

# Lower Thames Crossing

## **9.98 Policy accordance assessment of the Project against the Consultation draft NPSNN (published March 2023) (Clean version)**

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# 1 Introduction

- 1.1.1 This document has been produced in response to Question 16.1.1 of the Examining Authority’s (ExA) first written questions issued on 15<sup>th</sup> August 2023 [PD-029]. It presents an assessment of the Project against the draft policies in the emerging Draft National Policy Statement for National Networks (draft NPSNN) published for consultation in March 2023. The transitional provisions set out in paragraphs 1.16 and 1.17 of the draft NPSNN make it clear that the Project will be determined against the designated 2014 version of the NPSNN, albeit that the 2023 draft is capable, at the Secretary of State’s discretion, of being important and relevant under the provisions of paragraph 104(2)(d) of the Planning Act 2008. The draft NPSNN has been out for consultation and is subject to amendment as a result of that, which has a bearing upon the weight that the Applicant considers should be attached in the decision-making process to the current draft – nevertheless the Applicant considers the table demonstrates that the Project accords with the provisions and requirements of the draft NPSNN.
- 1.1.2 Where a paragraph of text in the revised draft NPSNN repeats or largely replicates policies already contained in the designated NPSNN, the response previously given to that equivalent paragraph in Planning Statement Appendix A: National Policy Statement for National Networks Accordance Table [Document Reference 7.2 Appendix A (2)] is copied across in quotation marks and italics to this table. In copying across previous responses, references to ‘Application Documents’ contained in Appendix A are updated and replaced with the equivalent reference from the Planning Inspectorate’s Examination Library.
- 1.1.3 It should also be noted that the structure of the draft NPSNN is different to the designated version. Chapters 2 and 3 have been restructured under the headings ‘National networks’ and ‘The need for development of the national networks (Statement of Need)’ with additional topics added to Chapter 4 under the heading ‘General policies and considerations’ (currently ‘Assessment Principles’ in the designated version) providing an additional focus on matters related to the reduction of greenhouse gas emissions, transport decarbonisation and achieving the policy target of net zero.
- 1.1.4 In Chapter 5 ‘Generic Impacts (Table A.5) some of the topic headings have been amended and re-ordered and the structure has been amended from the designated NPSNN (Introduction – Applicant’s Assessment – Decision Making – Mitigation) to Introduction – Applicant’s Assessment – Mitigation – Decision Making, in the draft.
- 1.1.5 For Chapters 4 and 5 the Applicant has sought to highlight the proposed changes in the draft NPSNN from the adopted version to show deletions (red strikethrough) and additions (blue underline). Please refer to the draft NPSNN for ‘clean’ versions of the draft policies. Given the restructuring of the earlier chapters it was not practical to do this for Chapters 2 and 3 so these are simply shown as included in the draft NPSNN though with commentary in the right hand column on the nature of the proposed change.

**Table 1.1 Chapter 2 National Networks**

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
2.1	<p>National networks provide critical long-distance links between places, offering fast and reliable journey times and in doing so enable connectivity between people and communities, which in turn supports and stimulates economic growth. As recognised through the government’s economic growth and levelling up agenda, improved connectivity and accessibility, both locally and inter-regionally, facilitates deeper labour markets giving individuals better access to jobs and education, and businesses better access to skills. Improved connectivity can increase the economic density of an area, leading to increased productivity. National networks can also create opportunities for growth and the development of new communities. They facilitate passenger, business and leisure journeys across the country, and support tourism. They connect vital infrastructure such as ports and airports to people and markets. They enable the effective movement of goods and freight into, out of, and across the country, which is vital to UK prosperity, health, wellbeing, and security. Well-functioning networks allow people and goods to flow more freely and reduce direct costs to individuals and businesses.</p>	<p>This new paragraph broadly reflects the provisions of paragraph 2.1 of the existing NPSNN. The response given previously to that paragraph remains relevant.</p> <p><i>‘The Project would connect the A2 and M2 in Kent, east of Gravesend, to the M25 south of junction 29, crossing under the River Thames by means of two bored tunnels. It would connect Kent, Thurrock and Essex, providing over 80% additional road capacity across the River Thames.</i></p> <p><i>Appendix C and Appendix D of the Combined Modelling and Appraisal Report (ComMA) [APP-522, APP-523, APP-524, APP-525, APP-526 and APP-527] show the Project would support sustainable local development and regional economic growth in the long term by providing improved journey times and relieving congestion on the Dartford Crossing and approach roads. These improvements would make the Lower Thames area and the south east of the UK more attractive for businesses to locate and would help in promoting a competitive local economy.</i></p> <p><i>Through these improvements, the Project would also benefit leisure and business travellers by providing quicker, more reliable journey times locally, regionally and nationally. This would help meet the demands of future traffic growth east of London. The economic benefits of the Project are described in Chapter 4 of Need for the Project [APP-494].’</i></p>
<b>Freight</b>		
2.2	<p>There is a need to recognise the important role that all modes play in the transportation of freight across our transport networks, which is vital in achieving our economic goals domestically and</p>	<p>This is a new paragraph in the draft revised NPSNN. The Project’s transport modelling forecasts show that traffic to and from the ports of Dover, London Medway, Tilbury and</p>

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	<p>internationally through facilitating effective and efficient movement of freight. 95% of UK imports and exports by tonnage are transported by sea. This trade is a vital enabler of the UK economy and a driver of a significant amount of primary and secondary freight transport. Cost effective and efficient freight transport to and from such international hubs with seamless modal interchanges offers productivity benefits and boosts competitiveness for the domestic economy and international trade.</p>	<p>London Gateway (which are heavily dependent upon the strategic road network (SRN)), would, as a result of the Project, experience faster and more reliable journey times on many journeys, including on the relieved sections of the A2, A13 and M25. The Project would improve the ability to provide cost effective and efficient freight transport.</p> <p>Importantly, the Road Investment Strategy 2: 2020–2025 (RIS 2)<sup>1</sup> includes the Lower Thames Crossing as a project that will be started or completed during this period and which will, <i>‘have a national impact, allowing freight traffic to the continent to bypass Dartford, and have an uncongested route to Dover’</i>.</p> <p>The Applicant recognises the important and complementary roles that different modes play in the transportation of freight. The 2009 Department for Transport (DfT) Lower Thames Crossing study<sup>2</sup> and the evidence submitted in support of the Development Consent Order (DCO) application (e.g. Chapter 5 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] and Environmental Statement (ES) Chapter 3: Assessment of Reasonable Alternatives [<b>APP-141</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]) demonstrate that the short haul distribution market remains reliant on travel by road as there are not enough rail intermodal distribution terminals for enhanced rail freight to provide a viable modal alternative to the Project.</p>

<sup>1</sup> DfT (2020). Road Investment Strategy 2: 2020-2025.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/951100/road-investment-strategy-2-2020-2025.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951100/road-investment-strategy-2-2020-2025.pdf)

<sup>2</sup> DfT (2009). Dartford River Crossing Study into Capacity Requirement.

<https://webarchive.nationalarchives.gov.uk/ukgwa/20100513123749/http://www.dft.gov.uk/about/strategy/capacityrequirements/dartfordrivercrossing/>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
2.3	<p>There is a need for long-term strategic action through government and industry collaboration, to bolster the operation of the freight network as a whole through improvements to infrastructure with multi-modal impacts. Working with industry, government have published a Future of Freight plan which sets out the long-term vision for the freight sector. As part of this, a National Freight Network will be identified across road, rail, maritime, aviation, inland waterway and logistics infrastructure. This will help to understand the needs of the freight industry, identifying the infrastructure needed to support an integrated network that facilitates modal shift, prioritises decarbonisation and improves air quality outcomes, and supports the continuous improvement of the economic efficiency and reliability of end-to-end freight journeys with greater resilience built into the system.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The Future of Freight Plan<sup>3</sup> post-dates the designated NPSNN. It identifies that road, rail, maritime, aviation and inland waterways will remain integral to the transportation of freight.</p> <p>The Project would support the objectives contained within the Freight Plan in relation to supporting the broader UK economy, via providing reliable access to goods, and also providing increased resilience to the network. The Project's contribution to the efficiency of the freight network as outlined in response to paragraph 2.2 above demonstrates the Project's general consistency with the objectives set out in the Freight Plan.</p> <p>The DCO application has had regard to the planned further development of infrastructure required to support the freight network. The Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [APP-550] considers the relationship between the proposed Project route and development of Tilbury2 (a new terminal at the Port of Tilbury in Thurrock), the Thames Freeport and DP World London Gateway (an integrated deep-water port and logistics park on the north bank of the Thames Estuary in Stanford-le-Hope). This document confirms that the Project would not prejudice the delivery of planned infrastructure to support the freight industry and that it would be compatible with the further development of critical inter-modal links across the network (including the Tilbury Link Road).</p>

<sup>3</sup> DfT (2022). The Future of Freight: a long-term plan.  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1085917/future-of-freight-plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1085917/future-of-freight-plan.pdf)



dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
2.4	The infrastructure that supports our hauliers is essential to the effective and resilient supply chains we need. This includes last mile journeys for Heavy Goods Vehicle, and providing the facilities our Heavy Goods Vehicle drivers need to keep our country moving. Government is committed to addressing the strategic national need for more lorry parking and better services in lorry parks in England, ensuring all delivery partners including planning authorities, roadside facilities operators and National Highways all play their part in achieving this objective and that the freight and logistics industry are empowered to continue to innovate within the sector.	This is a new paragraph in the draft revised NPSNN. It is a statement of government intent. No response required.
<b>Roads</b>		
2.5	Roads are a critical part of the national transport framework in facilitating connectivity. Every year, road users travel more than 485 billion passenger miles by road in Great Britain, with roads accounting for 84% of passenger miles and 77% of freight by volume.	This is a new paragraph in the draft revised NPSNN. Introductory remark. No response required (although notes the critical role of roads in facilitating connectivity).
2.6	Roads facilitate active travel, such as walking, wheeling, and cycling. In 2021, 33% of personal journeys were taken by bike or walking. It is a government commitment for more than half of personal journeys in our towns and cities to be made by active travel by 2030s. £2bn investment has been committed to help enable half of journeys in towns and cities to be cycled or walked by 2030. Updates to Local Transport Plan Guidance and the 'The Strategic Road Network and the delivery of sustainable development' Circular advocate a vision-led approach to local transport planning that prioritises sustainable transport interventions, alongside pedestrians and other vulnerable road users, in all plans to improve the local transport network.	This is a new paragraph in the draft revised NPSNN. New walking and cycling infrastructure is proposed as part of the Project design to help improve connectivity and increase opportunities for active travel. New provision for walkers, cyclists and horse riders (WCH) is described in detail in the Project Design Report Part E: Design for Walkers, Cyclists and Horse Riders [APP-512]. These measures are also summarised in paragraph 7.5.40 of the Health and Equalities Impact Assessment [REP7-144] with the lengths in kilometres of new provision set out in paragraph 7.12.15 of the Transport Assessment (TA) [REP4-148, REP4-150 and REP4-152]. Accordingly, the Project will positively promote active travel via the provision of a substantial network of new walking and cycling infrastructure which is proposed as part of the Project.

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2.7	<p>In addition to enabling a broad range of active travel, roads are also crucial for our public transportation. Buses are a key form of public transport that rely on roads. In 2019/20, local bus services travelled 1.13 billion vehicle miles in England and the road network users that collectively undertook 4.07 billion journeys in England in 2019-202012 rely on such networks to continue connecting with other people, communities, and economic opportunities.</p>	<p>This is a new paragraph in the draft revised NPSNN. The extent to which the Project might facilitate inter-urban and cross-river public transport connectivity and also non-motorised transport has been considered within the DCO application. The Project comprises new road provision which would be available for use by bus operators; there is nothing which prevents bus operators from providing additional services through the new crossing. Nor is there anything to prevent any third party operating a shuttle service for cyclists (as was originally introduced as part of the original Dartford Crossing) should there be sufficient commercial demand for such a service. Such opportunities would facilitate greater cross-river connectivity.</p> <p>The impact of the Project on existing bus services is considered in Section 7.11 of the Transport Assessment (TA) <a href="#">[REP4-148, REP4-150 and REP4-152]</a> which concludes that most existing routes would not be adversely affected. Far more services benefit from quicker journey times than slower times. The key potential impacts identified are that, during the AM peak, of the 14 bus routes which would be impacted by a change of two minutes or more in the opening year, 10 would experience a decrease in journey time and four would experience an increase in journey time. In the inter-peak only two routes would be affected, one with a reduction in journey time and one with an increased journey time. In the PM peak of the 13 services which would experience a change in overall journey time greater than two minutes, three services would have an increase in journey time (between two and three minutes). Ten services would have quicker overall journey times (see paragraphs 7.11.5 to 7.11.10 of the TA <a href="#">[REP4-148, REP4-150 and REP4-152]</a>). The overall impact would therefore be beneficial in many cases.</p>

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2.8	<p>The Strategic Road Network (SRN) consists of motorways and trunk roads and is essential to these connections. In England (in 2021), the SRN was 4,500 miles long. Despite the SRN only comprising 2% of the total roads in England by length, almost one-third of all motor vehicle miles and over two-thirds of Heavy Goods Vehicle miles are made on the SRN. Whilst the vast majority of road schemes that require development consent will be on the SRN, this National Policy Statement (NPS) recognises the complementary role the SRN provides to the major road networks and local roads. The strategic and long-distance nature of the SRN provides long distance traffic with a safe and efficient route, freeing up local roads for genuinely local journeys and active travel, and keeping traffic away from principal centres of population. In turn, the better use of the local road network to improve the environment for active travel, increase accessibility by public transport, and the creation of better connections to the places people want to go, can also reduce pressures on the SRN. The SRN is also critical for supporting the movement of freight. In 2020, 77% of domestic freight moved in the UK by road and 68% of Heavy Goods Vehicle miles were run on the SRN. In 2019, the road freight sector contributed £13.6 billion to the UK economy. Some of the UK leading sectors – logistics, freight, retail, construction, and manufacturing – rely on the SRN to move their products through the country.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The Project would comply with the principles in this policy requirement by providing considerable additional capacity to cross the River Thames, thus improving the efficiency and reliability of the SRN.</p> <p>Similarly, the Project will also make improvements to WCH by providing new and improved routes across the whole Project.</p> <p>Chapter 7 of the TA [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] considers the impacts of the Project (once operational) on traffic crossing the river, the wider road network, journey reliability, public transport and walkers, cyclists and horse riders. Chapter 8 considers the impacts predicted to arise over the construction phase. It therefore also provides a comprehensive assessment of impacts on local journeys, public transport and active travel demonstrating compliance with these policy requirements in that, once operational the Project would:</p> <ul style="list-style-type: none"> <li>• <i>‘...provide considerable relief to the current levels of congestion at the Dartford Crossing’</i> (paragraph 11.4.2)</li> <li>• <i>‘...lead to a reduction in traffic flows in some areas’</i> (paragraph 11.4.3)</li> <li>• Not cause any major adverse impacts on bus services and would achieve a major beneficial impact on the X80 bus that uses the Dartford Crossing (paragraph 11.4.4)</li> <li>• Not impact on rail services</li> <li>• Achieve an overall improvement to Public Rights of Way (PRoWs) (paragraph 11.4.7)</li> </ul>

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		<p>With regard to the movement of freight on the SRN, paragraph 3.1.7 of the Benefits and Outcomes Document [APP-553] states that <i>‘Just over 40% of the travel time benefits go to businesses, and these are split 39% for HGVs and 61% for cars and Light Goods Vehicles’.</i></p>
2.9	<p>The SRN also has an important role in facilitating the movement of goods and people between England and other nations of the UK. The UK government is committed to improving connectivity between the nations of the UK and will formally respond to Sir Peter Hendy's independent review as soon as practicable.</p>	<p>This is a new paragraph in the draft revised NPSNN. The Need for the Project [APP-494] has clearly established the importance of the Project as a means to improve the links between the Channel Ports, London and the rest of the UK. The Applicant considers that relieving the congestion at the Dartford Crossing will significantly contribute to increased connectivity between these areas and the rest of the UK, acting as a key route between the UK's industrial heartlands and Europe.</p> <p>Paragraph 4.4.1 of the Need for the Project [APP-494] states that <i>‘The Dartford Crossing, the only road crossing of the River Thames east of London, is a critical part of the country's road network and is a critical component in the UK's economic infrastructure. It connects local and regional businesses and provides a vital link between the Channel Ports, London and the rest of the UK. However, the congested nature of the Dartford Crossing means that there is an economic need for an additional crossing.’</i></p> <p>The Union Connectivity Review<sup>4</sup> supports the development of the strategic transport network including the parts which are not performing well. The Project lies on the main trade route between the UK's industrial heartlands and Europe, which,</p>

<sup>4</sup> DfT (2022). Union Connectivity Review: final report.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1036027/union-connectivity-review-final-report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf)

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		because of the River Thames, is severely congested at Dartford. Existing and planned port infrastructure (including the Port of Tilbury) would therefore benefit from the additional capacity to be provided on the SRN as a result of the Project. The Union Connectivity Review is addressed at Section 7.6 of the Planning Statement [ <b>Document Reference 7.2 (2)</b> ].
<b>Railways / Rail Freight</b>		
2.10 - 2.15	<i>[Relate to railways and rail freight].</i>	These are largely new and expanded paragraphs of text in the draft revised NPSNN though, in part, they update paragraphs 2.28 and 2.43 of the designated NPS. No response required.
<b>National networks in a greener world</b>		
2.16	The environment is a complex system of cause and effect that connects the human, built and natural elements of the environment. Rather than a series of unrelated components, changes to one part of the system may affect others. Applicants should look for opportunities to take a holistic approach to avoiding, reducing or mitigating multiple impacts on the natural or built environment, on landscapes and on people by using nature-based solutions.	<p>This is a new paragraph in the draft revised NPSNN. During the development of the Project, a holistic approach has been taken which has considered the social and environmental impacts both individually and as an integrated whole. The Project has, where possible, sought to avoid, reduce or mitigate the adverse social and environmental effects, while seeking to improve the quality of life. Examples include:</p> <ul style="list-style-type: none"> <li>• Chalk Park and Tilbury Fields, which are avoiding impacts by reusing material at the site to reduce and mitigate visual impacts, whilst also providing community benefits by providing new open spaces and WCH for the local community to use.</li> <li>• Creation and enhancement of habitats, for example at Hole Farm and Blue Bell Hill, to provide mitigation for the impacts resulting from nitrogen deposition.</li> <li>• The delivery of ecological mitigation which provides measures which reconnect habitats in a holistic way across the Project and beyond.</li> </ul>

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		<p>This has resulted in a suite of measures to mitigate and enhance the receiving environment particularly in relation to landscape, heritage, biodiversity, access and other environmental and community effects.</p> <p>An assessment of the potential effects of the Project on the community is presented in ES Chapter 13: Population and Human Health [<a href="#">APP-151</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. The assessment considers the potential impacts of the Project for pedestrians and cyclists during the construction and operation of the Project, the effect to private assets, community land and human health (including severance of communities). It also considers the measures proposed to mitigate those impacts.</p> <p>The Project would also deliver a wide range of environmental and social benefits. These are discussed further in Section 4.3 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] and the Need for the Project [<a href="#">APP-494</a>], the Benefits and Outcomes Document [<a href="#">APP-553</a>], the Project Design Report [<a href="#">APP-506 to APP-515</a>], the Environmental Statement and the Health and Equalities Impact Assessment [<a href="#">REP7-144</a>].</p>
2.17	Putting sustainability at the forefront of how our national road, rail and strategic rail freight interchange (SRFI) developments grow and adapt, presents opportunities for the environment and the health and wellbeing of people, now and in the future.	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The Sustainability Statement [<a href="#">APP-544</a>] recognises the importance of sustainability and sets out the key sustainability themes and outcomes for the Project. The intention is to embed sustainability into the Project through the preliminary design, direct specification, challenging Contractors to promote sustainable outcomes or including them in the Register of Environmental Actions and Commitments (REAC) measures within the Code of Construction Practice [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>].</p>

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2.18	Transport is currently the largest contributor to UK domestic greenhouse gas emissions, producing 99 MtCO <sub>2</sub> e of carbon in 2020.	This is a new paragraph of text in the draft revised NPSNN. No response required.
2.19	Through a series of policies set out in the Transport Decarbonisation Plan, the Government is ensuring the fastest possible transition to a zero-emission vehicle fleet. It is clear on the need to develop a mutually supportive policy framework that actively promotes sustainable forms of travel by offering genuine modal choice to change behaviours and to provide the infrastructure we need to support a shift to alternative fuels and to decarbonise our vehicles.	<p>This is a new paragraph in the draft revised NPSNN. With regard to the construction phase, Appendix E of the Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>] lists a number of commitments which would be legally secured through DCO Requirement 16 and would include the following requirements:</p> <ul style="list-style-type: none"> <li>• Contractors will provide and maintain electric vehicle charging facilities, using zero carbon electricity, for 30% of parking capacity in each compound, increasing this as necessary to satisfy demand (CBN08).</li> <li>• Use of zero tailpipe emission vehicles for all staff movements within the working areas of compounds and to and from public transport hubs (CBN09).</li> </ul> <p>Additionally, to address concerns raised by London Borough of Havering in its Statement of Common Ground [<a href="#">REP6-028</a>] the requirement for charging points for electric vehicles has been moved to a tier 1 measure (base level of measures that would be implemented within each Site Specific Travel Plan) in the Framework Construction Travel Plan [<b>Document Reference 7.13 (6)</b>].</p> <p>As highlighted in paragraph 15.5.5 of ES Chapter 15: Climate [<a href="#">APP-153</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>], the Applicant <i>'has committed to publishing a blueprint for EV charging services on the strategic road network by 2023 and delivering £950 million of charging infrastructure by 2023, aiming at providing at least six 150-350kW charge points at each motorway service area. The availability of sufficient, reliable, and convenient EV charging</i></p>

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		<p><i>stations will promote the uptake of electric vehicles and facilitate the reduction of carbon emissions by end users.'</i></p> <p>The Applicant acknowledges the essential role of the SRN in supporting the government's commitments in the Transport Decarbonisation Plan (also acknowledged within paragraph 6 of the recent DfT policy paper, Strategic road network and the delivery of sustainable development<sup>5</sup>). Paragraph 4.3.1 of the Benefits and Outcomes Document [APP-553] identifies that the Applicant is undertaking a number of studies, reports and actions which will include the following:</p> <ul style="list-style-type: none"> <li>• Publishing a blueprint for electric vehicle charging services and energy storage by 2023</li> <li>• Supporting 'Project Rapid' which aims to deliver £950 million of charging infrastructure at motorway service areas in 2023</li> <li>• Investigating energy storage to support electric vehicle charging at motorway service areas in 2025</li> <li>• Having a preferred investment plan for Heavy Goods Vehicle (HGV) charging by 2028</li> </ul> <p>Appendix I: Carbon Strategy and Policy Alignment of the Planning Statement [REP7-138] also explains the Applicant's approach to carbon within the application. It explains how the Project represents a step change in approach for a road scheme of this scale, in terms of the scope and nature of the measures which the Applicant is committing to deliver to reduce emissions during the construction and operation of the new road. Together with the policies which the government has set out in the Decarbonising Transport Plan, these measures ensure that the Project is aligned with a trajectory to net zero.</p>

<sup>5</sup> DfT (2022). Strategic Road Network and the Delivery of Sustainable Development. <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development/strategic-road-network-and-the-delivery-of-sustainable-development>



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2.20	In June 2021, the Government set the sixth carbon budget covering 2033-37, setting a level representing an approximate 77% reduction in greenhouse gas emissions (including international aviation and shipping) compared to 1990. These carbon budgets are set to ensure the UK keeps to a trajectory consistent with meeting its 2050 net zero emissions target as set out in the Climate Change Act 2008 (as amended).	This is a new paragraph in the draft revised NPSNN. An assessment of the Project’s impact on the Sixth Carbon Budget is included in Section 15.6 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)]. This analysis shows that emissions arising between 2033 and 2037 from the Project would amount to 0.048% of the Sixth Carbon Budget using the Transport Analysis Guidance (TAG) forecast method. The assessment does not account for policies that would lead to an accelerated phasing out of petrol and diesel vehicles, such as the commitments and actions set out in the government’s Transport Decarbonisation Plan (TDP) <sup>6</sup> . The greenhouse gas (GHG) emissions from the Project do not have a material impact on the ability of the government to meet the carbon reduction targets.
2.21	Government’s Transport Decarbonisation Plan demonstrates how we will deliver transport’s contribution to emissions reductions in line with net zero, much of which has already been delivered or is in progress.	This is a new paragraph in the draft revised NPSNN. The Transport Decarbonisation Plan outlines the commitments and actions for how investment in the road network will align with the trajectory to net zero and provides a clear intent that high investment in road building and capacity expansion remains necessary for the functioning of passenger and freight travel, and to reduce GHG emissions associated with congestion. The TDP therefore supports the strategic case for the Project and demonstrates that objections to the Project from a climate change perspective are inconsistent with government policy. Table 15.16 of ES Chapter 15 [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] provides

<sup>6</sup> DfT (2021). Decarbonising Transport: A better, greener Britain.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf)

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		an assessment of the effect that the policies of the Transport Decarbonisation Plan would have on the Project's net GHG emissions during the operational phase.
2.22	The government is already taking action to tackle road emissions at the tailpipe with its Zero Emission Vehicle Mandate, by setting targets requiring a percentage of manufacturers' new car and van sales to be zero emission each year from 2024. This will help deliver on our 2030 commitment to end the sale of new petrol and diesel cars, and 2035 commitment that all new cars and vans must be zero emission at the tailpipe. This will guarantee a greater number of zero emission vehicles on our roads, addressing the largest source of transport greenhouse gas emissions. Related to this, a phase-out date for the sale of new, non-zero emission Heavy Goods Vehicles less than or equal to 26 tonnes will also be introduced from 2035 and, from 2040, all new Heavy Goods Vehicles sold in the UK must be zero emission. This means new Heavy Goods Vehicles will no longer produce harmful tailpipe emissions, including greenhouse gases and pollutant emissions while operating on our roads.	This is a new paragraph in the draft revised NPSNN. See response above to paragraph 2.19.
2.23	Building on this, the government has published its electric vehicle infrastructure strategy, "Taking Charge" with significant investment in zero emission vehicle grants and EV Infrastructure, as well as using the Automotive Transformation Fund to support the electrification of UK vehicles and their supply chains.	This is a new paragraph in the draft revised NPSNN. No response required.
2.24	Carbon emissions from construction and operation of the strategic road network represented around 2% of the total emissions that year, with the vast majority generated by the vehicles that travel on them. The National Road Traffic Projections 2022 provide a strong analytical basis for understanding the potential evolution of traffic growth, congestion, and emissions under a wide range of plausible future	This is a new paragraph in the draft revised NPSNN.  Planning Statement Appendix I [ <a href="#">REP7-138</a> ] sets out the Applicant's approach to carbon within the DCO application. It explains how the Project represents a step change in approach for a road scheme of this scale, in terms of the scope and nature of the measures which the Applicant is committing to

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	<p>scenarios. In all scenarios carbon dioxide tailpipe emissions are projected to fall significantly due to the anticipated uptake of EVs. This assumption reflects recent developments in the electric car and van market, in particular lower battery prices and a recent acceleration in sales.</p>	<p>deliver to reduce emissions during the construction and operation of the new road.</p> <p>The Appendix has been updated to reflect the new post-tender carbon limit as secured through CBN04, presented in Appendix E and Appendix F of Version 4 of the Carbon and Energy Management Plan which has been similarly updated at Deadline 9 [<b>Document Reference 7.19 (4)</b>]. The tenders incorporated reduced baseline limits, from which the Applicant is able to commit to a reduced carbon limit of 1.44 million tCO<sub>2</sub>e of construction emissions, down from 1.763 million tCO<sub>2</sub>e secured in Version 1 of the First Iteration of the Carbon and Energy Management Plan [<a href="#">APP-552</a>].</p> <p>Planning Statement Appendix I [<a href="#">REP7-138</a>] paragraphs I.3.22 and I.3.23 state:</p> <p><i>‘By comparing the Project’s construction emissions to the UK’s carbon budgets, ES Chapter 15: Climate [<a href="#">APP-153</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] concludes that those emissions would not be significant. In this respect, the Project accounts for a small percentage of the Government’s carbon budgets, while the Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>] sets out the mechanisms by which the Project will achieve an industry leading position. The impact on the carbon budgets has been reduced by the revised carbon limit discussed in this report. The percentage contributions are now estimated to be 0.048% and 0.045% for the 4th and 5th carbon budgets respectively, reduced from 0.058% and 0.053% respectively previously.</i></p> <p><i>The Project’s contribution to the 6th carbon budget is now estimated to be 0.045% down from 0.048%.’</i></p>

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		<p>Impacts arising from carbon emissions from both the construction and operational phase of the Project are presented in Section 15.6 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Paragraph 15.6.2 states that <i>'in the worst-case scenario, construction phase emissions are calculated to be approximately 1.763 MtCO<sub>2</sub>e'</i>. A breakdown of these emissions is presented in Table 15.14 of ES Chapter 15, while a comparison against the construction impacts from other road building schemes (in terms of carbon intensity) is presented in Plate 15.5.</p> <p>With regard to the operational phase, paragraphs 15.6.17 and 15.6.18 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] states that:</p> <p><i>'the total net GHG emissions estimated over the 60-year appraisal period and forecast with the TAG GHG Workbook (DfT, 2022a) / EFT v11 (Defra, 2021) was approximately 4.833 million tCO<sub>2</sub>e. Of this net increase in emissions, 99% were from road-user emissions (approximately 4.803 million tCO<sub>2</sub>e), with the remaining 1% (approximately 0.030 million tCO<sub>2</sub>e) from the maintenance, repair, and replacement activities of the Project. The application of the Transport Decarbonisation Plan sensitivity test (DfT, 2021a) greatly reduces the net change in GHG emissions over the 60-year appraisal period, decreasing emissions by 76 - 88% (upper and lower bound respectively) to between approximately 0.561 and approximately 1.175 million tCO<sub>2</sub>e over the 60-year period from opening. This is considered to provide a more realistic estimate for the net GHG emissions for the operational phase.'</i></p>

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2.25 – 2.26	<i>[Relates to the use of and decarbonisation of rail and is therefore not directly relevant to the Project].</i>	These are new paragraphs in the draft revised NPSNN. No response required.
2.27	The Future of Freight Plan reaffirms government’s commitment to a freight and logistics sector that is cost-efficient, reliable, resilient, environmentally sustainable and valued by society.	This is a new paragraph in the draft revised NPSNN. See responses above to paragraphs 2.2 – 2.4.
2.28	Rail freight is estimated to reduce emissions on average by 76% per tonne km travelled when compared to road freight, equating to around 1.4m tonnes of carbon dioxide emissions saved each year. Rail is one of the most carbon efficient ways of moving goods over long distances and can also reduce congestion – depending on its load, each freight train can remove up to 76 Heavy Goods Vehicles from the road. The rail freight industry resulted in 6.35 million fewer lorry journeys in 2019/20.	This is a new paragraph in the draft revised NPSNN. Contextual paragraph dealing with rail freight. No response required.
2.29	In addition to the commitments above, the Future of Freight Plan sets out plans to introduce a rail freight growth target and incentivise the early take up of low carbon traction. The effective development of strategic rail freight interchanges (and other rail freight interchanges) and other key enablers in the right places, will also help realise the full range of environmental benefits that rail freight can offer.	
2.30	While climate change mitigation is essential in minimising the most dangerous impacts of climate change, previous global greenhouse gas emissions have already committed us to some degree of continued climate change into the future. Our detailed plans to enhance resilience to climate change risks across national networks are contained in the UK’s National Adaptation Programme.	This is a new paragraph in the draft revised NPSNN. Paragraphs 15.7.10 to 15.7.20 and also Table 15.19 of ES Chapter 15: Climate <a href="#">[APP-153]</a> and Environmental Statement Addendum [ <b>Document Reference 9.8 (9)</b> ] describe the vulnerability of the Project to climate change impacts. Having regard to the proposed mitigation measures which have been designed to ensure the resilience of the Project during operation, no significant adverse impacts are predicted.

