecosystem service outcomes. Reference should be made to any Local Nature Recovery Strategy (which should be the primary reference point for those delivering biodiversity net gain off-site) and other relevant national or local plans and strategies, such as green infrastructure strategies, used to inform Biodiversity net gain delivery.	and therefore no off-site mitigation or compensation is proposed. Design principles which consider green infrastructure objectives to reduce significant effects on green infrastructure assets are presented in the Design Principles document [APP-280] and cover multiple aspects relevant to green infrastructure, including biodiversity. The Environmental Masterplan [APP-086 - APP-088] visually presents the proposed onsite biodiversity net gain.
4.24 (Criteria for good design for national network infrastructure)	Applicants should include design as an integral consideration from the outset of a proposal. Applying good design to national network projects should not be limited to general aesthetics. High quality and inclusive design goes far beyond aesthetic considerations. It demonstrates an understanding of context, local needs, history and culture, enhances local landscape character and is adaptable to future needs and technologies. The National Infrastructure Design Principles describes good design as: • a key aspect of sustainable development. It includes opportunities to enable decarbonisation, incorporates flexibility, and builds resilience against climate change. The functionality of projects, including fitness for purpose, resilience and sustainability, is equally important. • helping to improve the quality of life for local communities. It promotes inclusion, cohesion and increases accessibility. It creates safe spaces with clean air that improve health and wellbeing.	The proposed scheme has been subject to an iterative design process from the outset. The CftS [APP-249] sets out how the proposed scheme's design has evolved, while Chapter 3: Assessment of alternatives, of the ES [APP-070] describes the other options considered. Measures which have been embedded within the design of the proposed scheme to reduce greenhouse gas emissions and improve the vulnerability of the proposed scheme to future changes in climate are described in Section 15.10 of Chapter 15: Climate [APP-082]. WCH provisions which will promote inclusion, cohesion and increase accessibility are detailed in paragraph 5.1.4 of the Design & Access Statement [APP-268]. The proposed scheme's design has been informed by analysis of existing landscape and visual constraints, iterative impact assessments and mitigation proposals, and taking account of stakeholder input. Efficient consumption and use of material resources, and the controlled production and disposal of waste during construction of the proposed scheme

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	• giving places a strong sense of identity, creating a sense of place, connecting communities, addressing community severance and integrating into its surroundings. It makes a positive contribution to local landscapes within and beyond the project boundary. Good design enhances local culture and character and supports local ecology, delivering net biodiversity gain, while protecting wildlife corridors and irreplaceable natural assets and habitats. • adding value by defining issues clearly from the outset. Good design also finds opportunities to add value beyond the main purpose of the infrastructure to consider the wider benefits savings on cost, the environment, materials and space. It is efficient in the use of natural resources, sustainable materials and energy used in construction.	have also been considered in Chapter 11: Material Assets and Waste [APP-078]. Design, mitigation and enhancement measures are described in Chapter 8: Landscape and visual, of the ES [APP-075]. Chapter 2: The proposed scheme, of the ES [APP-069] also explains that the proposed scheme has been designed in accordance with the standards set out in the Design Manual for Roads and Bridges (DMRB) and National Highways' safety governance procedures. The Design Principles [REP2-006] explains that the proposed scheme has been informed by the 10 principles for good design as set out in National Highways' The Road to Good Design. Sustainable infrastructure that is sensitive to place, efficient use of natural resources and energy used in construction, and good design aesthetics are all embedded within the proposed scheme's design principles, which are discussed in Section 1.4 of the Design Principles [REP2-006]. During construction phase of the proposed scheme the Energy and Resource Plan [APP-191] which is committed to in the Register of Environmental Actions and Commitments (REAC) [APP-185] Ref. No. GN1 would be used with the aim of reducing the use of energy and resources during construction. The Sustainable Procurement Plan captured in the Register of Environmental Actions and Commitments (REAC) [APP-185] Ref. No. MW2. Table 2.11 provides a summary of the types of construction materials and products to be consumed on the proposed scheme that are likely to hold certification to a recognised responsible sourcing standard. Chapter 11 of the Environmental Statement paragraph 11.10.15 details Modern Methods of Construction, for

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		example Design for offsite construction: maximising the use of prefabricated structures and components, encouraging a process of assembly rather than construction. Implementing Design for Resource Efficiency Principles is also captured in the Register of Environmental Actions and Commitments (REAC) [APP-185] Ref. No. MW1.
4.25	A good design should meet the principal objectives of the scheme by applying the mitigation hierarchy to avoid, eliminate or substantially mitigate the identified problems and existing adverse impacts, by improving operational conditions, simultaneously minimising adverse impacts and contributing to the conservation and enhancement of the natural, built and historic environment. A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable, taking into economic, social and environmental impacts.	The CftS [APP-249] discusses the expected improvement the proposed scheme will provide to the local and regional road network. The junction and link road capacity has been designed to provide an acceptable level of service for at least 15 years after the proposed scheme is constructed. The proposed scheme has been subject to an iterative design process, detailed in Section 3 of the CftS [APP-249], that has sought to mitigate adverse impacts as they are identified. Measures such as sensitive route alignment, materials and waste reduction, and improved connectivity have been incorporated into the design during development and are presented within Chapter 3: Assessment of alternatives, of the ES [APP-070]. Appropriate management strategies are detailed in the REAC within the first iteration of the EMP [APP-185].
4.26	In light of the above, scheme design will be a material consideration in decision making. The Secretary of State needs to be satisfied that national networks infrastructure projects are sustainable, having regard to appropriate industry good design guidance, and the applicant has considered, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics	The Design Principles [REP2-006] sets out the proposed scheme's response to the Road to Good Design principles, demonstrating the proposed scheme's approach to sustainable, aesthetically sensitive, durable, adaptable and resilient design. The table below summarises the relationship between the Road to Good Design principles and acknowledges the factors detailed in paragraph 4.32 of the

<table>
<tr><th>Draft NNNPS paragraph number</th><th>Requirement of the Draft NNNPS</th><th>Compliance with the Draft NNNPS</th></tr>
<tr><td></td><td>(including the scheme’s contribution to the quality of the area in which it would be located).</td><td>NPSNN. See the Design Principles [REP2-006] for further information on the Design Principles.
<table>
<tr><th>4.32 factor</th><th>Road to Good Design principle</th></tr>
<tr><td>Sustainable</td><td>5. Good road design is restrained
6. Good road design is environmentally sustainable
9. Good road design is collaborative</td></tr>
<tr><td>Aesthetically sensitive</td><td>4. Good road design fits in context
5. Good road design is restrained</td></tr>
<tr><td>Durable</td><td>7. Good road design is thorough
10. Good road design is long-lasting</td></tr>
<tr><td>Adaptable</td><td>8. Good road design is innovative</td></tr>
<tr><td>Resilient</td><td>1. Good road design makes roads safe and useful
2. Good road design is inclusive
3. Good road design makes roads understandable</td></tr>
</table></td></tr>
<tr><td>4.27</td><td>Applicants should have regard to the National Design Guidance, National Model Design Code, Local Nature Recovery Strategies, Local Air Quality Plans, the purposes of National Parks, Areas of Outstanding Natural Beauty, the Broads and any local design codes.</td><td>The proposed scheme does not affect national landscape designations including Areas of Outstanding Natural Beauty and the Broads.
With regards to design codes, guidance and policies, the Design Principles [REP2-006] developed for the proposed scheme have been used to inform development of the proposed scheme design, including the Environmental</td></tr>
</table>

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		Masterplan [APP-086 - APP-088]. The Materials & Landscaping Palette [REP2-033] sets out how the design principles will be translated into physical form, by providing visual indicative examples of materials and landscaping palettes. These design principles have taken national and local policy and guidance into consideration, including relevant local design codes. Section 1.3 of the Design Principles document [APP-280] refers to the relevant guidance. The design principles [REP2-006] and the proposed scheme as illustrated on the Environmental Masterplan [APP-086, - APP-088] respond to the objectives and principles set out in the National Design Guide and the National Model Design Code where relevant. At the time of writing the Environmental Statement, the Environment Act 2021 was in the process of being drafted (to be submitted to Parliament by 31 October 2022). Under this Act, Local Nature Recovery Strategies (LNRS) are listed amongst provisions to be brought into force at future dates, and therefore were not legally required to be considered in the assessment for the proposed scheme (Section 9.4 of Chapter 9 Biodiversity [APP-076]). The Essex Local Nature Partnership are in the process of developing the relevant LNRS for Essex, however, this does not yet exist and therefore has not been used to inform the biodiversity assessment for the proposed scheme.
4.28	In their application, applicants should be able to demonstrate how the design process was conducted, effective engagement with communities and stakeholders	Chapter 3 of the Design & Access Statement [APP-268] sets out how the design process was conducted and how the proposed design evolved, in particular showing how feedback

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	and how the proposed design evolved to maximise design outcomes. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected with a clear articulation of its benefits. The Examining Authority and Secretary of State should consider the ultimate purpose of the infrastructure and the operational, safety and security requirements which the design must satisfy.	from consultation and stakeholder meetings has shaped the proposed scheme. Annex N of the Consultation Report [APP-062] details all responses received at statutory consultation and the Applicant's response to each point raised. Engagement included workshops, meetings and group events with stakeholders (including landowners and local authorities) which included two non-statutory consultations in January - March 2017 and October - December 2019, statutory consultation in June - August 2021 and supplementary statutory consultation in November - December 2021. Chapter 3: Assessment of Alternatives of the ES [APP-070] assesses each design option considered and sets out the reasons why the favoured choice was selected.
4.29	Applicants should consider taking independent professional advice on the design aspects of a proposal. A project board level design champion could be appointed, and a representative design panel used to maximise the value provided by the infrastructure. Also, the Design Council can be asked to provide design review for NSIPs and applicants are encouraged to use this service.	The Applicant held two design workshops with the Design Council on the 10th and 11th February 2021. Following the workshops, the Design Council provided the proposed scheme with constructive comments and opportunities which are discussed in paragraph 3.4.2 of the Design & Access Statement [APP-268]. The Applicant met with the Design Council again in November 2022 to present the finalised design and use the opportunity to discuss detailed design elements including materials.
4.35 (Climate change adaptation)	In preparing measures to support climate change, adaptation applicants should consider whether nature-based solutions could provide a basis for such adaptation. In addition to avoiding further greenhouse gas emissions when compared with some more traditional adaptation approaches, nature-based solutions can also result in	The proposed scheme design has considered a variety of options for the mitigation of potential surface water drainage and flood risk impacts. As detailed in Section 15.10 of Chapter 15: Climate of the ES [APP-082], where practicable, sustainable drainage systems (SuDS), flow conveyance and attenuation features (e.g. attenuation ponds, swales, filter

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	biodiversity benefits as well as increasing absorption of carbon dioxide from the atmosphere (see also paragraphs 5.170 to 5.194 on the role of green infrastructure).	drains, etc.) have been used to reduce the impact of surface water runoff being discharged on the natural environment, thereby reducing flood risk and improving water quality. Further information is included in the Surface Water Drainage Strategy [APP-174].
4.36	New national networks infrastructure will typically be a long-term investment and will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the direct (e.g. flooding of road or rail infrastructure) and indirect (e.g. flooding of other parts of the road or rail network) impacts of climate change when planning the location, design, build, operation and maintenance. The Secretary of State will need information on how the proposal will take account of the projected impacts of climate change and remain resilient.	The proposed scheme design has been developed taking into account the potential implications of climate change such as resilience of the proposed scheme to flooding and high temperatures. The EIA process has considered the effects of possible future changes in climate over a 60-year appraisal period. The potential impacts of these climatic changes on the proposed scheme have been assessed in Chapter 15: Climate, of the ES [APP-082]. The drainage design has been developed taking into account future potential increases in flooding, while the impacts have been considered in Appendix 14.5: Flood Risk Assessment, of the ES [APP-162]. The guidance on climate change allowances has been used (Environment Agency (2021) Flood risk assessments: climate change allowances). Mitigation measures with regards to climate change are secured in the REAC within the first iteration of the EMP [APP-185] and the DAS [APP-268].
4.37	The Secretary of State should be satisfied that applications for new national networks infrastructure have taken into account the potential direct and indirect impacts of climate change. This should include using the latest UK Climate Projections and associated research and expert guidance	The UKCP18 projections are the latest available and have been used to understand possible changes in climate over the lifetime of the proposed scheme (i.e., up to the 2080s), in accordance with paragraphs 3.31 and 3.32 of DMRB LA 114 Climate. Based on these probable changes in climate,

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	(such as the Environment Agency's Climate Change Allowances for Flood Risk Assessments applicable at the time the environmental assessment was prepared as part of their Development Consent Order application, to ensure they have identified mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure, with a high level of climate resilience built-in from the outset. The applicant should also be able to demonstrate how proposals can be adapted over their predicted lifetimes to remain resilient to a credible maximum climate change scenario. Should a revised set of UK Climate Projections or associated research be applicable after the preparation of the environmental assessment, the Examining Authority should consider whether they need to request further information from the applicant.	mitigation measures embedded within the design of the proposed scheme have been identified and presented within Chapter 15: Climate, of the ES [APP-082]. With regards to flood risk, Government guidance on climate change consideration for fluvial and surface water flows has been followed. The details of the methodology and assessment together with mitigation and adaptation measures are included in Appendix 14.5: Flood Risk Assessment (FRA), of the ES [APP-162].
4.38	The Secretary of State should be satisfied that there are no features of the design of new national networks infrastructure critical to its safety or operation which may be seriously affected by more radical changes to the climate. Beyond that projected in the latest set of UK climate projections and taking account of the latest credible scientific evidence on, for example, sea level rise. The Secretary of State should also be satisfied that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime.	DMRB LA 114 states that climate assessments should use the H++ climate scenarios to test the sensitivity of vulnerable safety-critical features, to ensure that such features would not be affected by more radical changes to the climate beyond that projected in the latest set of UK Climate Projections. The H++ scenarios cover heat waves, cold snaps, low and high rainfall, droughts, floods and windstorms. However, of these climate related events, the greatest risks to safety critical features (e.g. structures) are considered likely to be those associated with flooding. The H++ scenarios were developed using a set of climate change projections which have since been superseded (i.e. UKCP09); however, the Met Office does not propose to update these scenarios using UKCP18. While the H++ climate scenarios are still considered valid high-end scenarios, the climate change allowances which

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		have been considered within Chapter 14: Road drainage and the water environment, of the ES [APP-081] are very similar to those for H++. Where those allowances are below the appropriate H++ allowance for the watercourse, there is no realistic prospect of the additional flows causing significant flood risk to the proposed scheme. As such, it is considered that the proposed scheme has been tested against and designed to account for more extreme changes in climate (specifically flooding). As discussed in Chapter 14: Road drainage and the water environment, consideration has also been given to potential changes to the risk of flooding should more radical changes in climate occur. This analysis identified no locations where the maximum credible climate change allowance published at that time (i.e., a 65% climate change allowance for peak river flow) would result in a risk of flooding to the carriageway due to the freeboard (i.e., the difference between the design flood level and the soffit level of a bridge/culvert) at all watercourse crossings. Since this analysis was undertaken, however, the recommended maximum credible climate change allowance for peak river flow has been increased from 65% to 72%. As there is significant freeboard for each of the main rivers considered, and generally small modelled changes in flood depth due to the additional allowances for climate change considered, the risk of flooding to the proposed scheme with even a 72% climate change allowance is considered low.
4.39	Any adaptation measures should be based on the latest set of UK Climate Projections, the government's latest UK Climate Change Risk Assessment, when available and in consultation with the Environment Agency's Climate	The UKCP18 projections are the latest available and have been used to understand possible changes in climate over the lifetime of the proposed scheme (i.e. up to the 2080s), in accordance with paragraphs 3.31 and 3.32 of DMRB LA 114

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	Change Allowances for Flood Risk Assessments. Any adaptation measures must themselves also be assessed as part of any environmental assessment, which should set out how and where such measures are proposed to be secured.	Climate. Based on these probable changes in climate, mitigation measures embedded within the design of the proposed scheme have been identified and presented within Chapter 15: Climate, of the ES [APP-082]. With regards to flood risk, Government guidance on climate change consideration for fluvial and surface water flows has been followed. The details of the methodology and assessment together with mitigation and adaptation measures are included in Appendix 14.5: Flood Risk Assessment (FRA), of the ES [APP-162].
4.43 (Pollution control and other environmental regulatory regimes)	Issues relating to discharges or emissions from a proposed project which lead to other direct and indirect impacts on air quality, water quality and land quality, or which include noise, light and vibration, may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes. Relevant permissions will need to be obtained for any activities within the development that are regulated under those regimes before the activities can be operated.	Operational emissions from road schemes do not fall within environmental regulatory regimes and therefore does not require permitting.
4.44 – 4.45	Pollution from industrial sources in England and Wales is controlled through the Environmental Permitting (England and Wales) Regulations 2016 (the Environmental Permitting Regulations). Some projects covered by this NPS may be subject to the Environmental Permitting Regulations regime, which also incorporates operational waste management requirements for certain activities. When an applicant applies for an Environmental Permit, the relevant regulator (usually the Environment Agency but sometimes the local authority) requires that the application	The Consents, Licences and Agreements Position Statement [REP3-007] sets out National Highways' intended strategy for obtaining the consents and associated agreements needed to implement the proposed scheme. It details the applications that will be made on behalf of the proposed scheme to the Environment Agency and Essex County Council as the Lead Local Flood Authority. Consultation undertaken with the Environment Agency is discussed in response to paragraph 4.46 of the draft NNNPS below.

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	demonstrates that processes are in place to meet all relevant Environmental Permit requirements. The Environmental Permitting Regulations regime requires industrial facilities to possess an Environmental Permit and to meet limits on allowable emissions to operate. Larger industrial facilities undertaking specific types of activity are also required to use Best Available Techniques to reduce emissions to air, water, and land. In considering the impacts of the project, including residual impacts, the Secretary of State may wish to consult the regulator on any management plans that would be included in an Environmental Permit application.	
4.46	Applicants are encouraged to begin pre-application discussions with relevant regulators, such as the Environment Agency and the Marine Management Organisation, as early as possible. Where applicants wish to parallel track Development Consent Order and Environmental Permit applications, applicants should start work towards submitting the permit application at least 6 months prior to the submission of an application for a Development Consent Order. This will help ensure that applications take account of all relevant environmental considerations and that the relevant regulators are able to provide timely advice and assurance to the Examining Authority.	Discussions have taken place during development of the proposed scheme regarding likely requirements for environmental permits with the Environment Agency, and regarding ordinary watercourse consents with Essex County Council as the Lead Local Flood Authority. This is documented in Chapter 14: Road drainage and the water environment, of the ES [APP-081]. Statements of Common Ground between the Applicant and the Environment Agency [REP2-008] and Essex County Council [REP2-018] were submitted at Deadline 2, detail the applications for consents and permits that would be made between the Applicant and respective parties.
4.49	The Secretary of State should be satisfied that development consent can be granted taking full account of environmental impacts. Working in close cooperation with the Environment Agency and/or the pollution control	The impacts of the proposed scheme are considered throughout the ES [APP-068 – APP-085]. The first iteration of the EMP [APP-184] outlines the control of processes, emissions and discharges through the construction process.

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	authority, and other relevant bodies, such as the Marine Management Organisation, the Statutory Nature Conservation Bodies, Drainage Boards, and water and sewerage undertakers, the Secretary of State should be satisfied early in the process and through parallel tracking of the Development Consent Order and Environmental Permits, before consenting any potentially polluting developments, that: • the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework • the effects of existing sources of pollution in and around the site are not such that the cumulative effects of pollution when the proposed development is added would make that development unacceptable, particularly in relation to statutory environmental quality limits	Liaison is ongoing with the Environment Agency, Essex County Council and Natural England to ensure that they are satisfied with good practice measures currently in place in the REAC within the EMP [APP-185], the Habitats Regulations Assessment No Significant Effects Report [APP-201] and the appendices associated with Chapter 9: Biodiversity [APP-076] and Chapter 14: Road drainage and the water environment, of the ES [APP-081]. Chapter 16: Cumulative effects assessment, of the ES [APP-083] assesses that no cumulative effects are predicted to arise in relation to pollution as a result of nearby planned developments.
4.53 (Common law nuisance and statutory nuisance)	It is very important that, during the examination of a nationally significant infrastructure project, possible sources of nuisance under section 79(1) of the 1990 Act, and how they may be mitigated or limited, are considered by the Examining Authority so they can recommend appropriate requirements that the Secretary of State might include in any subsequent order granting development consent. More information on the consideration of possible sources of nuisance is at paragraphs 5.111 to 5.119.	The Explanatory Memorandum [REP3-005] and the draft DCO [REP3-002] discusses statutory nuisance claims and provides a defence to those nuisances which may be of relevance to the proposed scheme. These are further detailed in the Statement of Statutory Nuisances provided as part of the DCO application [APP-202].
4.55 (Safety, Road Safety)	Highways developments provide an opportunity to make significant safety improvements and significant incident reduction benefits when they are well designed. Some developments may have safety as a key objective, but	The proposed scheme's set Operational Safety Objectives of an improvement in road safety outcomes is quantified as a 10% reduction in both the frequency (injuries per annum) and rate (injuries per mile travelled). Each measure is quantified

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	even where safety is not the main aim of a development, the opportunity should be taken to improve safety, including introducing the most modern and effective safety measures where proportionate. Consideration should also be given to wider transport objectives, including expanding active travel, creating safe and attractive walking, wheeling and cycling environments, enabling modal shift to sustainable transport options including public transport and decarbonisation. In developing roads schemes the applicant should have due regard to the needs of drivers and the imperative to ensure driver safety. Schemes should be developed with a mindset that accounts for the need for drivers to rest, particularly Heavy Good Vehicle drivers who need safe and secure roadside facilities that also cater for their welfare needs including the appropriate provision of high-quality washrooms, a catering offer and access to alternative fuel and digital infrastructure.	as Fatal and Weighted Injury, an approach which gives the highest priority to prevention of the highest severity of harm to road users. Safety is integrated into the design through National Highways safety governance processes including Safety Control Review Group (SCRG); National Safety Control Review Group (NSCRG) and Operations Technical Leadership Group (OpsTLG) and Road Safety Audit to National Highways Standard GG 119. Active Travel is promoted through Walking Cycling Horse-riding (WCH) Assessment and Review Processes (National Highways standard GG 142) and all design proposals are subject to Road Safety Audit. The Design Reference Document for the project is National Highways Standard GD 300, which requires active travel to be at least as good and preferably better than before the scheme is delivered. GD 300 states (para E/3.10) ‘’*The WCH safety objective shall be to provide a significant contribution towards the Overseeing Organisation’s key performance indicators (KPI) and performance indicators (PI) for WCH by delivering quality provision that includes the removal of severance on routes and unlocks latent demand by WCH”.* The proposed scheme includes approximately 30km of new and improved active travel facilities. All of the facilities will be compliant with Local Transport Note (LTN) 1/20 (the design guidance for active travel infrastructure), including bringing 3.5km of the local road network’s existing facilities up to LTN 1/20 compliance. Heavy Good Vehicles rest facilities are also addressed by GD 300, because the design approach removes parking laybys

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		for safety reasons to achieve the objective of a road that is "*as well designed as motorways and which are able to offer the same standard of journey to users"* (GD 300 Introduction) On the A12, rest facilities are in place near junction 19 and to the east at junction 28.
4.56	The applicant should undertake an objective assessment of the impact of the proposed development on safety including the impact of any mitigation measures. This should use the methodology outlined in the guidance from Department for Transport's Transport Appraisal Guidance and from National Highways. They should also put in place arrangements for undertaking the road safety audit process and ensuring their implementation. Road safety audits are a mandatory requirement for highway improvement schemes in the UK (including motorways). Road safety audits are intended to ensure that operational road safety experience is applied during the design and construction process so that the number and severity of collisions is as low as is reasonably practicable.	Section 5.6 of the CftS [APP-249] provides an assessment of the impact of the proposed scheme on road safety, in accordance with TAG and National Highways guidance. The proposed scheme's safety objectives and safety governance requirements are set out in the National Highways safety governance documents. These include addressing existing operational safety issues and mitigating worker and user safety impacts associated with the operation and maintenance of the proposed scheme.
4.57	The applicant should be able to demonstrate that their scheme is consistent with the national Strategic Framework for Road Safety and with the National Highways Safety Framework for the Strategic Road Network. Applicants will wish to show that they have taken all steps that are reasonably required to: • minimise the risk of death and injury arising from their development • contribute to an overall reduction in road casualties	Home Safe and Well sets out National Highways' aspirational approach to road safety – that *No one should be harmed when travelling or working on the strategic road network*. From an early stage of proposed scheme, enhanced operational safety measures were proposed to secure operational safety in line with this strategy. This underpins the application of the design reference document GD 300, under which a package of measures is used to reduce both the likely number of incidents that may result in road traffic collisions, and the potential severity of those collisions.

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	• contribute to an overall reduction in the number of unplanned incidents • contribute to improvements in road safety for walkers and cyclists	These measures include automatic queue protection using Variable Mandatory Speed Limit (MVSL) and lane control signals. These signals can set reduced speed limits or through a red 'X' can indicate closed lanes for worker and road users safety. Where it has been necessary to depart from design standards within the DMRB, a full safety risk assessment has been carried out with approval from National Highways recording road worker and user safety have been evaluated and optimised through the design.. National Highways Project Control Framework products have been produced which support the Home Safe and Well approach and the Stage Gate Assessment Review. These set out current safety performance, challenges that the proposed scheme presents, the safety objectives, and the safety management system that has been put in place to give confidence that safety objectives will be met. A WCH assessment has been produced and reviewed at each design stage to ensure the WCH routes proposed are enhanced. In addition, the design has been carried out in accordance with Local Transport Note 1/20 Cycle Infrastructure Design as far as feasibly possible. This standard is applicable to the elements of the proposed scheme that affect the local highway network, including all WCH provision as these users would no longer be routed along the A12.
4.58	They will also wish to demonstrate that:	The proposed scheme has an integrated Operational Safety Team which ensure the safety implications as well as

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	• they have considered the safety implications of their project from the outset • they are putting in place rigorous processes for monitoring and evaluating safety.	monitoring and evaluating safety decisions are implemented. These are the number one imperative for the proposed scheme in line with National Highways principles. The safety implications of the proposed scheme are set out in the safety governance documentation and supplemented by the attendance of the Operational Safety Team at all safety governance reviews as part of the National Highways safety governance framework. These processes are rigorous and address opportunities and challenges that the proposed scheme presents, and how these have been addressed.
4.66 – 4.67 (Security considerations)	Government policy is to ensure that, where possible, proportionate protective security measures are designed into new infrastructure projects at an early stage of in the project development. Where applications for development consent for infrastructure covered by this NPS relate to potentially critical infrastructure, there may be national security considerations. Where national security implications have been identified, the applicant should consult with the relevant security experts from the Centre for Protection of National Infrastructure and the Department for Transport, to ensure that security measures have been adequately considered in the design process and that adequate consideration has been given to the management of security risks. For some, this is a legal requirement as per section 119 of the Railways Act 1993. If the Centre for Protection of National Infrastructure and the Department for Transport (as appropriate) are satisfied that security issues have been adequately addressed in the project when the application is submitted to the Secretary of State, it will provide	No national security implications have been identified for the proposed scheme and hence CPNI have not been consulted.

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	confirmation of this to the Secretary of State. The Secretary of State should not need to give further consideration to the details of the security measures in its examination.	
4.71 (Health)	As described in the relevant sections of this NPS, where the proposed project has an effect on human beings, the applicant should assess these effects, identifying any potential adverse health impacts, and identify measures to avoid, reduce or compensate for adverse health impacts as appropriate. Enhancement opportunities should be identified by promoting local improvements for active travel and horse riders driven by the principles of good design to create safe and attractive routes to encourage health and wellbeing; this includes potential impacts on vulnerable groups within society, i.e. those groups within society which may be differentially impacted by a development compared to wider society as a whole.	Opportunities to limit adverse impacts on health and maximise benefits have been identified within Chapter 13: Population and human health, of the ES [APP-080]. This chapter also references other relevant aspect chapters, including Chapter 6: Air quality [APP-073], Chapter 8: Landscape and visual [APP-075], Chapter 12: Noise and vibration, and Chapter 15: Climate, of the ES [APP-082], which include impacts on human health. Examples of mitigation contained in the REAC within the first iteration of the EMP [APP-185] include: • use of best practice construction measures, including careful scheduling of road and footpath closures/diversions • maintaining access along routes used by WCH during construction • control of noise, vibration and dust during construction • air quality improvements • new and improved WCH provision • the use of low noise surfacing, bunds and barriers to mitigate adverse noise impacts

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		• setting the alignment into the existing landscape with the addition of planting to screen views and limit adverse visual impacts The assessment of impacts against determinants of health scoped into the assessment is provided in Section 13.11 of Chapter 13: Population and Health of the ES [APP-080]. 'Human health' considers the potential impacts on each identified determinant from all relevant pathways (including, but not limited to, changes in air quality and noise, land-take, vegetation removal, disruption in access or amenity to routes used by WCH, access to community facilities and assets, and employment opportunities). Chapter 16: Cumulative effects assessment, of the ES [APP-083], assesses the potential for cumulative impacts on health which might arise in combination with other developments.
4.73 (Accessibility)	The government's strategy for achieving equal access for disabled people is set out in the Inclusive Transport Strategy. The government expects applicants to improve access, wherever possible, on and around the national networks by designing and delivering schemes that take account of the accessibility requirements of all those who use, or are affected by, national networks infrastructure, including disabled users.	As stated in Section 13.17 of Chapter 13: Population & Health of the ES [APP-080], for users on the A12, the improvements provides an enhanced level of safety that benefits all but especially the more vulnerable users, through for example detection technology and signaling that enables Control Centre staff to reduce speed limits and close lanes to protect a stranded vehicle. On the local road network affected by the proposed scheme, the design provides new and improves facilities on bridges and road crossings that better meet the needs of users with disabilities, including visual, mobility and/or neurological conditions.

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		Chapter 5 of the Design and Access Statement [APP-268] and Appendix A: WCH routes [APP-269] present and details the WCH provision and increased accessibility the proposed scheme will provide.
4.74	Applicants must comply with any obligations under the Equality Act 2010. Public authority applicants are reminded of their duty to promote equality and to consider the needs of disabled people as part of their normal practice. The Public Sector Equality Duty requires that public authorities have due regard to the need to: • eliminate discrimination, harassment, victimisation and any other conduct prohibited by the Equality Act • advance equality of opportunity between people who share a protected characteristic and people who do not share it • foster good relations between people who share a protected characteristic and people who do not share it.	The design of the proposed scheme has been developed in accordance with the Equalities Act 2010 and the needs of disabled people. The Equality Impact Assessment [APP-270] discusses how the requirements of the Equalities Act 2010 have been embedded in the proposed scheme's development, including design, communication and engagement strategy, and mitigation strategies.
4.76	As set out in paragraphs 4.5 to 4.6, applicants for road and rail projects (excluding SRFIs) will normally be supported by a business case prepared in accordance with Transport Business Case guidance. This includes distributional analysis, including assessments stemming from the Equality Act public sector equality duty, where appropriate.	A business case has been prepared as part of the proposed scheme's development. A summary of the assessment used to inform the Economic Dimension of this business case is presented in Combined Modelling and Appraisal Report - Appendix E: Economic Appraisal Package - Appraisal Summary Table and Supporting Worksheets Report [APP-266]. A distributional analysis has been undertaken and is presented in Combined Modelling and Appraisal Report - Appendix F: Distributional Impact Report [APP-267].

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4.77	Applicants should demonstrate the following where relevant: • All reasonable opportunities to deliver improvements in accessibility on and to the existing national road network should be taken, including improvements for non-motorised users • Severance can be a problem in some locations; where appropriate, applicants should seek to deliver improvements that reduce community severance and improve accessibility • National Network infrastructure should incorporate good design, as expanded on in paragraphs 4.24 to 4.29, which includes improving accessibility of infrastructure for users and inclusive design.	Chapter 13: Population and human health, of the ES [APP-080] has identified and assessed where opportunities have been taken to address past severance, mitigate new potential impacts and improve accessibility through design. The population and human health assessment has found that there would be likely significant beneficial effects for walkers and cyclists in the communities of Boreham, Kelvedon, Feering, Inworth, Marks Tey, Copford and Easthorpe if the proposed scheme were implemented. WCH provisions which will promote inclusion, cohesion and increase accessibility are detailed in paragraph 5.1.4 of the Design & Access Statement [APP-268].

Table 1.2 Draft NNNPS Chapter 5

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5. Generic Impacts		
5.11 (Air quality and Emissions – Applicant's assessment)	Where a project is likely to have adverse effects on air quality and/or where a project could lead to a deterioration in air quality in an area or lead to a new area where air quality breaches any national air quality limits or statutory air quality objectives, the applicant should undertake an assessment as part of their Development Consent Order application.	Chapter 6: Air quality, of the ES [APP-073] presents the results of the assessment of the impacts of the proposed scheme on air quality, in accordance with DMRB LA 105.
5.12	The assessment should describe: • any air pollutant emissions, that would lead to a deterioration in air quality and their mitigation, distinguishing between the project stages, including construction and operation and taking account of emissions such as from any road traffic generated by the project • the predicted absolute emission levels of the proposed project after mitigation methods have been applied • existing air quality levels, how they are monitored and the relative change in air quality from existing levels • any potential impacts on nearby protected habitats from air pollutant emissions	Baseline air quality conditions are described in Section 6.8 of Chapter 6: Air quality, of the ES [APP-073] and Appendix 6.1: Air Quality Monitoring Results, of the ES [APP-100]. Modelled air pollutant concentrations in the opening year (2027) Do Minimum (without the proposed scheme) and Do Something (with the proposed scheme) scenarios are presented and discussed in Section 6.9 of Chapter 6 [APP-073] and Appendix 6.5: Air Quality Results, of the ES [APP-104]. In addition, the modelled results for the peak construction year (2025) are also presented and discussed in Section 6.9. Potential impacts, mitigation measures and the significance of residual effects, during both the construction and operational phases of the proposed scheme, are presented and discussed in Sections 6.9, 6.10 and 6.11, respectively, of Chapter 6 of the ES [APP-073].
5.13	Defra publishes future projections of UK air pollutant emissions based on evidence of future emissions, traffic	Emission factors derived from the Department for Environment, Food and Rural Affairs' (Defra's) Emission

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	and vehicle fleet. Projections are updated as the evidence base changes. The applicant's assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts. If the latest future projections do not reflect the latest available evidence base at the assessment stage, applicants should still provide an assessment using the latest future projections published by Defra. If an applicant believes they have robust additional supporting evidence that is likely to change the projected emissions, they should include this in their representations to the Examining Authority.	Factors Toolkit (EFT) (v10.0) (which contains the most recent projections up to 2030) have been used within the air quality assessment presented in Chapter 6: Air quality, of the ES [APP-073]. EFT (v11) has since been released but would have no implications for the air quality assessment owing to emission factors for NO_X and PM being identical up until 2030. The latest background pollutants maps and tools published on the Defra air quality assessment website were also used. No additional local fleet monitoring was undertaken in this assessment. Uncertainty in future fleet forecasts is addressed through modelling verification in Appendix 6.4: Verification of Dispersion Model Results, of the ES [APP-103] and by long-term trend adjustment factors discussed in Chapter 6: Air quality, of the ES [APP-073].
5.14 (Air quality and Emissions - Mitigation)	Mitigation measures may affect the project design, layout, construction, operation and/or may consist of measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to trap or better disperse emissions, and/or speed control. Applicants should routinely look for opportunities within the design of the proposed development to embed nature-based solutions, such as urban woodlands and trees to assist with pollutant reduction and dispersal along major transport corridors. In addition to avoiding further greenhouse gas emissions when compared with some more traditional approaches, nature-based solutions can	Embedded (or design) mitigation has been undertaken through close collaboration with the infrastructure design team to avoid or reduce environmental impacts owing to the proposed scheme design. These are outlined within Section 6.10, Chapter 6: Air quality, of the ES [APP-073]. As a consequence of the proposed scheme design, and the movement of strategic traffic to the new offline bypass sections (therefore moving vehicle emissions further from sensitive receptors) there has been air quality improvement for receptors alongside the existing A12 between junctions 22 and 23 (near Rivenhall End) and junctions 24 to junction 25 (Kelvedon to Marks Tey). Details of the design alternatives that have been considered, including the environmental factors which have influenced the

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	also result in biodiversity benefits as well as increasing absorption of carbon dioxide from the atmosphere (see also paragraphs 5.171 to 5.195 on the role of green infrastructure).	decision making are outlined in Chapter 3: Assessment of alternatives [APP-070]. There were no opportunities for enhancement specific to air quality identified in the air quality assessment, but where practicable the design has been refined to avoid impacts on the environment and to human health.
5.15 – 5.16	The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. In doing so the Secretary of State should have regard to the Air Quality Strategy or any successor to it and should consider relevant advice within Local Air Quality Management guidance. The proposed mitigation measures should ensure that the net impact of a project does not delay the point at which a zone will meet compliance timescales.	For the construction phase of the proposed scheme, the air quality assessment (Section 6.11, Chapter 6: Air quality, of the ES [APP-073]) concluded no significant effects resulting from construction dust with standard construction phase mitigation measures in place. These are included in the first iteration of the EMP Appendix A [APP-185]. The assessment of construction road vehicle exhaust emission impacts in accordance with the Design Manual for Roads and Bridges (DMRB) LA 105 guidance, concluded there are no significant effects to human health receptors or ecology receptors and that the proposed scheme would not interfere with the UK's reported ability to meet the EU Air Quality Directive Limit Value for NO_2 in the shortest possible time frame. Therefore, no mitigation is required. The assessment of operational road vehicle exhaust emission impacts also concluded no significant effects at human health receptors in accordance with the Design Manual for Roads and Bridges (DMRB) LA 105 guidance. No mitigation is therefore required. However, likely significant effects during operation of the proposed scheme are confirmed for ancient woodland habitats within ecological sites.