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		<p>The various mitigation measures along with details of how these would be secured, are outlined in response to paragraph 3.34 below.</p> <p>ES Appendix 15.1: Climate Legislation and Policy [<a href="#">APP-480</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] provides a commentary on pages 24/25 on the National Adaptation Programme.</p>
2.31	<p>Transport is also a contributor to emissions of air pollutants. The UK has national emission reduction commitments for overall UK emissions of five key air pollutants (particulate matter 2.5, nitrogen oxide, sulphur dioxide, ammonia, and non-methane volatile organic compounds) by 2031.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>An assessment of the air quality impacts of the Project over both the construction and operational phase is described in Section 5.6 of ES Chapter 5: Air Quality [<a href="#">APP-143</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. This assessment has had regard to the impact the Project would have on the UK's ability to comply with the Air Quality Directive (Directive 2008/50/EC). An overall summary of air quality impacts over both the construction and operational phase is presented in Table 5.35 of ES Chapter 5 [<a href="#">APP-143</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].</p> <p>The Project is not expected to affect the UK's ability to comply, in the shortest time possible, with the Air Quality Directive (Directive 2008/50/EC)<sup>7</sup>.</p>
2.32	<p>The most significant air pollutants from the road transport sector are nitrogen oxides and particulate matter. Air pollutants from transport have decreased since 1990, largely because newer vehicles emit less nitrogen oxide. This reduction in nitrogen oxide emissions among cars is driven primarily by the introduction of</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>During the construction of the Project, ES Chapter 5: Air Quality [<a href="#">APP-143</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] concludes that there would be no significant adverse impacts resulting from emissions of</p>

<sup>7</sup> Directive 2008/50/EC of the European Parliament and of the Council <https://www.legislation.gov.uk/eudr/2008/50/contents>

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	legislative vehicle emission standards. Exhaust particulate matter emissions have also decreased markedly since 1996 due to stricter vehicle emissions standards.	nitrogen dioxide (NO <sub>2</sub> ) and particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ). These emissions will also not give rise to significant adverse impacts on human receptors during the operational phase.  Air quality impacts on designated habitats for ecology (due to changes in N deposition) are presented in Table 2.1 and Table 2.2 of ES Appendix 5.4: Air Quality Operational Phase Results [APP-348] and Environmental Statement Addendum [Document Reference 9.8 (9)]. As identified in paragraph 6.5.18 of the Planning Statement [Document Reference 7.2 (2)], these assessments have been included within the range of factors which have informed the mitigation measures set out below including ES Appendix 5.6: Project Air Quality Action Plan [APP-350] and Environmental Statement Addendum [Document Reference 9.8 (9)], the proposed mitigation option (M2 speed enforcement) and the proposed compensation sites. Having regard to those measures the ES concludes that the Project does lead to a significant air quality effect on designated habitats as a result of changes in nitrogen deposition.
2.33 – 2.35	Relate to statistics specific to contributions from certain vehicle types to air quality emissions.	These are new paragraphs in the draft revised NPSNN. No response required.

**Table 1.2 The need for development of the national networks (Statement of Need)**

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<b>Drivers of need for development of the national networks</b>		
3.1	There are a range of challenges which national networks face, and which may lead to the need to develop national networks further through infrastructure interventions.	This is a new paragraph in the draft revised NPSNN. No response required
3.2	Population growth and economic growth are the most critical influences on travel demand. There has been a steady growth in the population of Great Britain over the last 20 years and the population is projected to increase further by 4% between 2025 and 2060. Continuing growth in the economy and the population will increase the demands placed upon the SRN. Without investment and infrastructure interventions, increasing demand will lead to decreasing network performance for users, for example, poorer journey time reliability, which comes with economic and social costs.	This is a new paragraph in the draft revised NPSNN. In acknowledging the influence of both population and economic growth on traffic demand, the Lower Thames Area Model (LTAM) assesses the need for additional road capacity across the River Thames east of London, and the impact that the Project would have, by developing a simulation of the transport system in the Lower Thames area. The Traffic Forecasts Non-Technical Summary [ <a href="#">APP-528</a> ] summarises the modelling work done to support the application for a Development Consent Order for the Project. The model accommodates local adjustments made to include more detailed geographic information on the proposed location and associated trips of new housing and other developments (such as employment, retail and leisure sites). These developments, either under construction, with planning permission or a submitted planning application, are included in the transport model and are shown in Plate 4.1 of the document. As identified in paragraph 5.7.14 of the Transport Assessment [ <a href="#">REP4-148</a> , <a href="#">REP4-150</a> and <a href="#">REP4-152</a> ] the estimates of the growth in the provision of new dwellings in an area are taken from a variety of documents, such as Annual Monitoring Reports and Local Plans. The documents used in the National Trip End Model (NTEM) are listed in Appendix F to the NTEM



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		<p>Planning Data, Version 7.2 – Guidance Note<sup>8</sup>. Demographic parameters are identified in Appendix C.</p> <p>The Project would connect the A2 and M2 in Kent, east of Gravesend, to the M25 south of junction 29, crossing under the River Thames by means of two bored tunnels. It would connect Kent, Thurrock and Essex, providing over 80% additional road capacity across the River Thames. Appendix C and Appendix D of the Combined Modelling Appraisal Report [<a href="#">APP-522</a>, <a href="#">APP-523</a>, <a href="#">APP-524</a>, <a href="#">APP-525</a>, <a href="#">APP-526</a> and <a href="#">APP-527</a>] show the Project would support sustainable local development and regional economic growth in the long term by providing improved journey times and relieving congestion on the Dartford Crossing and approach roads.</p> <p>This would help meet the demands of future traffic growth east of London associated with economic and population growth.</p>
3.3	<p>Evidence that development on the network leads to induced demand is limited. A recent literature review suggested that the scale of any induced demand is likely to vary depending on circumstances. Under Department for Transport’s Transport Appraisal Guidance, government-funded investments in transport schemes need to consider the effects of variable demand (and the resultant induced or suppressed traffic) on the justification for intervention.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>Appendices B and C to the ComMA (<a href="#">APP-521</a> and <a href="#">APP-522</a> respectively) describe the Variable Demand Model which establishes the extent of travel suppression in the ‘Without Scheme’ case and the extra traffic that is expected to be induced in the ‘With Scheme’ case, with reference to the relevant TAG guidance.</p> <p>The LTAM follows the DfT’s Transport Appraisal Guidance and the methods it recommends for predicting future traffic flows and conditions, both with and without the Project.</p> <p>Section 5.2 of the Transport Assessment (TA) [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] describes the assessment tools</p>

<sup>8</sup> Department for Transport (2017). NTEM Planning Data, Version 7.2 – Guidance Note.  
[https://www.tiascope.com/static/docs/NTEM72\\_Planning\\_Data\\_Guidance.pdf](https://www.tiascope.com/static/docs/NTEM72_Planning_Data_Guidance.pdf)

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		<p>which have informed the traffic forecasts, and lists the detailed reports which contain the relevant information.</p> <p>Section 5.7 of the TA [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] describes the LTAM in detail. The hours modelled have been chosen to reflect the busiest times of day on the strategic road network.</p> <p>Paragraph 5.7.26 of the TA [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] states that a high and low growth scenario were produced to reflect national uncertainty in forecasts of input data into the National Transport Model and NTEM, such as future levels of economic growth and fuel prices. These high and low growth scenarios are in accordance with guidance in TAG Unit M4<sup>9</sup>.</p> <p>TA paragraph 4.5.14 (g) notes Transport for London requested that the traffic modelling for the Project include the examination of induced traffic effects. Paragraph 4.5.15 confirms that this has been included in the modelling undertaken.</p>
3.4	<p>On roads, poor network performance, in the form of congestion or unexpected delays undermining reliability, has many costs. These costs include constraining economic activity by increasing costs to businesses and can constrain job opportunities if they limit access to labour markets. It causes frustration and stress for users.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The Scheme Objectives promote economic enhancement through addressing the lack of road capacity east of London and enabling increased accessibility between Kent, Thurrock and Essex. Reliable river crossings are essential for the provision of services and goods, enabling local businesses to operate effectively and for residents to access housing, jobs, education and leisure facilities on both sides of a river.</p> <p>The economic benefits to be delivered by the Project are, in part derived from the strategic location of the Dartford Crossing,</p>

<sup>9</sup> DfT (2023). TAG Unit M4 Forecasting and Uncertainty.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1161977/tag-unit-m4-forecasting-and-uncertainty.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1161977/tag-unit-m4-forecasting-and-uncertainty.pdf)

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		<p>the shortest freight route between Kent and the major distribution centres in the Midlands and the North.</p> <p>The Need for the Project [APP-494] sets out the Scheme Objectives which include supporting local development and regional economic growth in the medium to long term. The issues created by the current situation at the Dartford Crossing on the economy are also set out in the Need for the Project. These include:</p> <ul style="list-style-type: none"> <li>• Traffic disruption including congestion</li> <li>• Poor journey time reliability</li> <li>• Limited alternative crossings of the River Thames</li> </ul> <p>The government is concerned that the UK economy is not functioning efficiently due to ‘market distortions’ or failures (DfT, 2018). The Need for the Project [APP-494] explains how the economy of the south-east suffers from low business productivity, particularly in Thurrock, Gravesham and Medway. This is largely due to their location, but exacerbated by the congestion, delays and unreliable journey times caused by inadequate road infrastructure.</p> <p>ComMA Appendix D: Economic Appraisal Package – Economic Appraisal Report [APP-526] and Level 3 Wider Economic Impacts Report [APP-527] address the economic benefits of connecting the jobs markets north and south of the river and of agglomeration which would result from the Project.</p> <p>Paragraph 7.7.33 of the Health and Equalities Impact Assessment [REP7-144] notes that:</p> <p><i>‘Improved journey times and reductions in congestion would prove beneficial for driver behaviour, resulting in a reduction in driver stress.’</i></p>

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3.5	Network performance can impact upon satisfaction levels for users of the Strategic Road Network (SRN). Transport Focus Strategic Road Users Survey showed that journey times were one of the key concerns for users. As of July 2022, 69% of SRN users were very/fairly satisfied with journey times. For freight users, the average level of satisfaction with motorways and major 'A' roads when it came to meeting business needs was 46% in 2021-22.	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>As outlined in the Need for the Project [APP-494], due to the Dartford Crossing frequently operating above capacity, closure in either direction, even for a relatively short time, can lead to significant additional congestion. Traffic congestion of this magnitude results in thousands of lost hours for drivers, the quantitative impact of which has been assessed within the Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package [APP-522]. Furthermore, when larger incidents occur during daytime hours, the lack of available capacity means that it can take until the late evening for the Dartford Crossing to return to normal journey times<sup>10</sup>.</p> <p>Paragraph 4.2.57 of the Need for the Project [APP-494] states that <i>'The journey time variability and the unpredictable journey times make planning very difficult, and they prevent people and businesses making long-term plans about what they do and where they are located'</i>.</p> <p>Journey times would become more reliable as a result of the Project (see paragraph 5.2.16 to 5.2.20 and Table 5.1 of the Need for the Project [APP-494]).</p>
3.6	For rail, network performance has a large impact on the customer experience, as punctuality is a key concern for users. Passenger satisfaction has improved over time, remaining around 80% for several years and was 82% in 2020, still below Network Rail's target of 83.5% <sup>39</sup> . Freight customers also report barriers to transition to rail, with costs of additional journey legs for door-to-door journeys with a rail leg being noted as a key	<p>This is a new paragraph in the draft revised NPSNN which relates to the performance of the rail network.</p> <p>No response required.</p>

<sup>10</sup> Highways England (2019). Incident logs. Spreadsheet. Unpublished.

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	barrier to growth <sup>40</sup> . There is, therefore, a clear need for rail infrastructure to be expanded whilst taking into account the need to secure value for money for customers.	
3.7	The government’s Levelling up the United Kingdom White Paper recognises the role that transport can play in boosting productivity, by connecting people to jobs, and businesses to each other, and sets out an ambition to level up transport connectivity. It recognises the role that specific projects on national networks can play in improving connectivity between towns and cities to boost growth.	This is a new paragraph in the draft revised NPSNN. As identified in paragraph 3.3.2 of the Need for the Project [APP-494], the Lower Thames Crossing (referred to as one of the actions being promoted by the UK government on page 252) ‘is identified as a strategic road investment which will boost productivity, pay, jobs and living standards which will ultimately level up different areas of the country.’ National policy therefore recognises the contribution that the Project would make to the national and regional economy and the contribution it would make to levelling up regional economies.
3.8	Transport infrastructure is a catalyst and key driver of growth, and it is important that the planning and development of infrastructure fully considers the role it can play in delivering sustainable growth, how it can support local and regional development plans and the growth aspirations of local authority areas. This will include exploring options to unlock sites for housing and employment growth made accessible by sustainable transport and the regenerative impact major infrastructure can play in driving urban renewal, increasing density, as well as creating new places and communities.	This is a new paragraph in the draft revised NPSNN. The Need for the Project [APP-494] sets out the Scheme Objectives. These include supporting sustainable local development and providing increased accessibility to education, healthcare, community and employment opportunities. The Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [APP-550] identifies how the Applicant has carefully considered the interfaces and interactions with other projects so as not to impede sustainable development plans in the region. The Level 3 Wider Economic Impacts Report of the Combined Modelling and Appraisal Report [APP-527] presents a range of contextual and stakeholder evidence about the potential for the Project to generate wider economic impacts (WEI) based on the assumption of changes to land use. These impacts are not monetised within the Project’s economic appraisal and Benefit

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		<p>Cost Ratio (BCR). However, if realised, the scale of these impacts could be important for the Lower Thames economy, the South-East region and nationally.</p> <p>With regard to regional development plans, as set out in Section 3.4 of the Need for the Project, the Project aligns with the South East Local Enterprise Partnership (SELEP) strategy for tackling housing shortages, encouraging infrastructure and improving workforce skills to increase productivity and regional economic growth. The majority of the Project’s economic, social and environmental benefits accrue from trips that begin and/or end in local authorities within the SELEP area. SELEP local authorities north and south of the River Thames are forecast to receive substantial transport user benefits, which are mainly journey-time savings and productivity benefits.</p> <p>Appendix C to the Planning Statement [<b>Document Reference 7.2 Appendix C (2)</b>] presents a policy assessment of the impacts of the Project against development plans and other relevant local policy.</p> <p>ES Appendix 16.2: Short List of Developments [<a href="#">APP-484</a>] also explains how the Applicant has engaged with local planning and transport authorities to understand their emerging development plans and the Project’s likely impact on them.</p>
3.9	Resilience in the networks is about responding to risks and taking opportunities to enable transport networks to perform as expected. But importantly, resilience is also about ensuring the network remains fit for purpose, meeting the needs of the country for the movement of goods and people by anticipating, responding and being able to quickly adapt to those changing needs, and ensuring the network continues to evolve as technology advances.	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>Through the Project design process (see for example Section 3.6 of the Project Design Report Part C: Design Rationale [<a href="#">APP-508</a>]) two key potential barriers to resilience and the ability of the Project to remain fit for purpose and respond to changing needs were identified: the need to avoid the operational challenges of the Dartford Crossing and the potential effects of climate change.</p>

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		The Project design has taken into account these two key concerns and incorporated measures to ensure capacity to adapt to the changing operational capacity of the Dartford Crossing and capacity for climate change resilience within the design for these eventualities.
3.10	The latest climate change projections show that by the 2050s, annual temperatures will rise, rainfall will increase, and the frequency and intensity of extreme temperature and rainfall events may also increase.	This is a new paragraph in the draft revised NPSNN. See response to paragraph 3.11.
3.11	The UK Climate Change Risk Assessment has identified some of the key risks faced by the transport sector and transport infrastructure networks as a result of climate change, including risks from river, surface water and groundwater flooding, coastal erosion and flooding, slope and embankment failure, risks to bridges, and cascading failures. These have the potential to negatively impact network performance, including road user safety, journey time reliability, and disruption to supply chains	This is a new paragraph in the draft revised NPSNN. As outlined in paragraph 3.6.7 of the Project Design Report Part C: Design Rationale [APP-508], the Project design has taken into account the identified potential effects of climate change and incorporates measures to ensure capacity for climate change resilience within the design for these eventualities. Climate change considerations, both in terms of Project resilience and adaptability to climate change, have been assessed for the construction of the Project as well as for at least 100 years of its operation (see Section 7.2 of ES Appendix 14.6: Flood Risk Assessment [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)]), including for operational vulnerability. The various measures proposed to ensure the Project's resilience and adaptability to climate change are described in paragraphs 15.5.27 to 15.5.36 of ES Chapter 15: Climate [APP-153] and identified in full in ES Appendix 15.3: Climate Resilience Impacts and Effects [APP-482] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Broadly these measures include building in resilience to climate change to the design of the Project structures and features and its supporting infrastructure such as drainage, balancing ponds

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		<p>and infiltration basins, earth structures and flood mitigation and the use of good practice construction techniques and standards.</p> <p>A detailed assessment of the Project’s vulnerability to climate change is provided within paragraphs 15.7.10 to 15.7.20 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)]. This assessment concludes that having regard to the various measures proposed the Project would improve the resilience of the SRN to the effects of climate change.</p>
3.12	<p>While the path to net zero forms part of the response to climate change risks on the transport network, resilience measures, including maintenance and adaptation of the network and further development, will be critical to future-proof against these wide-ranging risks. National Highways and Network Rail have published reports under the third round of the Climate Change Adaptation Reporting Power, which asks organisations to report on the effects of climate change on their organisation and their proposals for adapting to climate change.</p>	<p>This is a new paragraph in the draft revised NPSNN. Please see response to paragraph 3.11.</p>
3.13	<p>In 2023, the government will also publish the Third National Adaptation Programme, which will set out how the government plans to address risks identified in the Climate Change Risk Assessment.</p>	<p>This is a new paragraph in the draft revised NPSNN. No response required.</p>
3.14	<p>As we place more demands on the network through increases in the volume of traffic and greater expectations on its performance in underpinning efficient supply chains, our reliance on the technology that supports its smooth operation has increased. The ability of our network to accommodate and support advances in technology is ever more critical. Delivering the infrastructure needed to support innovation, including facilitating greater digital connectivity and supplying the energy needed to</p>	<p>This is a new paragraph in the draft revised NPSNN. The Project design adopts the latest applicable safety standards for construction methods, and uses technology to effectively manage traffic, provide better information to drivers and to support the management of incidents. As stated in paragraph 2.8.19 of ES Chapter 2: Project Description</p>



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	<p>support the evolution of vehicle technologies using the network, is key to ensure our networks remain resilient both now and in the future. The resilience of the technology itself, its maintenance and upgrade, and its continuity of service is essential, particularly as the connected and autonomous vehicles place new demands on real time information.</p>	<p>[<a href="#">APP-140</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] ‘<i>The road user charges would be operated as a ‘free-flow’ scheme, meaning that vehicles would not be required to stop at barriers to pay, but would be detected using automatic number plate recognition technology</i>’. Further detail of the proposed safety measures is included in the response to 3.41 below.</p> <p>With regard to the Project Wide approach Design Principles Clause PLA.01 (Smarter Design) states that the ‘<i>Architecture, landscape and engineering design shall be efficient in its use of resources and multifunctional wherever reasonably practicable</i>’ (Design Principles [<b>Document Reference 7.5 (7)</b>]).</p> <p>Sustainability has been a key consideration to various elements of the Project design including lighting (see paragraph 2.4.26 of ES Chapter 2: Project Description [<a href="#">APP-140</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]).</p>
3.15	<p>Resilience in networks, therefore, also includes accommodating changes in technology, including the infrastructure needed to support the use of alternative fuels, and digital connectivity will also require our national networks to evolve and adapt in order to utilise the benefits that technology can bring.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>As highlighted in paragraph 15.5.5 of ES Chapter 15: Climate [<a href="#">APP-153</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>], the Applicant ‘<i>has committed to publishing a blueprint for EV charging services on the strategic road network by 2023 and delivering £950 million of charging infrastructure by 2023, aiming at providing at least six 150-350kW charge points at each motorway service area. The availability of sufficient, reliable, and convenient EV charging stations will promote the uptake of electric vehicles and facilitate the reduction of carbon emissions by end users.</i>’</p> <p>The Applicant is also undertaking discussions to develop ambitious approaches to carbon reduction. For example, the Applicant is under discussions with plant manufacturers and</p>

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		<p>specialists in the Thames Estuary area to explore the practicalities of using hydrogen fuelling onsite and other alternative energy sources.</p> <p>Any delivery of this would have to be delivered collaboratively with the Contractor/supplier/regulator as appropriate.</p> <p>The Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>] secured under draft DCO Schedule 2 Requirement 16 [<b>Document Reference 3.1 (11)</b>] sets out the Applicant’s carbon ambitions for the Project and the measures that would be used to achieve them. The Project is a ‘pathfinder’ for low carbon construction and will test, require and reward low carbon innovation and approaches as appropriate.</p>
3.16	<p>Interventions can also help to address the strategic resilience of the network, responding to the changing needs of the economy and the underlying imperative set out in chapter 2 to ensure goods, people and services can traverse the network safely and efficiently through, for example, the provision of a reliable alternative or complementary strategic route. Network resilience also means optimising the outcomes of transport infrastructure delivery at a local, regional and national level, taking opportunities to improve connectivity and capitalising on all of the benefits infrastructure delivery brings.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The Need for the Project [<a href="#">APP-494</a>] sets out the Scheme Objectives, including improvements to the resilience of the Thames crossings and the major road network. Currently at the Dartford Crossing, when crosswind speed exceeds 70mph the Queen Elizabeth II Bridge is closed to all traffic for safety reasons. Because the Project has been designed as tunnels rather than a bridge, windspeed would not cause closures at the river crossing for the Project as it does currently at the southbound Dartford Crossing.</p> <p>Providing an alternative route east of the Dartford Crossing for local, regional and national traffic will therefore increase the resilience of the road network through giving people more choice when deciding how they want to cross the River Thames and providing an alternative in the case of incidents or closures due to bad weather at the other River Thames crossings. This will in turn provide enhanced connectivity between the Lower Thames area and the south-east of the UK.</p>

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3.17	Any national network Nationally Significant Infrastructure Project (NSIP) should seek to improve and enhance the environment irrespective of the reasons for developing the scheme. However, there may be instances where infrastructure interventions are required to bring about improvements to environmental outcomes. Such outcomes might include contributing to net zero target through, for example, electrification of rail, improvements to air quality through reductions in congestion, or delivering localised environmental improvements to cultural heritage, landscape, or biodiversity.	<p>This is a new paragraph in the draft revised NPSNN. In considering social and environmental benefits and quality of life matters consideration has to be given not only to the impacts caused by the construction of the Project but also the impacts and benefits which would be achieved by the operation of the Project and by removing or minimising existing adverse impacts elsewhere, i.e. the alleviation of congestion at the Dartford Crossing which is a key Scheme Objective.</p> <p>The Project-wide approach to delivering environmental improvements is described within the Project Design Report Part C: Design Rationale [APP-508] which states that the proposals have been developed to be landscape led and to support the recovery of nature.</p> <p>It outlines the wide range of mitigation measures and enhancements, including some landscape-scale interventions which have been incorporated into the design of the Project in the form of embedded mitigation measures covering a wide range of environmental and social impacts. These are incorporated through the preliminary Project design and, in some instances, the Design Principles [Document Reference 7.5 (7)].</p> <p>Section 5.3 of Need for the Project [APP-494] and Section 2.9 of ES Chapter 2: Project Description [APP-140] and Environmental Statement Addendum [Document Reference 9.8 (9)] outline the various improvements to environmental outcomes which would be brought about as a result of the Project which include:</p> <ul style="list-style-type: none"> <li>• Reduced congestion</li> <li>• New and upgraded routes across the Lower Thames area for walkers, cyclists and horse riders, designed to improve accessibility to the existing network</li> </ul>

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		<ul style="list-style-type: none"> <li>• Improvements in air quality (in particular at the Dartford Crossing)</li> <li>• Positive legacy of green infrastructure with significant new recreational sites</li> </ul>
3.18	Safety is of paramount importance in the development of our transport network and contributes to achieving a resilient network. Incidents on the network lead to increased unreliability, pressure on emergency services and delay for other users.	<p>This is a new paragraph in the draft revised NPSNN. In accordance with the Scheme Objectives the Project design has sought to achieve a high standard of safety during both the construction and operation of the Project. With regard to the construction phase, paragraphs 2.5.7 to 2.5.17 of ES Chapter 2: Project Description <a href="#">[APP-140]</a> and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] describe the measures specific to construction safety, security and risk assessments.</p> <p>With regard to safety over the operational phase see response below to paragraph 3.41.</p>
3.19	Although the UK's roads are amongst the safest roads in the world, road safety remains a key priority for the government. 1,857 people were killed or seriously injured in reported collisions on the SRN in 2021.	<p>This is a new paragraph in the draft revised NPSNN. See response to 3.18.</p>
3.20	The second Road Investment Strategy (RIS2) sets out an ambition to create a safer and more reliable network, including a 'Zero Harm' goal of bringing the number of people killed or seriously injured on the network to a level approaching zero by 2040'. Achieving this will take a combination of improvements to the existing network, further development to the safety features of vehicles and a continued focus of driver behaviour.	<p>This is a new paragraph in the draft revised NPSNN. The Project is identified as a part of the government's Road Investment Strategy 2: 2020–2025, as a project that will be started or completed in the RIS2 period and will <i>'have a national impact, allowing freight traffic to the continent to bypass Dartford, and have an uncongested route to Dover'</i>. The Project's detailed safety measures during construction are detailed in response to paragraphs 3.18 and 3.41. The Project's proposed safety measures would support the Zero Harm ambition set out in the RIS2.</p>

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3.21	<p>Rail is one of the safest modes of transport, and the UK has one of the safest railway networks in Europe<sup>44</sup>. Between 2016-2020, passenger and workforce fatalities per billion train kilometres in the UK (4.0 fatalities) were well below the European average (11.2)<sup>45</sup>. The frequency of train accidents with passenger or workforce fatalities is very low and this has been achieved against a pre-pandemic backdrop of a significant rise in the number of passengers and rail kilometres travelled. Maintaining these high standards of safety for passengers and workers requires continuous improvement, including the adoption of new technologies. Government continues to invest considerably in rail safety, as well as supporting a strong independent safety regulatory regime, which has been key to the UK having one of the safest railway networks in Europe. The Plan for Rail continues the government’s strong emphasis on rail safety, with a clear commitment to maintain safe and secure railways for all.</p>	<p>Most of this paragraph is new though part reflects part of paragraph 3.11 of the designated NPSNN. As it relates to safety on the railways, no response is required.</p>
3.22	<p>The government has, therefore, concluded that at a strategic level there is a compelling need for development of the national networks – both as individual networks and as a <u>fully</u> integrated system. <u>The Examining Authority and the Secretary of State should, therefore, start their consideration of applications for development consent for the types of infrastructure covered by this National Policy Statement (NPS) on this basis. The Secretary of State should give substantial weight to considerations of need where these align with those set out in this NPS.</u></p>	<p>This is an extended version of paragraph 2.10 of the existing NPSNN. The new text, underlined, makes it clear that the Secretary of State should give substantial weight to need for development which aligns with the NPS.</p> <p>The Need for the Project [<a href="#">APP-494</a>] establishes the clear and overriding need for the Project to deal with long-standing transport, community and environmental, and economic problems. It explains how the Project would reduce congestion at the Dartford Crossing and create additional capacity and increased resilience across the River Thames east of London. This would be achieved through providing a free-flow connection between the A2 and M25, over 80% additional road capacity across the River Thames east of London and a reduction in traffic flows on the Dartford Crossing by an</p>

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		<p>average of 19% in 2030 in the peak hours. It would also ease congestion on other key routes.</p> <p>This document states that average traffic speeds on the road network would rise and journey times would become more reliable through reduced incident delays, reduced diversion impacts and reduced journey time variability (paragraph 1.1.220).</p> <p>Need for the Project [<a href="#">APP-494</a>] considers how the Project would support economic growth, locally, regionally and nationally and how the Project sits in the context of a range of government policy initiatives and announcements (Section 3.3). The Project would also provide travel time savings for users wanting to cross the River Thames east of London. Section 5.2 (Transport – benefits and opportunities) of the document [<a href="#">APP-494</a>] refers to journey time comparisons undertaken for key strategic corridors both with and without the Project.</p> <p>Providing an alternative route east of the Dartford Crossing for local, regional and national traffic would increase the resilience of the road network through giving people more choice when deciding how they want to cross the River Thames and providing an alternative in the case of incidents or closures due to bad weather at the other River Thames crossings.</p> <p>There would be a reduction in the collision rate (collisions per vehicle mile travelled) as a result of a managed less congested network (Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] and the Combined Modelling and Appraisal Report – Appendix D [<a href="#">APP-524</a>, <a href="#">APP-525</a>, <a href="#">APP-526</a>, <a href="#">APP-527</a>]).</p> <p>The Project would connect the two economies of Kent and Essex, enhance the strengths of the Thames Estuary region in relation to transport and logistics and reduce the need to duplicate land uses.</p>

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3.23	Introductory line to following paragraphs	No response required.
<b>The drivers of need for development of the national road network</b>		
3.24	Introductory paragraph	This is a new paragraph in the draft revised NPSNN. No response required.
3.25	<p>Britain has seen a significant increase in the use of SRN. By 1993, motorway traffic was 42.2 billion vehicle miles, and in 2019 motorway traffic was 70.5 billion vehicle miles. This growth in traffic has not led to the equivalent provision of capacity; while motorway traffic has increased by two-thirds in this time (66%), motorway lengths have increased by less than a fifth (16%, 325 miles). To counter some of the associated deterioration in network performance, National Highways has focussed more resources on responding to the incidents and actively managing traffic conditions.</p>	<p>This is a new paragraph in the draft revised NPSNN. Plate 4.2 of the Need for the Project [APP-494] shows how traffic using the Dartford Crossing has grown over time. Section 4.2 describes the previous measures undertaken to address network performance and manage traffic conditions around the Dartford Crossing since it was opened in 1963. These include:</p> <ul style="list-style-type: none"> <li>• Second tunnel completed in 1980 offering two additional lanes</li> <li>• Opening of the Queen Elizabeth II Bridge in 1991</li> <li>• Removal of the barriers and introduction of free-flow charging technology at the Dartford Crossing in November 2014 (the ‘Dart Charge’ scheme)</li> </ul> <p>As identified in paragraph 4.2.5 of the Need for the Project [APP-494], the incremental improvement works over the years have not provided the significant road space supply that is required to meet the demand. The demand management in the form of the Dart Charge also did not suppress demand as the traffic demand increased even more strongly despite its introduction.</p>
3.26	<p>Users have a wide range of needs arising from using the SRN, from good management of roadworks, and maintaining road surface quality, many of which are outside the scope of this NPS. These aspects all contribute to the key priorities for road users of reduced delays and improved journey time predictability</p>	<p>This is a new paragraph in the draft revised NPSNN. Paragraphs 4.2.29 to 4.2.60 of the Need for the Project [APP-494] describe the various road user issues currently faced at the Dartford Crossing and its approaches. The ongoing congestion issues are such that local people’s daily routines</p>

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	<p>consistently highlighted by Transport Focus research into road user priorities. A report prepared for National Highways shows that delays are one of the main sources of annoyance on the network.</p>	<p>are impacted, leading to wasted time for users and also affecting economic productivity. Traffic speeds in both directions at the Dartford Crossing are generally low (particularly northbound). The lack of capacity also means that it takes much longer for traffic conditions to return to normal following traffic incidents.</p> <p>Due to these high volumes of often closely-spaced traffic, speeds are reduced and there is an increased risk of and impact from incidents, which leads to further congestion and poor reliability. With regard to safety, paragraph 4.2.52 states that <i>'due in part to the high number of incidents at the Dartford Crossing and its approaches, the safety record on most of the sections of the M25/A282 in the vicinity of the Dartford Crossing is worse than the national average for roads of a similar classification'</i>. Users of the Dartford Crossing also experience significant variations in their journey times. This makes planning very difficult and prevents users making long-term plans about what they do and where they are located. These conditions also cost users more in the short term both in terms of time and money.</p> <p>The various letters of support contained within Appendix A of the Need for the Project [APP-494] reflect the level of dissatisfaction of users of the Dartford Crossing.</p>
3.27	<p>Congestion is the largest contributor to delay on the road network. With more vehicles on the road in 2021-22, average delay rose substantially. The average delay on the SRN in 2021-22 was 8.8 seconds per vehicle mile. This was higher than the 6.7 seconds per vehicle mile average delay in 2020-21, but still below the amount of delay in March 2019 to February 2020 of 9.5 seconds per vehicle mile. Correspondingly, the average speed on the SRN was 58.6mph in 2021-22 down from 60.7mph,</p>	<p>This is a new paragraph in the draft revised NPSNN. The analysis of delays experienced by road users at the Dartford Crossing contained within Section 4.2 of the Need for the Project [APP-494] focuses on traffic flows in the year 2019. Paragraph 4.2.37 to 4.2.47 describe the existing issues specific to low vehicle speeds around the Dartford Crossing. Impacts related to the COVID-19 pandemic are addressed at</p>