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		In accordance with the DMRB LA 105 guidance the determination of significance is considered by the competent biodiversity professional. The results are presented within Chapter 9: Biodiversity, of the ES [APP-076], where subsequent mitigation has been considered. The resultant confirmation of likely significant effects, triggered the development of Appendix 6.6: Project Air Quality Action Plan (PAQAP), of the ES [APP-105], where all mitigation measures have been considered. Mitigation measures are secured in the REAC within the first iteration of the EMP Appendix A [APP-185].
5.17	Many activities involving air emissions are subject to pollution control. The considerations set out in paragraphs 4.42 to 4.50 on the interface between planning and pollution control therefore apply.	Operational emissions from road schemes do not fall within environmental regulatory regimes and therefore does not require permitting.
5.18	The Secretary of State should give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area or leads to a new area where air quality breaches any national air quality limits or statutory air quality objectives. However, air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of national air quality limits or statutory air quality objectives.	Section 6.13 of Chapter 6: Air quality, of the ES [APP-073] concludes that the effect of the proposed scheme on air quality at human health receptors, during both the construction and operational phases, is not considered to be significant. However, the assessment identified likely significant effects at ecological receptors owing to an increase in nitrogen deposition, as outlined in Chapter 9: Biodiversity, of the ES [APP-076], where subsequent mitigation has been considered. Mitigation measures are secured in the REAC within the first iteration of the EMP [APP-185].
5.19 – 5.20 ((Air quality and	In all cases the Secretary of State must take account of any relevant statutory air quality limits or statutory air quality objectives. The Secretary of State should be	The Environmental Statement Chapter 6 Air Quality assessment [APP-073] outlines the UK Air Quality Standards against which the assessment is measured. The new

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Emissions – Decision Making)	content that the applicant has taken all reasonable steps to reduce emissions in the construction and operational stage of the development.	Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 are not applicable and have not been considered. Section 6.10 of the air quality assessment [APP-073] outlines the embedded mitigation considered as part of the scheme design. Standard mitigation is applied in accordance with industry best practice or legislative requirements to minimise emissions during construction. This is included within the first iteration of the Environmental Management Plan, Appendix A: Register of Environmental Actions and Commitments (REAC) [APP-185].
5.21 – 5.22	Any increase at all in air pollutant emissions is not a reason in itself to refuse development consent, though any deterioration in air quality should be given appropriate weight in coming to the decision. Where the increase in air pollutant emissions resulting from the proposed scheme would significantly impact the government's ability to comply with a statutory limit or statutory air quality objective, the Secretary of State should refuse consent.	The Environmental Statement Chapter 6 Air Quality assessment [APP-073] concluded no significant effects during the construction of the proposed scheme on human health or biodiversity from road traffic emissions or construction dust. During the proposed scheme's operation there is no predicted significant effect on human health and the proposed scheme would be unlikely to interfere with the UK's reported ability to meet the EU Limit Value for NO_2 in the shortest possible time. There is one significant effect predicted for nitrogen deposition at Perry's Wood (Local Wildlife Site (LWS). A Project Air Quality Action Plan (PAQAP) is provided in Appendix 6.6 Statutory and Non Statutory Nature Conservation Plans [APP-199]. Mitigation is considered to be unfeasible at this location. The conclusion from the competent biodiversity expert is to offset the impact by planting within the DCO Order Limits.

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5.23	The Secretary of State should refuse consent where, after taking into account mitigation, the air pollutant emissions resulting from the proposed scheme will either: • result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Standards Regulations 2010 becoming non-compliant • affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the Examining Authority at the examination.	The air quality assessment of construction and operational traffic impacts outlined in Section 6.9 of Chapter 6: Air quality, of the ES [APP-073] concluded that there were no exceedances of annual mean NO_2 concentrations at qualifying Pollutant Climate Mapping receptor locations owing to traffic emissions associated with the proposed scheme. The assessment of likely significant effects outlined in Section 6.11 of Chapter 6: Air quality, of the ES [APP-073] concluded the proposed scheme would be unlikely to interfere with the UK's reported ability to meet the EU Air Quality Directive Limit Value (transposed into UK law by the Air Quality Standards Regulations 2010) for NO_2 in the shortest possible time. As a consequence, in accordance with DMRB LA 105 criteria on significance, the effect of the proposed scheme on air quality at human health receptors and on compliance with EU Limit Values during operation and construction is considered to be not significant.
5.24	The Secretary of State should give positive weight to projects that embed nature based solutions to assist with pollutant reduction and dispersal along major transport corridors.	The assessment identified one significant effect predicted for nitrogen deposition at Perry's Wood (Local Wildlife Site (LWS) owing to an increase in N deposition, as outlined in Chapter 9: Biodiversity, of the Environmental Statement [APP-076]. This is included in reference BI16 within the first iteration of the Environmental Management Plan, Appendix A: Register of Environmental Actions and Commitments (REAC) [APP-185].

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5.29 (Carbon Emissions – Applicant's assessment)	A whole life carbon assessment should be used to measure greenhouse gas emissions at every stage of the proposed development to ensure that emissions are minimised as far as possible as we transition to net zero. This includes the construction, maintenance, operation and use of the asset across its entire lifecycle. This is critical at early stages of project planning, for example, the conception stage, because the ability to reduce whole life carbon emissions is increasingly more limited as the project passes through detailed design and enters construction.	In accordance with paragraphs 3.11 to 3.20 of DMRB LA 114, changes in greenhouse gas emissions associated with the construction, maintenance and operation of the proposed scheme have been estimated and compared to relevant UK carbon budgets to assess their significance (see Section 15.11 of Chapter 15 of the ES). Whilst a whole life carbon assessment was undertaken at the current stage (as reported within Chapter 15: Climate [APP-082]), whole life carbon assessments were not undertaken at earlier stages of the proposed scheme, as there was no requirement to do so under NNNPS.
5.30	All proposals for national network infrastructure projects should include a whole life carbon assessment at critical stages in the project lifecycle, for example the submission of a major business case. This should be conducted according to the guidance, standards and methodologies set out in Transport Appraisal Guidance Unit A3. Also refer to the Environmental Assessment at paragraphs 4.10 to 4.11 for more information about cumulative assessment.	A whole life carbon assessment has been undertaken, in accordance with TAG Unit A3, which has been used to inform the business case for the proposed scheme. The impact of including whole life carbon emissions within the Benefit Cost Ratio (BCR) for the proposed scheme is discussed in 9.21 Inclusion of construction and operational maintenance-related greenhouse gas emissions within the BCR Technical Note [REP2-032].
5.31	Having regard to current knowledge, a carbon management plan should be produced as part of the Development Consent Order submission and include: • an explanation of the steps that have been taken to drive down the climate change impacts at each of those stages • how operational emissions and, where applicable, emissions from maintenance activities, have been reduced as much as possible through the application of best available technology for that type of technology	An internal carbon management plan has been produced for the current project stage (i.e. the preliminary design stage), which is focussed on reducing embodied carbon emissions (e.g. emissions associated with the production of raw materials). The impact of residual carbon emissions on national and international efforts to limit climate change and potential cumulative effects are discussed within Section 15.11 of Chapter 15: Climate [APP-082].

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	(recognising that in the case of road projects while the developer can estimate the likely emissions from road traffic, it is not solely responsible for controlling them) • whether and how any residual carbon emissions will be (voluntarily) offset or removed using a recognised framework • where there are residual emissions, the level of emissions and the impact of those on national and international efforts to limit climate change, both alone and where relevant in combination with other developments at a regional or national level, or sector level, if statutory sectoral targets are developed and come into force.	
5.32 (Carbon Emissions – Mitigation)	Applicants should look for opportunities within the design of the proposed development to embed nature-based or technological solutions to mitigate, capture or offset the emissions of construction.	Both embedded and standard mitigation measures are detailed in Section 15.10 of Chapter 15: Climate, of the ES [APP-082] and secured within the first iteration of the EMP [APP-184]. The mitigation measures set out the proposed scheme's impact on greenhouse gas emissions and the proposed scheme's vulnerability to climate change for its construction and operational phases.
5.33	Steps taken to minimise, capture and offset emissions in design and construction, should be set out in a Greenhouse Gas Reduction Strategy, secured under the Development Consent Order. This Strategy could include, for example, mitigation through woodland creation on or adjacent to the site and registered with the Woodland Carbon Code91, contributing significantly to offsetting residual emissions. Applicants may wish to refer to the Institute of Environmental Management and Assessment	A Greenhouse Gas Reduction Strategy has not been produced, as there is no requirement to produce such a document under the current version of NNNPS. Relevant embedded (design) and standard mitigation measures are therefore described in Section 15.10 of Chapter 15: Climate [APP-082]. Additional areas of woodland are, however, proposed to be created within the DCO boundary, which (as shown in Table 15.22 of Chapter 15: Climate of the ES [APP-082]) is estimated to result in small increase in carbon sequestration (i.e. a net benefit) during the operation of the

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	Greenhouse Gas Management Hierarchy guidance when drafting their Greenhouse Gas Reduction Strategy.	proposed scheme. There are currently no plans to register this woodland with the Woodland Carbon Code, however.
5.35 (Carbon Emissions – Decision making)	S.1(1) of the Climate Change Act 2008 reflects and puts into effect the UK's Nationally Determined Contributions as set out in the Paris Agreement and sets out that the carbon budgets are the mechanism by which the net zero target is to be achieved. Consequently, it can reasonably be concluded that an applicant who assesses the carbon impacts of its scheme against the carbon budget is to be taken also to have assessed the carbon impacts of the scheme against the net zero target in the Climate Change Act 2008 and the UK's Nationally Determined Contributions, where the carbon budget is consistent with the Climate Change Act 2008 carbon target and the Nationally Determined Contributions.	As set out in Table 15.23 of Chapter 15: Climate of the ES [APP-082] changes in carbon emissions as a result of the proposed scheme have been compared against carbon budgets, which are the mechanism by which the net zero target is to be achieved.
5.37	Operational greenhouse gas emissions from some types of national network infrastructure cannot be totally avoided. Given the range of non-planning policies aimed at decarbonising the transport system, government has determined that a net increase in operational greenhouse gas emissions is not, of itself, reason to prohibit the consenting of national network projects or to impose more restrictions on them in the planning policy framework. Any carbon assessment will include an assessment of operational greenhouse gas emissions, but the policies set out in chapter 2 of the NPS, apply to these emissions. Operational emissions will be addressed in a managed, economy-wide manner, to ensure consistency with carbon	Operational GHG emissions associated with the proposed scheme are set out in Table 15.22 of Chapter 15: Climate of the ES [APP-082]. These are compared to carbon budgets in Table 15.23 of Chapter 15: Climate of the ES [APP-082]. Whilst the proposed scheme is estimated to result in an increase in operational GHG emissions, primarily as a result of an increase in road user GHG emissions, the results in Table 15.23 indicate that estimated changes in GHG emissions as a result of the proposed scheme are negligible in comparison to relevant UK carbon budgets. On this basis, GHG emissions associated with the proposed scheme are considered unlikely to have a material impact on the ability of the UK Government to meet its carbon reduction targets and

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	budgets, net zero and our international climate commitments. Therefore, approval of schemes with residual carbon emissions is allowable and can be consistent with meeting carbon budgets, net zero and the UK's Nationally Determined Contribution.	are therefore considered to be 'not significant', in line with DMRB LA 114 and the existing NNNPS. As demonstrated in Table 15.24 of Chapter 15: Climate of the ES [APP-082], however, the implementation of the Transport Decarbonisation Plan (as described in Chapter 2 of the draft NNNPS) will result in substantially lower operational phase GHG emissions and changes in operational phase GHG emissions than presented in Table 15.23 in future years.
5.41 – 5.42 (Biodiversity and nature conservation – Applicant's assessment)	The applicant should consider the full range of potential impacts on ecosystems (including habitats and protected species) and provide environmental information proportionate to the likely impacts of the infrastructure on biodiversity and nature. The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests as well as consider how their proposal will deliver Biodiversity net-gain in line with the requirements in a Biodiversity Gain Statement, as set out in paragraphs 4.20 to 4.23 above.	Design changes have been implemented where practicable to avoid impacts to ecological receptors. These are discussed within Section 9.10 of Chapter 9: Biodiversity and Chapter 3: Assessment of alternatives, of the ES [APP-070]. Furthermore, the approach of maximising biodiversity delivery is being applied to the proposed scheme as discussed in Section 9.13 of Chapter 9 [APP-076] and Appendix 9.14: Biodiversity Net Gain Report, of the ES [APP-138]. The single geological SSSI has been scoped out of Chapter 10: Geology and soils, of the ES [APP-077].
5.43 – 5.44 (Biodiversity and nature conservation – Mitigation)	To avoid harm or disturbance in line with the mitigation hierarchy the applicant should demonstrate that: • developments are designed to avoid the risk of harm and to minimise the footprint of the development and/or to retain the site's important habitat features • developments are designed and landscaped to provide green corridors and minimise habitat fragmentation (for example using underpasses or green bridges to link habitats)	The proposed scheme has taken into account the locations of valuable and priority habitats, including important connective habitats (i.e. hedgerows, watercourses and treelines) and the location of protected species. The mitigation hierarchy has been followed to modify the design to avoid impacts to these features where practicable. In addition, opportunities to enhance biodiversity have been proposed. Mitigation and enhancement measures are described within Section 9.10 of Chapter 9: Biodiversity, of the ES [APP-076].

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	• during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works • during construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats follows the mitigation hierarchy (including as a consequence of transport access arrangements). For example, plan for construction work to be carried out at specific times to avoid sensitive times and location, such as the breeding season for wild birds and lifecycles of migratory fish. If avoidance or reduction of harm is not possible, applicants should include appropriate mitigation measures, in line with the mitigation hierarchy, as an integral part of their proposed development, including identifying where and how these will be secured in the long term.	Embedded and standard mitigation measures are detailed within Chapter 9: Biodiversity, of the ES [APP-076]. Impacts would be limited by reducing the construction footprint as far as practicable, through following standard mitigation, through landscape design and through provision of enhancements where practicable.
5.45	If avoidance or bespoke mitigation measures are insufficient or not possible, as a last resort, appropriate compensation measures should be sought and implemented. For example, moving protected species out of the development site and where practicable, restore habitats after construction works have finished.	The proposed scheme has taken into account the locations of valuable and priority habitats, including important connective habitats (i.e., hedgerows, watercourses and treelines) and the location of protected species. The mitigation hierarchy has been followed to, where practicable, modify the design to avoid impacts to these features. Mitigation proposals include the translocation of reptiles into newly created habitats to avoid mortality and injury to reptile populations. There would be 20 receptor sites across the proposed scheme, totalling 46ha. Further details of the proposed mitigation are provided in Section 9.10 of Chapter 9 [APP-076] and receptor sites are shown on Figure 2.1 Environmental Masterplan [APP-086 - APP-088]. These

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		measures are committed to in BI40 in the REAC [APP-185] within the first iteration EMP [APP-184]. In addition, an area of broadleaved woodland habitat (7.4ha) would be created as part of the restoration plan for borrow F (as shown on Figure 2.1 Environmental Masterplan [APP-086]) to offset significant effects predicted on Perry's Wood Ancient Woodland resulting from changes in air quality during operation of the proposed scheme (paragraph 9.10.32 of Chapter 9 Biodiversity [APP-076]).
5.46 – 5.47	The applicant should not just look to mitigate direct harms but should show how the project has taken advantage of opportunities to conserve and enhance biodiversity, having regard to any relevant Local Nature Recovery Strategy. Opportunities will be taken to enhance or expand existing habitats and create new habitats in accordance with biodiversity net gain requirements. Habitat creation, enhancement and management proposals should include measures for climate resilience, including appropriate species selection. Maintaining habitat connectivity is important for climate resilience and the biodiversity of ecological networks. Wider ecosystem services and benefits of natural capital should also be considered when designing enhancement measures in order to maximise multifunctional benefits whilst minimising land take. For example, this can be achieved through integration of Biodiversity net gain features within a sustainable drainage system; the use of green roofs and walls to harvest rainwater and ameliorate	The Applicant has sought to maximise biodiversity delivery, with the proposed scheme forecasting an overall net gain of 25% for habitats, 36% for hedgerows and 157% for rivers (Table 9.32 of Chapter 9 Biodiversity [APP-076]) on-site post-construction. This includes habitat retention, creation and enhancement. Enhancement measures relevant to biodiversity for the proposed scheme are described in paragraphs 9.10.116 to 9.10.122 of Chapter 9 [APP-076] and include enhancements to existing hedgerows and improvements to existing habitats on watercourse banks. The Essex Local Nature Partnership are in the process of developing the relevant Local Nature Recovery Strategy for Essex, however, this does not yet exist and therefore has not been used to inform the biodiversity assessment for the proposed scheme. Mitigation measures with regards to climate change are secured in the REAC within the first iteration of the EMP [APP-185] and the DAS [APP-268] and include the planting of species with regards to climate change and resilience to pests and disease (as committed in LV7 in the REAC).

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	urban heating; or the restoration of rivers to reduce flood risk and provide attractive amenity areas.	While the biodiversity assessment as presented in Chapter 9: Biodiversity [APP-076] does not explicitly include a natural capital or ecosystem services assessment, impacts on habitats and species have been considered in the context of maintaining connectivity, maximising biodiversity delivery and the retention of sensitive ecological features, as demonstrated by the habitat net gains as stated above. Appendix 14.6: Surface Water Drainage Strategy [APP-174 to APP-179] identifies that the drainage design for the proposed scheme has been designed according to national SuDs best practice, including the principles of Defra's (2015) Sustainable Drainage Systems, non-statutory technical standards for SuDs and DMRB CG 501 Design of Highway Drainage Systems. In addition, the drainage design has been developed taking into account future potential increases in flooding and as informed by the climate change allowances (Environment Agency (2021) Flood risk assessments: climate change allowances). Chapter 9: Biodiversity, of the ES [APP-076] identifies that the design of the proposed scheme includes the provision of 71 attenuation ponds to mitigate for flood risk and enable road runoff to be treated prior to discharge into receiving watercourses. Attenuation ponds will be refined at the detailed design stage to ensure they are sympathetic to wildlife.
5.48	The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into to ensure that any necessary mitigation and compensatory measures are	Mitigation measures are secured in the REAC within the first iteration of the EMP [APP-185]. Measures will also be contained within Natural England licences which will be applied for prior to works commencing, as detailed in the

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	secured, delivered, and if necessary enforced, and that biodiversity improvements are registered in accordance with Biodiversity net gain requirements.	Consents, Licences and Agreements Position Statement [REP3-007].
5.49	The Secretary of State will need to take account of the advice provided to the applicant by Natural England and/or the Marine Management Organisation, as regards any necessary mitigation measures and whether Natural England and/or or the Marine Management Organisation has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences. In advance of the formal submission, applicants are encouraged to use Natural England's Letter of No Impediment Approach and engage with Natural England.	The Applicant has engaged with Natural England (using the Discretionary Advice Service) regarding mitigation proposals (see Table 9.1 of Chapter 9 Biodiversity [APP-076]). In their response to 3.0.4 of the Examining Authority's written questions [REP3-016] Natural England commented that they are satisfied that their Standing Advice has been followed with respect to the approach towards mitigation of impact upon protected species. A European Protected Species Mitigation licence (EPSM) would be required for bats and a licence would be required to interfere with (close) badger setts. A district level licence (DLL) would be obtained for great crested newt (GCN) (see Section 9.10 of Chapter 9 Biodiversity [APP-076]). Draft species licences (Appendix 9.16 Draft bat licence [APP-140] and Appendix 9.17 Draft badger licence [APP-141]) have been prepared and agreed with Natural England for these species alongside the Environmental Statement. At the time of writing this, a Letter of No Impediment (LONI) has been provided to the Applicant by Natural England with respect to badger, and a LONI for bats is expected to be provided prior to the end of Examination (July 2023). Mitigation measures including protected species licensing are included in the Register of Environmental Actions and Commitments [APP-185] within the first iteration Environmental Management Plan [APP-184].

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		No Marine Management Organisation (MMO) licences are required for the proposed scheme.
5.50 (Biodiversity and nature conservation – Decision Making)	The government's 25 Year Environment Plan marked a step change in ambition for wildlife and the natural environment. The Secretary of State should have regard to the aims and goals of the government's Environmental Improvement Plan, the United Nations Environmental Programme Convention on Biological Diversity of 1992 and any relevant measures and targets, such as the Environment Act 2021 targets. In doing so, the Secretary of State should also take account of the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity. The benefits of nationally significant low carbon transport infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. However, the mitigation hierarchy will still need to be applied.	The assessment presented in Chapter 9: Biodiversity of the ES [APP-076] has taken into consideration the United Nations Convention on Biological Diversity 1992 and Strategic Plan for Biodiversity 2011 – 200 (the 'Aichi' targets) (paragraph 9.4.2). At the time of writing the ES, the Environment Act 2021 was in the process of being drafted (to be submitted to Parliament by 31 October 2022) and is unlikely to be in place prior to the determination of the DCO application for the proposed scheme. The Environment Act 2021 has therefore not been incorporated into the assessment for biodiversity. The first revision of the 25 Year Environmental Plan (Environmental Improvement Plan) was published in 2023, and therefore was not available at the time of writing the biodiversity assessment for the proposed scheme, which was submitted as part of the DCO application in August 2022.
5.51	As a general principle, and subject to the specific policies below, development should, at first avoid significant harm to biodiversity and geological conservation interests, including through consideration of reasonable alternatives. If avoidance is not possible, mitigation needs to be considered (as set out in paragraphs 5.43 to 5.49 above). Where significant harm cannot be avoided or mitigated it should be compensated for as a last resort, with on-site mitigation being considered prior to off-site. The Secretary of State will give significant weight to any residual harm.	Design changes have been implemented where practicable to avoid impacts to ecological receptors. These are discussed within Section 9.10 of Chapter 9: Biodiversity and Chapter 3: Assessment of alternatives, of the ES [APP-070]. Furthermore, the approach of maximising biodiversity delivery is being applied to the proposed scheme as discussed in Section 9.13 of Chapter 9 [APP-076] and Appendix 9.14: Biodiversity Net Gain Report, of the ES [APP-138]. The single geological SSSI has been scoped out of Chapter 10: Geology and soils, of the ES [APP-077].

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5.52	In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national, and local importance; irreplaceable habitats; protected species habitats; other species of principal importance for the conservation of biodiversity; local nature recovery strategies; and to biodiversity and geological interests within the wider environment.	Sections 9.9 to 9.11 of Chapter 9: Biodiversity, of the ES [APP-076] detail impacts, mitigation and significant effects to ecological receptors such that the Secretary of State can be informed in the decision-making process. The first iteration of the EMP [APP-184] includes all mitigation measures from the chapters. The single geological SSSI has been scoped out of Chapter 10: Geology and soils, of the ES [APP-077].
5.53 - 5.54 (Internationally important nature sites)	The most important sites for biodiversity in the UK are those identified and designated to meet the obligations of international biodiversity conventions, and which are afforded special protection by the Habitats Regulations. These sites are designated as Special Areas of Conservation and Special Protection Areas and are collectively known as Habitats Sites. The following should be given the same protection as sites legally protected by the Habitats Regulations: potential Special Protection Areas and possible Special Areas of Conservation, listed or proposed Wetlands of International Importance (Ramsar sites); and sites identified, or required, as compensatory measures for adverse effects on habitats sites. The Habitats Regulations set out a specific process (see paragraphs 4.12 to 4.16) to assess the likely implications for these sites from a proposed plan or project. To maintain the overall coherence of the National Site Network, such plans or projects may only proceed if the assessment concludes they will not adversely affect the integrity of the site or, in the case of a negative assessment, if there are no alternative solutions, and they	Chapter 9: Biodiversity, of the ES [APP-076] identifies Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites where the proposed scheme: • is within 2km of a Ramsar site or European site or functionally linked land • is within 30km of an SAC, where bats are noted as one of the qualifying interests • crosses or lies adjacent to, upstream of, or downstream of, a watercourse which is designated in part or wholly as a Ramsar site or European site • has a potential hydrological or hydrogeological linkage to a Ramsar site or European site containing a groundwater-dependent terrestrial ecosystem • has an Affected Road Network within 200m of a Ramsar site or European site • will have a direct pathway to effects Chapter 9: Biodiversity [APP-076] of the ES and the Habitats Regulations Assessment No Significant Effects Report [APP-

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	must proceed for imperative reasons of overriding public interest with the necessary compensatory measures secured.	201] also clearly outline likely significant effects on internationally, nationally and locally designated sites of ecological conservation importance, on protected species, and on habitats and other species identified as being of principal importance for the conservation of biodiversity. Chapter 9 considers the full range of potential impacts on ecosystems. The first iteration of the EMP [APP-184] includes specific management plans that will ensure construction related mitigation measures and actions set out in the REAC (part of the EMP) are successfully implemented onsite. The specific management documents to support the EMP in terms of managing impacts on biodiversity and habitats are as follows: • Landscape and Ecology Management Plan (Appendix I) Invasive Species Management Plan (Appendix H)
5.56 (Nationally important nature sites: Sites of Special Scientific Interest)	Where a proposed development on land within or outside a Site of Special Scientific Interest is likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments), development consent should not normally be granted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest. The Secretary of State is bound by the duty placed on all public bodies in section 28G of the Wildlife and Countryside Act 1981 to take reasonable steps, consistent with the proper exercise of their functions, to further the	There are no SSSIs designated for ecological value within 2km of the proposed scheme, and only one SSSI (Tiptree Heath) within 200m of the Affected Road Network. Air quality modelling has shown there would be no significant impacts to Tiptree Heath SSSI through construction or operation of the proposed scheme. Sections 9.9 to 9.11 of Chapter 9: Biodiversity, of the ES [APP-076] provides more detail on potential impacts, mitigation and significant effects. The first iteration of the EMP [APP-184] includes all mitigation measures.

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	conservation and enhancement of the features by reason of which a site is of special scientific interest.	
5.58 (Irreplaceable habitats including ancient woodland, and ancient and veteran trees)	The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and ancient or veteran trees unless there are wholly exceptional reasons (for example, where the public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.	Chapter 9: Biodiversity, of the ES [APP-076] details that the proposed scheme would not directly impact any areas of Ancient Woodland. Perry's Wood is located within 200m of the Affected Road Network and has been assessed for impacts from changes in air quality. The air quality assessment has shown there would be changes in air quality at one veteran tree, four potential veteran trees and one potential ancient tree during construction and changes in air quality for six verified veteran trees, 16 potential veteran trees and one ancient tree during operation. There would also be a change in air quality for one Ancient Woodland/Local Wildlife Site (Perry's Wood). The assessment in Appendix 9.15: : Assessment of Air Quality Impacts on Ecology Receptors [APP-139] and Chapter 9: Biodiversity, of the ES [APP-076], concludes that there would be no significant effect on the veteran or ancient trees (verified and potential). Chapter 9 of the ES does conclude there would be a significant effect on Perry's Wood Local Wildlife Site, which is valued of national importance due to its designation as ancient woodland. It is not possible to mitigate this impact, but compensation would be provided in the form of new woodland planting within borrow pit F. No verified veteran trees would be directly impacted by construction of the proposed scheme. However, five potential veteran trees (i.e. trees not formally designated but assessed as part of A12 field surveys to be of sufficient quality to qualify as veteran trees) would be removed during construction. Where practicable, the design of the proposed scheme was

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		refined to avoid impacts, but loss of these five trees is unavoidable. Where potential ancient and veteran trees are unavoidably removed to accommodate the proposed scheme, their loss would be partially compensated (acknowledging that features such as ancient and veteran trees are considered irreplaceable and therefore cannot be fully compensated) as per the latest guidance from Natural England and the Forestry Commission (2022): • Young trees of the same species as that which is removed would be planted with sufficient space around them to encourage development of an open crown. • Where practicable, trees would be planted close to the trees they are replacing, taking into account post-construction air quality levels. Where practicable and safe to do so, the intact hulk of the potential ancient or veteran tree would be left where it is (preferably standing) to benefit invertebrates and fungi. Where this is not possible, the hulk would be moved near to other unimpacted potential ancient or veteran trees or parkland in the area as show on Figure 2.1: Environmental Masterplan, of the ES [APP-086 – APP-088].
5.60 (Locally important nature Sites)	Sites of regional and local biodiversity and geological interest, which include Local Geological Sites, Local Nature Reserves and Local Wildlife Sites and Nature Improvement Areas, are areas of substantive nature conservation value and make an important contribution to ecological networks and nature's recovery. They can also provide wider benefits including contributing to the quality of life and the well-being of the community, and in	The assessments presented in Chapter 9: Biodiversity [APP-076] and Chapter 10: Geology and Soils [APP-77] take into account the potential for impacts on Local Geological Sites (LGS), Local Nature Reserves (LNR) and Local Wildlife Sites (LWS). Chapter 6: Air Quality [APP-073] assesses the potential air quality impacts on designated sites and habitats.

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	supporting research and education. The Secretary of State should give due consideration to any such harm to the detriment of biodiversity features of regional or local importance which it considers may result from a proposed development. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent, nevertheless the mitigation hierarchy applies to these sites.	There are no LGS within 250m of the Order Limits (Chapter 10 Geology and Soils [APP-077] and therefore no impacts on these sites are predicted as a result of the proposed scheme. Chapter 9: Biodiversity [APP-076] concludes that there would be a significant effect on Perry's Wood LWS during operation of the proposed scheme resulting from an increase in nitrogen deposition above the relevant thresholds (see paragraph 9.11.288 of Chapter 9 [APP-076]). Perry's Wood is also designated as an ancient woodland, which is valued at a greater importance (National) than LWS (County) and therefore mitigation measures designed to offset a significant effect on this ancient woodland inherently provide mitigation for impacts on the LWS. Offsetting would be provided through the creation of 7.4ha of broadleaved woodland, as shown on Figure 2.1 Environmental Masterplan [APP-086] and committed to in BI16 in the Register of Environmental Actions and Commitments [APP-185] within the first iteration Environmental Management Plan [APP-184]. While not significant, there would also be a permanent loss of semi-natural broadleaved woodland habitats (0.89ha) from Whetmead LNR and LWS as a result of construction of the proposed scheme (see paragraph 9.11.9 of Chapter 9 [APP-076]). This would be mitigated through replacement habitat planting to the south of River Brain which would include 0.8ha of woodland planting and 0.1ha of wet woodland planting (around the attenuation pond in this same area and as shown on Figure 2.1 Environmental Masterplan, Part 1, Sheet 8 of 21 [APP-086]). Further details of the proposed mitigation are provided on page 434 of the Applicant's Comments on Written Representations [REP3-009].

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5.62 (Biodiversity within and around developments)	Consideration should be given to the impacts on, and improvement to, habitats and species in, around and beyond developments, for wider ecosystem services and natural capital benefits, relevant to the local area and communities. The value of linear infrastructure and its footprint in supporting biodiversity and connecting habitats ecosystems should also be taken into account. Local Nature Recovery Strategies will identify opportunities to create or enhance habitat likely to have greatest benefit to biodiversity and wider environmental improvement. Consideration should also be given to national priorities and targets, such as reduced flood risk, improved air or water quality, and increased access to natural greenspace, or tree planting, woodland creation and protecting long established woodlands.	While the biodiversity assessment as presented in Chapter 9: Biodiversity [APP-076] does not explicitly include a natural capital assessment, impacts on habitats and species have been considered in the context of maintaining connectivity, maximising biodiversity delivery and the retention of sensitive ecological features. The importance of linear infrastructure is acknowledged throughout the assessment and details on the creation of linear habitats are included within Section 9.10 of Chapter 9: Biodiversity [APP-076]. Landscape planting has been designed to maximise biodiversity by improving the value of habitat throughout the proposed scheme and improving wildlife connectivity by incorporating linear habitats such as hedgerows and lines of trees and linking with retained woodland and hedgerows where feasible (paragraph 9.10.16 of Chapter 9 [APP-076]). As such, the proposed scheme forecasts an overall net gain of 25% for habitats and 36% for hedgerows (Table 9.32 of Chapter 9 [APP-076]). On the inherently linear road verges of the proposed scheme, the creation of low-nutrient grasslands would provide an important wildlife corridor of high ecological value. The Essex Local Nature Partnership are in the process of developing the relevant Local Nature Recovery Strategy for Essex, however, this does not yet exist and therefore has not been used to inform the biodiversity assessment for the proposed scheme. The assessment presented in Chapter 9: Biodiversity of the ES [APP-076] has taken into consideration the Strategic Plan for Biodiversity 2011 – 200 (the ‘Aichi’ targets) (paragraph 9.4.2).

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		There is one significant effect predicted for nitrogen deposition at Perry's Wood (Local Wildlife Site (LWS)). A Project Air Quality Action Plan (PAQAP) is provided in Appendix 6.6 Statutory and Non Statutory Nature Conservation Plans [APP-199]. Mitigation is considered to be unfeasible at this location. Therefore, an area of broadleaved woodland habitat (7.4ha) would be created as part of the restoration plan for borrow F (as shown on Figure 2.1 Environmental Masterplan [APP-086]) to offset significant effects predicted on Perry's Wood Ancient Woodland resulting from changes in air quality during operation of the proposed scheme (paragraph 9.10.32 of Chapter 9 Biodiversity [APP-076]). Chapter 9: Biodiversity, of the ES [APP-076] identifies that the design of the proposed scheme includes the provision of 71 attenuation ponds to mitigate for flood risk and enable road runoff to be treated prior to discharge into receiving watercourses. Attenuation ponds will be refined at the detailed design stage to ensure they are sympathetic to wildlife. As committed in LV4 of the REAC [APP-185], existing vegetation within the Order Limits would be retained as far as reasonably practical, with particular attention given to the retention of mature vegetation including ancient, veteran and notable trees and ancient woodlands (as shown on the Retained and Removed Vegetation Plans [APP-035 and APP-036]. There would also be an overall net gain of 42.52ha of woodland (Table 9.23 of Chapter 9: Biodiversity [APP-076]).
5.63	When considering proposals, the Secretary of State should consider whether the applicant has maximised such	The Applicant has sought to maximise biodiversity delivery, with the proposed scheme forecasting an overall net gain of

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	opportunities and enhancement of wider biodiversity, in and around developments. The Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such beneficial features are delivered, and ongoing management and maintenance secured.	25% for habitats, 36% for hedgerows and 157% for rivers (Table 9.32 of Chapter 9 Biodiversity [APP-076]) on-site post-construction. This includes habitat retention, creation and enhancement. For example, proposed realignments of the Roman River, Domsey Brook and Rivenhall Brook have been designed to maximise biodiversity. Landscape planting has also been designed to maximise biodiversity by improving the value of habitat throughout the proposed scheme and improving wildlife connectivity by incorporating linear habitats such as hedgerows and lines of trees, linking with retained woodland and hedgerows where feasible (Section 9.10 of Chapter 9 Biodiversity [APP-076]). Outline information on long-term commitments to aftercare, monitoring and maintenance activities relating to landscape and ecological features is provided within the Landscape and Ecology Management Plan (LEMP) [APP-193] within the first iteration Environmental Management Plan (EMP) [APP-184] and committed to in LV16 and LV18 of the REAC [APP-185]. Further details on these commitments will be provided in an updated LEMP prior to construction, and in the third iteration of the EMP prepared for the handover stage once construction is complete.
5.64 (Habitats and Species of Principal Importance)	Many individual wildlife species receive statutory protection under a range of legislative provisions. Some species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and therefore requiring conservation action. As a public authority, the Secretary of State is bound by the duty in by section 40 of the Natural Environment and Rural Communities Act 2006 (as amended by section 102 of the	Chapter 9: Biodiversity, of the ES [APP-076] presents an assessment of the effects on species and habitats of principal importance for biodiversity. Data searches and field surveys have been used to identify protected and notable habitats and species within the zone of influence. Impacts to these receptors have been assessed and, where necessary, measures to avoid, reduce and mitigate these impacts have been proposed. These measures are committed to in BI2 –

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	Environment Act 2021) to periodically consider what action the authority can take, consistent with the exercise of its functions, to further the conservation and enhancement of biodiversity. In doing so the Secretary of State may consider the impact on species or habitats listed under Section 41 of the Act. The Secretary of State should ensure that applicants have taken measures to ensure these species and habitats are protected from the adverse effects of development by using requirements, planning obligations, or licence conditions. The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits of the development (including need) clearly outweigh that harm.	BI6 and BI11 of the Register of Environmental Actions and Commitments [APP-185] within the first iteration Environmental Management Plan [APP-184].
5.66 (Resource and Waste management – Applicant's assessment)	The applicant should demonstrate that they will adhere to the waste hierarchy, minimising the volume of waste produced and maximising reuse and recycling for waste that cannot be avoided. Where possible, applicants are encouraged to use low carbon materials, sustainable sources, and local suppliers. Consideration should be given to circular economy principles wherever practicable, for example by using longer lasting materials efficiently, optimising the use of secondary materials and how the development will be maintained and decommissioned. Applicants should consider and take into account emerging government policy, including the Waste Prevention Programme for England and Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, which provides practical guidance on how to	Chapter 11: Material assets and waste, of the ES [TR010060/APP/6.1] sets out how waste will be managed during construction and operation. It also details how the design of the proposed scheme would reduce the consumption and disposal of waste, and where practicable, the design of the proposed scheme would work towards the ambition of zero avoidable waste in construction. The proposed scheme would aim to maximise its use of recycled materials for construction where feasible. An outline Site Waste Management Plan (SWMP) has been prepared as part of the first iteration of the EMP [APP-184] to plan, implement, monitor and review waste reduction and management throughout the design and construction of the proposed scheme. The SWMP is a live document, which will be updated at varying points during design and construction. It will be used to quantify waste arisings and facilitate the