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	<p>but higher than the average speed seen in 2019-20 prior to the COVID-19 pandemic - which was 58mph with a downward trend from 2018-19.</p>	<p>paragraphs 5.7.38 to 5.7.41 of the Transport Assessment <a href="#">[REP4-148, REP4-150 and REP4-152]</a>. A further consideration is that due to the age and design of both tunnels, Dangerous Goods Vehicles, such as fuel tankers, are required to be escorted through the tunnels which slows traffic flow and can also result in additional disruptions and loss of capacity of between 8–12%, equivalent to 5–7 minutes of closures each hour (paragraph 4.2.14 <a href="#">[APP-494]</a>). With regard to the southbound bridge, paragraph 4.2.17 of Need for the Project <a href="#">[APP-494]</a> states that <i>‘while relatively rare, the incidence of the bridge having to close for high winds appears to be increasing, with the bridge recently closed for Storm Eunice and Storm Franklin in 2022; in addition, two lanes were closed in April 2022. This can cause additional delay in both directions due to reduced capacity (which can be reduced by circa 50% in both directions)’</i>.</p>
3.28	<p>Increases in vehicle miles undertaken can lead to worsening performance of the network. The main drivers of traffic growth are population growth, economic growth, and the actual and perceived costs of motoring. The National Road Traffic Projections projects road traffic between 2025 and 2060. The National Road Traffic Projections have modelled a range of scenarios, which explore uncertainties in demographic change, economic growth, regional redistribution, behavioural and technological change, and decarbonisation. As a result of these uncertainties, a range of possible outcomes have been identified. However, all scenarios have projected a growth of traffic between 2025 and 2060 for England and Wales, with forecasts ranging from 12% to 54%. The Core scenario, which represents a world in which deviation from historic trends in the key drivers</p>	<p>This is a new paragraph in the draft revised NPSNN. Table 7.11 of the Transport Assessment <a href="#">[REP4-148, REP4-150 and REP4-152]</a> provides a Journey time comparison for the Do Minimum and Do Something scenarios in the AM peak (2030). This data, which has been informed by the transport model, forecasts both congestion and delays on the transport network would get worse if the Project is not built (as shown in the Do Minimum scenario) particularly on the approaches to, and on the Dartford Crossing. Table 5.1 of Need for the Project <a href="#">[APP-494]</a> provides journey time comparisons on a number of routes in the Lower Thames area in 2030, both without and with the Project. The table shows significant reductions in journey times on a number of routes.</p>

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	of demand and current Government policies is minimal, projects a 22% increase in traffic between 2025 and 2060.	As identified in paragraph 5.2.19 of Need for the Project [APP-494], if the new crossing is not built, a higher number of incidents, increased journey times and more days where traffic conditions are worse than typically experienced today are predicted.
3.29	This projected growth impacts different road types differently and varies across the different scenarios. The Core Scenario projects an increase in the distance travelled on motorways (measured as billion vehicle miles) of 27% between 2025 and 2060.	This is a new paragraph in the draft revised NPSNN. Section 5.7 of the Transport Assessment [REP4-148, REP4-150 and REP4-152] outlines the methodology to assessing transport impacts with and without the Project. The inclusion of an analysis of the transport impacts with the high and low growth scenarios is provided in the TA to show how levels of national uncertainty would affect the forecast impact of the Project on the performance of the highway network.
3.30	The National Road Traffic Projections also show that the pattern of traffic growth and congestion across regions may vary. Under the Core scenario, growth in the number of vehicle miles between 2025 and 2060 travelled on motorways varies between regions from 24.2% to 30%. Increases in the number of seconds of time lost due to congestion on motorways also varies under the Core scenario; from 81.8% in one region to 215.5% in another. This may have differing impacts on the user experience of motorways, especially if the largest increases in congestion are experienced in regions where lost time is currently low. Similarly, congestion may not increase in a linear way to traffic growth.	This is a new paragraph in the draft revised NPSNN. See response above to paragraph 3.28.
3.31	These projections are not definitive predictions of what will happen in the future and are not a predictor of the level of expansion required on the national road network. They also do not reflect how transport demands may vary by mode or how road space may need to be distributed to better facilitate mass transit options (such as guided buses, trams, light rail and	This is a new paragraph in the draft revised NPSNN. The Project design would enhance the SRN and improve capacity on the local road network, as set out in Chapter 4 of the Need for the Project [APP-494]. The chapter sets out that there would be a reduction in the collision rate (collisions per vehicle mile travelled) as a result of a managed less-congested

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	<p>coaches), pressures on our road and give greater modal choice for journeys. They do, however, demonstrate that continued absolute traffic growth is likely under all scenarios, and therefore enhancements on the national road network will be necessary in order to ensure the national road network operates effectively in the face of growing demand. Infrastructure interventions can include measures such as addressing pinch points and improving flow aimed at addressing localised issues to help address reliability, predictability, and capacity issues at specific locations, which can in turn improve overall performance of the wider network of local roads and the SRN in that location. Equally interventions could include measures to reallocate road space to systems for journeys addressing traffic growth via a vision-led approach to that plans for modal shift.</p>	<p>network. This is further detailed in the Transport Assessment (TA) <a href="#">[REP4-148, REP4-150 and REP4-152]</a> and the ComMA Appendix D <a href="#">[APP-524]</a>. Furthermore, TA Chapter 9: Road safety <a href="#">[REP4-148, REP4-150 and REP4-152]</a>, states that as part of the Project’s safety and security the new road would include technology to manage traffic and provide better information to drivers, including variable message signs to display variable speed limits, travel information, hazard warnings and both advisory and mandatory signage to drivers. Because the Project relates to the provision of additional capacity to the SRN, there would be no reasonable opportunities to re-allocate road space to alternative modes. Opportunities to include a pedestrian and cycle crossing within the tunnel as part of the Project itself were explored (see page 48 of the Project Design Report Part G: Design Evolution <a href="#">[APP-514]</a>) and this was shown to be unfeasible. The DCO application nevertheless includes provision for a number of interventions/measures which seek to encourage the use of alternative transport modes. The Project Design Report Part E: Design for Walkers, Cyclists and Horse Riders <a href="#">[APP-512]</a> sets out the various measures proposed to be incorporated in the Project design to mitigate the impacts of the development on WCH and to provide enhancements in the longer term. The proposed new rights of way are detailed within the Rights of Way and Access Plans (Volume A, B and C) <b>[Document Reference 2.7 Volume A (5), Volume B (5), Volume C (7)]</b> and within the Authorised Works contained within the draft DCO <b>[Document Reference 3.1 (11)]</b>. Paragraph 4.4.1 of the Benefits and Outcomes Document <a href="#">[APP-553]</a> states that ‘<i>locally, National Highways has established the Lower Thames Crossing Sustainable Transport</i></p>

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		<p><i>Working Group (STWG) with a range of local partners ... It is investigating sustainable travel and cross-river connectivity enhancements that could be delivered in future to complement the Project, and had its inaugural meeting in September 2020.'</i></p> <p>Such measures are likely to include proposals to enhance cross river connectivity such as ferry service improvements, feasibility studies for cycling and e-bike initiatives, and a Walking, Cycling and Public Realm Action Plan for Tilbury. The Applicant considers that supporting this collaboration between local authorities on both sides of the Thames is the most effective and sustainable solution.</p> <p>The impact of the Project on existing bus services is considered in Section 7.11 of the Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>], which concludes that the overall impact would be beneficial in most cases.</p>
3.32	<p>The Road Investment Strategy outlines the government's 5-year strategy for investment in, improvement of, and management of the strategic road network. User needs and performance of the network are critical considerations in the preparation of the Road Investment Strategy. The Road Investment Strategy identifies the balance between large-scale infrastructure interventions covered by this NPS, and smaller-scale enhancements and maintenance. The Road Investment Strategy also identifies individual schemes that meet the corridor of localised benefits and which collectively deliver strategic benefits from a programmatic approach.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>As stated in paragraph 3.3.12 of the Need for the Project [<a href="#">APP-494</a>], the Project sits within a wider package of works for the SRN in the south-east of England. The government's Road Investment Strategy 2: 2020–2025, also known as RIS2<sup>11</sup>, acknowledges that the demands on the nation's roads continue to evolve and change and that investment is needed to update the network accordingly. The Project is identified as a part of this investment, as a project that would be started or completed in the RIS2 period and would '<i>have a national impact, allowing freight traffic to the continent to bypass Dartford, and have an uncongested route to Dover</i>'.</p>

<sup>11</sup> DfT (2020). Road Investment Strategy 2: 2020-2025.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/951100/road-investment-strategy-2-2020-2025.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951100/road-investment-strategy-2-2020-2025.pdf)

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3.33	<p>The SRN facilitates economic development. Sectors that rely on the SRN enable £409.7 billion of gross value added to be created within the economy. It connects businesses – 91% of businesses in England are located within 9 miles of the SRN. The SRN also connects key economic infrastructure – on average, an SRN junction is located 0.1 miles away from six of the seven biggest English ports and 1.6 miles away from the 10 biggest English airports. As set out in chapter 2, in connecting places, it unlocks economic activity. This economic growth may be at a national level, for instance through strengthening the connectivity of the Union and supporting the development of the UK Freight Network, or at an international level through enhanced access to international markets through ports/airports, with the benefits that will bring to the logistics and freight sector, as well as wider business. It may be at the regional or local level, where a SRN enhancement may unlock land for development, the creation of new employment centres, opportunities for large-scale logistics or for the creation of new communities underpinned by sustainable transport, with the additional social benefits that this brings. For example, National Highways facilitated the delivery of 25 Growth and Housing Fund schemes between 2015 and 2020 – this supported 37,000 homes and 43,000 jobs.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The Need for the Project [<a href="#">APP-494</a>] explains how the economy of the south east suffers from low business productivity, particularly in Thurrock, Gravesham and Medway. This is largely due to their location, but exacerbated by the congestion, delays and unreliable journey times caused by inadequate road infrastructure.</p> <p>The issues created by the current situation at the Dartford Crossing on the economy are also set out in the Need for the Project These issues include:</p> <ul style="list-style-type: none"> <li>• Traffic disruption including congestion</li> <li>• Poor journey time reliability</li> <li>• Limited alternative crossings of the River Thames</li> </ul> <p>Chapter 3 of Need for the Project [<a href="#">APP-494</a>] sets out the Scheme Objectives, including improvements to the resilience of the Thames crossings and the major road network. Currently at the Dartford Crossing, when crosswind speed exceeds 70mph, the Queen Elizabeth II Bridge is closed to all traffic for safety reasons. Because the Project has been designed as tunnels rather than a bridge, windspeed would not cause closures at the river crossing for the Project as it does currently at the southbound Dartford Crossing.</p> <p>Section 5.4 of Need for the Project [<a href="#">APP-494</a>] gives the economic benefits arising from the Project in summary form, the more detailed analysis being presented in the ComMA Appendix D: Economic Appraisal Package – Economic Appraisal Report [<a href="#">APP-526</a>].</p>

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3.34	<p>The SRN needs to adapt in order to become more resilient to a range of impacts from climate change (see paragraphs 4.30 to 4.41). Road Investment Strategy 2 has outlined the long-term vision for the SRN to be resilient to climate change and incidents, such as flooding, poor weather conditions, and blockages on connecting transport networks.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>As stated in response to paragraph 2.30 above, paragraphs 15.7.10 to 15.7.20 and Table 15.19 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] describe the vulnerability of the Project to Climate change Impacts.</p> <p>Section 13 of the Sustainability Statement [APP-544], Section 15.5 of ES Chapter 15: Climate [APP-153] and ES Appendix 15.3: Climate Resilience Impacts and Effects [APP-482] and Environmental Statement Addendum [Document Reference 9.8 (9)] describe the various measures proposed to ensure the Project would be resilient to climate change. Examples of the various measures proposed would include:</p> <ul style="list-style-type: none"> <li>• Surface water drainage for all surfaced roads and yards, buildings and any other hard or impermeable surfaces within construction compounds or worksites (REAC Ref. RDWE006 [Document Reference 6.3 ES Appendix 2.2 (9)]).</li> <li>• Contractors will ensure the relevant measures within the Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)] are implemented and, as appropriate, consider additional measures to ensure the resilience of the proposed mitigation of impacts during extreme weather events.</li> <li>• Drainage infrastructure would be inspected and maintained regularly in accordance with Design Manual for Roads and Bridges (DMRB) GS 801 Asset Delivery Asset Inspection</li> </ul>

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		<p>Requirements<sup>12</sup> and DMRB GM 701 Asset Delivery Asset Maintenance Requirements<sup>13</sup>, as applicable, to ensure that they continue to operate to their design standard to safeguard surface and groundwater quality (secured through the Code of Construction Practice (CoCP) <b>[Document Reference 6.3 ES Appendix 2.2 (9)]</b> (REAC Ref. RDWE012)).</p> <ul style="list-style-type: none"> <li>Measures have been secured to maintain floodplain connectivity and prevent embankments forming continuous barriers to floodplain flow conveyance at West Tilbury Main and at the proposed viaduct spanning the Mardyke and Golden Bridge Sewer <b>[Document Reference 6.3 ES Appendix 2.2 (9)]</b> (REAC Ref. RDWE040 and RDWE046).</li> <li>The Landscape and Ecology Management Plan (LEMP) would be developed to account for decreased mean rainfall, increased mean temperature and daily rainfall, increased wind speed and more frequent extreme weather events.</li> </ul> <p>Having regard to the various measures which have been designed to ensure the resilience of the Project during operation, no significant adverse impacts are predicted.</p>
3.35	National Highways has published its third adaption report under the Climate Change Act which outlines some of its adaptation actions, including maintenance programmes.	This is a new paragraph in the draft revised NPSNN. See response above to paragraph 3.34

<sup>12</sup> Highways England (2020). DMRB GS 801 Asset Delivery Asset Inspection Requirements. <https://www.standardsforhighways.co.uk/search/6b558352-5c85-4725-b5f2-f796f53d63a8>

<sup>13</sup> Highways England (2020). DMRB GM 701 Asset Delivery Asset Maintenance Requirements. <https://www.standardsforhighways.co.uk/search/e0a134c8-f5e2-4f30-9cda-9e43d047f46e>

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3.36	With winter rainfall expected to increase by approximately 6% by the 2050s, there is a risk of flooding, waterlogging of pavement surfaces and ground saturation affecting roads. The report includes a case study on the M6 Junction 10 Improvements, which prepares for future increases in rainfall and mitigates against surface water flooding through the drainage design which includes an additional capacity allowance of 30%.	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>As noted throughout this response, climate change resilience has been at the fore of the design process. The key drainage and flood prevention elements of the Project are described in detail within ES Appendix 14.6: Flood Risk Assessment (FRA) – Part 7 <a href="#">[APP-466]</a>. With regard to climate change, allowances have been applied in accordance with the provisions of DMRB CG 501<sup>14</sup> which states that climate change would be accommodated by applying a 20% uplift in peak rainfall intensity (paragraph 2.3.8 of the FRA Part 7). Paragraph 2.3.9 outlines how input from the Environment Agency has informed drainage design for the remaining elements of the Project.</p> <p>The various drainage measures proposed are also included within the Design Principles <b>[Document Reference 7.5 (7)]</b> (to be legally secured through DCO Requirement 3) and within the Register of Environmental Actions and Commitments which is appended to ES Appendix 2.2: Code of Construction Practice <b>[Document Reference 6.3 ES Appendix 2.2 (9)]</b> and would be legally secured through DCO Requirement 4. These measures are listed in full in Section 6.7 of the FRA Part 7 <a href="#">[APP-466]</a>.</p>
3.37	Temperature changes can result in the deformation of asphalt leading to uneven road surfaces, expansion of concrete pavements at joints and failure of expansion joints and bridge bearings on structures.	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The measures listed in ES Appendix 15.3: Climate Resilience Impacts and Effects <a href="#">[APP-482]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> have had regard to</p>

<sup>14</sup> National Highways (2022). DMRB CG 501 – Design of highway drainage systems. <https://www.standardsforhighways.co.uk/search/6355ee38-413a-4a11-989b-0f33af89c4ed>



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		<p>the impact of temperature changes on different elements of the Project and include:</p> <ul style="list-style-type: none"> <li>• Materials (e.g. concrete) will be selected in accordance with relevant standards. This would avoid the deterioration of the pavement through, for example, softening, deformation and cracking.</li> <li>• The Contractors will ensure that the relevant measures within the Code of Construction Practice [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] are implemented and, as appropriate, consider additional measures to ensure the resilience of the proposed mitigation of impacts during extreme weather events.</li> <li>• Deterioration models will be used to identify appropriate maintenance regimes.</li> <li>• Emergency response and contingency plans in the form of a Severe Weather Plan.</li> <li>• Adequate space would be provided within the tunnels to account for anticipated cooling and ventilation requirements.</li> </ul> <p>These measures are secured through Requirement 4 of Part 1 of Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>].</p>
3.38	<p>The SRN will also need to respond to and utilise technological changes. Technology such as self-driving vehicles, access to alternative fuels and greater use of digital infrastructure may have a significant impact on how our roads are used, operated, and managed, including enabling better use of the existing network, safety improvement, and improved data on which to base network planning.</p>	<p>This is a new paragraph in the draft revised NPSNN. As highlighted in paragraph 4.1.4 of the Sustainability Statement [<a href="#">APP-544</a>], the Project has committed to the introduction of innovation through the implementation of the</p>

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		<p>General Principles of Prevention<sup>15</sup> within the engineering disciplines.</p> <p>Paragraph I.2.22 of the Planning Statement Appendix I: Carbon Strategy and Policy Alignment [REP7-138] states that <i>'beyond the construction of the Project, the Applicant is committed to a long term low carbon approach to managing and operating the new road. The DCO application therefore includes a requirement for the Applicant to prepare a 'Third Iteration' of the Carbon and Energy Management Plan in relation to the operational phase of the Project, which will set out how carbon emissions will be managed and minimised during the operation and maintenance of the new road. The Third Iteration of the Carbon and Energy Management Plan would also need to be submitted to the Secretary of State for approval.'</i></p> <p>With regard to alternative fuels, paragraph 15.5.5 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)], notes that the Applicant <i>'has committed to publishing a blueprint for EV charging services on the strategic road network by 2023 and delivering £950 million of charging infrastructure by 2023, aiming at providing at least six 150-350kW charge points at each motorway service area. The availability of sufficient, reliable, and convenient EV charging stations will promote the uptake of electric vehicles and facilitate the reduction of carbon emissions by end users.'</i></p>

<sup>15</sup> Health & Safety Executive (2015). Managing health and safety in construction, Appendix 1 The general principles of prevention.  
<https://www.hse.gov.uk/pubns/books/l153.htm>

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		<p>Emissions relating to corporate level operations related to the Project would be net zero throughout the appraisal period and emissions related to maintenance, repair and replacement would be net zero by 2040, in line with the Net Zero Highways plan<sup>16</sup>.</p> <p>Further information in relation to the safe operation of the Project is provided above in response to paragraph 3.14 and below in respect of paragraph 3.41 of the draft NPSNN.</p>
3.39	<p>Developments on the SRN need to be sensitive to, respond to, and contribute to their environmental context. Changing legislation through, for example, the Environment Act 2021 has introduced more stringent environmental protection, and opportunities for enhancement of the natural environment.</p>	<p>This is a new paragraph in the draft revised NPSNN. The DCO application has been informed by up to date legislation including the Environment Act 2021 (which is referenced within the legislation requirements contained within the ES), particularly in relation to air quality, biodiversity net gain and the water environment.</p> <p>With regard to the Project Design, environmental context has been a key influence throughout the development process, from early route options assessment through to refinement of the Project design. This process is described in further detail in Section 5 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] and also within ES Chapter 3: Assessment of Reasonable Alternatives [<a href="#">APP-141</a>]. An iterative process has facilitated design updates and improvements, informed by environmental assessment and input from the Project engineering teams, stakeholders and public consultation.</p> <p>Notwithstanding the above, as stated in paragraph 3.3.1 of the Project Design Report Part C: Design Rationale [<a href="#">APP-508</a>], ecological mitigation and compensation is proposed to offset</p>

<sup>16</sup> National Highways (2021). Net Zero Highways – our 2030 / 2040 / 2050 plan. <https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf>

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		<p>unavoidable effects of habitat loss, degradation and disturbance. The Project has sought to integrate these measures carefully in such a way that they maximise their benefits for the recovery of nature and, where practicable, the enjoyment of people. Additionally, the Project applies a landscape-first approach that responds to the diverse character landscapes through which the Project passes (see pages 7 to 10 of the Project Design Report Part C: Design Rationale <a href="#">[APP-508]</a>).</p>
3.40	<p>Any scheme needs to address this emerging legislative and policy context appropriately. Infrastructure improvements may help to facilitate a reduction in emissions (such as carbon, air pollution, noise or discharges to water resources), improvements to the natural and built environment (such as landscapes or cultural heritage improvements) or increased accessibility for non-motorised users and reduced severance. For example, reducing the time vehicles spend in congestion may reduce carbon and air quality emissions at that particular location.</p>	<p>This is a new paragraph in the draft revised NPSNN. The Project is considered to be a significant infrastructure improvement which will bring about significant benefits and improvements in terms of alleviating congestion and emissions at the Dartford Crossing.</p> <p>The Planning Statement <b>[Document Reference 7.2 (2)]</b> brings together relevant matters derived from the extensive evidence base supporting the Project, and considers them within the context of relevant planning policy across national, regional and local government levels. The various interventions and enhancements proposed to avoid or manage the impacts of the development and to reduce emissions are set out within each of the relevant topic areas contained within Section 6.5 of the Planning Statement under the heading of generic impacts.</p> <p>Section 5 of the Need for the Project <a href="#">[APP-494]</a> and the Benefits and Outcomes Document <a href="#">[APP-553]</a> describe how the Project would achieve air quality benefits, enhancements for WCH and reduced severance along with other environmental and community benefits. The Health and Equalities Impact <a href="#">[REP7-144]</a> describes severance and accessibility impacts in further detail over both the construction and operational stages of the Project.</p>

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3.41	<p>The government’s overall vision and approach to road safety is set out in the Road Safety Strategic Framework. Ensuring the safety of users on the SRN is critical. The number of people killed or seriously injured on the SRN has decreased over the past ten years and casualty rates are lower on motorways than on other road types. However, there remains a need to continue to address safety issues on the network, which may generate the need for specific enhancements to address particular locational problems or enhance safety measures across the SRN. Safety interventions are to reduce the number and severity of road traffic collisions.</p>	<p>This is a new paragraph in the draft revised NPSNN. The Scheme Objectives are listed in Table 2.1 of ES Chapter 2: Project Description [APP-140] and Environmental Statement Addendum [Document Reference 9.8 (9)] and include improving safety. Accordingly, the design adopts the latest applicable safety standards and uses technology to effectively manage traffic, provide better information to drivers and to support the management of incidents.</p> <p>As identified in paragraph 4.1.4 of the Sustainability Statement [APP-544] the ‘Project has encouraged the introduction of innovation through the implementation General Principles of Prevention (HSE, 2015) within the engineering disciplines. This has placed good design at the heart of the Project to ensure a better safety and environmental outcome for the future customers of the network’.</p> <p>Further information on how the Project has been designed to ensure a high standard of safety is contained within paragraphs 2.4.27 to 2.4.34 of ES Chapter 2: Project Description [APP-140] and Environmental Statement Addendum [Document Reference 9.8 (9)] and Section 3.6 of the Project Design Report Part C: Design Rationale [APP-508].</p> <p>The various safety measures described in ES Chapter 2: Project Description [APP-140] and Environmental Statement Addendum [Document Reference 9.8 (9)] to be employed to ensure the safety of road users would include:</p> <ul style="list-style-type: none"> <li>• Testing and commissioning following construction (paragraphs 2.6.164 to 2.6.167)</li> </ul>

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		<ul style="list-style-type: none"> <li>• Specific emergency and incident response to manage and respond to emergency/incident operation once the route is brought into use (including incidents such as tunnel fires, tunnel evacuation, emergency repairs, vehicle breakdowns etc) (paragraph 2.8.26)</li> <li>• Emergency Services and Safety Partners Steering Group (ESSPSG) to review and consult on the design of the tunnel as it develops (paragraph 2.2.45)</li> <li>• Variable mandatory speed limits (paragraph 2.2.46)</li> <li>• Traffic signal and barrier arrangement on each tunnel bore approach to allow the tunnel to be closed in the event of a significant incident (paragraph 2.2.46)</li> <li>• Technology improvements to detect incidents on highway links and in the tunnel, to activate control measures (paragraph 2.2.46)</li> <li>• Comprehensive closed-circuit television (CCTV) coverage (paragraph 2.2.46)</li> </ul>
<b>Government’s policy for addressing need of the national road network</b>		
3.42	<p>There are interdependencies between the efficient operation of the SRN and its impact on the local road network and vice versa. Effective operation and optimisation of both the SRN and the local road network are essential to achieve the outcomes set by the Transport Decarbonisation Plan. There are a range of measures that can be employed to make the best use of all road capacity (not just the SRN) which may impact upon demand for the SRN. These include:</p> <ul style="list-style-type: none"> <li>• Enabling more active travel and public transport (including buses, coaches and rail) in urban areas. This is at the heart of the Transport Decarbonisation Plan and the government has</li> </ul>	<p>This is a new paragraph in the draft revised NPSNN. The Need for the Project [APP-494] refers to the difficulties of increasing road space at the Dartford Crossing (road widening) due to its sensitive location (paragraph 4.2.5) along with the limited scope to reduce the strength of traffic demand due to the lack of alternative routes (paragraph 4.2.6). Paragraph 5.2.1 states that the Project would ‘provide over 80% additional road capacity across the River Thames east of London and reduce traffic flows on the Dartford Crossing by 19% in 2030 (opening year).’</p>

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	<p>introduced many policies intended to support this. The creation of mobility hubs and improving integration between modes through park-and-ride services, cycle parking provision at rail stations, and the coordination of bus / rail timetables, can all contribute.</p> <ul style="list-style-type: none"> <li>• Providing genuine choice in transport mode by increasing accessibility to public transport, connecting places and by improving the environment for journeys by active travel will offer an alternative to the use of private vehicles. The government has committed to transforming local transport systems through Bus Back Better strategy and the City Region Sustainable Transport Settlements. In addition, Bus Back Better sets out measures enabling buses to be used by all thereby enhancing levels of accessibility.</li> <li>• Integrating with spatial planning can support walking, wheeling and cycling or public transport as the natural first choice for journeys. Where developments are located, how they are designed and how well public transport services are integrated has a huge impact on whether people’s natural first choice for short journeys is on foot or by cycle, by public transport or by private car. The Strategic Road Network and the delivery of sustainable development Circular 01/2022 establishes how additional spatial considerations in transport decisions can help tackle congestion and support better journeys for all road users.</li> <li>• Greater deployment of technology can support more effective use of the network. Such technological interventions might include greater use of digital signalling, greater provision of route information to drivers, alternative fuels, self-driving vehicles or digital connectivity.</li> </ul>	<p>In acknowledging the interdependencies between the efficient operation of the SRN and its impact on the local road network the Scheme Objectives include relieving congested Dartford Crossing and approach roads and improving their performance by providing free-flowing north–south capacity alongside the objective of increasing the resilience of the SRN.</p> <p><b>Enabling more active travel and public transport</b></p> <p>Notwithstanding the fact that the Project relates to provision of additional capacity to the SRN, the proposals would not conflict with or take away the control from local authorities in relation to sustainable transport provision. As well as enabling the relevant local authorities to retain their control of local transport provision and active travel, the Project will provide significant new or improved provision of PRowS, paths and cycleways.</p> <p>The Project design does not preclude the provision of cross-river bus services should commercial operators wish to avail themselves of this opportunity. Impacts of the Project on bus services are set out in Sections 6.9 and 7.11 of the TA <a href="#">[REP4-148, REP4-150 and REP4-152]</a>.</p> <p>The Applicant has established the Lower Thames Crossing Sustainable Transport Working Group (STWG) with a range of local partners – Thurrock Council, Essex County Council, Gravesham Borough Council, London Borough of Havering, Kent County Council, the Thames Estuary Growth Board, the Port of Tilbury, and the Port of London Authority. The group is investigating sustainable travel and cross-river connectivity enhancements that could be delivered in future to complement the Project and would ensure local authorities in the area would retain their control of local transport provision. Further information on potential benefits is provided in the Benefits and Outcomes Document <a href="#">[APP-553]</a>.</p>

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	<ul style="list-style-type: none"> <li>Bringing forward maintenance schemes and small-scale enhancements to ensure that the SRN is operating as effectively as possible.</li> </ul>	<p><b>Increasing accessibility to public transport and by improving the environment for active travel</b></p> <p>The additional benefits to be delivered by the Project in relation to connecting places and improving the environment for journeys made by active travel, are set out in a number of documents, including the Need for the Project [APP-494], Planning Statement [Document Reference 7.2 (2)], Sustainability Statement [APP-544] and Project Design Report Part E: Design for Walkers, Cyclists and Horse Riders [APP-512]. Section 5.3 of Need for the Project [APP-494] provides an overview of the environmental and community benefits which would be delivered by the Project. These benefits include:</p> <ul style="list-style-type: none"> <li>Improved local trips and accessibility (including the circa 27km of improved walking, cycling and horse riding routes, as well as the circa 40km of new walking, cycling and horse riding routes)</li> <li>A positive legacy of green infrastructure with significant new recreational sites such as Chalk Park and Tilbury Fields</li> <li>An improvement in annual mean NO2 at locations adjacent to the Dartford Crossing</li> </ul> <p><b>Integrating with spatial planning and consistency with the Sustainable development Circular 01/2022<sup>17</sup></b></p> <p>The Project design as outlined above is consistent with the provisions within paragraph 14 of the DfT 2022 Circular and promotes an approach which <i>‘seeks to make the most efficient use of capacity within the overall transport network, improve</i></p>

<sup>17</sup> DfT (2022). Strategic road network and the delivery of sustainable development. <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development/strategic-road-network-and-the-delivery-of-sustainable-development>



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		<p><i>health and wellbeing, and support government policies, strategies and guidance that aim to reduce the negative environmental impacts of development.'</i></p> <p><b>Technology supporting effective use of the network</b> With regard to greater deployment of technology to support more effective use of the network as outlined in Section 3.6 of the Project Design Report Part C: Design Rationale [APP-508], the Project design, which uses technology to effectively manage traffic, provide better information to drivers and to support the management of incidents has taken into account need to avoid the operational challenges of the Dartford Crossing</p> <p>As stated in paragraph 2.8.19 of ES Chapter 2: Project Description [APP-140] and Environmental Statement Addendum [Document Reference 9.8 (9)] <i>'The road user charges would be operated as a 'free-flow' scheme, meaning that vehicles would not be required to stop at barriers to pay, but would be detected using automatic number plate recognition technology.'</i></p> <p><b>Bringing forward maintenance schemes and small-scale enhancements to ensure that the SRN is operating as effectively as possible</b> Maintenance measures to ensure the effective operation of the Project are described in Section 2.8 of ES Chapter 2: Project Description [APP-140] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Potential adverse effects arising after the completion of the construction phase of the Project would be managed by a series of control documents, included in the Project control plan. Table 2.12 identifies the control documents that are relevant at the operational phase of the Project. For example, the outline</p>