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	improve appropriate soil reuse on construction sites and reducing the volume that is sent to landfill.	identification and implementation of waste prevention at the detailed design stage, and the reuse, recycling and other recovery opportunities during the construction stage. The waste hierarchy will be followed as a priority to achieve the best overall environmental outcome, and limit waste generation and disposal to landfill in line with the prevailing national policy targets.
5.69	Large infrastructure projects may generate hazardous and non-hazardous waste during construction and operation. The Environmental Permitting regime, regulated by the Environment Agency in England, incorporates operational waste management requirements for certain activities. Applicants should therefore give consideration to the Environmental Permitting regime and whether this applies to their development.	The Applicant has considered the applicability of the Environmental Permitting regime for waste management by means of Ref No. MW5 in the First Iteration Environmental Management Plan - Appendix A: Register of Environmental Actions and Commitments (REAC) [APP-185] and Appendix A: Consents and Licences Table in the Consents and Licences Position Statement [APP-041].
5.70 (Resource and Waste management – Mitigation)	Infrastructure projects should look to use legal and sustainable timber and other Modern Methods of Construction where possible.	The Applicant has considered the use of legal and sustainable timber in Chapter 2 of the Environmental Statement paragraph 2.6.127 where reference is made to the Sustainable Procurement Plan that would be implemented during detailed design and construction stages. The Sustainable Procurement Plan is also captured in the Register of Environmental Actions and Commitments (REAC) [APP-185] Ref. No. MW2. Table 2.11 provides a summary of the types of construction materials and products to be consumed on the proposed scheme that are likely to hold certification to a recognised responsible sourcing standard. Chapter 11 of the Environmental Statement paragraph 11.10.15 details Modern Methods of Construction for example Design for offsite construction: maximising the use of pre-

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		fabricated structures and components, encouraging a process of assembly rather than construction. Implementing Design for Resource Efficiency Principles is also captured in the Register of Environmental Actions and Commitments (REAC) [APP-185] Ref. No. MW1.
5.83–5.86 (Civil and military aviation and defence interests – Applicant's assessment)	Where the proposed development may have an effect on civil or military aviation and/or other defence assets, an assessment of potential effects should be carried out. The applicant should consult the Ministry of Defence, Circular and Civil Aviation Authority, National Air Traffic Services and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation or other defence interests. Any assessment on aviation or other defence interests should include potential impacts during construction and operation of the project upon the operation of communications, navigation and surveillance infrastructure, flight patterns (both civil and military), other defence assets and aerodrome operational procedures. If any relevant changes are made to proposals for an NSIP during the preapplication period or before the end of the examination of an application, it is the responsibility of the applicant to ensure that the relevant aviation and defence consultees are informed as soon as reasonably possible.	The proposed scheme is not considered to have any effects on an airport or civil or military aviation, as there are no airports close to the proposed scheme. National Highways has consulted with the Ministry of Defence, Civil Aviation Authority and National Air Traffic Services, the details of which are described in the Consultation Report [APP-045].
5.100 – 5.103 (Coastal change –	Applications for development in a Coastal Change Management Area should make it clear why there is a need for it to be located in a Coastal Change Management	The proposed scheme is not located in a coastal area, so paragraphs 5.100 to 5.103 are not considered relevant.

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Applicant's assessment)	Areao. For developments requested in a Coastal Change Management Area, applicants should undertake an assessment of the vulnerability of the proposed development to coastal change, taking account of climate change, during the project's operational life and consult with their Coast Protection Authority and Coast Erosion Risk Management Authority (usually their District Council) regarding the Shoreline Management Plan for that coastal policy unit and coastal change planning policy. For any projects with any impacts (not just on coastal change) in marine waters as described in section 42(2) of the Planning Act 2008, including dredging or disposal into the sea, the applicant should consider the relevant marine plan and also consult the Marine Management Organisation, and where appropriate, for cross-boundary impacts, Natural Resource Wales and NatureScot, at an early stage. The applicant should also consult the Marine Management Organisation on projects which could impact on coastal change, since the Marine Management Organisation may also be involved in considering other projects which may have related coastal impacts. The applicant should examine the broader context of coastal protection around the proposed project, and the influence in both directions, i.e., coast on project, and project on coast . The applicant should be particularly careful to identify any effects of physical changes on the integrity and special features of Marine Conservation Zones, candidate marine Special Areas of Conservation, coastal Special Areas of Conservation and candidate coastal Special Areas of	

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	Conservation, coastal Special Protection Areas and potential coastal Special Protection Areas, Ramsar sites, Sites of Community Importance and potential Sites of Community Importance and Sites of Special Scientific Interest. For any projects affecting the above marine protected areas, the applicant should consult Natural England and where appropriate, for cross-boundary impacts, Natural Resource Wales and Nature Scot, at an early stage.	
5.114 – 5.116 (Dust, odour, artificial light, smoke, steam – Applicant's assessment)	The applicant should assess the potential for emissions of odour, dust, steam, smoke and artificial light to have a detrimental impact on amenity. In particular, the assessment provided by the applicant should describe: • the type and quantity of emissions • aspects of the development which may give rise to emissions during construction, operation and decommissioning • premises, locations or species that may be affected by the emission • effects of the emission on identified premises or locations • measures to be employed in preventing or mitigating the emissions The applicant is advised to consult the relevant local environmental health team and, where appropriate, the Environment Agency about the scope and methodology of the assessment.	Chapter 6: Air quality, of the ES [APP-073] states that there is the potential for dust effects during the construction phase at sensitive receptors within the distance bands outlined in DMRB LA 105. These are shown on Figure 6.4: Construction Dust Assessment, of the ES [APP-208]. The level and distribution of construction dust emissions will depend on where within the Order Limits the dust raising activity takes place, the nature of the activity and controls, and weather conditions. Chapter 6: Air quality of the ES [APP-073] shows the number of receptors within the distance bands outlined in DMRB LA 105. Based on the number of receptors within the distance bands and the large potential for dust emissions to occur, the construction dust risk is considered to be 'high'. This is in accordance with DMRB LA 105 Tables 2.58a and 2.58b. As outlined in the methodology, standard mitigation measures in line with this level of risk have been detailed within the first iteration of the EMP [APP-184]. In terms of the proposed scheme's impact on artificial light, the landscape and visual impact assessment in Chapter 8: Landscape and visual, of the ES [APP-075], considers the significance of effect of both day and night-time changes for

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		landscape and visual receptors in line with the requirements of DMRB LA 107. The assessment considers the effects of construction lighting, highway lighting and vehicle lights, and identifies the potential for temporary lighting to have an impact. This would be mitigated by the use of sensitive lighting design as outlined in Section 8.10 of Chapter 8 of the ES. In respects of emissions of odour, smoke and steam, these are not addressed in the ES as the proposed scheme would not result in any of these emissions that would require an assessment. Chapter 4: Consultation, of the ES [APP-071] provides detail of the consultation process and demonstrates that all the relevant local authorities and the Environment Agency were consulted during the planning and scope of the methodology for preparing the ES. Comments have been acknowledged and built into the overall proposed scheme design.
5.117 (Dust, odour, artificial light, smoke, steam – Mitigation)	The Secretary of State should ensure the applicant has provided sufficient information to show that any necessary mitigation will be put into place. In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning emissions of odour, dust, steam, smoke, artificial light from the development to reduce any loss to amenity which might arise during the construction and operation of the development. This should be detailed within a Statement Relating to Statutory Nuisance.	As discussed in response to NNNPS paragraphs 5.84–86, there is potential for dust effects during the construction phase, and mitigation measures for dust are detailed in the first iteration of the EMP [APP-184]. Regarding light, the landscape and visual impact assessment considers the significance of effect of both day and night-time changes for landscape and visual receptors in line with the requirements of DMRB LA 107. The assessment considers the effects of construction lighting, highway lighting and vehicle lights, and identifies the potential for temporary lighting to have an impact. This will be mitigated by the use of

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		sensitive lighting design as outlined in Section 8.10 of Chapter 8: Landscape and visual, of the ES [APP-075]. Odour, steam and smoke are not considered a material pressure on the local environment as a result of the proposed scheme's construction or operational phases. All mitigation measures can be found in the REAC within the first iteration of the EMP [APP-185].
5.121 (Flood risk – Applicant's assessment)	The National Planning Policy Framework (paragraphs 159 to 169) makes clear that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. But where development is necessary, it should be made safe without increasing flood risk elsewhere. The guidance at Annex 3 to the National Planning Policy Framework explains that essential transport infrastructure (including mass evacuation routes), which has to cross the area at risk, is permissible in areas of high flood risk, subject to the requirements of the Exception Test. The Exception Test assesses the safety of a site, including whether the proposed development will be safe from flooding for its lifetime, including the impact of climate change.	Essential transport infrastructure, which has to cross areas at risk of flooding, is permitted in areas of high flood risk subject to the requirements of the Exception Test. This is discussed in Appendix 14.5: Flood Risk Assessment, of the ES [APP-162]. Where assessment has identified that the proposed scheme could increase flood risk elsewhere, mitigation (e.g. drainage, flood compensation areas) has been included to ensure no residual increase in flood risk including an appropriate allowance for climate change for the lifetime of the development. Details can be found within Chapter 14: Road drainage and the water environment, of the ES [APP-081] and mitigation measures are included in the REAC within the first iteration of the EMP [APP-185].
5.122 – 5.123	Applications for projects in the following flood zone locations should be accompanied by a Flood Risk Assessment: • Applications in flood Zones 2 and 3, which represent a medium and high probability of river and sea flooding • Applications in flood Zone 1 which represent a low probability of river and sea flooding. This includes projects	The proposed scheme is over 1 hectare in size and traverses all Flood Zones. Consequently, Appendix 14.5: Flood Risk Assessment (FRA), of the ES [APP-162] has been produced. The FRA assesses the impact to and from the proposed scheme on all sources of flood risk and commits to mitigation. This is as detailed within Chapter 14: Road drainage and the water environment, of the ES [APP-081] and mitigation measures are included in the REAC within the first iteration of

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	of 1 hectare or greater, projects which may be subject to other sources of flooding (local watercourses, surface water, groundwater or reservoirs), or where the Environment Agency has notified the local planning authority that there are critical drainage problems • Applications where there is less than 1 ha in flood zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs) The Flood Risk Assessment should identify and assess the risks of all forms of flooding and coastal erosion to and from the project and demonstrate how these flood risks will be managed, taking climate change into account.	the EMP [APP-185]. The mitigation would ensure the proposed scheme does not increase flood risk and is safe for its lifetime including the predicted impact of climate change.
5.124	In preparing a Flood Risk Assessment the applicant should: • consider the risk of all forms of flooding arising from the project (including in adjacent parts of the United Kingdom), in addition to the risk of flooding to the project, and demonstrate how these risks will be managed and, where relevant, mitigated, so that the development remains safe throughout its lifetime • take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made • demonstrate how residual risks to and from reservoirs will be safely managed and/ or mitigated	Appendix 14.5: Flood Risk Assessment (FRA) [APP-162] assesses the impact to and from the proposed scheme on all sources of flood risk and commits to embedded and essential mitigation to manage flood risk, taking into account the residual risk, concluding that the proposed scheme would be acceptable and not result in unacceptable levels of flooding or increase flooding elsewhere. The FRA has sufficiently demonstrated accordance with Sequential and Exception Tests as appropriate. The FRA and Chapter 15: Climate, of the ES [APP-082] takes into account the impact of climate change and the proposed scheme's long-term impact on climate and the UK Government's Carbon Budget. Chapter 15 also considers the proposed scheme's vulnerability to climate change. This is as detailed

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	• consider the vulnerability of those using the infrastructure including arrangements for safe access and escape • include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular project • consider if there is a need to remain operational during a worst-case flood event over the development's lifetime • provide the rationale for the Secretary of State on the application of the Sequential Test and Exception Test, as appropriate	within Chapter 14: Road drainage and the water environment, of the ES [APP-081], and mitigation measures are included in the REAC within the first iteration of the EMP [APP-185]. The FRA assumes a 100-year lifetime for the proposed scheme and incorporates the predicted impact of climate change upon flood risk. This is based on UKCP09 and UKCP18 projections as transposed into allowances by the Environment Agency. The proposed scheme has been classified as essential infrastructure in accordance with Annex 3: Flood risk vulnerability classification, of the National Planning Policy Framework, which is documented in the FRA. The FRA assesses the risk of flooding to the proposed scheme and demonstrates that it will remain safe for users for its lifetime. The FRA also discusses the operation of the proposed scheme during a worst case flood event.
5.125	Applicants for projects which may be affected by, or may add to, flood risk should seek sufficiently early pre-application discussions, before the official preapplication stage of the NSIP process with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, and highways authorities. Such discussions can be used to identify the likelihood and possible extent and nature of the flood risk, to help scope the Flood Risk Assessment, and identify the information that will be required by the Secretary of State to reach a decision on the application once it has been submitted and examined. If the Environment Agency has concerns about the proposal on flood risk grounds, the applicant should	Discussions with flood risk management bodies (the Environment Agency and Essex County Council) have been undertaken to inform the design process as recorded in Chapter 14: Road drainage and the water environment [APP-081], and Chapter 4: Consultation, of the ES [APP-071]. Chapter 14: Road drainage and the water environment, of the ES [APP-081] confirms that the hydraulic models and results have been submitted for review and accepted by the Environment Agency in advance of the DCO submission.

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	discuss these concerns with the Environment Agency and look to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency's concerns, before the application for development consent is submitted.	
5.126	For local flood risk (surface water, groundwater and ordinary watercourse flooding), local flood risk management strategies and surface water management plans provide useful sources of information for consideration in Flood Risk Assessments. Surface water flood issues need to be understood and then account of these issues can be taken, for example, flow routes should be clearly identified and managed.	Local flood risk data sources from fluvial, surface water, groundwater, ordinary watercourses, artificial sources, and sewer and water supply infrastructure have been taken into consideration as part of the EIA and the Flood Risk Assessment (FRA). Chapter 14: Road drainage and the water environment, of the ES [APP-081] contains details of the sources of information used for the FRA, which include surface water management plans and strategic flood risk assessments. These are referenced and taken account of within Appendix 14.5: Flood Risk Assessment, of the ES [APP-162].
5.127	Proposals should prioritise the use of sustainable drainage systems unless there is clear evidence that this would be inappropriate. A drainage strategy should also be produced and submitted as part of the Flood Risk Assessment.	Appendix 14.6: Surface Water Drainage Strategy, of the ES [TR010060/APP/6.3] identifies that the proposed scheme's drainage has been designed in accordance with all national standards that are relevant to it. The proposed scheme has been designed in accordance with the DMRB, including DMRB CG 501 Design of Highway Drainage Systems. DMRB provides a standard for the design of highways projects that are typically undertaken by National Highways. The DMRB is development specific rather than generic for all developments and thus does not align fully with all aspects of the non-statutory technical standards in two areas: discharge rates and volume control.

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		The proposed scheme discharge rates have been restricted to a minimum 5l/s, which is appropriate and takes into account blockage risk and maintenance but is higher in places than the minimum rate mandated by standard S2 of the Non-Statutory Technical Standards for Sustainable Drainage Systems (Defra, 2015). There would be no adverse effects as a result of the use of the 5l/s minimum discharge rate for the proposed scheme. This is because in the majority of locations this increase in proposed discharge rates would be anticipated, and discharges in adjacent proposed catchments with the same receptors have been adjusted (reduced) to ensure that there is no overall increase to the existing site allowable discharge rates. Where this adjustment has not been possible, an assessment has been undertaken of the impact of the 5l/s discharge rate on flood risk. This is presented in the FRA (Appendix 14.5 of the ES [APP-162]) and identifies a negligible impact on the surface water drainage flood risk, generally as a result of the existing flows (within the watercourses the 5l/s discharges flow into) being significantly larger than the change in flows that would result from the proposed scheme. The non-statutory technical standards also include standards S4–S6, which relate to volume control from drainage discharges. The design standards in the DMRB do not include volume control within either DMRB CG 501 Design of Highway Drainage Systems or DMRB LA 113 Road Drainage and the Water Environment (this provides a methodology for the assessment of impacts from highways projects). However, the proposed scheme incorporates Sustainable Drainage Systems (SuDS). Attenuation within SuDS features have been provided to ensure no flooding for a 1% (1 in 100)

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		Annual Exceedance Probability event plus a 20% climate change allowance and tested for a 40% climate change allowance. National Highways would be responsible for the maintenance and inspection of all drainage infrastructure, except where such infrastructure would be adopted by and become the responsibility of the relevant local authorities.
5.133 – 5.137 (Flood risk – Mitigation)	To satisfactorily manage flood risk and the impact of the natural water cycle on people, property and ecosystems, good design and infrastructure may need to be secured using requirements or planning obligations. This may include the use of Sustainable Drainage Systems but could also include vegetation to help to slow runoff, hold back peak flows and make landscapes more able to absorb the impact of severe weather events. Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts. The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project unless specific off-site arrangements are made and result in the same net effect. If there are no viable Sustainable Drainage Systems options available, it may be necessary to provide surface water storage and infiltration to limit and reduce both the peak rate of discharge from the site and the total volume discharged from the site. There may be circumstances	Chapter 14: Road drainage and the water environment, of the ES [APP-081] and Appendix 14.6: Surface Water Drainage Strategy, of the ES [APP-174 - APP-179] show that drainage has been designed to reduce the risk of flooding elsewhere including incorporation of climate change allowances. Appendix 14.6: Surface Water Drainage Strategy, of the ES [APP-174 - APP-179] identifies that the drainage has been designed according to national SuDS best practice. This includes the principles of Defra's (2015) Sustainable Drainage Systems, non-statutory technical standards for SuDS and DMRB CG 501 Design of Highway Drainage Systems (Highways England, 2020e). Given the timing of the revised guidance being published, it has not been possible to incorporate the Environment Agency's new guidance for climate change. The FRA and Chapter 14: Road drainage and the water environment assesses the percentage of climate change at 20% whilst new guidance has increased this to 25%. Therefore, it has not been possible to incorporate this change into the relevant DCO application documents. The guidance has been considered by way of a sensitivity test that will report the implications of the new guidance on the

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	where it is appropriate for infiltration attenuation storage to be provided outside the project site, if necessary, through the use of a planning obligation. The sequential approach should be applied to the layout and design of the project. Vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities can be taken to lower flood risk by improving flow routes, flood storage capacity and using Sustainable Drainage Systems.	assessments undertaken to date and will be presented to the Exa at Deadline 5. The proposed scheme has been assessed as 'essential infrastructure' partially located within Flood Zone 3. Objectives of the proposed scheme are to improve traffic flow, journey safety and reliability between Chelmsford and the A120. As there are no reasonable alternatives, as demonstrated in Chapter 3: Assessment of alternatives, of the ES [APP-070], the proposed scheme is deemed to have passed the Sequential and Exception Tests in this instance. Chapter 9: Biodiversity, of the ES [APP-076] identifies that the design of the proposed scheme includes the provision of 71 attenuation ponds to mitigate for flood risk and enable road runoff to be treated prior to discharge into receiving watercourses. Attenuation ponds will be refined at the detailed design stage to ensure they are sympathetic to wildlife.
5.141 (Flood risk – Decision making)	For construction work which has drainage implications , approval for the project's drainage system will form part of any development consent issued by the Secretary of State. The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with Technical Standards published by Ministers . In addition, the Development Consent Order, or any associated planning obligations, will need to make provision for the adoption and maintenance of any Sustainable Drainage Systems, including any necessary access rights to property. Sustainable Drainage Systems should deliver multifunctional benefits and help to achieve Biodiversity net gain. The Secretary of State should be satisfied that the most appropriate body is being given the responsibility	Appendix 14.6: Surface Water Drainage Strategy, of the ES [APP-174 - APP-179] identifies that the proposed scheme's drainage has been designed in accordance with all national standards that are relevant to it. The proposed scheme has been designed in accordance with the DMRB, including DMRB CG 501 Design of Highway Drainage Systems. DMRB provides a standard for the design of highways projects that are typically undertaken by National Highways. The DMRB is development specific rather than generic for all developments and thus does not align fully with all aspects of the non-statutory technical standards in two areas: discharge rates and volume control.