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		Landscape and Ecology Management Plan (oLEMP) does not include routine vegetation management activities required for safety. The Third Iteration of the Carbon and Energy Management Plan would address the matters set out in the Second Iteration that are relevant to the operation and maintenance of the Project and must contain the long-term commitments to manage and minimise carbon emissions during the operation and maintenance of the Project.
3.43	These interventions all have an important role to play in making effective use of the SRN and the government fully intends to make use of them. However, they will not be sufficient to address all the challenges of the SRN and may require specific interventions brought forward under the NSIP regime in specific locations in order to address those challenges.	This is a new paragraph in the draft revised NPSNN. As outlined in Section 4.2 of Need for the Project [APP-494] the Project is needed because of the challenges currently faced at the Dartford Crossing, where the existing traffic demand wishing to cross the river east of London outstrips the road space supply in that location. The Dartford Crossing is the only significant road crossing of the River Thames east of London and the Project is therefore required to ensure the effective use and resilience of the SRN.
3.44	The TDP commits to moving away from transport planning based on predicting future demand to provide capacity ('predict and provide') to planning that sets an outcome communities want to achieve and provides the transport solutions to deliver those outcomes (vision-led approaches including 'vision and validate,' 'decide and provide' or 'monitor and manage'). While vision-led approaches to minimise demand on the SRN are essential, there are varying challenges that will be presented by certain sites based on their land use, scale and/or location. In some cases, they will not always offset the need to increase capacity as modal shift does not always mean less road use. The competing demands for road space will remain or even increase with diversification in the type and number of users, the vehicle they use or where alternative sustainable modes are prioritised.	This is a new paragraph in the draft revised NPSNN. Section 4.2 of the Need for the Project [APP-494] describes how traffic and congestion at the Dartford Crossing has grown over time. It outlines the measures undertaken previously to minimise demand (including the implementation of the Dart Charge). As acknowledged in paragraph 4.2.6, it is also difficult to reduce the strength of the traffic demand given the lack of alternative routes. The Dart Charge did not suppress demand as the traffic demand increased even more strongly despite its introduction. Section 3.6 of ES Chapter 3: Assessment of Reasonable Alternatives [APP-141] outlines the strategic alternatives to address the future capacity and congestion issues at the

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		<p>crossing. This has included a consideration of what role other modes (for example, light/heavy rail, bus) might play in any plans for new capacity (this issue being described further in Section 5.3 of the Planning Statement [<b>Document Reference 7.2 (2)</b>]). The various assessments undertaken have shown that provision for alternative modes of transport would not reduce demand on the SRN to the extent that they would provide a viable alternative solution to the Project and would not meet the Scheme Objectives.</p> <p>The government acknowledges that demand management has not translated into significantly less pressure on the SRN and therefore there is a compelling need for the Project in order to address the fundamental cause of the transport problem (i.e. that demand outstrips supply).</p>
3.45	<p>While the long-distance nature of many journeys on the SRN limits the scope of potential interventions to support active travel, the transport corridors created by the SRN can support public transport by facilitating coach journeys and park-and ride schemes, providing vital connections to jobs, international gateways and between our towns and cities. In addition, safe links and movements across the SRN can be incredibly valuable to support better accessibility and connectivity and enhance the local active travel and public transport offer.</p>	<p>This is a new paragraph in the draft revised NPSNN.</p> <p>The impact of the Project once in operation on existing bus services is considered in Sections 6.9 and 7.11 of the Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>], which concludes that the overall impact would be beneficial in many cases. The design of the Project does not preclude the use of the Lower Thames Crossing by bus and coach operators should they wish to avail themselves of the opportunity to use the new crossing.</p> <p>As outlined above in response to paragraph 3.42 the additional benefits to be delivered by the Project in relation to connecting places and improving the environment for journeys made by active travel, are set out in a number of documents, including the Need for the Project [<a href="#">APP-494</a>], Planning Statement [<b>Document Reference 7.2 (2)</b>], Sustainability Statement [<a href="#">APP-544</a>] and Project Design Report Part E: Design for Walkers, Cyclists and Horse Riders [<a href="#">APP-512</a>]. Section 5.3 of</p>

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		<p>Need for the Project provides an overview of the environmental and community benefits which would be delivered by the Project.</p> <p>The Health and Equalities Impact Assessment [REP7-144] assesses the impact the construction and operation of the Project would have upon a number of different health determinants including:</p> <ul style="list-style-type: none"> <li>• Accessibility</li> <li>• Traffic related severance</li> <li>• Active travel</li> <li>• Work and training</li> <li>• Road safety</li> </ul> <p>Chapter 8 summarises the likely health outcomes and equalities effects. Overall, a neutral impact on accessibility is predicted during construction, while a significant positive impact is predicted during operation. Traffic related severance impacts are predicted on vulnerable community members during construction although these would be mitigated by the measures contained within the Framework Construction Travel Plan [Document Reference 7.13 (6)] and outline Traffic Management Plan for Construction [Document Reference 7.14 (9)], while a neutral impact on traffic related severance is predicted during operation; the Applicant has made an appropriate proposal for a financial contribution to address severance impacts through a Side Agreement with Medway Council and as part of the Section 106 Agreements or equivalent legal agreement with Kent County Council [Document Reference 9.167 (2)] and Thurrock Council [Document Reference 9.169 (2)].</p>

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3.46	<p>The government’s wider policy is to bring forward improvements and enhancements to the existing SRN where necessary to address the needs set out earlier. Enhancements to the existing national road network will include but are not limited to:</p> <ul style="list-style-type: none"> <li>• New and improved junctions and slip roads</li> <li>• Improvements to trunk roads, in particular, dualling of single carriageway strategic trunk roads and additional lanes on existing dual carriageways</li> <li>• Measures to enhance capacity of the motorway network</li> </ul>	<p>This is an amended version of paragraph 2.23 of the existing NPSNN.</p> <p>The need for the Project is described above in response to paragraphs 2.1, 2.3 and 2.4. The Project would primarily provide a connection between the A2 and M2 in Kent and the M25 south of junction 29, crossing under the River Thames through a tunnel. The Project route is presented in Plate 3.1 of the Planning Statement [<b>Document Reference 7.2 (2)</b>]. Table 2.2 of ES Chapter 2: Project Description [<a href="#">APP-140</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] summarises the operational sections. The size of the twin tunnels would be able to accommodate three lanes of traffic.</p> <p>Alongside new carriageway and the twin bored tunnel, junctions (and associated slip roads) are proposed at the following locations and are summarised in paragraph 2.3.7 of ES Chapter 2: Project Description [<a href="#">APP-140</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]:</p> <ul style="list-style-type: none"> <li>• A new junction with the A2 to the south-east of Gravesend (Section 2)</li> <li>• A modified junction with the A13/A1089 in Thurrock (Section 7)</li> <li>• A new junction with the M25 between junctions 29 and 30 (Section 9)</li> </ul> <p>The need for these elements of the Project has been established through the traffic modelling assessments which have informed the DCO submission. Sections 6 and 7.3 of the TA [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] describe the existing highway conditions at these locations on the network (including volume to capacity (typically between 85% to 95%)).</p>

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3.47	In some cases, to meet the need set out in this NPS, it will not be sufficient to simply expand capacity on the existing network. In those circumstances new road alignments and corresponding links, including alignments which cross a river or estuary, may be needed to support increased capacity and connectivity.	This is an amended version of paragraph 2.27 of the existing NPSNN. See response to paragraphs 2.1, 2.3 and 2.4.
<b>The drivers of need for development of the national rail network</b>		
3.48 - 3.73	Not relevant to the Project as it relates to infrastructure interventions for the national rail network.	No response required.
<b>Government's policy for addressing need of the national rail network</b>		
3.74 - 3.82	Not relevant to the Project as it relates to infrastructure interventions for the national rail network.	No response required.
<b>Drivers of need for strategic rail freight interchanges</b>		
3.83 - 3.99	Not directly relevant to the Project as it relates to the development of the rail freight industry	No response required.
<b>Government's policy for addressing need for SRFIs</b>		
3.100 - 3.108	Not directly relevant to the Project as it relates to the development of the rail freight industry	No response required.

**Table 1.3 Chapter 4 – General policies and considerations (formerly Assessment principles)**

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
<b>General principles of assessment</b>		
4.1	<i>[Introductory sentence]</i>	No response required.
4.2	Subject to the detailed policies and protections in this <a href="#">National Policy Statement</a> (NPS), and the legal constraints set out in the Planning Act <a href="#">2008</a> , there is a presumption in favour of granting development consent for national networks <a href="#">Nationally Significant Infrastructure Projects</a> (NSIPs) that fall within the need for infrastructure established in this NPS. The statutory framework for deciding NSIP applications where there is a relevant designated NPS <del>is</del> -set out in <del>Section</del> <a href="#">section</a> 104 of the Planning Act <a href="#">2008</a> .	This paragraph proposes only minor grammatical changes to paragraph 4.2 of the existing NPSNN.
4.3	<p>In considering any proposed development, and in particular, when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State should take into account:</p> <ul style="list-style-type: none"> <li>its potential benefits, including <a href="#">faster and more reliable journey times</a>, the facilitation of economic development, including job creation, <a href="#">reducing geographical disparities</a>, <a href="#">connectivity</a>, housing, <a href="#">social</a> and environmental improvement, and any long-term or wider benefits;</li> <li>its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce, <a href="#">mitigate</a> or compensate for any adverse impacts.</li> </ul>	<p>This paragraph remains broadly the same as paragraph 4.3 of the existing NPSNN except for the addition of new text (underlined). The response given previously to paragraph 4.3 of the existing NPSNN remains relevant:</p> <p><i>'The Need for the Project [<a href="#">APP-494</a>] provides an overview of the transport, economic, community and environmental benefits associated with the Project. The document concludes that the Project would provide an effective solution to deal with the transport challenges facing the Dartford Crossing and the surrounding areas of Kent, Thurrock and Essex, ultimately delivering faster and more reliable journey times while providing economic benefits, both locally and regionally.</i></p> <p><i>The Project has been designed to avoid and reduce adverse impacts through a detailed consideration of the route location / alignment. Where the avoidance of an adverse effect has not been possible the Project has sought to develop and secure appropriate mitigation and compensation. Construction</i></p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p><i>activities would avoid retained vegetation identified on ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and be subject to a number of measures in the Register of Environmental Actions and Commitments (secured through EMP and DCO Requirement 4 and 5) and construction compounds would be designed to minimise harmful impacts on the local community. Extensive compensation planting is also proposed to offset unavoidable habitat loss and nitrogen deposition impacts and to provide enhancements in the longer term.</i></p> <p><i>Table A.4 of this Appendix [below] addresses the impact assessments required by the NPSNN and the conclusions of the assessment of adverse effects, including those residual adverse effects presented in the Environmental Statement (ES). Based on information presented in Table A.4, it has been concluded that the Project would not cause any adverse effects that, considered individually, cumulatively, or as a whole, are so severe that the decision maker should refuse the application.</i></p> <p><i>The Non-Technical Summary (NTS) to the Environmental Statement [APP-486] provides a summary of the residual significant environmental effects, including the benefits arising from the Project.'</i></p> <p>Further, the additional proposed text emphasises the benefits of delivering faster and more reliable journey times, facilitating connectivity and social benefits – all of which are reflected in the outcomes the Project would deliver as set out in the Need for the Project [APP-494] as reflected in the Scheme Objectives in Table 1.1. Proposed measures to mitigate environmental impacts are described in the relevant topic chapters of the Environmental Statement.</p>



dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
4.4	<p><del>In this context, environmental, safety, social and economic benefits and adverse impacts, should be considered at national, regional and local levels. These may be identified in this NPS, or elsewhere</del> Should the Secretary of State decide to grant development consent for an application where details are still to be finalised, this will need to be reflected in appropriate <a href="#">requirements in the Development Consent Order</a>. If development consent is granted for a proposal and at a later stage the applicant wishes, for technical or commercial reasons, <a href="#">to construct it in such a way that it is outside the terms of what has been consented (for example because its extent will be greater than has been provided for in terms of the consent), it will be necessary to apply for a change to be made to the Development Consent Order. The application to change the consent should be in line with the government’s guidance on the procedures for making a change to a Development Consent Order for NSIPs and</a> may need to be accompanied by environmental information to supplement that which was included in the original environmental <a href="#">assessment</a>.</p>	<p>This paragraph is the same as paragraph 4.20 of the existing NPSNN. The response previously given to paragraph 4.20 of the existing NPSNN remains relevant:</p> <p><i>‘It is necessary to maintain some flexibility to continue design development after consent is granted. The reasons for this include:</i></p> <ul style="list-style-type: none"> <li>• <i>enabling the Project to adapt to changes and improvements.</i></li> <li>• <i>to respond to site conditions at the time of construction (e.g. other committed developments).</i></li> <li>• <i>to development designs and methodologies based upon more detailed site and geological information.</i></li> </ul> <p><i>The Requirements contained in the draft Development Consent Order [Document Reference 3.1 (11)] therefore, make provision for the detailed design of the Project in general accordance with the Works Plans [Document Reference 2.5 Volume A (5), Volume B (5), Volume C (6)] and Engineering Drawings and Sections [Document Reference 2.9 Volume A (6), Volume B (6), Volume C (2), Volume D (2), Volume E (5), Volume F (3), Volume G (2), Volume H (2)] subject to any variation agreed in writing by the Secretary of State on the basis that the changes would not give rise to any materially new or different adverse environmental effect than those reported within the Environmental Statement Chapters and Environmental Statement Addendum [Document Reference 9.8 (9)].’</i></p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
4.5	<p>Applications for road and rail projects (with the exception of those for <del>SRFIs</del><u>strategic rail freight interchanges</u>, 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. <del>This business case provides the basis for investment decisions on road and rail projects. The business case will normally be developed based on</del> <u>and</u> the Department's Transport Business Case guidance and <del>WebTAG guidance</del><u>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.</u> The <u>purpose of the</u> economic <del>case prepared for a transport dimension of the</del> business case <del>will assess the economic, environmental and social impacts of a development</del> <u>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.</u> 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 <u>benefits and</u> adverse impacts <del>and benefits</del> of a proposed development. It is expected that <del>NSIP</del>-schemes brought forward through the <del>development consent order</del><u>Development Consent Order</u> process by virtue of <del>Section</del><u>section</u> 35 of the Planning Act 2008, should also meet this requirement.</p>	<p>This paragraph remains broadly the same as paragraph 4.5 of the existing NPSNN other than in respect of additional text regarding the purposes of the TAG (underlined). The response given previously to paragraph 4.5 of the existing NPSNN remains relevant:</p> <p><i>'National Highways have developed a business case for the Project which aligns with the Government's requirements set out in HM Treasury's (2018) Green Book, as well as the Department of Transport's (DfT) Business Case guidance and TAG guidance. This business case has been shared with the Department for Transport. This is presented within the Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [APP-526]. The Report presents the anticipated economic benefits and disbenefits associated with the Project.</i></p> <p><i>The economic case for the Project, also prepared in accordance with the above guidance, is presented within the Economic Appraisal Report. Identified economic benefits include journey time savings, static productivity benefits, journey time reliability benefits and vehicle operating cost savings, while disbenefits include road user charges, and delays during construction and planned maintenance periods. When account is taken of £452 million of disbenefits of the Project, the total net benefits of the Project are calculated to be approximately £4,200 million, which exceed the net costs of £2,877 million.'</i></p>
4.6	<p><u>The Department's Transport Appraisal Guidance is updated regularly. This is to allow the evidence used to inform decision-making to be up to</u> date. Where updates are made during the</p>	<p>This paragraph contains the same text presented as paragraph 4.7 of the existing NPSNN (just moved to a different paragraph). No response was given in Appendix A to the</p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
	<p>course of preparing analytical work, the updated guidance is only expected to be used where it would be material to the investment decision and in proportion to the scale of the investment and its impacts.</p>	<p>Planning Statement [<b>Document Reference 7.2 Appendix A (2)</b>] in respect of this paragraph on the basis that it is an item of information only.</p> <p>Nonetheless, the guidance against which the various transport assessments contained within the DCO have been prepared is outlined in Section 4.4 of the Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>]. The Lower Thames Area Model has been built following the latest guidance set out by DfT in its Transport Analysis Guidance.</p>
4.7	<p>Applications for road and rail projects should <del>usually</del> 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. <del>We do encourage an</del> <u>An</u> assessment of the benefits and costs of schemes under <del>high and low growth</del> <u>a range of</u> scenarios <u>should reflect future uncertainty</u>, 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.</p>	<p>This paragraph is broadly the same as paragraph 4.6 of the existing NPSNN other than in the deletion of the word ‘usually’ (struck through) and the reference to a range of scenarios to reflect uncertainty rather than ‘high and low growth scenarios’ in the existing NPSNN. The response given previously to paragraph 4.6 of the existing NPSNN remains relevant noting, however, that the Applicant’s approach reflects the existing NPSNN high/low growth scenario approach with which the application is required to accord. Post-submission of the DCO application the Applicant has undertaken further scenario testing. The Applicant submitted a number of localised traffic modelling notes to the examination including [<a href="#">REP3-126</a>, <a href="#">REP1-188</a> to <a href="#">REP1-194</a>, <a href="#">REP3-128</a> to <a href="#">REP3-132</a>, <a href="#">REP6A-004</a> and <a href="#">REP6A-006</a>]:</p> <p><i>‘The transport model has been produced in line with the Department of Transport’s (DfT) guidelines. Details are provided in the Combined Modelling and Appraisal Report [<a href="#">APP-518</a>].’</i></p> <p>The LTAM has been developed as a simulation of the transport system in the Lower Thames area. The LTAM contains a detailed representation of the road network in the area and information on where people travelled to and from in</p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p>an average month (March 2016). It uses an industry-recognised method of predicting future traffic flows and conditions, both with and without the new crossing, and shows the number of people choosing to travel by road and rail, the route they use now and the route they are forecast to use. This enables predictions to be made on how many vehicles would be using each part of the road network in the future and how long it would take to complete a journey.</p> <p><i>In addition to appraising the core scenario, the model has also been used to assess the impacts of alternative scenarios around the core assumptions and taken account of sensitivity analysis. These include high and low growth scenarios, in accordance with guidance in TAG Unit M4 (Department for Transport, 2019).<sup>18</sup></i></p>
4.8	<p>In the case of <del>strategic rail freight interchanges</del>SRFIs, a judgement of viability will be made within the market framework, and <del>taking</del>take account of <del>Government</del>government strategies, <u>including the Future of Freight Plan, any identification of a National Freight Network and</u> interventions such as, <del>for instance,</del> investment in the strategic rail freight network <u>and Great British Railway Strategic Plans. The radial proximity of a proposed site from existing SRFIs will be considered to ensure SRFIs are strategically located and do not abstract traffic from an extant SRFI and are strategically and technically viable. Additionally, the number of SRFI connections on any section of the route should not adversely affect the operational reliability of the wider network or impact performance of other services.</u></p>	<p>The Project does not involve a new SRFI so this paragraph is not relevant to the Project (no response required).</p>

<sup>18</sup> DfT (2023). TAG Unit M4 Forecasting and Uncertainty.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1161977/tag-unit-m4-forecasting-and-uncertainty.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1161977/tag-unit-m4-forecasting-and-uncertainty.pdf)

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
4.9	<p>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.<sup>49</sup></p> <p><del>Guidance on the use of planning conditions or any successor to it, should be taken into account where requirements are proposed.</del></p> <p><u>Planning Development consent</u> 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.<sup>50</sup> <u>Community Infrastructure Levy (or any successor to it) may also be payable on NSIP applications.</u></p>	<p>The first half of this paragraph is the same as paragraph 4.9 of the existing NPSNN and the following sentence has been removed from paragraph 4.9 of the existing NPSNN: <i>'Guidance on the use of planning conditions or any successor to it, should be taken into account where requirements are proposed.'</i></p> <p>The underlined text is a new addition (and it is preceded by a sentence highlighted in italics which was previously included within paragraph 4.10 of the existing NPSNN). The response given previously to paragraph 4.9 of the existing NPSNN remains relevant: <i>'The Development Consent Order (DCO) [Document Reference 3.1 (8)] includes proposed Requirements for the Project. The Explanatory Memorandum to the Development Consent Order [Document Reference 3.2 (8)] explains the purpose and effect of each provision in the draft DCO, including the requirements.</i></p> <p><i>In accordance with Planning Inspectorate NSIP Advice Note 15, all of the environmental mitigation required and associated with the Project, are secured under the DCO Requirements (see the Register of Environmental Actions and Commitments (REAC) [Document Reference 6.3 ES Appendix 2.2 (9)]. These measures (which will fall within the Order Limits) are clearly capable of being delivered. The Requirements (which have been informed in part by the extensive stakeholder consultation and the conclusions within the ES) are precise, enforceable, necessary, relevant to the development, relevant to planning and reasonable in all other respects.'</i></p> <p>The Applicant has made appropriate proposals for Section 106 Agreements or equivalent legal agreements</p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p><b>[Document Reference 9.164 (2) to 9.169 (2)]</b> to address officer support contributions.</p> <p>The following, that were previously proposed to be part of the Section 106 Agreements, have now been secured through the Stakeholder Actions and Commitments Register <b>[Document Reference 7.21 (7)]</b>:</p> <ul style="list-style-type: none"> <li>• Community fund</li> <li>• Skills education and employment</li> </ul> <p>In terms of the Community Infrastructure Levy (CIL), as outlined at paragraph 5.237 of the Explanatory Memorandum <b>[REP7-092]</b>, the Community Infrastructure Levy should not apply to the Project. Given it is being proposed by a public body rather than a private developer, the Applicant does not consider this to be the kind of development which would trigger liability for payment of the Community Infrastructure Levy.</p>
<p>Paragraphs 4.11 – 4.14 of the existing NPSNN have been removed from the draft NPSNN (relate to considerations when assessing the impacts of linear infrastructure)</p>		
<p><b>Environmental Assessment</b></p>		
<p>4.10</p>	<p><a href="#"><u>NSIP applications need to include an environmental assessment. This assessment is undertaken under the 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 of the Infrastructure Planning (Environmental Impact Assessment (EIA) Regulations 2009 sets set</u></a> out the information that should be included in the environmental statement.</p>	<p>This paragraph is similar in wording to paragraph 4.15 of the existing NPSNN (both highlight the need for an ES but now refers to the EIA Regulations as opposed to the European Union’s Environmental Impact Assessment (EIA) Directive. The response given previously to paragraph 4.15 of the existing NPSNN remains relevant:</p> <p><i>‘The Project Application includes an Environmental Statement and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment)</i></p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p><i>Regulations 2017 (SI No. 572). The ES is the final report for the EIA that has been carried out for the Project. The EIA has influenced the development of the Project design. The principal purpose of the Environmental Statement is to provide information that the Planning Inspectorate needs about the likely significant effects of the Project on the environment to make a well-informed recommendation to the Secretary of State on whether or not to grant a Development Consent Order (DCO). The ES also provides the same information to other interested parties who wish to participate in the statutory decision-making process.'</i></p>
4.11	<p><del>When considering significant</del><u>A key part of environmental assessment is the consideration of cumulative effects, any environmental statement. The applicant</u> should provide information on how the effects of the <del>applicant's</del> proposal would combine and interact with the effects of other development <del>(including projects for which consent has been granted, as well as those already in existence). The Examining Authority may also have other, 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</del> evidence <del>before it,</del> for example, from a Transport Business Case, appraisals of sustainability of relevant NPSs or <u>strategic environmental assessment of</u> development plans, <del>on such effects and</del></p>	<p>This paragraph is similar in wording to paragraph 4.16 of the existing NPSNN other than with the addition of new text (underlined) which adds guidance on the considerations when assessing cumulative effects. ES Chapter 16: Cumulative Effects Assessment (CEA) <u>[APP-154]</u> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> reports on the environmental effects of the interrelationships between the Project and other schemes. Table 16.6 of Chapter 16 summarises the approach taken to identifying the relevance of other developments and accords with the Planning Inspectorate's Planning Advice Note 17. The study area for the inter-project CEA (based upon the guidance set out in the DMRB LA 104<sup>19</sup>) is illustrated in ES</p>

<sup>19</sup> Highways England (2020). DMRB LA 104 Environmental assessment and monitoring. <https://www.standardsforhighways.co.uk/tses/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a?inline=true>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
	<p><del>potential interactions. Any such information</del> may assist the Secretary of State in reaching decisions on proposals and on mitigation measures that may be required. <del>4.17</del> The <del>Examining Authority</del> <u>Secretary of State</u> should consider how <del>significant cumulative effects</del> <u>the accumulation of</u>, and <del>the</del> interrelationship between <del>effects identified in the environmental assessment</del> might <del>as a whole</del> affect the environment, <u>economy, or community as a whole</u>, even though they may be acceptable when considered on an individual basis with mitigation measures in place.</p>	<p>Figure 16.1: Cumulative Zones of Influence [<a href="#">APP-329</a>], ES Figure 16.2: Developments in the Cumulative Shortlist [<a href="#">APP-330</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. The assessment provides a summary of reasonably foreseeable developments identified as having the potential for cumulative effects with the Project, broken down into developments having an impact during the construction phase and those during the operational phase of the Project.</p> <p>A range of environmental, economic and community receptors have been included in the assessment (Table 16.2 of ES Chapter 16 [<a href="#">APP-154</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]). Relevant NSIPs and highways projects have been included in the CEA; the methodology for selecting other developments for inclusion in the CEA is described in Section 16.3 of ES Chapter 16 [<a href="#">APP-154</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. The intra-project cumulative effects have been assessed and reported in ES Chapters 5–15 [<a href="#">APP-143</a> to <a href="#">APP-153</a> and <a href="#">AS-044</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. Intra-project effects on people, including local residents and nearby communities are included in ES Chapter 16 [<a href="#">APP-154</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].</p>



dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
<b>Habitats Regulation Assessment for internationally important nature sites</b>		
4.12	<p><del>Prior to granting a Development Consent Order</del>, the Secretary of State must, <del>under the Habitats Regulations</del>,<sup>56</sup> consider whether it is possible that <del>the a plan or</del> project could <u>likely</u> have a significant effect (either alone or in combination with other plans or projects) on <del>the objectives of a European a protected site which forms part of the UK National Site Network</del> (Special Areas of Conservation and Special Protection Areas),<sup>57</sup> or on any site to which the same protection<sup>58</sup> is applied as a matter of policy, <del>either alone or in combination with other plans or projects</del>.<sup>59</sup> <u>Applicants should also (i.e. listed or proposed Ramsar sites, potential Special Protection Areas, possible Special Areas of Conservation and sites used to compensate for adverse effects on habitat sites). The term ‘habitat sites’ is used to refer collectively to paragraphs 5.20 to 5.38 of this national policy statement on biodiversity and geological conservation and to paragraphs 5.3 to 5.15 on air quality such sites throughout this NPS. Such an assessment should be made with due regard to the conservation objectives of any relevant habitats site(s).</u></p>	<p>This is an amended version of paragraph 4.22 of the existing NPSNN (with reference to the UK National Site Network added, see underlined). A Habitats Regulations Assessment (HRA) Report: Screening Report and Statement to Inform an Appropriate Assessment [APP-487] has been prepared setting out the assessment of likely significant effects on European sites as a result of the Project, either alone or in combination with other plans or projects. It contains sufficient and appropriate information to comply with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended). The European Sites identified included the Thames Estuary Marshes Special Protection (SPA), Thames Estuary and Marshes Ramsar Site, Epping Forest Special Area of Conservation (SAC) and North Downs Woodland SAC. The European sites where likely significant effects cannot be discounted as a result of the Project alone or in combination are presented in Table 1.2 of the HRA. In order to avoid adverse effects on the integrity of European sites, the Applicant has committed to a number of mitigation measures which are described in Section 1.5 of the HRA. As a result of these measures, the Stage 2 Assessment has concluded, beyond reasonable scientific doubt that the Project would not adversely affect the integrity of any European site during its construction or operational phases, either alone or in combination with other plans or projects.</p>
4.13	<p>The applicant should seek the <u>early</u> advice of <del>Natural England and, where the</del> appropriate, <del>for cross-boundary impacts, Natural Resources Wales and Scottish Natural Heritage to ensure that impacts on European sites in Wales and Scotland are adequately</del> <u>Statutory Nature Conservation Body and provide the</u></p>	<p>This paragraph is similar in wording to paragraph 4.22 of the existing NPSNN (although it no longer refers directly to cross boundary impacts).</p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
	<p><a href="#"><u>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.</u></a></p>	<p>Consultation with Natural England has been carried out through the Project’s optioneering, environmental scoping and the HRA development stages. The Applicant has entered into a Statement of Common Ground with Natural England [<b>Document Reference 5.4.1.6 (5)</b>] which details the extensive engagement and discussion on matters related to the HRA (see items 2.1.88 to 2.1.95 specifically which deal with the HRA).</p> <p>Feedback received through the engagement with Natural England has informed the scope and content of the HRA. A complete record of correspondence with Natural England in relation to the HRA development is provided in Appendix C (The Evidence Plan) to the Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment [<b>APP-487</b>].</p>
4.14	<p><del>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 their applications for development consent to enable the Secretary of State to carry out an Appropriate Assessment if required. This information should include details of any measures that are proposed to minimise or avoid any likely significant effects on a European site. The information provided may also assist the Secretary of State in concluding that significant effects on European sites are sufficiently unlikely that they can be excluded 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 should</del></p>	<p>This paragraph retains and amends existing text from paragraph 4.23 of the existing NPSNN (adds requirement for formal consultation with the Statutory Nature Conservation Body, see underlined).</p> <p>As indicated in the response to paragraph 4.12 above, the Project is considered likely to have a significant effect on habitats sites. Information to enable the Secretary of State to make an appropriate assessment of these likely effects in view of the site’s conservation objectives is contained within Section 7 of the Habitats Regulations Assessment – Screening Report and Statement to Inform an Appropriate Assessment [<b>APP-487</b>]. The evidence and rationale used to determine the significance of effect are documented within Appendix C: Evidence Plan. The approach to determining significance has been discussed with Natural England and it</p>

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	<p><a href="#"><u>also consider agreeing an Evidence Plan with the Statutory Nature Conservation Body to help determine the information required</u></a><sup>76</sup>.</p>	<p>has accepted the use of this approach in reaching screening conclusions.</p> <p>While the HRA concluded that there would be no adverse effects on the integrity of any European sites, including due to changes in nitrogen deposition caused by changes in vehicle emissions, Natural England disagreed with the conclusion in relation to Epping Forest Special Area of Conservation (SAC) and have expressed the view that mitigation should be implemented to reduce the effect.</p> <p>The Statement of Common Ground between (1) National Highways and (2) Natural England [<b>Document Reference 5.4.1.6 (5)</b>] presents the mitigation options that the Applicant has investigated and the without-prejudice measure that was identified as being feasible, including the form of a mechanism by which the mitigation measure could be secured. Natural England agree that if this additional mitigation is secured, there would be no adverse effects on the integrity of Epping Forest SAC.</p>
4.15	<p><a href="#"><u>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. The applicant must demonstrate that they have sought advice from the Statutory Nature Conservation Body on whether any proposed compensation is appropriate to maintain the overall coherence of the National Sites Network. They must also show that the compensation is secured or provide an indication as to how it can be secured to maintain the overall coherence of the National Sites Network. Provision of such information will not be taken as an acceptance of adverse effects on integrity and if an</u></a></p>	<p>This paragraph replaces and amends paragraph 4.24 of the existing NPSNN which refers to the three tests of derogation.</p> <p>The Stage 2 Appropriate Assessment contained within the Habitats Regulations Assessment – Screening Report and Statement to Inform an Appropriate Assessment [<b>APP-487</b>] concludes, beyond reasonable scientific doubt, that the Project would not adversely affect the integrity of any European site during its construction or operational phases, either alone or in combination with other plans or projects.</p> <p>The response given previously to paragraph 4.24 of the existing NPSNN remains relevant: <i>‘Because the Stage 2 Appropriate Assessment concluded there would be no adverse effects on the integrity of European</i></p>