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	for maintaining any Sustainable Drainage Systems, taking into account the nature and security of the infrastructure on the proposed site. The responsible body could include, for example, the applicant, the landowner, the relevant local authority and the relevant Sustainable Drainage Systems Approval Body or another body such as the Internal Drainage Board. Where infiltration type Sustainable Drainage Systems are proposed, pre-applications with the Environment Agency are recommended to ensure they do not cause pollution to surface and groundwater quality and applicants should consider the role of Sustainable Drainage Systems management trains to control and treat run-off.	The proposed scheme discharge rates have been restricted to a minimum 5l/s, which is appropriate and takes into account blockage risk and maintenance but is higher in places than the minimum rate mandated by standard S2 of the Non-Statutory Technical Standards for Sustainable Drainage Systems (Defra, 2015). There would be no adverse effects as a result of the use of the 5l/s minimum discharge rate for the proposed scheme. This is because in the majority of locations this increase in proposed discharge rates would be anticipated, and discharges in adjacent proposed catchments with the same receptors have been adjusted (reduced) to ensure that there is no overall increase to the existing site allowable discharge rates. Where this adjustment has not been possible, an assessment has been undertaken of the impact of the 5l/s discharge rate on flood risk. This is presented in the FRA (Appendix 14.5 of the ES [APP-162]) and identifies a negligible impact on the surface water drainage flood risk, generally as a result of the existing flows (within the watercourses the 5l/s discharges flow into) being significantly larger than the change in flows that would result from the proposed scheme. The non-statutory technical standards also include standards S4–S6, which relate to volume control from drainage discharges. The design standards in the DMRB do not include volume control within either DMRB CG 501 Design of Highway Drainage Systems or DMRB LA 113 Road Drainage and the Water Environment (this provides a methodology for the assessment of impacts from highways projects). However, the proposed scheme incorporates Sustainable Drainage Systems (SuDS). Attenuation within SuDS features have been provided to ensure no flooding for a 1% (1 in 100)

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		Annual Exceedance Probability event plus a 20% climate change allowance and tested for a 40% climate change allowance. National Highways would be responsible for the maintenance and inspection of all drainage infrastructure, except where such infrastructure would be adopted by and become the responsibility of the relevant local authorities.
5.144 – 5.145	The design of linear infrastructure and the use of embankments in particular, may mean that linear infrastructure can reduce the risk of flooding for the surrounding area while also offering opportunities to enhance biodiversity. It should be demonstrated that there is no increase in flood risk elsewhere. In such cases the Secretary of State should take account of any positive benefits to placing linear infrastructure in a flood risk area. Where linear infrastructure has been proposed in a flood risk area, the Secretary of State should expect reasonable mitigation measures to have been made, to ensure that infrastructure remains functional in the event of predicted flooding	The Flood Risk Assessment (FRA)(APP-162) for the proposed scheme demonstrates how the scheme avoids an increase in flood risk elsewhere. The FRA also documents the areas where the proposed scheme would reduce the risk of flooding, including to property and the A12. The FRA also demonstrates how the design of the proposed scheme and mitigation included within it, would ensure that the proposed scheme would remain safe and operational in flood events up to a 1% Annual Exceedance Probability (AEP) event plus allowance for climate change.
5.148 – 5.149 (Land contamination and instability – Applicant's assessment)	Where necessary, land contamination and stability should be considered in respect of new development. Specifically, proposals should be appropriate for the location, including preventing unacceptable risks from land contamination or instability. If land stability could be an issue, applicants should seek appropriate technical and environmental expert advice from a competent person to assess the likely consequences of proposed developments on sites where subsidence, landslides and ground compression is known or suspected. Applicants should liaise with the Coal Authority, Environment Agency and Local Authority if necessary.	**Land Stability** The design of the proposed scheme and reporting have been undertaken in accordance with DMRB CD 622 Managing Geotechnical Risk. Land stability has been assessed, with the following findings: • Low strength ground is located at discrete locations along the route and presents an increased risk of instability of proposed embankment, cutting and Attenuation Pond slopes within the scheme. Consideration will be made at detailed design to mitigate any stability risk which may include ground improvement techniques.

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	For developments on previously developed land, applicants should ensure and demonstrate that they have considered the risk posed by land contamination, through engagement in pre-application discussions, and how it is proposed to address these. A preliminary assessment for land and groundwater contamination to determine the rendition and mitigation is needed under Land Contamination Risk Management. A preliminary assessment of land contamination and ground instability should be carried out at the earliest possible stage before a detailed application for development consent is prepared. Applicants should ensure that any necessary investigations are undertaken to ascertain that their sites are, and will, remain stable or can be made so as part of the development. The site needs to be assessed in the context of surrounding areas where subsidence, landslides and land compression could threaten the development during its anticipated life or damage neighbouring land or property. This could be in the form of a land stability or slope stability risk assessment report.	• Proposed earthwork designs should consider the findings of the main GI to determine appropriate slope gradients considering the; geology, hydrogeology, pore pressure ratio, earthwork height, available land take boundary and all the constraints including but not limited to the requirements for; VRS, drainage and maintenance access. • The PSSRs and current GI indicate that relict shear surfaces are unlikely, but their absence or presence must be confirmed during supplementary GI and during construction. • Fissuring, predominately in the over consolidated London Clay Formation is common and therefore the potential for reduced mass soil strength is to be considered in design. • Where low strength / compressible material is identified then the following measures should be taken: The rate of embankment construction should be carefully controlled to reduce the risk of high excess pore water pressures developing in the formation materials. Groundwater lowering / control is likely to be required in areas of cutting to facilitate construction and reduce the risk of washout due to water inflows to excavations. • Supplementary pumping tests may be required to enable efficient design of groundwater control measures and discharge requirements. For widened embankments, Topsoil and vegetation to be removed and the surface of slopes benched prior to placing fill. In Section 1 no significant cuttings are proposed. For attenuation pond, the potential for rapid drawdown effects must be taken into

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		consideration during detailed stability assessment. However, due to shallow groundwater in low areas where the ponds are to be located to achieve the required outfall gradients, it is anticipated that ponds will have to be lined and the effects of rapid drawdown on side slope stability will be negated. Mitigation will be included in the Geotechnical Design Report which will be produced during detailed design. **Land Quality** Land Quality has been assessed in line with Environment Agency guidance (https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm). This is a sequential approach starting with desk study to identify potential sources of land contamination, along with potential receptors and pathways, The next stage included ground investigations and risk assessment. Further risk assessment and mitigation will be produced during detailed design (based upon the final design). Appendix 10.1: Land Quality Risk Assessment, of the ES [APP-142] summarises the land quality of the proposed scheme. Land Quality issues are also covered in the reports listed above, which have also been issued to the Environment Agency and Local Authorities as part of ongoing consultations. The Geotechnical Design Report, Earthworks Specification and Materials Management Plan, due to be produced during detailed design, will be submitted to the Environment Agency and Local Authorities.

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		Consultation with the Environment Agency and Local Authorities is covered under Requirement 3 and 4 of the Draft DCO. The Environment Agency and Local Authorities are consultees to the 2nd Iteration Management Plan.
5.150 (Land contamination and instability – Mitigation)	Applicants have a range of mechanisms available to mitigate and minimise the risk of land instability. These include: • establishing the principle and layout of new development, for example avoiding mine entries and other hazards • ensuring proper design of structures to cope with movement expected, and other hazards such as mine and / or ground gases • requiring ground improvement techniques, usually involving the removal of poor material and its replacement with suitable inert and stable material. For development on land previously affected by mining activity, this may mean prior extraction of any remaining mineral resource	The Applicant's approach to mitigation is covered in the response to paragraphs 5.148 – 5.149. Further mitigation to address land stability and land quality risks will be included in the Geotechnical Design Reports, which will be completed at detailed design.
5.153 (Landscape and visual impacts – Applicant's assessment)	The applicant should carry out a landscape and visual impact assessment. A number of guides have been produced to assist in addressing landscape issues. The landscape and visual assessment for the proposed project should include the impacts during construction and operation, and reference to any operational landscape character assessment and associated studies. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England. For seascapes, applicants should consult the Seascape Character	The landscape and visual impact assessment, in Chapter 8: Landscape and visual, of the ES [APP-075] considers likely significant landscape and visual effects within Section 8.11. The assessment of landscape effects has been made on the local landscape character areas defined within published assessments. The landscape and visual impact assessment takes account of local planning policies presented within Table 8.4 of Chapter 8 of the ES.

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	Assessment and the Marine Plan Seascape Character Assessments, and any successors to them.	
5.154	The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project, potential impacts on views (including protected views) and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity, and nature conservation. The assessment should also demonstrate how noise and light pollution from construction and operational activities on residential amenity and on sensitive locations, receptors, and views will be minimised.	Section 8.11 of Chapter 8: Landscape and visual, of the ES [APP-075] considers likely significant landscape effects during both construction and operation. In line with DMRB LA 107, the effect on the constituent landscape features and elements/components of the landscape character areas have been considered in combination as part of the effects on landscape character and not as individual receptors.
5.155	Any statutory undertaker commissioning or undertaking works in relation to, or so as to affect land in England's National Parks and the Broads, or Area of Outstanding Natural Beauty, would need to comply with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949, and section 85 of the Countryside and Rights of Way Act 2000. The policy paper titled English national parks and the broads: UK government vision and circular 2010 states that major development in or adjacent to the boundary of a National Park, Area of Outstanding Natural Beauty or the Broads can have a significant impact on the qualities for which they were designated. Government planning policy advises that major development should not take place within them apart from exceptional circumstances. For significant road widening or the building of new roads or railways in England's National Parks and the Broads or Area of Outstanding Natural Beauty, applicants also need to fulfil	National Parks, the Broads and AONBs are not found in the study area.

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	the requirements set out in circular 2010 or successor documents. Management Plans should also be considered for National Parks and Area of Outstanding Natural Beauty, especially on identified special qualities of the area and any proposals for enhancement.	
1.156 – 5.158 (Landscape and visual impacts – Mitigation)	The scale of a project should be minimised to avoid or mitigate the visual and landscape effects, during construction and operation, so far as is possible while maintaining the operational requirements of the scheme. In exceptional circumstances a reduction in operational requirements might be warranted, and the Secretary of State may decide that the benefits to reduce the landscape effects outweigh the marginal loss of scale or function. Projects need to be designed carefully, taking account of the potential impact on the landscape. Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, design (including choice of materials), and topographical interventions (for example, creation of bunds or lowering of ground level). Also, landscaping schemes (including screening options and design elements that soften the built form such as green or brown roofs, or living walls), depending on the size and type of the proposed project. Materials and designs for infrastructure should always be given careful consideration in terms of environmental standards.	The nature of the existing landscape is considered within Section 8.8 of Chapter 8: Landscape and visual, of the ES [APP-075], and the nature of the landscape effects likely to occur has been considered within the assessment of likely significant effects in Section 8.11 of Chapter 8 of the ES. To avoid or minimise harm to the landscape and views, embedded mitigation measures for this aspect have been developed as presented within Section 8.10 of Chapter 8 of the ES [APP-075]. To avoid or limit harm to the landscape and views, embedded mitigation measures for this aspect have been developed as presented within Section 8.10 of Chapter 8: Landscape and visual, of the ES [APP-075]. Further design considerations and landscape objectives have been defined as part of an overarching set of scheme-specific design principles presented within the DAS [APP-268]. These have been used to inform development of the proposed scheme design, including both the highway alignment and Figure 2.1: Environmental Masterplan, of the ES [APP-086 - APP-088].
5.159	Depending on the topography of the surrounding terrain and areas of population, it may be appropriate to undertake landscaping off-site, although if such	All landscape mitigation, presented within Section 8.10 of Chapter 8: Landscape and visual, of the ES [APP-075] and illustrated on Figure 2.1: Environmental Masterplan, of the ES

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	landscaping was proposed to be consented by the Development Consent Order, it would have to be included within the order limits for that application. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista.	[APP-086 - APP-088], is incorporated within the extents of the Order Limits. Assessment of visual effects from five longer distance illustrative viewpoints (A to E) within the landscape and visual impact assessment demonstrates that landscape and visual effects beyond 1km from the Order Limits would not be significant. For visual receptors at illustrative viewpoint A, the magnitude of effect would reduce from minor adverse in year 1 to negligible adverse in year 15 when mitigation planting would be established. There would be no change at any assessment timeframe for visual receptors at illustrative viewpoints B to E. Further, offsite, planting is not therefore considered necessary.
5.160	Applicants should consider how landscapes can be enhanced using landscape management plans, as this will help to enhance environmental assets where they contribute to landscape and townscape quality, and can reinforce or enhance landscape features and character.	The Landscape and Ecology Management Plan (LEMP) [APP-193] seeks to ensure the protection and management of landscape and ecological features such as vegetation and habitats, during construction of the proposed scheme, and the successful establishment of landscape and ecological mitigation including planting and seeding associated with the proposed scheme. The LEMP has been developed to ensure that the proposed scheme reflects the existing landscape character and context of the A12 between Chelmsford and Colchester. The design principles presented within the Design Principles document [REP2-006] have been used to inform development of the proposed scheme design, including the Environmental Masterplan [APP-086, APP-087 and APP-088]. The design principles relating to landscape focus on replacement of vegetation lost during construction, integration of the proposed scheme into the landscape, provision of screening vegetation, reinforcement of the landscape pattern and

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		character, improvement or reinstatement of natural habitats and creation of new habitats.
5.176 (Land Use, including Open Space, Green Infrastructure and Green Belt – Applicant's assessment)	Existing open space, sports and recreational buildings and land should not be developed unless the land is surplus to requirements or the loss would be replaced by equivalent or better provision in terms of quantity, quality and functionality in a suitable and accessible location. Applicants considering proposals which would involve developing such land should have regard to any local authority's assessment of need for such types of land and buildings.	There are no areas of greenbelt in or around the Order Limits, and no sports and recreation buildings included within the Order Limits. Loss of open space has been assessed and is discussed in Chapter 13: Population and human health, of the ES [APP-080], with further detail provided in Appendix 13.3: Detailed Land Use and Accessibility Assessment Tables, of the ES [APP-155]. Any loss of such community assets would be replaced by equivalent or improved provision. The land identified as open space and its replacement land are explained and identified in the Replacement Land Statement [APP-279]. The Statement of Reasons [APP-042] also provides detail of land that is proposed to be acquired, Section 7.2 of which refers to special category land forming part of open space that would be acquired for the delivery of the proposed scheme.
5.178	The applicant should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate.	Existing and proposed land uses and details of relevant planning history relating to developments within and adjacent to the Order Limits are within Section 5.4 of the CftS [APP-249]. The existing conditions within the Order Limits and surrounding area are also reported in Chapters 6 to 15 of the ES [APP-073 - APP-082].
5.180 – 5.181	Applicants should take into account the economic and other benefits of the best and most versatile agricultural	Chapter 10: Geology and soils, of the ES [APP-077] details the site-specific ALC survey undertaken for the proposed

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	land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification). Where significant development of agricultural land is demonstrated to be necessary, applicants should seek to use areas of poorer quality land in preference to that of a higher quality. Applicants should also identify any effects, and seek to minimise impacts, on soil health and protect and improve soils, taking into account any mitigation measures proposed. Soil is an important natural capital resource, providing many essential services such as storing carbon (also known as a carbon sink), reducing the risk of flooding, providing wildlife habitats and delivering global food supplies. Guidance on sustainable soil management can be found in Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. As a first principle, developments should be on previously developed (brownfield) sites provided that it is not of high environmental value (see paragraphs 5.146 to 5.151). The Agricultural Land Classification is the only approved system for grading agricultural quality in England and Wales. If necessary, field surveys should be used to establish the Agricultural Land Classification grades in accordance with the current grading criteria, or any successor to it and identify the soil types to inform soil management at the construction, operation and decommissioning phases in line with the Defra Construction Code. Applicants are encouraged to develop and implement a Soil Resources and Management Plan which could help to use and manage soils sustainably and minimise adverse impacts on soil health and potential land contamination. This is to be in line with the ambition set out	scheme to clearly identify areas of best and most versatile (BMV) land. The full report is presented in Appendix 10.2: Agricultural Land Classification Survey Report, of the ES [APP-143]. The first iteration of the EMP [APP-184] includes a Soil Handling Management Plan, which details how the proposed scheme will seek to minimise the impact on soil quality, and a Contaminated Land Management Plan, which demonstrates how contaminated land will be remediated if discovered during construction. The design for all elements of the proposed scheme has sought to limit land-take as far as practicable. Permanent sealing or wastage of topsoil will be avoided via stripping and reuse elsewhere, and best practice soil management measures will be followed to limit degradation during its handling. The proposed soil management measures to be adopted during construction are detailed in Chapter 10: Geology and soils, of the ES [APP-077]. Appendix 10.1: Land Quality Risk Assessment, of the ES [APP-142] includes the land quality risk assessment which has been completed in line with the Land Contamination Risk Management (Environment Agency, 2021). A summary of the assessment is included in Chapter 10: Geology and soils, of the ES.