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	<p><a href="#"><u>applicant disputes the likelihood of adverse effects, it can provide this information without prejudice to the Secretary of State’s final decision on the effects of the potential development on the habitats site. If, in these circumstances, an applicant does not supply information required for the assessment of a potential derogation, there will be no expectation that the Secretary of State will allow the applicant the opportunity to provide such information following the examination.</u></a></p>	<p><i>sites, there is no requirement for consideration of derogation at Stage 3 HRA.</i></p> <p><i>In the event that the competent authority does not agree with the conclusions of the report, there would be no need to employ Stage 3 derogation of the HRA process because (as identified in Section 1.7 of the report) a mitigation measure has been assessed on a ‘without prejudice basis’. Natural England have agreed with this measure and are satisfied that the integrity of European sites would not be adversely affected by the Project.’</i></p>
4.16	<p><a href="#"><u>During the pre-application stage, and without prejudice to the formal Habitats Regulation Assessment of the submitted plan or project, if the Statutory Nature Conservation Body gives an early indication that, irrespective of any anticipated mitigation measures, the proposed development is highly likely to lead to adverse effects on the integrity of one or more habitats sites, the applicant must include with their application such information required to assess a potential derogation</u></a> under the Habitats Regulations.</p>	<p>This paragraph was not included in the existing NPSNN. In commenting on the Scoping Report submitted in 2017 Natural England stated that ‘the ES should thoroughly assess the potential for the proposal to affect designated sites at the national, European and international level. European sites (e.g. designated Special Areas of Conservation and Special Protection Areas) fall within the scope of the Conservation of Habitats and Species Regulations 2017. In addition, paragraph 118 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed’ (ES Appendix 4.1: The Inspectorate’s Scoping Opinion and National Highways Response [<a href="#">APP-340</a>]).</p> <p>At the scoping stage, Natural England’s comments did not specifically identify the potential for the Project to have adverse effects on the integrity of one or more habitats sites. Therefore, there was not a requirement at this stage to assess a potential derogation under the Habitats Regulations.</p> <p>Tables C.9 and C.10 within the Habitats Regulations Assessment – Screening Report and Statement to Inform an Appropriate Assessment [<a href="#">APP-487</a>] lists all the meetings and</p>

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		<p>correspondence with Natural England pertinent to HRA development, including a pre-application draft of the Habitats Regulations Assessment Report (submitted to Natural England on 25 July 2022).</p> <p>Natural England has not indicated that there is a high likelihood of adverse effects on the integrity of one or more habitats sites irrespective of any anticipated mitigation measures. Even where discussion is ongoing regarding the conclusion of no adverse effects on Epping Forest from nitrogen deposition, the without prejudice mitigation measures that have been identified are agreed by Natural England to be sufficient to avoid adverse effects.</p> <p>Therefore, there has been no requirement at this stage to assess a potential derogation under the Habitats Regulations.</p>
<b>Alternatives</b>		
4.17	<p>Applicants should comply with all legal requirements, and any policy requirements set out in this NPS, on the assessment of alternatives. <del>In particular</del> <u>For example, current requirements include:</u></p> <ul style="list-style-type: none"> <li>• The <del>EIA Directive</del> <u>Infrastructure Planning (Environmental Impact Assessment) 2017 Regulations</u> 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.</li> <li>• There may also be other specific legal requirements for the consideration of alternatives, for example, under the <u>Conservation of Habitats and Species Regulations 2017 (as amended)</u> and <u>Water Environment (Water Framework Directives Directive) (England and Wales) Regulations 2017</u><sup>78</sup></li> </ul>	<p>This paragraph is similar in wording to paragraph 4.26 of the existing NPSNN with new text underlined which highlights that the policies and legislation referred to are examples (not an exhaustive list) and that assessments of alternatives should be undertaken in a proportionate manner. The response given previously to paragraph 4.26 of the existing NPSNN remains relevant (as this already reflects the approach taken by the Applicant):</p> <p><i>ES Chapter 3: Assessment of Reasonable Alternatives [APP-141] sets out the main alternatives considered and how the preferred route option has been determined through the consideration of environmental effects.</i></p> <p><i>Planning Statement [Document Reference 7.2 (2)] Chapter 5: Project Evolution and Alternatives sets out the alternative options considered and how the preferred route option was determined.</i></p>

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	<ul style="list-style-type: none"> <li>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):</li> <li><del>4.27 All projects should be subject to an options appraisal. The appraisal should - where there is a policy or legal requirement to</del> consider <del>viable-modal</del> alternatives, <u>the applicant should describe the alternatives considered in compliance with these requirements</u> and <del>may also consider other options (in light of the paragraphs 3.23 to 3.27 of this NPS). Where projects in a proportionate manner.</del></li> </ul>	<p>The EIA has been completed in compliance with the EIA Directive. The ES includes:</p> <p><i>‘A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed Project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects’.</i></p> <p><i>Specific legal and policy requirements related to the individual environmental topics are considered within each topic chapter of the ES.</i></p> <p><i>In terms of other specific legal requirements for the consideration of alternatives, the following relevant documents are noted:</i></p> <ul style="list-style-type: none"> <li><i>A Habitats Regulations Assessment (HRA) (6.5 Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment [APP-487]) including HRA Screening and Appropriate Assessment, has been undertaken for the Project, which confirms that a Stage 3 derogation is not required. There is therefore no applicable legal requirement under HRA to consider alternatives.</i></li> <li><i>ES Appendix 14.7: Water Framework Directive [APP-478] and Environmental Statement Addendum [Document Reference 9.8 (9)] sets out the Water Framework Directive (WFD) Assessment that supports the Project.</i></li> <li><i>The Flood Risk Assessment (FRA) findings are summarised in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)] and detailed in full in ES Appendix 14.6: Flood Risk Assessment</i></li> </ul>

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		<p>– Part 7 [<a href="#">APP-466</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].</p> <p>The Project would fall partly within the Kent Downs AONB at its north-western extent to the west of the River Medway. Planning Statement Appendix F: Kent Downs Area of Outstanding Natural Beauty [<a href="#">APP-501</a>] has responded in detail to the consideration of alternatives to developing within the AONB.’</p>
4.18	<p><a href="#">National road or rail schemes that</a> have been <del>subject to full options appraisal in achieving their status within identified in relevant</del> Road or Rail Investment Strategies <del>or other appropriate policies or investment plans, option testing need not be considered by the examining authority or the decision maker. For national road</del> <a href="#">will have been subject to an options appraisal process where relevant in line with existing Transport Appraisal Guidance,</a> and <del>rail schemes,</del> proportionate <del>option</del> consideration of alternatives will have been undertaken as part of the investment decision making process.<sup>64</sup> <del>It is not necessary</del> <a href="#">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</a> Examining Authority and the <del>decision maker to reconsider this process, but they</del> <a href="#">Secretary of State</a> should <del>be satisfied that this assessmentsatisfy themselves that the options appraisal process</del> has been undertaken.</p>	<p>This paragraph is similar in wording to paragraph 4.27 of the existing NPSNN which states that ‘<i>It is not necessary for the Examining Authority and the decision maker to reconsider this process</i>’. This would be removed (and incorporated in the new paragraph 4.19) with text added that the Examining Authority and Secretary of State (SoS) should satisfy themselves that the options appraisal had taken place through the relevant RIS.</p> <p>The response given previously to paragraph 4.27 of the existing NPSNN remains relevant (subject to amendment to refer to Application Document references and draft NPSNN paragraph numbers).</p> <p><i>‘Route optioneering in terms of corridor location, route and crossing type has been undertaken through several Project stages leading to the Preferred Route Announcement in April 2017. This also included an assessment into alternative modal options. Section 4.2 of the Need for the Project [<a href="#">APP-494</a>] also outlines previous interventions to manage demand at the Dartford Crossing.</i></p> <p><i>Whilst the Project has been subject to a full options appraisal for RIS, it is recognised that this does not obviate the need to comply with the legal and policy requirements set out within NPSNN paragraph 4.17 above. The route alternatives are</i></p>

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		<p><i>reported within the following documents and summarised in Chapter 5: Project Evolution and Alternatives of this Planning Statement.</i></p> <p><i>In RIS 2, the DfT (2020) sets out the Government’s expenditure priorities. RIS 2 has made a commitment to deliver the Lower Thames Crossing Project through the second Road Period (2020-2025).’</i></p>
4.19	<p><u>Where an options appraisal process has been undertaken, it should not be necessary to consider alternatives except where para 4.17 applies or in the wholly exceptional circumstances where case law would require consideration of alternatives as the proposed development involves such obvious adverse effects that the possibility of an alternative site or an alternative location within the site proposed by an applicant avoiding such adverse effects becomes a relevant planning consideration. In those exceptional circumstances where alternatives might be relevant, consideration of them should be proportionate. Where alternative schemes proposed are vague or inchoate, or have no real possibility</u></p>	<p>This paragraph is a new addition though it includes and expands on part of the existing paragraph 4.27 – to confirm that where an options appraisal has been undertaken it should not be necessary to consider alternatives except where paragraph 4.17 (formerly 4.26) applies or in ‘<i>wholly exceptional circumstances</i>’ (which reflects established case law).</p> <p>The Applicant recognises the need to consider alternatives where there is a legal or policy requirement to do so under paragraph 4.17. The assessment of alternatives presented in ES Chapter 3: Assessment of Reasonable Alternatives [APP-141] and Chapter 5 of the Planning Statement [Document Reference 7.2 (2)] has demonstrated that the Project has considered alternatives that would avoid identified adverse effects. The assessment also concludes that the Project represents the preferred route on balance having regard to the identified adverse effects and likelihood of other adverse effects arising from alternatives that could potentially meet the Scheme Objectives. Where adverse effects have been identified, the Project has sought to minimise and mitigate harm. It is acknowledged that paragraph 4.19 does not override the legal and policy requirements of paragraph 4.17.</p>



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<b>Biodiversity Net Gain The existing NPSNN pre-dated BNG and therefore does not refer to it</b>		
4.20	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph is a new addition and was not included in the existing NPSNN. The draft NPS transitional arrangements set out at paragraphs 1.116 and 1.117 should be noted.</p> <p>The location chosen for the Project is at the western extent of the Ramsar site and just west of the western extent of the Special Protection Area (SPA) and, along with the proposal for a bored tunnel as opposed to a bridge design, has been assessed as having the lowest impact on several environmentally sensitive areas.</p> <p>With regard to opportunities for enhancements, the Applicant has sought to maximise biodiversity value wherever possible within its ecological mitigation and compensation planting and wider landscape design. The evolution of the Project design has resulted in the creation of large areas of semi-natural habitat, establishing biodiverse wildlife corridors connecting existing habitats throughout the wider landscape while minimising impacts during construction.</p> <p>The Design Principles [<b>Document Reference 7.5 (7)</b>], along with the features presented on ES Figure 2.4: Environmental Masterplan [<b>Document Reference 6.2 ES Figure 2.4</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] provide more specific details in relation to proposed mitigation and compensation measures. The measures within the Design Principles document would be legally secured through Requirement 3 of Schedule 2 to the draft DCO [<b>Document Reference 3.1 (11)</b>]). The Register of Environmental Actions and Commitments is incorporated within ES Appendix 2.2: Code of Construction Practice [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] and</p>

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		<p>identifies mitigation commitments that underpin the environmental assessments. These commitments would be legally secured through Requirement 4 of Schedule 2 to the draft DCO.</p> <p>As stated in paragraph 6.5.65 of the Planning Statement, wider enhancements (including seven green bridges) are also proposed to enhance the connectivity between sites, and these include a new public recreational site of 35ha at Goshems Farm comprising Open Mosaic Habitats, designed to create new links between existing retained high quality habitat (Design Principles Clause LSP.22). New areas of wetland, woodland planting and Open Mosaic Habitat are proposed which provide ‘stepping stones’ between clusters of local wildlife sites and sites of importance for nature conservation along the route of the Project to deliver a landscape-scale approach to mitigation.</p> <p>Paragraphs 6.5.85 to 6.5.93 and 6.6.14 to 6.6.15 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] consider net loss and net gain in biodiversity. ES Appendix 8.21: Biodiversity Metric Calculations [<a href="#">APP-417</a>] presents the results of a biodiversity metric assessment. Table 1.1 presents a summary of the biodiversity metric results.</p> <p>Having regard to the design development, along with the various mitigation and compensatory measures proposed over both the construction and operational phases (as outlined in Section 8.5 of ES Chapter 8: Terrestrial Biodiversity [<b>Document Reference 6.1 ES Chapter 8 (2)</b>], Section 9.5 of ES Chapter 9: Marine Biodiversity [<a href="#">APP-147</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>], the design has sought to reduce both direct and</p>

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		indirect impacts upon biodiversity. Impacts upon biodiversity have been avoided where possible, for example through ruling out the undergrounding of overhead lines and careful siting of construction compounds to minimise habitat loss.
4.21	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph is a new addition and was not included in the existing NPSNN.</p> <p>ES Appendix 8.21: Biodiversity Metric Calculations and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] uses the Biodiversity Metric 3.1 Calculation Tool (introduced in April 2022).</p> <p>As outlined above in response to paragraphs 4.20 and 4.19, the Project design refinement has applied the mitigation hierarchy through avoiding loss of habitats in conjunction with increasing the distinctiveness and condition of the habitats created.</p> <p>ES Chapter 8: Terrestrial Biodiversity [<b>Document Reference 6.1 ES Chapter 8 (2)</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] details the steps taken to avoid and/or reduce adverse biodiversity impacts including on irreplaceable habitats, designated sites and protected species.</p> <p>Details of the mitigation strategy in relation to nitrogen deposition impacts on designated sites within 200m of the Affected Road Network (the only significant adverse biodiversity impact identified over the operational phase) and the consideration of the mitigation hierarchy can be seen in ES Appendix 5.6: Project Air Quality Action Plan [<a href="#"><u>APP-350</u></a>].</p>

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4.22	<p><a href="#"><u>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 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.</u></a></p>	<p>This paragraph is a new addition and was not included in the existing NPSNN.</p> <p>In most cases the various biodiversity mitigation and enhancement measures proposed as part of the Project would be included within the Order Limits (as opposed to offsite) and are presented in ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>With regard to maintaining and enhancing habitat connectivity, as described in paragraph 8.5.8 of ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] this would in part be achieved by crossings of the Project by seven mixed-use green bridges. Green bridges have been individually designed to provide the greatest benefit at each particular crossing location. There would be a particular focus on maintaining and improving hedgerows in the vicinity of the proposed green bridges.</p> <p>Discussions with Forestry England and Natural England have led to the focus in respect of compensatory woodland planting, being on the creation of more woodland habitat which forms links between existing woodlands within the wider landscape, building resilience into the wider habitat network, and facilitating the ease of movement for protected species within the landscape. South of the River Thames, woodland planting has been designed to link existing areas of woodland including Great Crabbles Wood, Shorne Woods, and Claylane Wood. This planting is detailed within ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference</p>

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		<p><b>9.8 (9)]</b> and in the Design Principles [<b>Document Reference 7.5 (7)]</b>.</p> <p>In agreement with relevant stakeholders these compensatory measures are being delivered at a landscape scale as identified in the Project Design Report [<a href="#">APP-506</a> to <a href="#">APP-515</a>] and elsewhere.</p> <p>North of the River Thames the new habitats have been designed to connect existing biodiverse areas, particularly open mosaic habitats along the Thames Estuary, and new wetland habitats adjoining the Mardyke. Stepping stones of open mosaic habitat also act to provide links along the route of the Project.</p> <p>With regard to offsite measures, mitigation is proposed to be provided outside the Order Limits in respect of the following:</p> <ul style="list-style-type: none"> <li>• Barn owl boxes</li> <li>• Bat boxes</li> <li>• Dormouse relocation and habitat enhancement</li> <li>• Water vole mitigation</li> <li>• Reptile relocation</li> </ul> <p>With regard to barn owls in particular, the Project is working with Essex Wildlife Trust (EWT) to provide a minimum of 12 nest boxes on land managed by EWT. The majority of suitable locations for the boxes on land owned by EWT are, by their nature, remote from the Order Limits (similarly EWT would not wish to lose control of the sites).</p> <p>With regard to water voles the Project is supporting an offsite reintroduction project for water voles being led by EWT.</p> <p>These offsite measures are included within the Register of Environmental Actions and Commitments which is appended to ES Appendix 2.2: Code of Construction Practice</p>

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		<p><b>[Document Reference 6.3 ES Appendix 2.2 (9)]</b> and secured through DCO Requirement 4. They are also included in the Consents and Agreements Position Statement <b>[Document Reference 3.3 (8)]</b>.</p> <p>The Planning Statement Appendix H: Green Infrastructure (GI) Study <a href="#">[APP-503]</a> considers how existing and proposed Green Infrastructure can connect and enhance wildlife at the sub-regional and city-scale as part of a holistic approach to mitigation and design solutions for the Project.</p> <p>Sections 3.2 and 4 of the study set out the local planning policy and strategies which have informed the GI Strategy for the Project. Among other things, the document acknowledges the requirement set out within the Medway Green and Blue Infrastructure Framework to work with the Kent Nature Partnership to develop and deliver a Local Nature Recovery Strategy as part of the National Nature Recovery Network.</p> <p>Section 7.8 sets out the relevant stakeholder projects, while Section 11 considers the potential for wider connections and contributions to GI falling beyond the Project GI Study area.</p>
4.23	<p><a href="#">A government Biodiversity Gain Statement will set out the concept for Biodiversity net gain for NSIPs. The Secretary of State will need to be satisfied that the biodiversity gain objective in any relevant biodiversity gain statement has been met.</a></p>	No response required at this stage.
<p><b>Criteria for good design for national network infrastructure</b></p>		
4.24	<p>Applicants should include design as an integral consideration from the outset of a proposal. <a href="#">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</a></p>	<p>This paragraph expands on paragraph 4.28 of the existing NPSNN to emphasise that good design goes beyond aesthetics and it elaborates on the description of ‘good design’ introduced in the 2020 National Design Principles (see underlined).</p>

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	<p><u>character and is adaptable to future needs and technologies. The National Infrastructure Design Principles describes good design as:</u></p> <ul style="list-style-type: none"> <li>• <u>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 and cost. Applying “good design” to national network projects should therefore produce sustainable, is equally important.</u></li> <li>• <u>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.</u></li> <li>• <u>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<sup>f</sup> and irreplaceable natural assets and habitats.</u></li> <li>• <u>adding value by defining issues clearly from the outset. Good design also finds opportunities to add value beyond the main purpose of the infrastructure sensitive to place, 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 their construction, matched by an appearance that demonstrates good aesthetics as far as possible.</u></li> </ul>	<p>The following analysis addresses each aspect of policy 4.24 in turn including the listed bullet point descriptions.</p> <p><b>Design an integral consideration</b></p> <p>Part of the response given previously to paragraph 4.28 of the existing NPSNN remains relevant:</p> <p><i>‘The preparation of a Project Design Report [APP-506 to APP-515] and Design Principles [Document Reference 7.5 (7)] submitted as part of the DCO application has set out how design of the Project has been an integral part of the design development in line with the requirements of Design Manual for Roads and Bridges (DMRB) GG 103 (Highways England, 2019).’</i></p> <p>Project Design Report Part B: Policy Context and Project Design Process [APP-507] explains the policy context that has shaped the Project including the National Infrastructure Design Principles (see paragraph 2.2.5).</p> <p>Project Design Report Part F: Structures and Architecture [APP-513] in particular deals with the design response in respect of the Project’s many bridges and structures which seeks to ensure that they are appropriate in design and appearance and integrate seamlessly into their landscape setting.</p> <p><b>Opportunities for decarbonisation, incorporating flexibility and resilience</b></p> <p>The Carbon and Energy Management Plan [Document Reference 7.19 (4)] describes how the Applicant has designated the Project as a ‘pathfinder’ for low carbon construction, the ambitions for which include leaving a legacy that enables future projects to decarbonise, in line with the Applicant’s ambition for net zero construction emissions by</p>

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	<ul style="list-style-type: none"> <li><del>4.30 It is acknowledged however, that given the nature of much national network infrastructure development, particularly SRFIs, there may be a limit on the extent to which it can contribute to the enhancement of the quality of the area.</del></li> </ul>	<p>2040. Requirement 16 of the draft DCO [<b>Document Reference 3.1 (11)</b>] requires the preparation and submission for the approval of the Secretary of State a third iteration of the Carbon and Energy Management Plan to explain how carbon emissions would be managed and minimised during the operation and maintenance of the Project. Paragraphs 15.7.10 to 15.7.20 and Table 15.19 of ES Chapter 15: Climate [<b>APP-153</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] describe the vulnerability of the Project to climate change impacts. The various mitigation measures to ensure resilience to climate change, along with details of how these would be secured, are outlined in response to paragraph 3.34 above.</p> <p>With regard to functionality and sustainability across the Project, the design rationale explained in the Project Design Report Part F: Structures and Architecture [<b>APP-513</b>] sets out how the approach to the Project would provide more useable, accessible, and safer infrastructure for all, would be sustainable, and balance the coordination of aesthetic, functional and technological considerations.</p> <p>As explained in ES Chapter 2: Project Description [<b>APP-140</b>], in line with the Rochdale Envelope approach, parameters have been established across the Project to manage uncertainty and accommodate design flexibility. Section 3.4 of the Project Design Report Part A: Introduction and Project Background [<b>APP-506</b>] describes the Project approach to incorporating flexibility into the design. While the Project has also sought to maintain flexibility for key elements such as the final spans, forms and finishes of bridges and viaducts, it has also made commitments to their high-quality design.</p>



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		<p><b>Improving quality of life for local communities through inclusion, cohesion and increased accessibility. It creates safe spaces with clean air that improve health and wellbeing.</b></p> <p>The Health and Equalities Impact Assessment [REP7-144] reports the findings of the assessment of likely effects of the construction and operation of the Project on human health and equality. Social inclusion is one of the four main topics considered under the heading of mental health and wellbeing (Section 7.12). The assessment also considers the benefits of access to recreational spaces in improving social cohesion, interaction and reduced social isolation (one of the identified priorities within the London Borough of Havering). The links between housing and community services impacts is considered in Section 7.11. Air quality impacts are considered in Section 7.8 of the assessment.</p> <p><b>Creating a strong sense of identity, place, connecting communities, addressing community severance and integrating into its surroundings</b></p> <p>With regard to creating a sense of place and identity, as set out in paragraph 2.1.3. of the Project Design Report Part C: Design Rationale [APP-508] <i>‘the Project route is characterised by key moments of transition through the varied landscape. For example, the River Thames is a key threshold in north-south journeys past and to London and is an important orientation feature for local residents. The road structures around the crossing have been designed to express a clear identity at this key moment of transition that give people a sense of arrival, destination and threshold’.</i></p> <p>The Health and Equalities Impact Assessment [REP7-144] describes severance and accessibility impacts in further detail</p>

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		<p>over both the construction and operational stages of the Project. Section 7.5 considers impacts on active travel and summarises the extensive measures to be delivered through the Project (paragraph 7.5.40). Overall, a neutral impact on accessibility is predicted during construction, while a significant positive impact is predicted during operation.</p> <p>Section 3.2 of the Project Design Report Part C: Design Rationale [<a href="#">APP-508</a>] outlines the landscape-led approach which has informed the Project design. As stated in paragraph 3.2.5 the Project design narrative divides the route of the Project into eight character areas which are derived from variations in existing landscape character along its course. These have in turn informed the preliminary design.</p> <p><b>Adding value and considering wider benefits savings on cost, the environment, materials and space along with efficient use of natural resources, sustainable materials and energy used in construction</b></p> <p>The Benefits and Outcomes Document [<a href="#">APP-553</a>] outlines the benefits and outcomes that are delivered and secured by the Project and through the DCO. Benefits of the Project are also identified in the Need for the Project [<a href="#">APP-494</a>] and Section 8.4 of the Planning Statement [<b>Document Reference 7.2 (2)</b>]. The Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [<a href="#">APP-526</a>] and the Level 3 Wider Economic Impacts Report [<a href="#">APP-527</a>], together, set out the benefits of the Project which have been calculated using the Department for Transport’s Transport Analysis Guidance (TAG).</p> <p>With regard to achieving wider benefits saving on costs this is reflected in the Scheme Objectives (see Table 4.1 of the Planning Statement [<b>Document Reference 7.2 (2)</b>]) which</p>

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		<p>include achieving value for money. As outlined in Section 5 of the Planning Statement, the options selection process has been informed by a structured assessment of economic, environmental, social and distributional impacts of each option, based upon TAG. In assessing value for money, all of these impacts have been consolidated to compare the overall benefits and costs. An economic appraisal of the Project is provided within Section 7 of the Combined Modelling and Appraisal Report [APP-518] which identifies that the main benefits of the Project are reduced journey times and agglomeration benefits.</p> <p>With regard to adding value and achieving wider benefits paragraph 3.5.1 of Project Design Report Part C: Design Rationale [APP-508] states that <i>'The landscape, architecture and engineering designs have been developed concurrently with environmental mitigation and compensation measures. As an overarching principle, the Project development team and design process actively sought to prevent, avoid, reduce or offset significant adverse environmental effects on environmental receptors, and to seek beneficial effects. This has resulted in multifunctional landscape proposals across the Project route'</i>.</p> <p>ES Appendix 2.2: Code of Construction Practice Annex B: Outline Materials Handling Plan [Document Reference 6.3 ES Appendix 2.2 Annex B (5)] sets out the approach and high-level principles for handling construction materials and waste on the Project and describes how, as a result of design refinements and landscape mitigation proposals, the estimated quantity of material requiring management offsite has been significantly reduced. A review of the use of road, river and rail networks has been carried out to identify an approach to</p>

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		<p>reduce and manage the impacts of construction vehicle movements. It also considers multi-modal transportation of materials.</p> <p>Section 10.1 of the Sustainability Statement [<a href="#">APP-544</a>] sets out how materials would be responsibly sourced for the Project, while Section 11 describes the Project approach to being resource efficient, reflecting a circular approach to the use of materials. With regards to energy consumption, Section 8.1 of the Sustainability Statement (along with the Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>]) describes how the Project has achieved a number of carbon emissions reductions, included innovative energy efficiency measures for both the highway and tunnel, and would reduce resource depletion through the use of modular offsite construction (among various other measures).</p> <p>Finally with regard to the design process and identifying principles early in the process, this is addressed in Project Design Report Part B: Policy Context and Project Design Process [<a href="#">APP-507</a>] which through the 10 principles of good road design, describes a process which is inclusive, innovative and collaborative (paragraph 2.2.3); and in which the approach of constant review and refinement is set out at Section 3.4.</p>
4.25	<p>A good design should meet the principal objectives of the scheme by <del>eliminating</del><a href="#">applying the mitigation hierarchy to avoid, eliminate</a> or substantially <del>mitigating</del><a href="#">mitigate</a> the identified problems <a href="#">and</a> existing adverse impacts, by improving operational conditions <del>and</del> simultaneously minimising adverse impacts. <del>It should also mitigate any existing adverse impacts wherever possible, for example, in relation and contributing to safety or the</del> <a href="#">conservation and enhancement of the natural, built</a></p>	<p>This is an amended version of paragraph 4.31 of the existing NPSNN (see underlined additions).</p> <p><b>Applying the mitigation hierarchy</b></p> <p>As an overarching principle, the work of the Integrated Project Team has sought to prevent, avoid, reduce or offset adverse environmental effects and to seek beneficial effects, including embedded environmental mitigation measures within the</p>

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	<p><u>and historic</u> environment. A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable, taking into <del>account capital cost, economics</del> <u>economic, social</u> and environmental impacts.</p>	<p>design proposals. The principle has also been applied at a granular level in terms of individual and localised impacts as evident throughout the individual topic-based chapters and supporting appendices of the Project’s Environmental Statement.</p> <p>The response given previously to paragraph 4.31 of the existing NPSNN remains relevant:</p> <p><i>‘The Lower Thames Crossing has been designed to meet the Scheme Objectives (as set out in the Need for the Project [APP-494] and Section 2.3 of Chapter 3 of the Planning Statement [Document Reference 7.2 (2)]. The Project Design Report [APP-506 to APP-515] sets out how the Project complies with National Highways’ 10 principles of Good Design (National Highways, 2018) and details the design standards to which the Project has been designed to meet and sets out the performance of the Project against the Scheme Objectives. The Project sits within a complex road network that faces a number of existing capacity challenges, many of which are unrelated to the congested Dartford Crossing. The Project design therefore seeks to mitigate existing adverse impacts and sustain improvements to operational efficiency through the various measures described below.</i></p> <p><i>The Project Road has been designed to be part of the strategic road network and to be an ‘all-purpose trunk road’ with a minimal number of intersections and a 70mph speed restriction. For safety reasons, walkers, cyclists, horse-riders and slow-moving vehicles would be prohibited from using it and the Project design will therefore relieve the congested Dartford Crossing and approach roads, improving their performance by providing free flowing, north-south capacity. The faster and more reliable journeys and improved</i></p>

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		<p><i>accessibility would boost the productivity of businesses in the Lower Thames area and wider region through providing enhanced connectivity and cross-river economic and boosting employment and increasing inward investment.</i></p> <p><i>The design seeks to combine mitigations as efficiently as practicable to provide maximum benefit, for example through using required utilities clearances in areas of tree planting as ‘woodland rides’ for better access for maintenance and movement.</i></p> <p><i>A Value for Money assessment has been carried out. Account has been taken of Project costs, monetised impacts and benefits, and of other information on impacts and benefits that have been considered in a qualitative manner, to assess the value for money of the Project. Based on the categories in the Department for Transport’s value for money framework, the Project has been assessed as providing value for money.</i></p> <p><i>Sensitivity tests have been undertaken to assess the sensitivity of the Project’s monetised benefits, costs and revenues to different traffic growth, costs and other scenarios. The results of these tests are that the Adjusted Benefit Cost Ratio (BCR) is 1.23 when the appraisal parameters in the forthcoming TAG data book v1.19FC were applied to the appraisal. This rises to 1.66 (Scenario 1) when the appraisal period is extended to 100 years (paragraph 12.3.5 of Appendix D: Economic Appraisal Package – Economic Appraisal Report of the ComMA [<a href="#">APP-526</a>]).</i></p> <p><i>The Project has been developed to be landscape led, to support the recovery of nature and to avoid or minimise significant effects on the environment. During the design process further measures have been incorporated into the</i></p>

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		<p><i>Project to mitigate adverse impacts that would arise and that cannot be avoided. Some of the measures adopted include landscaping, noise mitigation measures, and the provision of green infrastructure along the Project route including a number of green bridges. The Project would create a number of new areas of ecological habitat, providing mitigation or compensation for the impacts on existing areas. Two new parks would be created including Tilbury Fields to the west of the northern tunnel entrance, and Chalk Park, to the south of the River Thames.</i></p> <p><i>With regards to resilience, as outlined in Section 3.6 of the Project Design Report, the Project design has taken into account need to avoid the operational challenges of the Dartford Crossing and has the identified potential effects of climate change and incorporates measures to ensure capacity for climate change resilience within the design for these eventualities. Climate change considerations have been assessed for the construction of the Project as well as for 60 years of its operation, including for operational vulnerability.'</i></p> <p>The Scheme Objectives seek to minimise adverse impacts on health and the environment and to improve safety. In particular, the Project seeks to improve air quality at the Dartford Crossing, which is heavily impacted by road traffic emissions, with local communities being exposed to high levels of air pollution exceeding Air Quality Strategy (AQS) objectives.</p> <p>The Project design would achieve these objectives, as set out in Chapter 4 of the Need for the Project [<a href="#">APP-494</a>]. The chapter sets out that there would be a reduction in the collision rate (collisions per vehicle mile travelled) as a result of a managed less congested network. This is further detailed in</p>

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		<p>the Transport Assessment (TA) [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] and the ComMA Appendix D [<a href="#">APP-526</a>]. Furthermore, TA Chapter 9: Road safety, states that as part of the Project’s safety and security the new road would include technology to manage traffic and provide better information to drivers, including variable message signs to display variable speed limits, travel information, hazard warnings and both advisory and mandatory signage to drivers.</p> <p>During the design process further measures have been incorporated into the Project to mitigate adverse impacts that would arise and that cannot be avoided. Some of the measures adopted include landscaping, noise mitigation measures, and the provision of green infrastructure along the Project route including a number of green bridges. The Project would create a number of new areas of ecological habitat, providing mitigation or compensation for the impacts on existing areas. Two new parks would be created including Tilbury Fields to the west of the North Portal, and Chalk Park at the South Portal.</p> <p><b>Sustaining improvements to operational efficiency, taking into account economic, social and environmental impacts.</b></p> <p>The Project has been designed to address severe and long-standing problems at the Dartford Crossing as set out in the Need for the Project [<a href="#">APP-494</a>].</p> <p>The Project road has been designed to be part of the SRN and to be an ‘all-purpose trunk road’ with a minimal number of intersections and a 70mph speed restriction. For safety reasons, walkers, cyclists, horse riders and slow-moving vehicles would be prohibited from using it. The Project design would, therefore, relieve the congested Dartford Crossing and</p>



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		<p>approach roads, improving their performance by providing free-flowing cross-river capacity. The faster and more reliable journeys and improved accessibility would boost the productivity of businesses in the Lower Thames area and wider region, providing enhanced connectivity and cross-river economic activity and boosting employment and increasing inward investment. In the long term the Project would provide a positive legacy of green infrastructure and improved biodiversity, alongside improved access to local jobs and upskilling opportunities for local communities.</p> <p>With regard to operational efficiency, as identified in Section 5.2 of Need for the Project [APP-494], the Project would provide over 80% additional road capacity across the River Thames east of London and reduce traffic flows on the Dartford Crossing by 19% in 2030 (opening year). See also Chapter 7 of the TA [REP4-148, REP4-150 and REP4-152].</p> <p>With regard to operational efficiency in the longer term the results for the low and high growth scenarios are reported in the Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package [APP-522].</p> <p>Chapter 7 of the TA [REP4-148, REP4-150 and REP4-152] includes an assessment of forecast traffic flows on the Project route, and also changes in flow on the Dartford Crossing (among various other considerations) both with and without the Project up to 2045. The assessment includes both high and low growth scenarios. As indicated in paragraph 7.4.2 of the TA <i>‘the number of vehicles using the Dartford Crossing is forecast to be lower with the A122 Lower Thames Crossing than without it in 2030 and 2045’</i>.</p>

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4.26	<p><del>Scheme</del><u>In light of the above, scheme</u> design will be a material consideration in decision making. The Secretary of State needs to be satisfied that national networks infrastructure projects are sustainable <del>and as aesthetically sensitive, durable, adaptable and resilient as they can reasonably be (having regard to regulatory and other constraints and including accounting for natural hazards such as flooding).</del><sup>62</sup></p> <p><u>The, having regard to appropriate industry good design guidance, and the</u> applicant <del>should therefore take into account</del><u>has considered</u>, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics (including the scheme’s contribution to the quality of the area in which it would be located).</p>	<p>This is an amended version of paragraph 4.32 of the existing NPSNN (see underlined additions).</p> <p><b>Applying appropriate industry good design guidance</b></p> <p>The Project Design Report Part B: Policy Context and Project Design Process [<b>APP-507</b>] sets out the relevant policy and guidance which has influenced the Project design. This includes the National Infrastructure Strategy<sup>20</sup> and National Highways 10 Principles of Good Design which are set out in The Road to Good Design<sup>21</sup>. The latter also sets out the framework within which the Applicant considers the application of good design to the SRN. The development of the design has considered these principles throughout. The future good design of the Project is secured via the Design Principles [<b>Document Reference 7.5 (7)</b>].</p> <p>With regard to functional requirements, the road pavement design (designed to have an operational lifespan of 40 years) has been based on the DMRB standards as published in 2019 (which were current at the point of concluding the preliminary design). The drainage design has been developed in accordance with current standards and the requirements of the Environment Agency and Lead Local Flood Authorities (LLFAs) where applicable.</p> <p>Compliance with the relevant technical standards such as the Design Manual for Roads and Bridges which set out</p>

<sup>20</sup> HM Treasury (2020). National Infrastructure Strategy.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/938051/NIS\\_final\\_print.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938051/NIS_final_print.pdf)

<sup>21</sup> Highways England (2018). The road to good design. <https://nationalhighways.co.uk/media/l4ihgawx/strategic-design-panel-the-road-to-good-design.pdf>

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		<p>parameters for new road design would ensure the Project is fit for purpose.</p> <p>Throughout the design evolution, the use of professional, independent advice on the design aspects of the Project has been undertaken through a National Highways England Design Review Panel (NHDRP). This is described in detail within the Project Design Report Part G: Design Evolution <a href="#">[APP-514]</a>.</p> <p>The preliminary design proposals have also been in part influenced by the landscape of the AONB and the guidance in place on the principles of exterior colour design to be applied in the area.</p> <p><b>Ensuring functionality (including fitness for purpose and sustainability)</b></p> <p>With regard to being safe, resilient and easy to use, the Project has been designed and built to make the operation, management and maintenance as easy as possible and meet ambitious safety targets for 2041, in line with the Applicant’s strategic goals on safety. The proposals are to be designed to be resilient to flood risk and climate change and represent the best value over the whole life of the Project.</p> <p>As outlined in Section 3.6 of the Project Design Report Part C: Design Rationale <a href="#">[APP-508]</a> the Project design has taken into account the need to avoid the operational challenges of the Dartford Crossing and the identified potential effects of climate change. It incorporates measures to ensure capacity for climate change resilience within the design for these eventualities. Climate change considerations have been assessed for the construction of the Project as well as for 60 years of its operation, including for operational vulnerability.</p>

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		<p>The Project design also incorporates flexibility for future development.</p> <p><b>Considering aesthetics</b></p> <p>With regard to aesthetics, the preliminary design has been developed to be landscape led with an emphasis placed on tailoring the design of the road and new landscape works to their context, in order to fit more harmoniously within it. The design of architectural elements, such as overbridges, portals and operational buildings all aim to reflect the nature of their character area, while being recognisable as part of the wider Project.</p> <p>The overarching design context for the Project is therefore for it to be subservient to its landscape context and for the existing and proposed landscape to have a higher visual hierarchy than the road and the structures that support it.</p> <p>This approach aligns with National Highways’ 10 Principles of Good Road Design (see footnote 12 above) which takes a context-based design response to integrate structures and is key to ensuring a positive contextual intervention.</p> <p>Certain buildings, bridges and structures where design and appearance are of particular importance, have been identified as ‘Signature Structures’ that are considered important in enhancing the aesthetic quality of the road and in building a legacy for the future. These structures include the North and South Portals and a number of viaducts, bridges and footbridges along the route alignment, in addition to bridges within the Kent Downs AONB. Within the designated AONB, bridge designs are to be suitably located and to demonstrate an exceptional level of quality experienced by both users of the A2/M2 and those moving within the AONB.</p>

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4.27	<p>Applicants <del>will want to consider the role of technology in delivering new national networks projects. The use of professional, independent advice on the design aspects of a proposal<sup>63</sup> should be considered, to ensure good design principles are embedded into infrastructure proposals</del> <u>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.</u></p>	<p>This paragraph was not included in the existing NPSNN.</p> <p><u>Design</u></p> <p>The Project Design Report Part B: Policy Context and Project Design Process [<a href="#">APP-507</a>] and Project Design Report Part C: Design Rationale [<a href="#">APP-508</a>] set out the relevant National Design Guidance which the Project’s design team has had regard to and which informed the Project design.</p> <p>This comprises:</p> <ul style="list-style-type: none"> <li>• The National Infrastructure Strategy<sup>22</sup> which sets out guidance on good design. As identified in Paragraph 2.1.12 of the Project Design Report Part B: Policy Context and Project Design Process [<a href="#">APP-507</a>] this strategy has been found to accord with National Highways’ 10 principles of good design.</li> <li>• The National Infrastructure Commission (NIC) Design Principles: Climate, People, Places, Value<sup>23</sup>.</li> <li>• The Road to Good Design<sup>24</sup>.</li> <li>• DMRB GG 103<sup>25</sup>.</li> </ul> <p>As outlined in paragraph I.2.23 of the Planning Statement Appendix I: Carbon Strategy and Policy Alignment [<a href="#">REP7-138</a>], the Project is one of the first major projects to</p>

<sup>22</sup> HM Treasury (2020). The National Infrastructure Strategy.

<sup>23</sup> National Infrastructure Commission (2020). Design Principles: Climate, People, Places, Value.

<sup>24</sup> National Highways (2018). The Road to Good Design.

<sup>25</sup> Highways England (2019). DMRB GG 103 – Introduction and general requirements for sustainable development and design.

<https://www.standardsforhighways.co.uk/search/89d10ef2-7833-44df-9140-df85cd6382b9>

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		<p>implement PAS 2080<sup>26</sup> (a global standard for managing infrastructure carbon) for both the Applicant and all of the main delivery partners.</p> <p><u>Nature Recovery</u></p> <p>With regard to nature recovery, the Planning Statement Appendix H: Green Infrastructure (GI) Study [APP-503] refers to a number of adopted and emerging local policy documents and strategies which have influenced the green infrastructure design for the Project. These include:</p> <ul style="list-style-type: none"> <li>• South Essex Green and Blue Infrastructure Study – Alexandra Steed/Urban (2020)</li> <li>• Thurrock Green and Blue Infrastructure Strategy (November 2019)</li> <li>• Medway Green and Blue Infrastructure Framework – Consultation Draft 4 October 2021 (which includes the objective of delivering a Local Nature Recovery Strategy as part of the National Nature Recovery Network through working with the Kent Nature Partnership)</li> </ul> <p>Under the Environment Act 2021, Local Nature Recovery Strategies (LNRS) are listed among provisions to be brought into force at future dates.</p> <p>ES Appendix 8.23: Terrestrial Biodiversity Legislation and Policy [APP-419] and Environmental Statement Addendum [Document Reference 9.8 (9)] also refers to international, national and local policy on biodiversity.</p>

<sup>26</sup> Institution of Civil Engineers (2023). Guidance Document for PAS 2080. [https://www.ice.org.uk/media/vm0nwehp/2023-03-29-pas\\_2080\\_guidance\\_document\\_april\\_2023.pdf](https://www.ice.org.uk/media/vm0nwehp/2023-03-29-pas_2080_guidance_document_april_2023.pdf)

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		<p><u>Air Quality</u></p> <p>As outlined in paragraph 5.2.12 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] the Project has had regard to the Defra/DfT UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations<sup>27</sup>.</p> <p>The Applicant has had regard to county policies within Kent and Essex, the Updated London Plan and local policies relating to air quality within the following local authorities within the study area: Maidstone Borough Council, Tonbridge and Malling District Council, Gravesham Borough Council, Medway Council, Dartford Borough Council, Thurrock Council, London Borough of Havering and Brentwood Borough Council. These are outlined in ES Appendix 5.5: Air Quality Legislation and Policy [APP-349] and Environmental Statement Addendum [Document Reference 9.8 (9)] and are considered further within the Planning Statement [Document Reference 7.2 (2)]. The Project has also had regard to the Kent and Medway Energy and Low Emissions Strategy<sup>28</sup>.</p> <p><u>AONBs</u></p> <p>With regard to the Kent Downs AONB designation, the Project has had regard both to its purposes and to the Kent Downs Area of Outstanding Natural Beauty (AONB) Management Plan 2021–2026<sup>29</sup> adopted in 2021 (ES Appendix 7.6: Kent</p>

<sup>27</sup> Defra and DfT (2017). UK plan for tackling roadside nitrogen dioxide concentrations.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/633269/air-quality-plan-overview.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf)

<sup>28</sup> Kent County Council/Medway Council (2020). Kent and Medway Energy and Low Emissions Strategy.

<sup>29</sup> Kent Downs AONB Unit (2021). Kent Downs Area of Outstanding Natural Beauty (AONB) Management Plan 2021-2026.

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		<p>Downs Area of Outstanding Natural Beauty Relevant Guidance [<a href="#">APP-381</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. Planning Statement Appendix F: Kent Downs Area of Outstanding Natural Beauty [<b>Document Reference 7.2 Appendix F (2)</b>] provides a policy assessment of the impacts of the Project on the AONB. Paragraph F.5.9 notes that:</p> <p><i>'The project has sought to avoid where possible work within the AONB, and where works are required within the AONB, demonstrate the lack of deliverable or feasible alternatives. The main works within the AONB are limited to essential utility diversion works and the improvement to the A2/M2 to accommodate the required road capacity to provide a safe connection with the new A122, in the public interest. The provision of environmental mitigation within the AONB is considered to be complementary to the function and purpose of its designation in accordance with policy.'</i></p> <p>Furthermore, in addition to the measures outlined above the Applicant has engaged with the AONB Unit and agreed a supplemental, compensatory enhancement fund as outlined in the Statement of Common Ground between National Highways (1) and the Kent Downs AONB Unit (2) [<a href="#">REP6-018</a>]. The compensatory enhancement fund has been secured through a Section 106 Agreement, or equivalent legal agreement, with the Kent County Council [<b>Document Reference 9.167 (2)</b>].</p>



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4.28	<p><del>Applicants</del><u>In their application, applicants</u> should be able to demonstrate <del>in their application</del> how the design process was conducted, <u>effective engagement with communities and stakeholders</u> and how the proposed design evolved <u>to maximise design outcomes</u>. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected <u>with a clear articulation of its benefits</u>. The Examining Authority and Secretary of State should <del>take into account</del><u>consider</u> the ultimate purpose of the infrastructure and <del>bear in mind</del> the operational, safety and security requirements which the design <del>has to</del><u>must</u> satisfy.</p>	<p>This is an amended version of paragraph 4.35 of the existing NPSNN (new text underlined) but now also requires the Applicant to demonstrate effective engagement with communities and stakeholders and how the proposed design evolved to maximise design outcomes (see underlined). The response given previously to paragraph 4.35 of the existing NPSNN remains relevant (italicised):</p> <p><i>‘National Highways have developed the Project design with input from architects, landscape architects, town planners and highway, geotechnical and structural engineers. Environmental specialists have undertaken the EIA. The interplay between these specialist disciplines has been integral to achieving good design, along with the issues raised through consultation and engagement.’</i></p> <p>There has also been considerable engagement with local communities and other relevant stakeholders as evident in the Consultation Report [<a href="#">APP-064</a> to <a href="#">APP-090</a>].</p> <p><i>‘The landscape, architectural and engineering design solutions for the Project have developed concurrently following Statutory Consultation in 2018 through a collaborative and iterative design process between the technical disciplines over a two-year period. As an overarching principle, the work of the Integrated Project Team has sought to prevent, avoid, reduce or off-set adverse environmental effects and to seek beneficial effects, including embedded environmental mitigation measures within the design proposals.</i></p> <p><i>The Project Design Report [<a href="#">APP-506</a> to <a href="#">APP-515</a>] submitted with this Development Consent Order (DCO) application sets out in detail the design development that has taken place and the alternatives considered through the engagement</i></p>

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		<p><i>undertaken with National Highways Design Review Panel (NHDRP) in reviewing design proposals through four stages of the Project's development.</i></p> <p><i>Through the design development process, the Project has sought to engage with the 'host' local planning authorities and stakeholders to take account of their views and to gain a full understanding of local constraints and opportunities. At the same time detailed discussions have been held with the main landowners and tenants that would be impacted by the Project, both on the design proposals and to receive feedback on integration and reinstatement proposals. The Applicant has also engaged in five rounds of public consultation.'</i></p> <p>The influence this engagement has had in the design development for various aspects of the Project is set out in detail in the Project Design Report Part G: Design Evolution <a href="#">[APP-514]</a>.</p>

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4.29	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph is similar in intent to paragraph 4.33 of the existing NPSNN except for the mention of a project board level design champion. The Project has committed, through the Design Principles [<b>Document Reference 7.5 (7)</b>] to appointing a Design Champion in the next phase of the project to protect and promote good design in the delivery phase.</p> <p>The response previously given to paragraph 4.33 of the existing NPSNN remains relevant as it sets out the Applicant’s approach to design and the role of the Design Review Panel:</p> <p><i>‘The Applicant recognises that developing good design, including good landscape design, is essential. In seeking good quality design in all areas within the physical constraints associated with a highway infrastructure project of this nature, the following strategies have been developed to ensure design quality:</i></p> <ul style="list-style-type: none"> <li>• <i>Developing designs in an integrated team</i></li> <li>• <i>Public consultation and stakeholder engagement</i></li> <li>• <i>Independent design review</i></li> <li>• <i>Incorporating flexibility for future development</i></li> </ul> <p><i>At the same time, the functional requirements of the Project, as a highways infrastructure project, are recognised, led by relevant technical standard such as the Design Manual for Roads and Bridges (DMRB) (Highways England, 2018) in setting out parameters for new road design. Compliance with these requirements would ensure the Project is fit for purpose.</i></p> <p><i>The use of professional, independent advice on the design aspects of the Project has been undertaken through a National Highways England Design Review Panel (NHDRP), established to review revised standards and guidance and to</i></p>

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		<p><i>comment on individual schemes.</i></p> <p><i>The Project designs have been reviewed on five occasions by the NHDRP over the course of its development at the following stages, with a brief summary of the outcome of the process at each stage provided below:</i></p> <ul style="list-style-type: none"> <li>• <i>Review of emerging proposals (2017)</i></li> <li>• <i>The design of individual structures should be part of the overall consideration of how the scheme responds to the landscape</i></li> <li>• <i>Footbridges should be aesthetically pleasing from the viewpoint of the user travelling across it and the driver travelling below.</i></li> <li>• <i>Recommend developing an approach to viaducts that enhances local character rather than just mitigation.</i></li> </ul> <p><i>The Project responded by securing the input from architects and landscape architects in the design process for structures throughout the Project.</i></p> <p><i>Workshop review of the Project’s Draft Design Narrative (2018)</i></p> <ul style="list-style-type: none"> <li>• <i>Pleased to see the architect and landscape architect leading the strong inception of an integrated design strategy</i></li> <li>• <i>Recommend considering the height of the viaducts and other fixed structures to animate the viaduct.</i></li> <li>• <i>Commend the approach to minimising the amount of roadside hardware</i></li> <li>• <i>Allowing design teams to challenge traditional Highways England standards and procedures</i></li> </ul> <p><i>The Project reviewed the height and design of structures</i></p>

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		<p><i>within the landscape context to integrate the Project into the landscape.</i></p> <p><i>Review of the Statutory Consultation Proposals (2019)</i></p> <ul style="list-style-type: none"> <li>• <i>Strongly support the Project Narrative in promoting a contextually responsive, integrated design strategy across the Project.</i></li> <li>• <i>The scale and type of Green Infrastructure cannot be retrofitted but conceived alongside and intertwined with the transport functions of the Project.</i></li> <li>• <i>Encourage the Project Team to go beyond standard practice, pursuing innovative solutions to set exemplars for future projects.</i></li> <li>• <i>Encourage the Project Team to reduce clutter and streamline design.</i></li> <li>• <i>Mardyke Viaduct: Support many of the changes put forward.</i></li> </ul> <p><i>The measures taken by the Project were supported by the Panel and the Applicant continued to challenge the established standards and explored opportunities for innovation.</i></p> <p><i>Review of the Design Refinement Consultation Proposals (June 2020)</i></p> <p><i>A summary of the Design Council’s response is provided below:</i></p> <p><i>‘The Project has significantly developed since Design Council first reviewed the scheme in 2017. Throughout the Project’s development, the design has been a driving factor in shaping and delivering the team’s vision of a highway which responds to its settings and provides benefit to the local communities. The current proposal displays a strong character</i></p>

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		<p><i>along the route, including structures, layout and architecture which respond to the surrounding landscape. However, there exist further opportunities to strengthen this distinctiveness and identity through refinements to the detailed design of the highways, architecture, and landscape’.</i></p> <p><i>The Panels comments reflect the efforts by the Applicant to improve the quality of the design to deliver a high quality project.</i></p> <p><i>Review of the Local Refinement Consultation May 2022</i> <i>A summary of the Design Council’s response is provided below:</i></p> <p><i>In relation to the South Portal design: ‘The current proposal is driven by skilled design that has led to the creation of structures, layout, and architecture that responds to the feedback from consultation with communities and stakeholders. We were again impressed by the calibre of holistic design and detail shown by the fusion of architecture, engineering, and landscape. There is much to admire in the progress of such a nationally significant infrastructure project.</i></p> <p><i>’</i></p> <p><i>In relation to the revisions for the A13/A122/ A1089 junction: ‘The scale of the structures at the junctions sit well within the wider context – the larger junctions respond to the landscape form. The design team have responded to the specific form and requirement of structures by considering scale, alignment, span, complexity, and constructability. We advise the design team to continue to design structures at junctions in a way that is appropriate to the context and to not be afraid of implementing large-scale designs. ’</i></p> <p><i>In regard to the revised design at Tilbury Fields and the North</i></p>

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		<p><i>Portal the panel commented: ‘The design approach to Tilbury Fields to use excess fill from tunnel and road construction to create landscape forms supports flood management and extends ecological habitats. The height of the mounds also creates views of the river Thames and back north towards Orsett Fen; We recommend adding a clear base to the mounds through gabion walls and taking a more architectural approach using structural elements as much as planting and landform. Further, we recommend exploring the concept of degradation or maintenance for these mounds, where the mounds are ‘allowed’ to deteriorate based on the environmental conditions at Tilbury. The current proposal is driven by skilled design that has led to the creation of structures, layout, and architecture that responds to the feedback from consultation with communities and stakeholders.’</i></p> <p><i>For the Mardyke and Orsett Fen viaduct structures, the Panel said: We support the changes to the structures since the previous review and are impressed by the well-considered design options chosen. The use of weathering steel in the bridges and viaducts (including the Mardyke viaduct) creates elegant structures that will require little and infrequent maintenance.</i></p> <p><i>The Design Panel has endorsed the quality of the design of this application for the A122 project.</i></p> <p><i>A full consideration of NHDRP responses is considered in the Project Design Report [<a href="#">APP-506</a> to <a href="#">APP-515</a>].’</i></p>

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<b>Climate Change Adaptation</b>		
4.30	Section 10(3)(a) of the Planning Act <a href="#">2008</a> requires the Secretary of State to have regard to the desirability of mitigating, and adapting to, climate change in designating an NPS	This paragraph remains the same as paragraph 4.36 of the existing NPSNN. Response considered unnecessary as this provides a statement on the Secretary of State’s requirement to have regard to climate change and also contains general background text on climate change.
4.31	This section sets out how <del>the NPS puts Government policy on climate change adaptation into practice, and in particular how applicants and the Secretary of State should take the effects of climate change into account when developing and consenting</del> <u>considering</u> infrastructure. <del>Climate applications. As referenced in chapter 2 of this NPS, while climate change mitigation is essential to minimise</del> <u>in minimising</u> the most dangerous impacts of climate change, <del>as</del> previous global greenhouse gas emissions have already committed us to <del>some degree of</del> continued climate change <del>for at least</del> <u>in</u> the <del>next 30 years. Climate change is likely to mean that the UK will experience hotter, drier summers and warmer, wetter winters. There is an increased risk of flooding, drought, heatwaves, intense rainfall events and other extreme events such as storms and wildfires, as well as rising sea levels</del> <u>future</u> .	This is an amended version of paragraph 4.37 of the existing NPSNN (see underlined). Response considered unnecessary as this provides a statement on the Secretary of State’s requirement to have regard to climate change and also contains general background text on climate change.
4.32	<del>Adaptation is therefore necessary to deal with the potential impacts of these changes that are already happening. New development should be planned to avoid increased</del> <u>Article 7 of the Paris Agreement establishes a global goal on adaptation – of enhancing adaptive capacity, strengthening resilience and reducing</u> vulnerability to <del>the range of impacts arising from climate change. When new development is brought forward in</del>	The existing NPSNN predates the Paris Agreement and therefore does not refer to it.



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	<p><del>areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable</del> <u>in the context of the temperature goal of the Agreement. It aims to significantly strengthen national</u> adaptation <del>measures</del> <u>efforts</u>, including through <del>the provision of green infrastructure</del> <u>support and international cooperation</u>.</p>	<p>The DCO has had regard to the objectives contained within the Paris Agreement<sup>30</sup>, which is referenced within the following DCO documents:</p> <ul style="list-style-type: none"> <li>• ES Appendix 15.1: Climate Legislation and Policy [APP-480] and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b></li> <li>• ES Chapter 15: Climate <b>[APP-153]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b></li> <li>• Carbon and Energy Management Plan <b>[Document Reference 7.19 (4)]</b></li> </ul> <p>Planning Statement Appendix I: Carbon Strategy and Policy Alignment <b>[REP7-138]</b> is also relevant. While not referring to the Paris Agreement by name, its contents overlap with the objectives of the Agreement.</p> <p>In line with the Paris Agreement, the UK has set a legal target for achieving net zero carbon emissions by 2050 and carbon budgets for five-year periods in the trajectory to 2050. Net zero requires a commitment to reduce emissions, with the scale of reduction being consistent with the 1.5°C goal of the Paris Agreement.</p> <p>In considering the impact of the Project on meeting these objectives. Paragraph 15.9.12 of ES Chapter 15: Climate <b>[APP-153]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> state as follows:</p>

<sup>30</sup> United Nations (2015). The Paris Agreement. <https://unfccc.int/process-and-meetings/the-paris-agreement>

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		<p><i>'The Project would fulfil both criteria used to determine that GHG emissions from the Project are considered not significant:</i></p> <p><i>a. The GHG emissions from the Project do not have a material impact on the ability of the Government to meet the carbon reduction targets.</i></p> <p><i>b. The Project is compatible with (or goes beyond) the budgeted, science based 1.5°C trajectory of the Paris Agreement (in terms of rate of emissions reduction) and complies with up-to-date policy and 'good practice' reduction measures to achieve that.'</i></p>
4.33	<p><del>The Government has published</del> <u>To support planning decisions, the government produces</u> a set of UK Climate Projections and has developed a statutory National Adaptation Programme<sup>80</sup> <sup>64</sup>. In addition, the <del>Government</del> <u>government</u>'s Adaptation Reporting Power<sup>65</sup> <del>will invite reporting</del> <u>invites</u> authorities (a defined list of public bodies and statutory undertakers, including <u>National Highways Agency</u>, Network Rail and the Office <del>of</del> <u>for</u> Rail <u>and Road</u>) <u>to assess the risks presented by a changing climate, include policies and actions to address climate risk, and set out progress made. Regulation</u>) <del>to build on their climate change risk assessments and report on progress implementing adaptation actions.</del></p>	<p>This paragraph is an amended version of paragraph 4.39 of the existing NPSNN (slight adjustment to wording with no fundamental change – see underlined). See response below to paragraph 4.37.</p>
4.34	<p><u>In certain circumstances, measures implemented to ensure a scheme can adapt to climate change may give rise to additional impacts. For example, as a result of protecting against flood risk, there may be consequential impacts on coastal change (see paragraphs 5.95 to 5.110). If this happens, the Secretary of State should consider the impact of the latter in relation to the</u></p>	<p>While the text of this paragraph is not included in the existing NPSNN, it is similar in intent to paragraph 4.45 (now only references coastal changes as an example where previously flooding, water resources, biodiversity and landscape were also mentioned).</p>

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	<p><a href="#">application as a whole and the impacts guidance set out in chapter 5 of this NPS.</a></p>	<p>The response given previously to paragraph 4.45 of the existing NPSNN remains relevant as it addresses the same core point on potential additional climate change impacts: <i>'The assessment of the vulnerability of the Project to climate change contained within ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] begins with a review of the potential impacts and is followed by an assessment of their potential consequence and likelihood of occurrence, taking into account the measures incorporated into the design of the Project. Table 15.19 within ES Chapter 15 presents a summary of the assessment and shows that there would be no likely significant effects from climate change on the Project's receptors.'</i></p>
4.35	<p><a href="#">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 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).</a></p>	<p>This paragraph is a new addition (requirement to include nature-based solutions was not included in the existing NPSNN). The Project will employ a variety of nature-based solutions to mitigate environmental impacts, provide biodiversity benefits and ensure climate resiliency and adaptation. The Planning Statement Appendix H: Green Infrastructure (GI) Study [APP-503] acknowledges that interconnected green infrastructure is vital for managing a range of climatic changes, and that using green infrastructure for flood alleviation and management has economic as well as environmental value. The study includes a number of recommended measures specific to climate change resilience, which were used to inform early mitigation decision making and to ensure that the protection, creation and enhancement of GI was embedded</p>

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		<p>from the outset in the Project’s Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The GI study was influenced by key stakeholders (alongside a number of local policy documents such as the Thames Chase Plan and Kent Downs AONB Management Plan), including Thurrock Council which raised concerns that climate change is likely to lead to changes in habitat distribution and resultant changes to the character of existing GI. One example is the opportunity to use treated surface water to help manage water levels within Higham Creek Site of Special Scientific Interest (SSSI), helping mitigate the impacts of climate change (listed within Tier 3 on the recommendations of the study).</p> <p>As set out in paragraph 4.4.2 of the Sustainability Statement [APP-544] the drainage design for the Project incorporates Sustainable Drainage Systems (SuDS) and reduces the risk of causing flooding elsewhere by using attenuation features as presented in ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The drainage has been developed in conjunction with the environment and ecology teams.</p> <p>Sections 6.8 and 6.9 of ES Appendix 14.6: Flood Risk Assessment – Part 6 [REP1-171] refer to natural flood management techniques proposed. Paragraph 6.9.2 states that the natural flood management techniques that would be considered when developing the flood risk management strategy for the Project would include:</p> <ul style="list-style-type: none"> <li>• Net reduction in the length of culverted watercourses</li> <li>• Reintroduction of meanders in watercourses</li> </ul>

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		<ul style="list-style-type: none"> <li>• Naturalisation of watercourse beds (including those in culverted watercourses)</li> <li>• Planting trees (as part of the landscaping works)</li> </ul> <p>With regard to wider measures across the Project, overall, there would be net gain of approximately 205ha of habitats across the nitrogen deposition compensation sites (ES Chapter 2: Project Description <a href="#">[APP-140]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>). As well as enhancing the biodiversity value of the area, it would also establish coherent ecological networks which would be more resilient to future pressures from climate change. With regards to the overall planting strategy, Design Principles Clause LSP.02 <b>[Document Reference 7.5 (7)]</b> states that planting species <i>‘will include native species of local provenance and will also consider the inclusion of a small percentage of non-native species, where appropriate, in response to forecasted impacts of climate change’</i>.</p> <p>The Project Design Report Part G: Design Evolution <a href="#">[APP-514]</a> describes the design evolution and design approach to Tilbury Fields (Work No. OSC5) which is located south of the North Portal. The Project proposes to use excess fill from tunnel and road construction to create landscape forms to support both flood management and to extend ecological habitats. Paragraph 3.0.109 states that <i>‘The detail of the management and maintenance of Tilbury Fields, and the principle of adding structural elements or planting to the base of the mounds were developed following comments from the National Highways Design Review Panel. These were</i></p>

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		<p><i>added to the Outline Landscape and Ecology Management Plan and Design Principles respectively.'</i></p> <p>The Project therefore incorporates a range of nature-based solutions which seek to ensure the overall resilience of the Project to climate change while also delivering biodiversity benefits.</p>
4.36	<p>New national networks infrastructure will <del>be</del> typically <u>be a</u> long-term <del>investments which</del><u>investment and</u> will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the <u>direct (e.g. flooding of road or rail infrastructure) and indirect (e.g. flooding of other parts of the road or rail network)</u> impacts of climate change when planning <u>the</u> location, design, build <del>and</del> operation. <del>Any accompanying environment statement should set out and maintenance. The Secretary of State will need information on</del> how the proposal will take account of the projected impacts of climate change <u>and remain resilient</u>. <del>Where transport infrastructure has safety-critical elements and the design life of the asset is 60 years or greater, the applicant should apply the UK Climate Projections 2009 (UKCP09) high emissions scenario (high impact, low likelihood) against the 2080 projections at the 50% probability level.</del></p>	<p>This reflects paragraph 4.40 of the existing NPSNN – amended wording now refers to direct and indirect impacts and reference to the role of the ES is no longer included (see underlined).</p> <p>The response given previously to paragraph 4.40 of the existing NPSNN remains relevant as it addresses both direct and indirect effects of climate change and flooding: 'ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] states that the Project has been designed to be resilient to the direct and indirect impacts from weather events and climatic conditions. The Project design and proposed mitigation measures have considered any potentially critical features of the design which may be seriously affected by climate change beyond what has been projected in the UK Climate Projections 2018 (UKCP18). As a result, the ES predicts that there would be no significant adverse impacts upon the Project's receptors.</p> <p><i>This shows that for the South East and Central Southern district region, there is a projected increase in annual temperatures and seasonal rainfall, with wetter winters and drier summers expected. The mitigation requirements, which respond to these future scenarios, are set out in response to NPSNN paragraph 4.38 above and are addressed within Chapter 15 [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p>