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	in the 25 Year Environment Plan to manage all of England's soils sustainably by 2030.	
5.182	The applicant should engage in pre-application discussions with the local planning authority and other regulatory bodies at the earliest opportunity. It is essential that engagement is meaningful and supported where necessary by Statements of Common Ground. Discussions will cover a range of potential local impacts and issues, and the local planning authority should identify any concerns it has about the impacts of the application on land-use, having regard to the development plan and relevant applications. This includes, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements. These are also matters that local authorities may wish to include in their Local Impact Report which is submitted during examination and after an application for development consent has been accepted.	The Consultation Report [APP-045] presents the proposed schemes approach to pre-application engagement with stakeholders, the community and regulatory bodies. Since acceptance of the Application, the Applicant has been working towards producing a number of Statements of Common Ground (SoCG) with statutory and non-statutory consultees in relation to the proposed scheme. In relation to the four host planning authorities, and Essex County Council, Statement of Common Ground working groups were set up in the first quarter of 2022 to build on previous engagement and develop Statements of Common Ground. With each authority the structure of the SOCG follows consultation responses received. The status of these items, including progress made, as well as a complete list of engagement with each authority will be presented within the SOCG.
5.183	Applicants should safeguard any mineral resources on the proposed site as far as possible. Taking into account the policies of the Minerals Planning Authority, applicants should consider whether prior extraction of the minerals would be appropriate.	Mineral resources are assessed in Chapter 11: Material assets and waste, of the ES [APP-078]. The alignment of the mainline around junction 22 (Colemans interchange) has been revised to reduce the impact on Colemans Farm Quarry, limiting impacts to the quarry's extraction programme. Appendix 11.1: Mineral Resource Assessment, of the ES [APP-144] has been prepared to establish the existence, or otherwise, of a mineral resource capable of having economic importance within the Order Limits. A Mineral Resource Assessment (Appendix 11.1 of the Environmental Statement [APP-144]) has been prepared to establish the existence, or otherwise, of a mineral resource capable of having economic

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		importance within the Order Limits. Where the proposed scheme could result in the sterilisation of mineral resources, the environmental, social and economic viability of prior extraction has been considered. The viability assessment as part of the MRA concludes that it would not be viable to prior extract and backfill the minerals that would be sterilised by the proposed scheme.
5.184 (Land Use, including Open Space, Green Infrastructure and Green Belt – Mitigation)	Applicants can avoid, or minimise, the direct effects of a project on the existing use of the proposed site or proposed uses near the site, by the application of good design principles, including the layout of the project and the protection of soils during construction.	The Design Principles [REP2-006] provide several design principles which detail how the design of the proposed scheme will minimise visual and ground impact on the existing land use of the area. These include: • PRO.06 (Mineral resources) • STR.07 (Barriers and fences) • STR.08 (Noise Barriers) • LST.12 (Main road signs) • LSC.01 (Retain vegetation) • LSC.04 (Visual) • LSC.10 (Structures detailed design) • LSC.12 (Borrow pits and attenuation) • LSC.13 (Species) • LSC.17 (Screening)
5.185	Where green infrastructure is affected, applicants should aim to ensure the functionality and connectivity of the green infrastructure network is maintained and any necessary works are undertaken, where possible, to	The locations of the links between green infrastructure surrounding the proposed scheme are shown in the Streets,

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	mitigate any adverse impact. Applicants should endeavour to improve networks and other areas of open space, including appropriate access to new coastal access routes, National Trails and other public rights of way.	Rights of Way and Access Plans [TR010060/APP/2.6] as referred to in the schedules to the draft DCO [REP3-002]. As discussed in the DAS [APP-268], historic PRoWs previously severed would be reinstated by the proposed scheme. New connections would also allow continued access. The locations of the links between green infrastructure surrounding the proposed scheme are shown in in the Streets, Rights of Way and Access Plans [AS-027 - AS-028] as referred to in the schedules to the draft DCO [REP3-002].
5.186	The Secretary of State should also consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of any planning obligations, for example, to provide an exchange of land between two owners and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness, quality and accessibility. Alternatively, where sections 131 and 132 of the Planning Act apply, any replacement land provided under those sections will need to conform to the requirements of those sections.	The Applicant has identified areas of open space to which section 132 of the Planning Act 2008 apply. To that effect the applicant has prepared a Replacement Land Statement (APP-279) and hold discussions and site visits with the interested parties to agree the replacement land area, it final layout and compliance with S.132 of the Planning Act 2008. Negotiations are ongoing and reflected on the Statement of Common Grounds for Braintree District Council [REP2-020], Witham Town Council [REP2-022] and Essex County Council [REP2-018]. The other interested parties such as Copford Parish Council, and developers have also been contacted and agreements on replacement land are well advanced.
5.187	Existing trees and woodlands should be retained where possible. The applicant should assess the impacts on, and loss of, all trees and woodlands within the project boundary and develop mitigation measures to minimise adverse impacts and any risk of net deforestation as a result of the scheme. Mitigation may include the use of buffers to enhance resilience, improvements to connectivity, and improved woodland management. Where	Existing vegetation within the Order Limits including temporary works areas would be retained as far as reasonably practicable in accordance with mitigation LV4 of the Register of Environmental Actions and Commitments REAC, appended to the first iteration of the First Iteration Environmental Management Plan [APP-185].

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	woodland loss is unavoidable, compensation schemes will be required, and the long-term management and maintenance of newly planted trees should be secured.	In line with DMRB LA 107, the assessment of impacts on landscape components, such as trees and woodland, is considered within the overall assessment of impacts on landscape character presented within Chapter 8 Landscape and visual of the Environmental Statement [APP-075]. Section 8.11 of this chapter presents the loss of trees with TPOs; veteran, ancient and notable trees as defined by the Woodland Trust; and further potential veteran and ancient trees identified within the scheme-specific arboricultural survey. Table 9.23 of Chapter 9: Biodiversity [APP-076] indicates that the proposed scheme would deliver an overall increase of 42.52ha in woodland and forest, taking these habitats from an existing baseline of 61.55ha to a post-development area of 104.7ha. Landscape planting mitigation is illustrated on the Environmental Masterplan [APP-086, APP-087 and APP-088] and landscape mitigation, including tree protection measures, is secured within the REAC. The long-term management and maintenance of mitigation planting is presented within the Landscape and Ecology Management Plan [APP-193] and secured by LV16 of the REAC [APP-185].
5.188	Where a proposed development has an impact on a Mineral Safeguarding Area, the Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to safeguard mineral resources.	Appendix 11.1: Mineral Resource Assessment, of the ES [APP-144] has been prepared to establish the existence, or otherwise, of a mineral resource capable of having economic importance within the Order Limits. Where the proposed scheme could result in the sterilisation of mineral resources, the environmental, social and economic viability of prior extraction has been considered. The viability assessment as

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		part of the MRA concludes that it would not be viable to prior extract and backfill the minerals that would be sterilised by the proposed scheme. Specifically, the alignment of the mainline around junction 22 (Colemans interchange) has been revised to reduce the impact on Colemans Farm Quarry which is within an MSA as part of the Essex Minerals Local Plan (Essex County Council, 2017). The proposed scheme's realignment would limit impacts to the quarry's extraction programme.
5.190 – 5.191	Public rights of way, National Trails, and other rights of access to land (for example, open access land) are important recreational facilities for walkers, wheelers, cyclists and equestrians. Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land, and to consider what opportunities there may be to improve access and connectivity. In considering revisions to an existing right of way, consideration needs to be given to the use, character, attractiveness and convenience of the right of way. The Secretary of State should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements in respect of these measures might be attached to any grant of development consent. Public rights of way can be extinguished under section 136 of the Planning Act if the Secretary of State is satisfied that an alternative has been or will be provided or is not required.	Through consultation and workshops, consideration has been given to the use, character, attractiveness and convenience of the right of way network, and how the proposed scheme both directly and indirectly impacts it. The Applicant has sought so far as possible to not only mitigate affected public rights of way but to provide improved routes for active travel for utility journeys and leisure purposes. This has included connecting historically severed accesses. An assessment of the impact of the proposed scheme on public rights of way is set out in Chapter 13: Population and human health [APP-080] and Chapter 8: Landscape and visual, of the ES [APP-075]. No impacts on coastal access, National Trails or open access land have been identified.

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5.202 (Historic Environment – Applicant's assessment)	The applicant should undertake an assessment of any significant heritage impacts of the proposed project and should describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the relevant Historic Environment Record should have been consulted and the heritage assets assessed using appropriate expertise. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, a field evaluation.	An assessment has been undertaken to identify likely significant heritage impacts from the proposed scheme and appropriate mitigation measures. The methodology and findings of the assessment are presented in Chapter 7: Cultural heritage, of the ES [APP-074]. Non-designated cultural heritage assets have been identified through desk-based studies in Appendix 7.1: Cultural Heritage Gazetteer, Appendix 7.2: Cultural Heritage Desk Based Assessment, Appendix 7.3: Palaeolithic Desk Based Assessment and Appendix 7.4: Aerial Investigation and Mapping Report, of the ES [TR010060/APP/6.3], supplemented by a programme of non-intrusive and intrusive field evaluation reported in Appendices 7.5 and 7.6: Geophysical Survey Phase 1 and 2, and Appendix 7.7: Archaeological Trial Trenching Final Report, of the ES [APP-114]. Consultation has also been carried out with Historic England to gain their views and guidance, which is reported in Chapter 7: Cultural heritage, of the ES [APP-074].
5.203	The discovery of heritage assets has potential to have a significant delay on scheme development, and applicants should ensure that protection of the historic environment is considered early in the development process.	Measures to identify the presence of heritage assets at risk of harm from construction or operation of the proposed development have included desk-based assessments, aerial investigation and mapping studies, geophysical surveys and trial trenching to identify archaeological remains, and borehole and test pit surveys to identify deposits with the potential to contain Palaeolithic archaeological remains and palaeoenvironmental deposits. The risk that unexpectedly complex or significant heritage assets could be identified during construction of the proposed development has been accounted for and measures already taken provide confidence that such remains are unlikely to be encountered.

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5.209 (Historic Environment – Decision making)	In considering the impact of a proposed development on any heritage assets, the Secretary of State should take into account the particular nature of the significance of the heritage asset, and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between their conservation and any aspect of the proposal.	The significance of cultural heritage assets has been assessed as part of the baseline data gathering to inform Chapter 7: Cultural heritage, of the ES [APP-074].
5.210	The Secretary of State should take into account the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution that their conservation can make to sustainable communities – including their economic vitality. The Secretary of State should also take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials, use and landscaping (for example, screen planting).	Measures to sustain and, where practicable, enhance the significance of cultural heritage assets are included in Chapter 7: Cultural heritage, of the ES [APP-074].
5.211	When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important the asset, the greater the weight should be. Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Given that heritage	The assessment set out within Chapter 7: Cultural heritage, of the ES [[APP-074] and the CftS [APP-249] concludes that no physical impacts or setting impacts of substantial harm are likely to occur on designated cultural heritage assets.

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	assets are irreplaceable, harm or loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a grade II Listed Building, or a grade II Registered Park or Garden should be exceptional. Substantial harm to, or loss of, designated assets of the highest significance, including World Heritage Sites, Scheduled Monuments, grade I and II* Listed Buildings, Registered Battlefields, and grade I and II* Registered Parks and Gardens should be wholly exceptional.	
5.212	Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss.	Significant effects on designated cultural heritage assets, during the operation and construction phases, have been identified and, where practicable, have been mitigated, as discussed in Chapter 7: Cultural heritage, of the ES [APP-074]. After the introduction of appropriate mitigation to reduce the impact of the significant effects on cultural heritage assets, it is assessed that across archaeology, built heritage and historic landscapes there would largely be a combination of slight to moderate adverse significant effects for construction and operation. NPPF Planning Practice Guidance (Online - 2021), Historic Environment, paragraph 18defines ‘substantial harm’ as effects of very large and large adverse significance. The proposed scheme would not result in any effects of very large or large significance, and after mitigation would therefore not result in ‘substantial harm’ to cultural heritage assets. Section 7.11 of Chapter 7: Cultural Heritage of the ES [APP-074] details the assessment of likely significant effects and also

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		provides mitigation to ensure these affects would not result in substantial harm as defined by the NPPF A summary of all effects on cultural heritage, including those assessed not to be significant, is presented in Appendix 7.9: Cultural Heritage Impact Assessment Summary Tables, of the ES [APP-117]. A summary of the impact on cultural heritage is presented in the CftS [APP-249].
5.213	Where the proposed development will lead to substantial harm to, or total loss of, significance of a designated heritage asset, the Secretary of State should refuse consent unless it can be demonstrated that it is necessary to deliver substantial public benefits that outweigh that loss or harm. Alternatively, that all of the following apply: • the nature of the heritage asset prevents all reasonable uses of the site • no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation • conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible • the harm or loss is outweighed by the benefit of bringing the site back into use	The assessment set out within Chapter 7: Cultural heritage, of the ES [APP-074] has found that no physical impacts or setting impacts of substantial harm would be likely on designated cultural heritage assets.
5.222 (Noise and vibration – Applicant's assessment)	Where noise impacts are likely to arise from the proposed development, the applicant should include the following in its noise assessment: • a description of the noise sources including likely usage in terms of number of movements, fleet mix and diurnal	A description of the existing situation is contained within Section 12.8 of Chapter 12: Noise and vibration, of the ES [APP-079]. The noise sources from the proposed scheme are described within Section 12.9 of Chapter 12 of the ES.

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	pattern. For any associated fixed structures, such as ventilation fans for tunnels, information about the noise sources including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise • identification of noise sensitive premises and noise sensitive areas that may be affected • the characteristics of the existing noise environment • a prediction on how the noise environment will change with the proposed development: • in the shorter term such as during the construction period • in the longer term during the operating life of the infrastructure • at particular times of the day, evening and night (and weekends) as appropriate • an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas, including identifying whether any particular groups are more likely to be affected • measures to be employed in mitigating the effects of noise applicants should consider using best available techniques to reduce noise impacts	The noise sensitive premises are identified within Section 12.8 of Chapter 12 and are shown on Figure 12.2: Noise Sensitive Receptors, of the ES [APP-079]. The characteristics of the existing noise environment are described within Section 12.8 of Chapter 12 and within Appendix 12.3: Baseline Noise Surveys, of the ES [APP-149]. The prediction of how the noise environment would change and the assessment of effects from this change is provided within Sections 12.9 and 12.11 of Chapter 12 of the ES. This includes during the construction and operational phases. Mitigation measures are described in Section 12.10 of Chapter 12 of the ES and are secured in the REAC within the first iteration of the EMP [APP-185]. The noise assessment presented in Chapter 12 of the ES is considered to be proportionate to the scale of the proposed scheme.
5.223	The potential noise impact elsewhere that is directly associated with the development, such as changes in road and rail traffic movements elsewhere on the national networks, should be considered as appropriate.	The assessment of road traffic noise is presented in Chapter 12: Noise and vibration, of the ES [APP-079]. It includes consideration of changes in road traffic noise for all road links where a significant change in noise is predicted, regardless of whether they are close to the proposed scheme or at a greater distance.

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5.224	Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. The prediction of road traffic noise should be based on the method described in Calculation of Road Traffic Noise and Common Noise Assessment Methods (CNOSSOS). The prediction of noise from new railways should be based on the method described in Calculation of Railway Noise and Common Noise Assessment Methods (CNOSSOS). For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies.	The predictions of road traffic noise are presented in Chapter 12: Noise and vibration, of the ES [APP-079]. They have been undertaken following the calculation methodology provided in Calculation of Road Traffic Noise (Department of Transport and Welsh Office, 1988). The assessments of construction noise and vibration have been undertaken with reference to BS 5228 Part 1 (British Standards Institution, 2014a) and Part 2 (British Standards Institution, 2014b).
5.225	The applicant should consult Natural England with regard to assessment of noise on designated nature conservation sites, protected landscapes, protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected species in nearby sites may also need to be taken into account.	The project team have consulted Natural England as detailed in Table 9.1 of Chapter 9: Biodiversity, of the ES [APP-076]. The assessment of noise impacts on biodiversity, arising during both the construction and operational phase, is also presented in Chapter 9 of the ES. It includes consideration of disturbance to protected species as a result of changes in noise levels. European protected species mitigation licences will be sought from Natural England for species where noise disturbance is considered to be significant.
5.227 (Noise and vibration – Mitigation)	Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following: • engineering: containment of noise generated • materials: use of materials that reduce noise, (for example, low noise road surfacing)	The approach to mitigation is described in paragraphs 12.10.1 to 12.10.4 of Chapter 12: Noise and vibration [APP-079], with mitigation measures being considered within the context of sustainable development. The approach to mitigation is to first examine measures that will reduce the noise at source through the use of engineering or materials. Secondly the mitigation approach examines measures to reduce the

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	• lay-out: adequate distance between source and noise-sensitive receptors • incorporating good design: to minimise noise transmission through landscaping and screening by natural or purpose-built barriers including topographical changes • administration: specifying acceptable noise limits or times of use (for example, in the case of railway station public address systems)	propagation of noise through lay-out and design (e.g. bunds, noise barriers). Noise limits during construction have been specified and are shown within Tables 4.2 (daytime) and Table 4.3 (night-time) of Appendix 12.4: Construction noise calculations, of the ES [APP-150]. With regards to administration, there are no noise limits set by National Highways for the operation of the proposed scheme.
5.228	For most national network projects, the relevant Noise Insulation Regulations will apply. These place a duty on, and provide powers to, the relevant authority to offer noise mitigation through improved sound insulation to dwellings, with associated ventilation to deal with both construction and operational noise. An indication of the likely eligibility for such compensation should be included in the assessment. In extreme cases, the applicant may consider it appropriate to provide noise mitigation, through the compulsory acquisition of affected properties in order to gain consent for what might otherwise be unacceptable development. Where mitigation is proposed to be dealt with through compulsory acquisition, such properties would have to be included within the Development Consent Order land in relation to which compulsory acquisition powers are being sought.	Three potential dwellings have been identified eligible for insultation to protect the residents of these dwellings from noise from the proposed scheme. The Noise Insulation Regulations 1973 is designed to protect residents subject to increases in traffic noise at or above a specified level arising directly from the use of new or altered roads, by making available grants for noise insulation work to be carried out on their homes. The eligibility criteria are described within Appendix 12.2: Noise Assessment Methodology, of the ES [APP-148]. In summary, to be eligible, a dwelling must be within 300m of the proposed scheme, have a noise level above 68dB LA, and experience a 1dB(A) increase in long-term noise levels. The three dwellings identified are as follows: • Hall Chase Farm House, Marks Tey • Two dwellings at Sorrells Cottages, Bury Lane, Hatfield Peverel

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5.229	Applicants should consider opportunities to address the noise issues associated with the Important Areas as identified through the noise action planning process.	Where practicable, opportunities have been considered to address the noise issues in Noise Important Areas. As required by DMRB LA 111, the impact at each Noise Important Area is described within Section 12.11 of Chapter 12: Noise and vibration, of the ES [APP-079].
5.230 (Noise and vibration – Decision Making)	Developments must be undertaken in accordance with statutory requirements for noise. Due regard must have been given to the relevant sections of the Noise Policy Statement for England, National Planning Policy Framework and the government's associated planning guidance on noise.	Chapter 12: Noise and vibration, of the ES [APP-079] presents the assessment of impacts from noise and vibration. The assessment has been undertaken in accordance with the instructions within DMRB LA 111 Noise and Vibration (Highways England, 2020b). By using DMRB LA 111, it is considered that the proposed scheme can be measured against the policy requirements of the Noise Policy Statement for England (Defra, 2010) and National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021).
5.231	The project should demonstrate good design through optimisation of scheme layout to minimise noise emissions and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission. The project should also consider the need for the mitigation of impacts elsewhere on the road and rail networks that have been identified as arising from the development, according to government policy.	In the early design of the proposed scheme, the route alignment was considered in order to avoid or minimise impacts on communities or individual receptors. As the design progressed, this has been optimised with the consideration of noise barriers and low noise surfacing, as described in Section 12.10 of Chapter 12: Noise and vibration, of the ES [APP-079].
5.235 - 5.236 (Socio-economic impacts – Applicant's assessment)	Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts. This assessment should consider all relevant socio-economic impacts, which may include:	At the time of scoping and preparation of the Environmental Statement the National Policy Statement for National Networks did not outline a requirement to address socio-economic impacts and therefore the scope of assessment focused on addressing the aspects of population and human health in accordance with DRMB LA 112.