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		<p><i>Section 15.5: Project Design and Mitigation and Section 15.6: Assessment of Impacts in ES Chapter 15 [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] have considered how the Project design takes account of the updated UK Climate Projections during the estimated lifetime of the Project.</i></p> <p><i>The ES has set out how the Project would take account of the projected impacts of climate change. ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)] has detailed the flood risk impacts having regard to climate change. The vulnerability of the Project to climate change has been reduced through the drainage design which has reduced the risk of flooding elsewhere through the use attenuation features as shown in ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p>In respect of flooding, Part 6 of the FRA [REP1-171], Section 4.7, sets out the climate change allowances used for the Project in terms of peak rainfall, river flow and sea level rise allowances. Section 7.2 explains how, in terms of flood risk, a Project lifetime of at least 100 years has been used.</p>
4.37	<p>The <del>applicant</del> <u>Secretary of State</u> should <del>take</del> <u>be satisfied that applications for new national networks infrastructure have taken</u> into account the potential <u>direct and indirect</u> impacts of climate change. <u>This should include</u> using the latest UK Climate Projections <del>available at the time and ensure any environment statement that is prepared identifies appropriate and associated</del></p>	<p>This is a largely new paragraph of text though parts are captured from paragraph 4.42 of the existing NPSNN. ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] has considered the identification and implementation of any adaptation measures</p>

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	<p><a href="#">research and expert guidance (such as the Environment Agency's Climate Change Allowances for Flood Risk Assessments<sup>81</sup>) 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, <u>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.</u> Should a <del>new revised</del> set of UK Climate Projections <del>become available</del> or associated <del>research be applicable</del> after the preparation of <del>any environment statement</del> <u>the environmental assessment</u>, the Examining Authority should consider whether they need to request <del>additional</del> <u>further</u> information from the applicant.</a></p>	<p>incorporated into the Project design. The embedded adaptation measures have been based on the latest UK Climate Change Risk Assessment (Defra, 2017).</p> <p>The assessments undertaken have had regard to the UK Climate Change Risk Assessment 2022<sup>31</sup>, Flood risk assessments: climate change allowances<sup>32</sup> among various other standards and guidance documents.</p> <p>Climate change adaption measures have been shaped by consultation and engagement with statutory bodies such as the Environment Agency. Please refer to the Statement of Engagement [<a href="#">APP-091</a>] and Consultation Report [<a href="#">APP-064</a> to <a href="#">APP-069</a>] for more information.</p> <p>The Design Principles [<b>Document Reference 7.5 (7)</b>], Environmental Masterplan [<b>Document Reference 6.2 ES Figure 2.4</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>], CoCP and REAC [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] all form part of the Project control plan. This would be legally secured through DCO Requirements 4 and 3 respectively [<b>Document Reference 3.1 (11)</b>]. The control plan is the framework for mitigating, monitoring and controlling the effects of the Project. It is made up of a series of 'control documents' which present the mitigation measures identified in the application that must be implemented during design, construction and operation to reduce the adverse effects of the Project.</p>

<sup>31</sup> Defra (2022). UK Climate Change Risk Assessment 2022.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1047003/climate-change-risk-assessment-2022.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1047003/climate-change-risk-assessment-2022.pdf)

<sup>32</sup> Environment Agency (2022). Flood Risk Assessments: climate change allowances. <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>



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		<p>To determine the significance of climate change on Project receptors over the Project lifetimes, the assessments which have informed ES Chapter 15: Climate <a href="#">[APP-153]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> use the specific criteria set out within DMRB LA 114 Climate<sup>33</sup>. As stated in paragraph 15.3.110 of ES Chapter 15 the 60-year (general), 100-year (flood risk) and 120-year (tunnel) Project appraisal periods include the operational phase from the opening of the Project. The assessment has also accounted for the construction phase. The approach to defining the Project lifetime is explained further in Section 7.2 of ES Appendix 14.6: Flood Risk Assessment – Part 6 <a href="#">[REP1-171]</a>.</p> <p>ES Appendix 15.3: Climate Resilience Impacts and Effects <a href="#">[APP-482]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> includes resilience measures which have been incorporated into the Project design. These measures have included the assumed 100-year design life from the opening year. Additionally, the road geometry has set the vertical alignment of the carriageways above the design flood level, inclusive of freeboard and allowance for climate change resilience, and flood bunds or walls have been provided to protect areas where the vertical alignment of the road is lower than the design flood level, to make the development safe from flooding over its design lifetime.</p> <p>With regard to the scope to further adapt the Project over its lifetime to remain resilient to a credible maximum climate</p>

<sup>33</sup> Highways England (2021). DMRB LA 114 Climate. <https://www.standardsforhighways.co.uk/tses/attachments/d1ec82f3-834b-4d5f-89c6-d7d7d299dce0?inline=true>

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		<p>change scenario, paragraph 7.2.5 of ES Appendix 14.6: Flood Risk Assessment – Part 6 <a href="#">[REP1-171]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> explains the precautionary climate change allowances incorporated in the Project design. It states that <i>‘the flood protection bund at the North Portal would be readily adaptable to a higher level of protection if required (e.g. a more extreme climate change scenario or a longer Project lifetime), by raising the embankment protecting the tunnel and Project road, with the bund tying into higher ground as in the Project design. The Project would therefore be readily adaptable to a more extreme climate change scenario.’</i></p>
4.38	<p>The <del>applicant</del> <a href="#">Secretary of State</a> should <del>demonstrate</del> <a href="#">be satisfied</a> that there are no <del>critical</del> features of the design of new national networks infrastructure <a href="#">critical to its safety or operation</a> which may be seriously affected by more radical changes to the climate <del>beyond</del> <a href="#">Beyond</a> that projected in the latest set of UK climate projections. <del>Any potential critical features should be assessed and</del> taking account of the latest credible scientific <del>evidence</del> <a href="#">evidence</a><sup>9</sup> on, for example, sea level rise <del>(e.g. by referring to additional maximum credible scenarios such as from the Intergovernmental Panel on Climate Change or Environment Agency) and on the basis</del> <a href="#">The Secretary of State should also be satisfied</a> that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime <del>through potential further mitigation or adaptation.</del></p>	<p>This reflects paragraph 4.43 of the existing NPSNN (amended wording but no fundamental change – see underlined). The response given previously to paragraph 4.43 of the existing NPSNN remains relevant: <i>‘ES Chapter 15: Climate <a href="#">[APP-153]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> states that the Project has been designed to be resilient to impacts from weather events and climatic conditions. The Project design and proposed mitigation measures have considered any potentially critical features of the design which may be seriously affected by climate change beyond what has been projected in the UK Climate Projections 2018 (UKCP18). Factors considered include:</i></p> <ul style="list-style-type: none"> <li>• <i>overheating of tunnel and electrical equipment</i></li> <li>• <i>localised flooding from intense rainfall</i></li> <li>• <i>accidents associated with overheated vehicles / smoke drift from wildfires and</i></li> <li>• <i>thermal contraction of hard surfaces</i></li> </ul>

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		<p><i>Mitigation has been identified to ensure the Project is resilient to climate change in Section 15. The UK Climate Change Risk Assessment 2017 (Defra, 2017) and UKCP18 data outputs (Met Office, 2019) have been used to identify potential climate hazards. Potential climate change impacts have been reviewed and an assessment of their potential consequence and likelihood of occurrence undertaken. Based on the mitigation identified, UKCP18, information from other environmental disciplines and details on the Project’s design, none of the potential impacts identified for the construction and operational phases are considered to have significant effects.’</i></p>
4.39	<p>Any adaptation measures should be based on the latest set of UK Climate Projections, the <del>Government’s national</del><u>government’s latest UK</u> Climate Change Risk Assessment, <u>when available</u><sup>82</sup> and <u>in</u> consultation with <del>statutory consultation bodies</del><u>the Environment Agency’s Climate Change Allowances for Flood Risk Assessments</u>. Any adaptation measures must themselves also be assessed as part of any environmental <del>impact</del> assessment <del>and included in the environment statement</del>, which should set out how and where such measures are proposed to be secured.</p> <p><del>If any proposed adaptation measures themselves give rise to consequential impacts the Secretary of State should consider the impact in relation to the application as a whole and the impacts guidance set out in this part of this NPS (e.g. on flooding, water resources, biodiversity, landscape and coastal change).</del></p>	<p>This reflects paragraph 4.44 of the existing NPSNN (amended wording but no fundamental change – see underlined). See response above to paragraph 4.37.</p>

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4.40	<p>Adaptation measures <del>can</del><u>should</u> be required to be implemented at the time of construction where necessary and appropriate to do so.</p> <p><del>Where adaptation measures</del> <u>However, where they</u> are necessary to deal with the impact of climate change, and that measure would have an adverse effect on other aspects of the project and/or surrounding environment (<del>e.g. for example</del> coastal processes), the Secretary of State may consider requiring the applicant to ensure that the adaptation measure could be implemented should the need arise, rather than at the outset of the development (<del>e.g. for example</del> reserving land for future extension, <del>or</del> increasing <del>the</del> height of <del>an</del> existing <del>sea wall</del>, or requiring <del>a</del> new <del>sea wall</del><u>walls</u>). <u>In these circumstances, the applicant should make a case to justify implementing adaptation measures later, set out clearly how the design could be adapted and have mechanisms in place (such as Development Consent Order requirements) for monitoring and implementation of these future adaptation measures.</u></p>	<p>The first sentence reflects paragraph 4.46 of the existing NPSNN with some changes, with the second sentence reflecting paragraph 4.47. The text at the end of the paragraph is new (see underlined).</p> <p>The response given previously to paragraphs 4.46 and 4.47 of the existing NPSNN remains relevant:</p> <p><i>'A suite of flood resilience measures will be applied during construction and are specified within the REAC which forms part of the Code of Construction Practice, First Iteration of Environmental Management Plan [Document Reference 6.3 ES Appendix 2.2 (9)]. This document makes clear the commitments that are being made to address flood risk issues during construction. REAC Clause RDWE023 in particular states:</i></p> <p><i>'Incorporation of a suite of flood alleviation measures such as altering road geometry to set the vertical alignment of carriageways above the design flood level, inclusive of freeboard and allowance for climate change resilience, including provision for flood bunds or walls to protect areas where the vertical alignment of the road is lower than the design flood level, to make the development safe from flooding over its design lifetime in line with the requirements of DMRB LA 113.'</i></p> <p><i>The timing at which measures such as flood storage are implemented during operation is also significant. The majority of would be built into the Project from the outset (including constructing roads on embankments and viaducts and ensuring road surfaces are above flood protection level etc). These design elements are incorporated within the Design Principles [Document Reference 7.5 (7)].</i></p> <p><i>These measures have been based on the latest UK Climate Change Risk Assessment (Department for Environment, Food</i></p>

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		<p><i>and Rural Affairs, 2017) and also in consultation with the relevant bodies listed in ES Chapter 4: EIA Methodology [APP-142] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Where appropriate, adaptation measures agreed with the relevant consultation bodies have been embedded within the Project’s design.’</i></p> <p>As identified in Text Box 9.1 of ES Appendix 14.6: Flood Risk Assessment – Part 6 [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)], the flood protection of the Project road in the West Tilbury Main catchment could be adapted in future by raising the protection to 8.28m above ordnance datum plus a residual uncertainties allowance of 1m. The Project is therefore considered readily adaptable should the need arise in future.</p> <p>With regard to future adaptation more widely, as indicated in item 2.1.71 of the Statement of Common Ground between (1) National Highways and (2) the Environment Agency [REP7-102]), the Environment Agency ‘originally requested that any flood structure should be designed at a height to protect from future water level rise, or to enable retrofitting in the future. The Applicant’s commitment not to compromise the Environment Agency’s ability to maintain and raise assets in the future is agreed and has been confirmed by the Environment Agency’s acceptance of the FRA and fluvial models.’</p> <p>This is now an agreed matter and while the future raising of Environment Agency (EA) flood defences is outside the scope of the Project the proposals would not compromise the Environment Agency’s ability to maintain and raise these defences in the future.</p>

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4.41	<p><u>The generic impacts advice in this NPS provides additional information on climate change adaptation. In particular, this section should be read alongside paragraphs 5.95 to 5.110 (coastal change and marine impacts), paragraphs 5.120 to 5.145 (flood risk), and paragraphs 5.243 to 5.259 (water quality and resources).</u></p>	No response required.
<b>Pollution control and other environmental regulatory regimes</b>		
4.42	<p>The planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest. It plays a key role in protecting and improving the natural environment, public health and safety, and amenity, for example by attaching <del>requirements</del><u>conditions</u> to allow developments, which would otherwise not be environmentally acceptable to proceed, and preventing harmful development which cannot be made acceptable even through requirements. Pollution control is concerned with preventing pollution through <del>the use of</del> measures <del>to</del><u>which</u> prohibit or limit the <del>releases</del><u>release</u> of substances to the environment from different sources to the lowest practicable level. It also ensures that ambient air <del>and</del> water <u>and land</u> quality meet standards that guard against impacts to the environment or human health. <del>Environmental Permits cannot control impacts from sources outside the facility's boundary</del></p>	<p>This paragraph is similar to paragraph 4.49 of the existing NPSNN.                      No response required.</p>
4.43	<p><u>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</u> 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</p>	<p>This is an amended and combined version of paragraph 4.48 of the existing NPSNN (now also clarifies the role of the planning system – see underlined).                      The response given previously to paragraph 4.48 of the existing NPSNN remains relevant:</p>

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	<p>obtained for any activities within the development that are regulated under those regimes before the activities can be operated.</p>	<p><i>'While the draft Development Consent Order [Document Reference 3.1 (11)] would provide development consent for the works associated with the Project as well as other consents and powers, the DCO application has been supplemented by a number of other permits, consents and agreements that need to be sought separately from the DCO. These are set out in Appendix A of the Consents and Agreements Position Statement [Document Reference 3.3 (8)] and cover water abstraction and impoundment, noise, vibration, the environmental impacts of construction works, a River Works Licence and Self-Service Marine Licence.'</i></p>
<p>4.44</p>	<p><a href="#">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.</a> When an applicant applies for an Environmental Permit, the relevant regulator (<u>usually</u> the Environment Agency <u>but sometimes the local authority</u>) requires that the application demonstrates that processes are in place to meet all relevant Environmental Permit requirements.</p>	<p>This is an amended version of paragraph 4.53 of the existing NPSNN (see underlined additions) but covers a wider range of matters. Accordingly, a bespoke response is provided below addressing this wider context.</p> <p>The permits and consents that may need to be sought separately from the DCO are contained in Appendix A of the Consents and Agreements Position Statement [Document Reference 3.3 (8)]. The construction phase discharge regime would also be controlled by the requirements of a Deemed Marine Licence in addition to an Environmental Permit. There has been ongoing engagement with the EA over the potential approaches with regard to appropriate permitting to achieve the Project design.</p> <p>The Project approach to the management of waste including stockpiling, treatment, reuse and disposal of excavated materials, is detailed in the Statement of Common Ground between (1) National Highways and (2) the Environment Agency [<a href="#">REP7-102</a>].</p> <p>Paragraph 11.4.14 of ES Chapter 11: Material Assets and Waste [<a href="#">Document Reference 6.1 ES Chapter 11 (2)</a>] and</p>

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		<p>Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> describes construction phase good practice measures which include Contractors implementing the necessary environmental permits, exemptions and complete Materials Management Plan (as per the Definition of Waste: Development Industry Code of Practice<sup>34</sup>) for the reuse, recycling and/or recovery of excavated materials and soils (REAC Ref. MW007).</p> <p>Paragraph 11.5.15 of ES Chapter 11: Material Assets and Waste <b>[Document Reference 6.1 ES Chapter 11 (2)]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> notes that Contractors would implement offsite waste management under the relevant UK waste regulation such as: Environmental Permitting Regulations 2016; Duty of Care (Section 34 of the Environmental Protection Act 1990); The Classification, Labelling and Packaging of Chemicals (Amendments to Secondary Legislation) Regulations 2015; and Hazardous Waste (England and Wales) Regulations 2005 (REAC Ref. MW010).</p> <p>With regard to the water environment, paragraph 14.5.14 of ES Chapter 14: Road Drainage and the Water Environment <b>[APP-152]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> describes the various construction phase essential mitigation measures which include the following:</p> <ul style="list-style-type: none"> <li>• All effluents would receive treatment prior to discharge into the River Thames to ensure compliance the Environmental</li> </ul>

<sup>34</sup> Contaminated Land: Applications in Real Environments (CL:AIRE) (2011). The Definition of Waste: Development Industry Code of Practice. Version 2.



dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p>Permitting (England and Wales) Regulations 2016 (REAC refer RDWE023).</p> <ul style="list-style-type: none"> <li>Any groundwater removal during the works shall be subject to Environmental Permitting Regulations (RDWE056).</li> </ul> <p>It has also been agreed with the EA that discharge from the North and South Portals would be subject to an environmental permit.</p> <p>The Project would therefore ensure all the necessary environmental permits would be secured.</p>
4.45	<p><del>In examining</del><u>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</u> the impacts of the project, <del>the Examining Authority</del><u>including residual impacts, the Secretary of State</u> may wish to <del>seek the views of</del><u>consult</u> the regulator on <del>the scope of the permit or consent and any management plans (such as any produced for noise)</del> that would be included in an Environmental Permit application.</p>	<p>This paragraph also includes text from paragraph 4.53 of the existing NPSNN; however, the majority of the text is not included in the existing NPSNN (see underlined additions). Accordingly, a bespoke response is provided below.</p> <p>Paragraphs 2.3.4 to 2.4.1 of ES Appendix 2.2 Annex B: Outline Materials Handling Plan [<b>Document Reference 6.3 ES Appendix 2.2 Annex B (5)</b>] outlines the environmental management plans to be developed as part of the DCO process. Alongside the requirement for Contractors to produce Site Waste Management Plans and Materials Management Plans (which would be substantially in accordance with the outline Site Waste Management Plan [<b>Document Reference 6.3 ES Appendix 2.2 Annex A (4)</b>] and the outline Materials Handling Plan respectively [<b>Document Reference 6.3 ES Appendix 2.2 Annex B (5)</b>], there would be additional topic management plans developed for environmental subjects that require further measures and controls to be implemented during the construction phase. Together these would form part of Environmental Management Plan (EMP) 2 and will be submitted to the SoS for approval as per Schedule 2, Part 2 of</p>

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		<p>the Order after engagement with the bodies in Table 2.1 of the CoCP on matters related to their functions.</p> <p>During the final stages of the construction phase, the Contractors will each prepare an EMP3 with engagement with relevant stakeholders (on matters relevant to their respective functions only). The information contained within the EMP3 serves to inform the approach to environmental management during the Project’s operational phase to be implemented by the Applicant. The CoCP lists the following plans as being required as part of the EMP2, in accordance with DCO Schedule 2, Requirement 4(3) [<b>Document Reference 3.1 (11)</b>]:</p> <ul style="list-style-type: none"> <li>• Site waste (substantially in accordance with the outline Site Waste Management Plan [<b>Document Reference 6.3 ES Appendix 2.2 Annex A (4)</b>])</li> <li>• Materials (substantially in accordance with the outline Materials Handling Plan ([<b>Document Reference 6.3 ES Appendix 2.2 Annex B (5)</b>]))</li> <li>• Noise and vibration</li> <li>• Air quality</li> <li>• Ecology</li> <li>• Soils</li> <li>• Contaminated land</li> <li>• Substances hazardous to health</li> <li>• Pollution prevention controls</li> </ul> <p>Section 3 of the CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] sets out the Regulatory Framework which Contractors will need to comply with.</p>

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4.46	<p>Applicants are encouraged to begin pre-application discussions with <a href="#">relevant regulators, such as the Environment Agency and the Marine Management Organisation</a>, as early as possible. <del>It is however expected that an applicant will have first thought through the requirements as a starting point for discussion. Some consents require a significant amount of preparation; as an example, the Environment Agency suggests that</del> <a href="#">Where applicants wish to parallel track Development Consent Order and Environmental Permit applications</a>, 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, <del>where they wish to parallel track the applications</del>. 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.</p>	<p>This is an amended version of paragraph 4.54 of the existing NPSNN. It now also refers to the Marine Management Organisation (MMO) (see underlined). The response given previously to paragraph 4.54 of the existing NPSNN remains relevant: <i>'Pre-application discussions have been ongoing with the Environment Agency in relation to the requirement for Environmental Permits, although it is recognised that these are largely dependent on the finalisation of detailed design and construction site set up which are not sufficiently developed to confirm the requirements prior to submission of the draft Development Consent Order [Document Reference 3.1 (11)]. As such these consents would need to be obtained by the Contractors who would be in a position to provide the necessary information at the time.'</i> A summary of the meetings and correspondence undertaken between the Applicant and the MMO in relation to the Project is outlined in Appendix C of the Statement of Common Ground between (1) National Highways and (2) the Marine Management Organisation [Document Reference 5.4.1.5 (3)]. Pre-application discussions have been ongoing since May 2017, with discussion on Deemed Marine Licence (DML) submission taking place in January 2020. A draft DML was issued to the MMO in May 2020 (with further discussions following this). Jetty licensing was discussed in February 2021.</p>
4.47	<p><a href="#">Applicants must consult the Marine Management Organisation on national network NSIPs which could affect</a> any relevant marine areas as defined in the Planning Act 2008 (as amended by section 23 of the Marine and Coastal Access Act 2009). <a href="#">Applicants are encouraged to consider the relevant marine</a></p>	<p>This paragraph is similarly worded to paragraph 4.52 of the existing NPSNN. This paragraph now also refers specifically to the need to consider the Marine Plan (see underlined). The response given previously to paragraph 4.52 of the existing NPSNN remains relevant:</p>

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	<p><a href="#">plans in advance of consulting the Marine Management Organisation</a>. The Secretary of State’s consent may include a deemed marine licence and the MMO will advise on what conditions should apply to the deemed marine licence. <a href="#">The Secretary of State, the Examining Authority and the Marine Management Organisation should co-operate closely to ensure that national network NSIPs</a> are licensed in accordance with <a href="#">legislation</a>.</p>	<p><i>‘The Marine Management Organisation (MMO) has been engaged throughout the EIA process, with discussions on a range of issues affecting the River Thames and the foreshore arising from the Project. This has included the marine monitoring and modelling programme, the need for Marine Conservation Zone (MCZ) and Marine Strategy Framework Directive assessments, proposed dewatering discharges/structures in the Project design and a programme for the submission of the draft Deemed Marine Licence. With the implementation of proposed mitigation measures, no significant adverse impacts are predicted on the Swanscombe MCZ during the construction and operation of the Project.’</i></p> <p>Chapter 7 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] has addressed the ‘other matters’ which are considered to have the potential to be both important and relevant to the Project. This includes the Marine Plans (outlined in Section 7.4).</p>
4.48	<p><a href="#">In considering an application for development consent, the Examining Authority and the Secretary of State should consider whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The Secretary of State will assume that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator. The Secretary of State should act to complement but not seek to duplicate them.</a></p>	<p>This paragraph makes minor wording changes but reflects the provisions of paragraph 4.50 of the existing NPSNN. The response given previously to paragraph 4.50 of the existing NPSNN remains relevant:</p> <p><i>‘Chapter 4 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] demonstrates the extent to which the Project is an acceptable use of the land having regard to the environmental effects identified and assessed within the Environmental Statement. Details of other regulatory consents to be sought for the Project supplemental to those set out in the draft Development Consent Order [<b>Document Reference 3.1 (11)</b>] are identified in the Consents and Agreements Position Statement [<b>Document Reference 3.3 (8)</b>].’</i></p>

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4.49	<p>The Secretary of State should be satisfied that development consent can be granted taking full account of environmental impacts. <del>This will require</del> <u>Working in</u> close cooperation with the Environment Agency and/or the pollution control authority, and other relevant bodies, such as the <del>MMO, Natural England</del> <u>Marine Management Organisation, the Statutory Nature Conservation Bodies</u>, Drainage Boards, and water and sewerage undertakers, <del>to ensure that in the case of the</del> <u>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</u> potentially polluting developments, <u>that</u>:</p> <ul style="list-style-type: none"> <li>the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework <del>;</del> <u>and</u></li> <li>the effects of existing sources of pollution in and around the <u>project site</u> 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</li> </ul>	<p>This paragraph is similarly worded to paragraph 4.55 of the existing NPSNN (no fundamental change to the policy requirements – see underlined).</p> <p>The response given previously to paragraph 4.55 of the existing NPSNN remains relevant:</p> <p><i>‘The Applicant has worked closely with environmental bodies including the Environment Agency, Natural England, local authorities, the Marine Management Organisation (MMO) and the Port of London Authority in preparing the DCO application. Ongoing cooperation with the relevant consenting authorities ensures that releases of any potential pollutants arising from the Project would be adequately regulated, either within the draft Development Consent Order [Document Reference 3.1 (11)] or through any other permits, consents or agreements to be sought separately from the DCO, as set out in the Consents and Agreements Position Statement [Document Reference 3.3 (8)].’</i></p> <p>Through the ongoing cooperation with the relevant consenting authorities the Applicant is satisfied that the Project will not result in a cumulative effect to make the particular development unacceptable. As outlined above, the Project will gain the requisite statutory permits and be within statutory environmental quality limits as set out in the Consent and Agreements Position Statement.</p>
4.50	<ul style="list-style-type: none"> <li>The Secretary of State should not refuse consent <del>on the basis because</del> <u>of regulated pollution</u> impacts unless there is good reason to believe that any relevant necessary operational pollution control permits or licences, <u>or</u> other consents <del>will</del> <u>would</u> not <del>subsequently</del> be granted.</li> </ul>	<p>This paragraph is similar to paragraph 4.56 of the existing NPSNN with no material proposed changes (see underlined).</p> <p>The response given previously to paragraph 4.56 of the existing NPSNN remains relevant:</p> <p><i>‘Details of other regulatory permits, consents and agreements to be sought, both as part of and separate to the Development</i></p>

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		<p><i>Consent Order (DCO) [Document Reference 3.1 (11)] for the Project, are set out in the Consents and Agreements Position Statement [Document Reference 3.3 (8)]. Agreements with the consenting bodies, including the Environment Agency, Natural England, local authorities, the Marine Management Organisation (MMO) and the Port of London Authority are being taken forward through the submission of draft Statements of Common Ground with the DCO Application and protective provisions in the DCO [Document Reference 3.1 (11)]'.</i></p>
<b>Common law nuisance and statutory nuisance</b>		
4.51	<p>Section 158 of the Planning Act <u>2008</u> provides a defence of statutory authority in civil or criminal proceedings for nuisance. Such a defence is also available in respect of anything else authorised by an order granting development consent. <u>This would include a defence for proceedings for nuisance under Part III of the Environmental Protection Act 1990 ("the 1990 Act") (statutory nuisance) but only to the extent that the nuisance is the inevitable consequence of what has been authorised.</u></p>	<p>This paragraph is similarly worded to paragraph 4.57 of the existing NPSNN but with the inclusion of reference to the Environmental Protection Act 1990 (see underlined). See response below to paragraph 5.111 to 5.119.</p>
4.52	<p>The defence does not extinguish the local authority's duties under Part III of the <del>Environmental Protection Act 1990 ("the 1990 Act")</del> <u>1990 Act</u> to inspect its area and take reasonable steps to investigate complaints of statutory nuisance, and to serve an abatement notice where satisfied of its existence, likely occurrence or recurrence.</p>	<p>This paragraph is worded the same as paragraph 4.57 of the existing NPSNN, except for the shortening of the name of the Environmental Protection Act 1990. See response below to paragraphs 5.111 to 5.119.</p>
4.53	<p>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</p>	<p>This paragraph is the same as paragraph 4.58 of the existing NPSNN, with no changes except to the paragraph reference (see underlined). The previous response to paragraph 4.58 of the existing NPSNN remains relevant:</p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
	<p>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 <del>5.84-5.89</del><a href="#">5.111 to 5.119</a>.</p>	<p><i>'The Statement of Statutory Nuisance [APP-489] identifies possible sources of nuisance under section 79(1) of the Environmental Protection Act 1990. This document concludes that with the appropriate mitigation measures in place, none of the statutory nuisances identified in section 79(1) of the EPA 1990 are predicted to arise during the construction or operation of the Project.</i></p> <p><i>Consents would be obtained from the relevant local authorities under Section 61 of the Control of Pollution Act 1974 (which may include noise and vibration limits where relevant) for the proposed construction works. This requirement is addressed within the REAC under reference NV004.'</i></p>
4.54	<p>The defence of statutory authority is subject to any contrary provision made by the Secretary of State in any <del>particular</del> case by an order granting development consent (section 158(3) of the Planning Act <del>2008</del>). <u>When considering exceptions to the defence, the Secretary of State should have regard to whether any nuisance is an inevitable consequence of the development.</u></p>	<p>This remains the same as paragraph 4.59 of the existing NPSNN, except for the addition of matters to be regarded by the Secretary of State (see underlined). See response below to paragraphs 5.111 to 5.119.</p>
<b>Safety</b>		
4.55	<p><del>New highways</del><u>Highways</u> developments provide an opportunity to make significant safety improvements <u>and significant incident reduction benefits</u> when they are well designed. Some developments may have safety as a key objective, but even where safety is not the main <del>driver</del><u>aim</u> of a development, the opportunity should be taken to improve safety, including introducing the most modern and effective safety measures where proportionate. <del>Highway developments can potentially generate significant accident reduction benefits when they are well designed</del><u>Consideration should also be given to wider transport objectives, including expanding active travel, creating</u></p>	<p>This is an amended/lengthened version of paragraph 4.60 of the existing NPSNN. Additional text is underlined.</p> <p>The response given previously to paragraph 4.60 of the existing NPSNN remains relevant:</p> <p><i>'The National Highways Delivery Plan's (2015-2020) stated aim is that: 'no-one should be harmed who builds, operates and maintains and uses the new road network, with a target for the number of people killed or seriously injured on the road network to be approaching zero by 2040.' The Project seeks to contribute to this target as outlined below.</i></p>

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	<p><a href="#"><u>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.</u></a></p>	<p><i>The appraisal of traffic accidents on the Affected Road Network (ARN) is contained within Section 9.3 of the Transport Assessment [REP4-148, REP4-150 and REP4-152]. Table 9.5 of the TA shows that, per kilometre driven, the number of accidents would decrease when the Project opens. This is because the Project would be designed to the latest safety standards and would include the following modern and effective measures to improve highway safety along the Project route:</i></p> <ul style="list-style-type: none"> <li>• <i>Modern safety measures and construction standards with technology to manage traffic and provide better information to drivers.</i></li> <li>• <i>Variable Message Signs to display variable speed limits, travel information, hazard warnings and both advisory and mandatory signage to drivers.</i></li> <li>• <i>CCTV cameras to monitor, manage and investigate incidents, maintenance, network usage, to detect stopped vehicles and for asset protection and the prevention and detection of crime.</i></li> <li>• <i>Above ground traffic detection to control automatic traffic management systems (e.g. variable speed limits) and to collect data on traffic flows.</i></li> <li>• <i>Free-flow charging infrastructure.</i></li> <li>• <i>Equipment within the tunnel to monitor and control the tunnel environment during normal and emergency operations.</i></li> <li>• <i>Provision on vehicle refuge spaces in line with current standards.</i></li> </ul> <p><i>Further safety measures are detailed in ES Chapter 2: Project Description [APP-140]. Particular safety measures within the</i></p>