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	• the creation of jobs and training opportunities. Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the UK's transition to net zero • the value of increased connectivity on productivity and access to jobs, services and housing • the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities. Applicants should engage with local businesses and the local community at the pre-construction phase to understand opportunities for businesses and the community throughout construction, such as employment or educational programmes • any indirect beneficial impacts for the region hosting the infrastructure, particularly in relation to use of local support services and supply chains • effects on tourism • cumulative effects - if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.	However the requirements for addressing socio-economic impacts as set out in the Overarching National Policy Statement for Energy (EN-1) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) were considered in relation the proposed gas main diversion works. As stated in paragraph 1.2.4 of Appendix 13.5 Legislative and Policy Framework, of the Environmental Statement [APP-157], it was concluded that the gas main diversion of the nature included in the proposed scheme is not likely to have socio-economic impacts (positive or negative) at local or regional levels as it would not create many jobs or training opportunities, additional services, effects on tourism or a significant influx of workers. The Environmental Statement [APP-080] has reported relevant socio-economic impacts in relation to wider determinants of human health in the Population and Human Health Assessment (Chapter 13 of the Environmental Statement [APP-080]) and regional socio-economic impact in cumulation with other major development in the Cumulative Effects Assessment (Chapter 16 of the Environmental Statement [APP-083]). • Paragraphs 13.18.29 – 13.18.34 of the Population and Human Health assessment [APP-080] provide an assessment of the potential creation of jobs and training opportunities during the construction phase. As noted in that assessment there is an element of uncertainty in the overall numbers of new jobs considered likely as this is affected by a number of issues such as market conditions at the time of construction, the evolution of sustainable construction practices involving offsite, low carbon

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		construction, and the skill capacity of the supply chain partners who would be employed on the project. • The Case for the Scheme [APP-249] estimates that journey time savings would provide £235.5 million benefit to business users and providers (para 6.3.4) while paragraph 6.3.14 identifies that the value of productivity improvements to the economy would amount to £253.9 million and these productivity benefits relate in part to improvements in journey time. The Population and Human Health assessment [APP-080] provides an assessment of health impacts relating to the determinant 'access to services, employment, education facilities and skills' which covers issues such as access to local public and key services, connections to jobs, links between communities (see Table 13.13 of Chapter 13, [APP-080]). Paragraphs 13.15.35 – 13.15.40 provide the baseline, while paragraphs 13.18.24 – 34 and 13.18.82 – 88 provide the assessment in terms of value to human health. • As a highway scheme, the provision of additional local services, including the provision of educational and visitor facilities, are not directly relevant to the scope of the proposed scheme. However the proposed scheme does provide some improvements to local transport infrastructure as assessed in paragraphs 13.10.48 – 58 of the Population and Human Health assessment in Chapter 13 [APP-080]. The Applicant has committed in engaging with key stakeholders such as Essex County Council, schools, colleges, Local Enterprise Partnerships Prince's Trust and community organisations in the pre-construction phase to support education (STEM)

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		opportunities and construction employment opportunities (see paragraph 13.17.20 – 21). A Community Liaison Manager would be appointed in the pre-construction phase to engage with local communities throughout the construction phase (PH1 of the Register of Environmental Actions and Commitments (REAC) [APP-185]. • Indirect benefits on the region in relation to local construction skills and employment are outlined in paragraph 16.7.65 of Chapter 16, Cumulative Effects, of the Environmental Statement [APP-083]. The Case for the Scheme [APP-249] section on 'wider economic benefits' addresses the estimated monetary value of improved productivity in jobs, increasing labour supply and other increases in business output. • Tourism was not specifically included in the scope of assessment as it was not considered to be a key industry within the study area for the proposed scheme (Table 2.1 of Appendix 13.2 Stakeholder Engagement and Scoping for Human Health [APP-154]). However potential effects on access to local recreation destinations are addressed in the assessment on community land and assets in Chapter 13 Population and Human Health [TR010060/APP/6.1] [APP-080] and the supporting Appendix 13.3 [APP-155]. • The cumulative impact of the proposed scheme in combination with other nationally significant infrastructure projects in the region has been addressed in Chapter 16, Cumulative Effects, of the Environmental Statement [APP-083]. The assessment is set out in paragraphs 16.7.50 – 65. It considers the potential cumulative impacts

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		from construction workers on housing, health services, education services, employment and labour supply.
5.237	Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies.	Section 2.3 of the Case for the Scheme [APP-249] describes local and regional socio-economic conditions including population and employment growth. Section 8 of the Case for the Scheme sets out how the proposed scheme, notably paragraphs 8.2. 18 – 41 address how the strategic highway improvement correlates with local planning policy for socio-economic growth. Tables 13.19 to 13.21 in Chapter 13, Population and Human Health [APP-080] provide data on socio-economic indicators to inform the baseline health sensitivity of the population in the study area. Table 1.2 of Appendix 13.5 Legislative and Policy Framework, of the Environmental Statement [APP-157] refers to local planning policy relating to the role of transport infrastructure to support housing growth, community and leisure facilities, sustainable growth, economic development, social infrastructure and healthy lifestyles. The table sets out how the Population and Human Health impacts assessed in Chapter 13 of the Environmental Statement [APP-080] relate to these socio-economic policy considerations.
5.239 – 5.240 (Socio-economic impacts – Mitigation)	The Secretary of State should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development. For example, high quality design can improve the visual and environmental experience for visitors and the local community alike.	The assessment has not identified any significant adverse socioeconomic impacts of the development, therefore no mitigation has been proposed. The proposed scheme incorporates a high quality design as set out in the Environmental Masterplan [APP-086 - APP-088].

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	This could include the potential for jobs to be created in the area as a result of a major scheme, the impact on local businesses and the supply chain, and potentially require the provision of additional local services. This is more relevant to Strategic Rail Freight Interchanges than road or rail schemes.	The proposed scheme response to potential job creation and impacts on local businesses and supply chain is set out above in relation to paragraphs 5.235 - 5.236.
5.245 (Water quality and resources – Applicant's assessment)	Applicants should make early contact with the relevant regulators, including the Environment Agency, for abstraction licensing or water quality activity or groundwater activity permits, and with water supply companies likely to supply the water. Where development is likely to have adverse effects on the water environment, the applicant should undertake an assessment of the existing status and impacts of the proposed project on water quality, water resources and physical characteristics of the water environment as part of the Environmental Statement or equivalent. The assessment should also include how this might change due to the impact of climate change on rainfall patterns and consequently water availability across the water environment (see paragraphs 4.30 to 4.41).	Discussions have taken place during development of the ES regarding likely requirements for abstraction licensing with the Environment Agency and with Anglian Water as the water supplier and sewerage undertaker. A list of licences and permits required for the construction and operation of the proposed scheme, including those required by Anglian Water and the Environment Agency, is available in the Consents, Licences and Agreements Position Statement [REP3-007]. The impacts of the proposed scheme on water quality, water resources and physical characteristics are addressed within Chapter 14: Road drainage and water environment, of the ES [APP-081] and its associated appendices and the draft Statements of Common Ground between the parties, which will be submitted during the examination
5.246	For those projects that are improving the existing infrastructure, such as road widening, opportunities should be taken, where feasible, to improve the quality of existing discharges where these are identified and shown to contribute towards Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 ("Water Framework Regulations") commitments. A permit under the Environmental Permitting Regulations may also be required where improvements are being made to existing	The assessment of water quality impacts has been based upon the methodology provided in DMRB LA 113 and assessed using Highways England Water Risk Assessment Tool (HEWRAT). Opportunities for water quality enhancements have been explored as the design has developed. Attenuation ponds would also provide an enhancement for those catchments where the HEWRAT assessments determined that mitigation is not required, which would be a beneficial effect. Water quality is addressed within

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	infrastructure, for example, the discharge of contaminated water from roads.	Appendix 14.1: Water Quality Assessment Report, of the ES [TR010060/APP/6.3].
5.247	Under Environmental Permitting Regulations, applicants are required to manage surface water during construction by treating surface water runoff from exposed topsoil prior to discharging and to limit the discharge of suspended solids. For example, from car parks or other areas of hard standing, during operation. Consent may be required for working near to a river from the Environment Agency and a pollution incident response plan is recommended.	Measures to mitigate the potential water impacts during construction are set out in Appendix N of the EMP; the water Management Plan [APP-198]. The purpose of this WMP is to detail the water management principles and procedures to: • Prevent the pollution of and contamination to groundwater and surface waters • Protect and preserve the hydromorphological and ecological elements of watercourses and water resources • Plan how water would drain from the site during construction • Identify measures to mitigate the risk of flooding as a result of the construction of the proposed scheme • Identify measures for the sustainable use of water
5.248	Applicants should consider protective measures to control the risk of pollution to groundwater beyond those outlined in Environmental Management Plans - this could include, for example, the use of protective barriers.	The magnitude of impacts and significance of effects of discharges to groundwater along with mitigation measures is considered through the water quality assessment report [APP-158] and the groundwater assessment [APP-161]. With the implementation of mitigation measures no significant impacts from proposed scheme discharges have been identified.
5.249 – 5.250	Any assessment for both the construction and operational phases of the development should describe:	Water quality and impacts of the proposed scheme upon them are described within Chapter 14: Road drainage and the water environment, of the ES [APP-081] and Appendix 14.1:

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	• the existing quality of waters affected by the proposed project, and how climate change will impact on this • existing water resources affected by the proposed project, the impacts of the proposed project on water resources, and how climate change will impact on this • existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project, and any impact of physical modifications to these characteristics • any impacts of the proposed project on water bodies or protected areas under the Water Framework Regulations and source protection zones around potable groundwater abstractions; and how climate change will impact on this • any cumulative effects The assessment should also identify protected areas and other water usages within the vicinity of any discharge, such as bathing waters, abstractions and fisheries at risk from proposed works and the permits/consents required. It should also identify opportunities to improve water quality, for example, through nature based approaches or solutions, and as part of environmental and biodiversity net gain.	Water Quality Assessment Report, of the ES [TR010060/APP/6.3]. Issues relating to the Water Framework Directive are addressed within Appendix 14.2: Detailed Water Environment Regulations Compliance Assessment, of the ES [TR010060/APP/6.3]. Groundwater issues are further discussed within Appendix 14.4: Groundwater Assessment, of the ES [TR010060/APP/6.3].
5.251 (Water quality and resources – Mitigation)	The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling. If an applicant needs new water infrastructure, significant supplies or impacts other water supplies, the applicant should consult with the local water company and the Environment Agency.	In the response to the Environment Agency's written representation at Deadline 2 submitted by the Applicant at Deadline 3 [REP3-009] connections to mains supply would be a temporary measure and discussions with the water company are ongoing.

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		No new permanent sources of supply are required by the proposed scheme.
5.252 – 5.253	The Secretary of State should consider whether the mitigation measures put forward by the applicant which are needed for operation and construction (and which are over and above any which may form part of the project application) are acceptable. A construction management plan may help codify mitigation. The project should adhere to any National Standards for Sustainable Drainage Systems. The Sustainable Drainage Systems Technical Standards introduced a hierarchical approach to drainage design that promotes the most sustainable approach but recognises feasibility and use of conventional drainage systems as part of a sustainable solution for any given site given its constraints	The first iteration of the EMP [APP-184] provides details of all the environmental actions and commitments required to manage and minimise the environmental effects of the proposed scheme identified in the ES [APP-068 – APP-085]. The actions and commitments would be secured by the first iteration EMP as a certified document. The second iteration of the EMP (based on the requirements of the first iteration) would include control measures for environmental impacts arising during construction, in addition to more detailed management plans and methodologies on the design and construction of the proposed scheme. Schedule 2 of the draft DCO [REP3-002] details that the construction of the proposed scheme must be carried out in accordance with the approved second iteration EMP. On completion of construction, a final version of the EMP (third iteration EMP) relating to the operational and maintenance phase of the proposed scheme would be prepared. Overall, the iterative EMP process would enable the Secretary of State to identify all proposed mitigation measures within the proposed scheme and ascertain how these would be secured, implemented and maintained. Details of the SuDS measures included in the proposed scheme are included in Appendix 14.6: Surface Water Drainage Strategy, of the ES [TR010060/APP/6.3].

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5.254	The project should identify opportunities and secure measures to protect and improve water quality and resources through green and blue infrastructure, sustainable drainage and environmental and biodiversity net gain. This will help to achieve 25 Year Environment Plan objectives and potentially provide greater capacity to support infrastructure needs.	The water quality assessment report [APP-158] identifies embedded mitigation for the proposed scheme including SuDS in the form of filter drains, swales and retention ponds offering water quality treatment as well as potential biodiversity improvements in around 46 locations. The same report also identifies 28 locations where there is no assessed requirement for water quality mitigation but additional mitigation typically in the form of retention ponds has been provided to “enhance” water quality runoff.
5.255	The risk of impacts on the water environment can be reduced through careful design to facilitate adherence to good pollution control practice. For example, designated areas for storage and unloading, with appropriate drainage facilities, should be marked clearly. This may also include the need for treatment of water, which may need a permit under the Environmental Permitting Regulations.	The first iteration Environment Management Plan [APP-184] includes measures that will ensure good pollution control practice during construction of the proposed Scheme. This has been reviewed by stakeholders including the Environment Agency and will be developed further for the second iteration Environmental Management Plan.
5.262 – 5.265 (Impacts on transport networks – Applicant’s assessment)	Applicants should consult the relevant highway authority, local planning authority, and Network Rail, as appropriate, on the assessment of transport impacts. This should include agreement on alignment to policies outlined in existing or emerging local plans and Local Transport Plans. Different transport networks may need to share space within an area, even whilst serving different travel needs. For example, bus lanes, shared cycle lanes, green lanes, or bus and rail routes on the same corridor. Applicants should seek to offer an integrated transport outcome, significantly considering opportunities to support	Regard has been given to the relevant policies set out in the applicable Local Plans. An assessment of the conformity of the proposed scheme with Local Plan policies is included in Section 8 of the CftS [APP-249] and Appendix E of the CftS [APP-251]. Transport impacts, including on local roads, have been assessed in the Transport Assessment [APP-253]. The contents of this report have been subject to discussion with local highway and planning authorities. Chapter 13: Population and human health, of the ES [TR010060/APP/6.1] has identified existing severance in the baseline (detailed in Section 13.7) and assesses the impact of

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	other sustainable transport modes, as well as improving local connectivity and accessibility in developing infrastructure. The needs of pedestrian and other vulnerable road users should be considered, where appropriate, in line with the principles of the road user hierarchy. The applicant should provide evidence that as part of the project they have addressed any new or existing severance issues and/or safety concerns that act as a barrier to non-motorised users, unless it is unsafe or unviable to do so.	proposals on WCH, including the effects of proposals for enhanced WCH infrastructure (set out in Section 13.9. Impacts on other forms of travel, including buses, are considered in Section 13.18 of Chapter 13. The Streets, Rights of Way and Access Plans [TR010060/APP/2.6] show how PRoWs, permissive paths, local roads and private means of access will be maintained. Chapter 13: Population and human health of the ES [TR010060/APP/6.1] and the Transport Assessment [TR010060/APP/7.2] provide detail that reasonable endeavours to address severance have been taken.
5.267 (Impacts on transport networks – Road and rail developments)	For road and rail developments, the applicant's assessment should include an assessment of the transport impacts on other networks as part of the application, based on discussions with the Local Highway Authority/Local Planning Authority.	The proposed scheme is subject to an EIA as it exceeds the thresholds set out in the EIA Regulations. The impacts of the proposed scheme from traffic effects during construction and operation on the environment and associated mitigation measures proposed are reported in each aspect chapter of the ES [TR010060/APP/6.1]. All mitigation measures are set out in the REAC within the first iteration of the EMP [APP-185]. The Transport Assessment [TR010060/APP/7.2] provides detail of likely transport impacts of the operation of the proposed scheme on the wider Strategic Road Network (SRN). Chapter 13: Population and human health, of the ES [TR010060/APP/6.1] considers potential impacts arising from changes in the alignment, access and traffic flows on the highway network. This includes matters such as the potential impact on community severance, air quality, and noise and vibration, as well as changes in access and land use.

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5.272 – 5.274 (Impacts on transport networks – Mitigation)	Mitigation measures for schemes should be proportionate and reasonable, focussed on facilitating journeys by active travel, public transport, and cleaner fuels. Where development would worsen accessibility, there is a strong expectation that such impacts should be mitigated. Where impacts cannot be mitigated, the applicant is required to provide reasoning as to why impacts cannot be mitigated. The applicant should provide evidence that the development improves the operation of the network and assists with capacity issues.	Chapter 13: Population and human health, of the ES [APP-080] reports on the likely significant effects for WCH who travel on parts of the A12 and surrounding PRoW networks as a consequence of the proposed scheme. The proposed scheme is expected to improve accessibility for WCH overall, and where the accessibility could potentially worsen, accessibility mitigation has been embedded into the design of the proposed scheme. Chapter 5 of the DAS [APP-268] and Chapter 8 of the Transport Assessment [TR010060/APP/7.2] demonstrate how new and improved routes, which are compliant with Local Transport Note 1/20 for WCH users, improve accessibility around the A12 and address severance issues.