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		<p><i>tunnel include monitoring equipment to detect broken down vehicles, onsite vehicle recovery and access routes at both entrances for the emergency services. Providing an alternative route for Heavy Goods Vehicles away from the Dartford Crossing and for lorries carrying dangerous goods to pass through the new tunnel would also significantly improve safety and reduce incidents. The tunnel would incorporate the latest fire and safety technology.'</i></p> <p>The response to paragraph 4.57 below sets out the approach taken by the Project to assessing safety and the overall expected reduction in accident rates.</p> <p>With regard to wider transport benefits, these are set out in a number of documents, including the Need for the Project [<a href="#">APP-494</a>], Planning Statement [<b>Document Reference 7.2 (2)</b>] and Sustainability Statement [<a href="#">APP-544</a>]. Section 5.3 of Need for the Project provides an overview of the environmental and community benefits which would be delivered by the Project. These benefits include:</p> <ul style="list-style-type: none"> <li>• Improved local trips and accessibility (including the circa 27km of improved walking, cycling and horse riding routes, as well as the circa 40km of new walking, cycling and horse riding routes)</li> <li>• An improvement in annual mean NO2 at locations adjacent to the Dartford Crossing</li> <li>• A positive legacy of green infrastructure with significant new recreational sites such as Chalk Park and Tilbury Fields</li> <li>• Provision of local jobs during the construction phase, while also increasing the skill base of local residents working on the Project to benefit them post-construction</li> </ul>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p>A key Project-wide design principle is ‘connecting people’ which encompasses a range of measures which will significantly increase the opportunities for active travel and for WCHs. See Table 4.1 of the Design Principles report <b>[Document Reference 7.5 (7)]</b>.</p> <p>Plates 7.30 to 7.35 in Section 7.6 of the TA <a href="#">[REP4-148]</a>, <a href="#">[REP4-150]</a> and <a href="#">[REP4-152]</a> identify those locations where the Project would result in a beneficial impact.</p> <p>Alongside the benefits outlined above, the Project would also deliver a number of beneficial impacts upon local transport connections (such as local bus routes and additional connectivity for local traffic to cross the River Thames). The Applicant has established the Lower Thames Crossing Sustainable Transport Working Group (STWG) with a range of local partners – Thurrock Council, Essex County Council, Gravesham Borough Council, London Borough of Havering, Kent County Council, the Thames Estuary Growth Board, the Port of Tilbury, and the Port of London Authority. The group is investigating sustainable travel and cross-river connectivity enhancements that could be delivered in future to complement the Project and would ensure local authorities in the area would retain their control of local transport provision. See the Benefits and Outcomes Document <a href="#">[APP-553]</a> for further information.</p> <p>With regard to roadside facilities, the provision of a rest and service area (RSA) has been considered in the design development for the Project (at Tilbury). As outlined on page 53 of the Project Design Report Part G: Design Evolution <a href="#">[APP-514]</a>, at Supplementary Consultation the Project removed the RSA and maintenance depot. Having weighed up the benefits, the environmental impact and stakeholder input,</p>

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		<p>the Project concluded that it was not necessary to include the RSA in the proposals. Following on from this, paragraph 3.0.14 states that <i>‘at Supplementary Consultation, the Project stated that National Highways will be working with service area operators, the haulage industry and road user groups to consider the most appropriate location for any further service area provision on the strategic road network. Any facility proposed in the future would need planning consent from the local planning authority’.</i></p>
4.56	<p>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 <del>DfT</del> <a href="#">(WebTAG) Department for Transport’s Transport Appraisal Guidance</a> and from <del>the National</del> <a href="#">Highways Agency</a>. <del>4.62</del> They should also put in place arrangements for undertaking the road safety audit process <a href="#">and ensuring their implementation</a>. Road safety audits are a mandatory requirement for <del>all trunk road</del> highway improvement schemes in the UK (including motorways). <del>4.63</del> 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.</p>	<p>This is an amended version of paragraph 4.61 as it has been merged with paragraph 4.63 of the existing NPSNN (see underlined additions).</p> <p>The response given previously to paragraph 4.61 of the existing NPSNN remains relevant:</p> <p><i>‘The Applicant has undertaken an objective assessment of the impact of the Project on safety, as reported in Chapter 9 of the Transport Assessment [REP4-148, REP4-150 and REP4-152]. This uses the methodology outlined in the guidance from the Department for Transport (DfT) (TAG) and from National Highways. This factors-in a range of measures to benefit safety, as referred to in response to paragraph 4.59 below. This list is not exhaustive and highlights some of the main features for mitigating and managing traffic on the Project route.</i></p> <p><i>Specific measures to ensure the safety of workers during the construction phases are set out in REAC which is contained within the ES Appendix 2.2: Code of Construction Practice (CoCP), First Iteration of Environmental Management Plan [Document Reference 6.3 ES Appendix 2.2 (9)]. Chapter 5 of the CoCP requires the Contractors to produce a construction logistics plan which would contain community</i></p>

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		<p><i>safety strategy. The community safety strategy would include measure to ensure that vehicles routes are planned and sites are managed to reduce the risk to vulnerable road users</i></p> <p><i>The response to paragraph 4.59 below sets out the approach taken by the Project in assessing safety and the overall expected reduction in accident rates.</i></p> <p><i>A Road Safety Audit arrangement has been put in place to demonstrate a rigorous process for monitoring and evaluating safety (see paragraphs 9.2.7 to 9.2.10 of the Transport Assessment (TA) [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>]). The preliminary design of the Project has been subject to a Stage 1 Road Safety Audit. Stage 2 and 3 Road Safety Audits would be carried out following detailed design and construction of the Project. A Stage 4 Road Safety Audit would be carried out 12-months post Project operation using validated collision data. A Plan for Monitoring Operations (PfMO) would be implemented to determine whether the Project is operating in an effective and safe manner during the initial period of operation. As such the plan would ensure adherence with the Project’s monitoring objectives covering the validation of safety performance, significant Project challenges, stakeholder issues and operational outcomes.</i></p> <p><i>A Post Opening Project Evaluation (POPE) would be carried out for the Project 1 year after opening to evaluate the safety of the Project and whether it meets the original set of Scheme Objectives.’</i></p> <p>Paragraphs 9.2.11 to 9.2.19 of the TA outline the tunnel risk assessment which has determined that the safety risks of both road-users and operators are as low as reasonably practicable.</p>

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4.57	<p>The applicant should be able to demonstrate that their scheme is consistent with the national Strategic Framework for Road Safety <u>and with the National</u> Highways <del>Agency's</del> Safety Framework for the Strategic Road Network <del>and with the national Strategic Framework for Road Safety</del>. Applicants will wish to show that they have taken all steps that are reasonably required to:</p> <ul style="list-style-type: none"> <li>• minimise the risk of death and injury arising from their development</li> <li>• contribute to an overall reduction in road casualties</li> <li>• contribute to an overall reduction in the number of unplanned incidents <del>and</del></li> <li>• contribute to improvements in road safety for walkers and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>• This is the same as paragraph 4.64 of the existing NPSNN, with the exception of non-material amendments.</li> <li>• The response given previously to paragraph 4.64 of the existing NPSNN remains relevant: <i>'The (former) Highways Agency's (2011) Safety Framework on the Strategic Road Network includes, a 'decade of action for road safety' following the global initiative of the World Health Organization to reducing road deaths by 50% by 2020. Subsequent strategies and targets have been produced for 2040, as follows:</i> <ul style="list-style-type: none"> <li>• <i>The Department for Transport's (DfT's) (2020) Road Investment Strategy 2: 2020–2025 (RIS 2) states that, 'We will continue towards the goal of 'Zero Harm', aiming to bring the number of people killed or seriously injured on the SRN to a level approaching zero by 2040'</i></li> <li>• <i>The National Highways Health and Safety Five Year Plan issued in May 2017 for 2020 – 2025 includes the aim that, 'no one should be harmed when travelling or working on the strategic road network'. Additionally, the current ethos is 'Our vision can be summed up simply; we want everyone who works with us and everyone who travels on our network to get home safe and well'.</i></li> </ul> </li> </ul> <p><i>The Safety Objective for the Project is consistent with policy, including the DfT's Road investment Strategy, which sets a target of zero road deaths or seriously injured by 2040. The Project design has been carried out in accordance with the relevant sections of National Highways' Design Manual for Roads and Bridges (DMRB). Where it has been necessary to depart from the standards in the DMRB, full safety assessments have been carried out and approval sought from</i></p>

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		<p><i>National Highways specialists. The design has followed National Highways’ safety governance process. This includes the preparation of a Safety Plan, a Combined Operations Report and a combined Safety and Hazard Log Report, all of which need to be ‘signed off’ by National Highways’ safety governance specialist.</i></p> <p><i>ES Chapter 13: Population and Human Health [APP-151] and Environmental Statement Addendum [Document Reference 9.8 (9)] states that the Project would adhere to sustainability principles in its delivery by improving the connectivity of communities and providing additional opportunities for recreation through improvements to the local footpath, cycling and horse riding network (WCH) therefore contributing to road safety through making improvements to existing WCH routes. WCH, along with slower vehicles such as mobility scooters would be prohibited from using the Project route in view of safety concerns.</i></p> <p><i>The Project Road has been designed to the standards set out in the DMRB and assessed for safety through the Stage 1 Road Safety Audit as recorded in Chapter 9 of the Transport Assessment [REP4-148, REP4-150 and REP4-152]. Detailed design would be assessed for safety through Stages 2 and 3 of the Safety Audit process prior to opening a Stage 4 Road Safety Audit would be completed within 12 months of opening to ensure the road is performing safely as intended.</i></p> <p><i>The steps taken by the Applicant through the design of the Project include measures to:</i></p> <ul style="list-style-type: none"> <li><i>• minimise the risk of death and injury arising from their development</i></li> <li><i>• contribute to an overall reduction in road casualties</i></li> </ul>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<ul style="list-style-type: none"> <li>• <i>contribute to an overall reduction in the number of unplanned incidents</i></li> <li>• <i>contribute to improvements in road safety for walkers and cyclists'</i></li> </ul>
4.58	<p>They will also wish to demonstrate that:</p> <ul style="list-style-type: none"> <li>• they have considered the safety implications of their project from the outset <b>and</b></li> <li>• they are putting in place rigorous processes for monitoring and evaluating safety.</li> </ul>	<p>This remains the same as paragraph 4.65 of the existing NPSNN.</p> <p>The Initial Route Corridor Options assessment undertaken since 2009 (described in paragraphs 5.4.21 to 5.4.33 of the Planning Statement [<b>Document Reference 7.2 (2)</b>]) has involved an assessment of performance of Options against the Delivering a Sustainable Transport System (DaSTS) goals which include contributing to safety, security, health and longer life expectancy by reducing the risk of death, injury or illness arising from transport.</p> <p>The response given previously to paragraph 4.65 of the existing NPSNN remains relevant:</p> <p><i>'The Project road has been designed in accordance with the design standards set out in DMRB and taking into account the nature and volume of traffic as indicated in the LTAM using the COBALT software program (Cost and Benefits to Accidents-Light Touch version 2.3 (DfT, 2022). The design has also been assessed for safety through a stage 1 road safety audit. This is reported in Chapter 9 of the Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>].</i></p> <p><i>The Project Design Report Part C: Design Rationale [<a href="#">APP-508</a>] states that the design of the Project would be safe, resilient and easy to use in line with National Highways' ambitious safety targets for 2041.</i></p> <p><i>Specific measures to ensure the safety of workers during the construction phase are set out in ES Appendix 2.2: Code of</i></p>

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		<p><i>Construction Practice, First Iteration of Environmental Management Plan [Document Reference 6.3 ES Appendix 2.2 (9)] requiring the Contractors to produce a construction logistics plan to include a community safety strategy, a national standard of planning the supply routing and management of sites to reduce the risk to vulnerable road users.</i></p> <p><i>The Contractors would be expected to hold certifications for safety, environment, quality, i.e. to ISO 45001, ISO 9001, ISO 14001:2015, to include procedures for responding to emergency events.'</i></p> <p>With regard to monitoring, Requirement 14 of the draft DCO [Document Reference 3.1 (11)] requires that, before the Project is open for traffic, the Applicant must submit written details of an operational traffic impact monitoring scheme for approval by the Secretary of State following consultation with the local highway authorities and other relevant bodies. Accordingly, Section 5 of the Wider Network Impacts Management and Monitoring Plan [Document Reference 7.12 (2)] describes the traffic impact modelling for the Project. The plan will include an analysis of road safety.</p>
4.59	<p>The Secretary of State should not grant development consent unless satisfied that all reasonable steps have been taken and will be taken to:</p> <ul style="list-style-type: none"> <li>• minimise the risk of road casualties arising from the scheme; <del>and</del></li> <li>• contribute to <del>an overall improvement</del> <u>improvements</u> in the safety of the <del>Strategic Road Network</del> <u>SRN</u>.</li> </ul>	<p>This remains the same as paragraph 4.66 of the existing NPSNN.</p> <p>The response given previously to paragraph 4.66 of the existing NPSNN remains relevant (italicised):</p> <p><i>'The design of the Project has been guided by relevant technical standard, in particular the Design Manual for Roads and Bridges (DMRB) (Highways England, 2018). This forms the basis of highway safety design which seeks to minimise the risk of road casualties arising from highway schemes and</i></p>



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		<p><i>contribute to an overall improvement in the safety of the strategic road network (SRN).</i></p> <p><i>The safety of road users has been considered as part of developing the preferred route option and design of the Project, including mitigation measures and safety benefits, such as:</i></p> <ul style="list-style-type: none"> <li><i>• Modern safety measures and construction standards with technology to manage traffic and provide better information to drivers.</i></li> <li><i>• Variable Message Signs to display variable speed limits, travel information, hazard warnings and both advisory and mandatory signage to drivers.</i></li> <li><i>• CCTV cameras to monitor, manage and investigate incidents, maintenance, network usage, to detect stopped vehicles and for asset protection and the prevention and detection of crime.</i></li> <li><i>• Above ground traffic detection to control automatic traffic management systems (e.g. variable speed limits) and to collect data on traffic flows.</i></li> <li><i>• Free-flow charging infrastructure.</i></li> <li><i>• Equipment within the tunnel to monitor and control the tunnel environment during normal and emergency operations.</i></li> </ul> <p><i>Further safety measures are included in ES Chapter 2: Project Description [APP-140]. Particular safety measures within the new tunnel include monitoring equipment to detect broken down vehicles, onsite vehicle recovery and access routes at both entrances for the emergency services. Providing an alternative route for Heavy Goods Vehicles away from the Dartford Crossing and for lorries carrying dangerous goods to</i></p>

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		<p><i>pass through the new tunnel would also significantly improve safety and reduce incidents. The new tunnel would incorporate the latest fire and safety technology.</i></p> <p><i>National Highways’ Delivery Plan’s (2015-2020) stated aim is that, ‘no-one should be harmed who builds, operates and maintains and uses the new road network, with a target for the number of people killed or seriously injured on the road network to be approaching zero by 2040.’</i></p> <p><i>The Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] has assessed the Project in line with TAG to forecast the total number of personal injury accidents and casualties for 2030, which is the opening year of the Project as modelled by the LTAM.’</i></p> <p><i>Section 9.3 of the TA also forecasts the total numbers of personal injury accidents and casualties over the 60-year period from the opening of the Project.</i></p> <p><i>‘The accident appraisal is based on a comparison of the number of accidents and casualties between the ‘Without Scheme’ and ‘With Scheme’ scenarios.</i></p> <p><i>The Project has taken all reasonable steps to minimise the risk of road casualties and by reason of the traffic accidents per vehicle kilometre decreasing, demonstrates the Project would contribute to the overall safety of the SRN. While a small increase in collision numbers as a result of more traffic in the study area is forecast, there would be a reduction in the collision rate (i.e., collisions per vehicle mile travelled) as a result of a managed, less congested network. This is further detailed in Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [<a href="#">APP-526</a>].’</i></p>

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4.60 – 4.64	<i>[These paragraphs relate to railway safety and are therefore not relevant to the Project].</i>	No response required.
<b>Security considerations</b>		
4.65	National security considerations apply across all national infrastructure sectors. <del>The</del> Department for Transport acts as the <del>Sector Sponsor</del> <u>Lead Government</u> Department for <del>the</del> national networks and in this capacity has lead responsibility for security matters in that sector and for directing the security approach to be taken. The Department works closely with <del>Government</del> <u>government security</u> agencies, including the Centre for the Protection of National Infrastructure <del>(CPNI) to reduce and</del> the <del>vulnerability of</del> <u>National Cyber Security Centre, to provide advice to</u> the most <del>'critical'</del> infrastructure assets <del>in the sector</del> <u>on</u> terrorism and other national security threats, <u>as well as on risk mitigation</u> .	This paragraph is similar in wording to paragraph 4.74 of the existing NPSNN (slightly amended wording). See response below to paragraph 4.67.
4.66	Government policy is to ensure that, where possible, proportionate protective security measures are designed into new infrastructure projects at an early stage 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.	This remains the same as paragraph 4.75 of the existing NPSNN. See response below to paragraph 4.67.
4.67	Where national security implications have been identified, the applicant should consult with relevant security experts from <del>CPNI</del> <u>the Centre for the Protection of National Infrastructure</u> and the Department for Transport, to ensure that <del>physical, procedural and personnel</del> security measures have been adequately considered in the design process and that adequate consideration has been given to the management of security risks. <del>If CPNI</del> <u>For some, this is a legal requirement as per</u>	This paragraph is similarly worded to paragraph 4.76 of the existing NPSNN. New reference added for section 119 of the Railways Act 1993 (underlined). The response given previously to paragraph 4.76 of the existing NPSNN remains relevant: <i>'National Highways has liaised with the Department for Transport (DfT) on the approach to security taken by the Project ahead of the DCO being submitted. The DfT has</i>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
	<p><a href="#">section 119 of the Railways Act 1993</a>. If the <a href="#">Centre for the Protection of National Infrastructure</a> and the Department for Transport (as appropriate) are satisfied that security issues have been adequately addressed in the project when the application is submitted <a href="#">to the Secretary of State</a>, <del>they</del><u>it</u> will provide confirmation of this to the Secretary of State, <del>and the Examining Authority</del>. <a href="#">The Secretary of State</a> should not need to give any further consideration to the details of the security measures <del>during the</del><u>in its</u> examination.</p>	<p><i>confirmed in writing and understand that security issues will have been adequately addressed in the Project by National Highways and through engagement with the DfT and the Centre for the Protection of National Infrastructure (CPNI).'</i></p>
4.68	<p>The applicant should only include <del>such</del><u>sufficient</u> information in the application as is necessary to enable the Examining Authority <del>and the Secretary of State</del> to examine the development consent issues and make a properly informed recommendation on the application.</p>	<p>This is the same as paragraph 4.77 of the existing NPSNN. The response given previously to paragraph 4.77 of the existing NPSNN remains relevant:  <i>'DfT agrees that regular communication on security should continue between National Highways, the Department and the CPNI outside the DCO Examination process. DfT shall communicate this to the Secretary of State, so that the Examining Authority should not need to give any further consideration to the details of the security measures during the Examination.'</i></p>
4.69	<p>In exceptional cases, where examination of an application would involve public disclosure of information about defence or national security which would not be in the national interest, the Secretary of State <del>can intervene and</del> may <del>appoint an examiner to consider</del><u>direct that examination of that</u> evidence <u>should take place</u> in closed session</p>	<p>This paragraph is a new addition (not included in the existing NPSNN).                      No response necessary.</p>

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<b>Health</b>		
4.70	National road and rail networks and strategic rail freight interchanges have the potential to affect the health, well-being and quality of life of the population. <del>They can</del> <u>New or enhanced national network infrastructure may</u> have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests. <u>They may also</u> have indirect health impacts; for example, if they affect access to key public services, local transport, opportunities for <u>walking, cycling and walking/wheeling</u> , or the use of open <del>space</del> <u>space<sup>h</sup></u> for recreation and physical activity.	This is a merged and re-ordered version of paras 4.79 and 4.80 of the existing NPSNN (no fundamental change). See response to paragraph 4.71 below.
4.71	As described in the relevant sections of this NPS, where the proposed project has <del>likely significant environmental impacts that would have</del> an effect on human beings, <del>any environmental statement should identify and set out the assessment of any likely significant</del> <u>the applicant should assess these effects, identifying any potential</u> adverse health impacts. <del>The applicant should, and</del> identify measures to avoid, reduce or compensate for adverse health impacts as appropriate. <del>These impacts may affect people simultaneously, so the applicant, and the Secretary of State (in determining an application for development consent) should consider the cumulative impact on health</del> <u>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</u>	The first half of this paragraph is worded similarly to paragraphs 4.81 and 4.82 of the existing NPSNN. However, the second half (underlined) is new. The responses previously given to these paragraphs of the existing NPSNN remain relevant though they are supplemented with new text (not italicised and underlined) to address the new draft NPSNN text. <i>'A standalone Health and Equalities Impact Assessment (HEIA) [REP7-144] has been prepared for the Project, the key findings from which have been incorporated within ES Chapter 13: Population and Human Health [APP-151] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The assessment of effects on population and human health has considered the construction and operational effects on receptors and compliance with relevant design, safety, accessibility, noise, vibration, air quality and other relevant</i>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
	<p><a href="#">impacted by a development compared to wider society as a whole.</a></p>	<p><i>standards. Assessments were undertaken in accordance with the Design Manual for Roads and Bridges LA 112 (Highways England, 2019).</i></p> <p><i>The current environment has been described in relation to the local and wider economy; private property and housing; community land and assets; development land and businesses; agricultural land holdings; walkers, cyclists and horse riders (WCH); and human health. Potential effects have been described in relation to each of these topic areas.</i></p> <p><i>Sensitive communities and populations have been identified as part of the human health assessment. The effects on these populations are described in further detail within ES Chapter 13 [APP-151] Environmental Statement Addendum [Document Reference 9.8 (9)]. While some adverse impacts would occur in relation to noise and severance the majority of these would be associated with the construction phase and would therefore be temporary in nature. A number of long-term health benefits would be delivered as a result of the Project, including enhanced connectivity for non-motorised transport and recreational access.'</i></p> <p><u>A key Project-wide design principle is 'connecting people' which encompasses a range of measures which would significantly increase the opportunities for active travel and for WCHs. See Table 4.1 of the Design Principles report [Document Reference 7.5 (7)].</u></p> <p><i>'While negative impacts on accessibility would occur over the construction phase, these would be minimised as far as practicable and would be compensated in the long term through significant enhancements during the operation of the</i></p>

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		<p><i>Project. Replacement land, or land which could mitigate the impacts identified, has been incorporated into the proposals.</i></p> <p><i>There would be localised negative impacts on severance and access to open space within Gravesham and Thurrock, but, with the exception of one existing link (Hornsby Lane) being permanently severed by the Project, no further harmful impacts are anticipated once the Project becomes operational and routes become replaced or re-instated. All PRowS, bridleways and cycle routes crossed by the Project would be re-linked with alignments in locations that are as close as possible to their existing route, unless better quality routes can be provided in the vicinity, Footbridges, green bridges and underpasses would be accessible to all users.</i></p> <p><i>Both negative and positive localised impacts on human health in relation to noise and vibration are predicted, with significant enhancements in Dartford and (to a lesser extent) Thurrock.’</i></p> <p><u>These improvements include greater connectivity, green infrastructure provision and provision of PRowS, bridleways and cycleways.</u></p> <p><i>‘No significant air quality impacts are predicted over the construction phase. Significant working and training benefits would be delivered across the Project over both the construction and operational phases.’</i></p>
<b>Accessibility</b>		
4.72	<p><a href="#">The government</a> is committed to creating a more accessible and inclusive transport network that provides a range of opportunities and choices for people to connect with jobs, services and friends and family.</p>	<p>This paragraph directly repeats paragraph 3.19 of the existing NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>‘As set out in the Need for the Project [APP-494], congestion at the Dartford Crossing impacts surrounding areas on both</i></p>

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		<p><i>sides of the River Thames, though the introduction of the Project would relieve existing congestion and provide improved north-south connections, enabling better accessibility to employment and services. The Project would also allow additional journeys across the River Thames improving many journey times, providing increased reliability and thereby enhancing the driver experience and reducing driver stress.</i></p> <p><i>Section 4.3 of The Need for the Project [APP-494] identifies the various benefits which would be delivered by the Project, particularly in relation to walking and accessibility, provision for walkers, cyclists and horse riders, provision of jobs and skills and green infrastructure. Chapter 5 of the Project Design Report [APP-506] and Appendix D [APP-511] sets out the Project design approach seeks to maximise opportunities to deliver benefits for employment, faster travel times and improved safety and resilience.</i></p> <p><i>Chapter 3 of the Design Principles [Document Reference 7.5 (7)] sets out the Project’s design principles for connecting people and places and how this would be achieved.</i></p> <p><i>The Transport Assessment [REP4-148, REP4-150 and REP4-152] predicts that a small number of buses would see their journey times change by two minutes more. In the case of the AM peak, 10 services would experience quicker journey times, whilst four would experience an increased journey time. In the PM peak, 10 services would see an improvement in their journey time by two minutes or more, with three forecast to see an increase by the same margin.’</i></p>



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4.73	<p>The <a href="#">government’s strategy for achieving equal access for disabled people is set out in the Inclusive Transport Strategy</a>. <a href="#">The government</a> 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.</p>	<p>This is a new paragraph in the draft revised NPSNN although it reflects parts of paragraph 3.20 of the existing NPSNN. . From early on in the design process, the Project has identified opportunities to improve access as far as practicable on and around the route, having regard to the needs of all users. For example, paragraph 7.2.40 of the Health and Equalities Impact Assessment [<a href="#">REP7-144</a>] acknowledges the particular needs of disabled drivers in relation to the tunnel and states that <i>‘In designing the Project, the needs of different road user groups have been considered. Relevant design standards have included DMRB CD 352 Design of Road Tunnels (Highways England, 2020a) and the DfT’s Inclusive Mobility document (DfT, 2005); further, there has been consultation with the Disabled Road Users Forum. This has highlighted the range of travel needs across specific user groups, with relevant aspects incorporated into the tunnel design.’</i> These measures include a public address system, visual aids for use during emergencies alongside particular specifications for kerbs and walkways. Vehicles that are tax exempt because they are registered for the use of a disabled person would be exempt from the road user charging regime. This meets the objectives contained within the Inclusive Transport Strategy, particularly in relation to paragraph 2.9 (delivering a transport system that is reliable and easy to navigate) and paragraph 2.13 (delivering services designed through dialogue with disabled people and other groups so that the needs of transport users are identified upfront to ensure a more holistic approach to the wide range of measures that can support people with visible and less visible impairments).</p> <p>In acknowledging the requirement of the Inclusive Transport Strategy to ensure disabled people are able to move around</p>

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		<p>freely through the pedestrian environment (paragraph 4.28) the Project design proposes to include WCH hubs at certain points of access into the PRow network. These would include facilities that make the PRows accessible and visible, such as suitable wayfinding, placemaking/design features and where appropriate, facilities such as seating and parking for users wishing to access the network (Design Principles <b>[Document Reference 7.5 (7)]</b> Clause PEO.05). The design of new WCH routes would also maximise access for users (including those with limited mobility) through good design (Design Principles Clause PEO.06). Changes in level would be minimised where appropriate (Design Principles Clause PEO.01).</p>
4.74	<p><a href="#">Applicants must comply with any obligations under the Equality Act 2010. Public authority applicants</a> are reminded of their duty to promote equality and to consider the needs of disabled people as part of their normal practice. <a href="#">The Public Sector Equality Duty requires that public authorities have due regard to the need to:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">eliminate discrimination, harassment, victimisation and any other conduct prohibited by the Equality Act</a></li> <li>• <a href="#">advance equality of opportunity between people who share a protected characteristic and people who do not share it</a></li> <li>• <a href="#">foster good relations between people who share a protected characteristic and people who do not share it.</a></li> </ul>	<p>This is a new paragraph in the draft revised NPSNN. The Applicant, as a public authority, is subject to the public sector equality duty, meaning that it must consider how its projects, policies or decisions affect people who are protected under the Equality Act 2010. This is, therefore, considered within both the Health and Equalities Impact Assessment <b>[REP7-144]</b> and ES Chapter 15: Climate <b>[APP-153]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>. ES Chapter 13: Population and Human Health <b>[APP-151]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> has been informed by a Health and Equalities Impact Assessment <b>[REP7-144]</b>. The assessment has been undertaken to ensure that the Project does not discriminate or disadvantage people and considers how equality can be advanced. The Applicant’s design standards and Project-specific details are therefore compliant with national legislation under the Equality Act 2010 and associated public sector equality duty.</p>

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4.75	All applicants are also reminded that the Secretary of State must have regard to the Public Sector Equality Duty when exercising their functions.	This is a new paragraph in the draft revised NPSNN. Section 2.5 of the Health and Equalities Impact Assessment <a href="#">[REP7-144]</a> acknowledges the public sector equality duty which includes a requirement to have due regard to the need to eliminate unlawful discrimination, harassment or victimisation, to advance equality of opportunity; and to foster good relations between persons with a relevant protected characteristic. This has influenced the various assessments contained within the document, for example in terms of defining the sensitivity of population groups and carrying out equality impact assessments for the various topics considered.
4.76	<a href="#">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>	This is a new paragraph in the draft revised NPSNN. The approach taken by the Applicant to the appraisal of the Project has followed DfT's Transport Analysis Guidance (TAG), which applies the Treasury Green Book principles to the appraisal of Transport Schemes. The outputs are presented in the Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report <a href="#">[APP-526]</a> based on the transport modelling outputs from the Lower Thames Area Model (LTAM) and using TAG to quantify the impacts of the Project and giving them a monetary value and transposing them into Benefit Cost Ratios.
4.77	<a href="#">Applicants should demonstrate the following where relevant:</a> <ul style="list-style-type: none"> <li><a href="#">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</a></li> </ul>	This is a new paragraph in the draft revised NPSNN (although contains some relocated text in relation to severance). The Project would deliver improvements in accessibility through increasing the resilience of the SRN and providing a more reliable river crossing which would not (in contrast to the existing Dartford Crossing) be restricted to certain vehicles or during certain weather conditions. The Project would also enable local traffic to make more use of the less congested

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	<ul style="list-style-type: none"> <li>Severance can be a problem in some locations; where appropriate, applicants should seek to deliver <a href="#">improvements that reduce community severance and improve accessibility</a></li> <li><a href="#">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.</a></li> </ul>	<p>Dartford Crossing. To maintain and improve accessibility to the SRN, the LTAM has been used to inform the design of the new road and its junctions so that it is suitable for the predicted traffic levels.</p> <p>Paragraphs 2.4.118 to 2.4.123 of ES Chapter 2: Project Description [APP-140] outline the improved provision for WCH which would be delivered through the Project. The Project Design Report Part E: Design for Walkers, Cyclists and Horse Riders [APP-512] describes the provision for WCH in detail. The various measures are included within the Design Principles [Document Reference 7.5 (7)] which would be legally secured through DCO Requirement 3.</p> <p>Severance impacts are considered in ES Chapter 13: Population and Human Health [APP-151], Environmental Statement Addendum [Document Reference 9.8 (9)] and also the Health and Equalities Impact Assessment (HEqIA) [REP7-144]. Section 7.3 of the HEqIA considers traffic-related severance. Overall, no significant adverse impacts are predicted during construction and operation subject to the various mitigation measures being in place (outlined in Section 4 of the HEqIA). Severance impacts upon non-motorised users are considered in Section 7.5 of the HEqIA. Paragraph 7.5.40 summarises the new walking and cycling infrastructure proposed as part of the Project design to help improve connectivity and increase opportunities for active travel.</p>

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		<p>As outlined in paragraphs 2.4.129 to 2.4.130 of ES Chapter 2: Project Description [<a href="#">APP-140</a>], seven green bridges would be included in the Project to mitigate the severance resulting from the Project. Further information on the design of the green bridges is also available in the Design Principles [<b>Document Reference 7.5 (7)</b>] and Project Design Report [<a href="#">APP-506</a> to <a href="#">APP-515</a>].</p> <p>With regard to inclusive design, a number of inclusive design measures have been incorporated within the Project Design. Alongside the accessible provision for WCH, the needs of different road user groups have been considered in relation to the Project route itself (see Project Design Report Part E: Design for Walkers, Cyclists and Horse Riders [<a href="#">APP-512</a>]).</p>
<b>Strategic rail freight interchanges</b>		
4.78-4.87	<i>[These paragraphs all relate to the provision of Strategic Rail Freight Interchange developments.]</i>	The Project does not relate to a Strategic Rail Freight Interchange and so these paragraphs are not relevant. No response required.

**Table 1.4 Chapter 5 – Generic Impacts**

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
<b>Overview</b>		
5.1	Some impacts will be relevant to any <a href="#">infrastructure development on national networks</a> <del>infrastructure</del> , whatever the type. The following sections set out how these impacts should be considered. While <del>the</del> <a href="#">this National Policy Statement (NPS)</a> covers developments in England only, assessments of impacts should take account of any impacts this type of infrastructure may have in the devolved administrations. Where projects affect cross-border links, scheme promoters should work with the devolved administrations. The <del>Government</del> <a href="#">government's</a> planning guidance, which is referred to in this chapter, is likely to be a useful source of guidance on <del>generic</del> impacts.	Minor inconsequential amendments to paragraph 5.1 of the existing NPSNN. Factual introductory remarks on 'generic impacts'. No response required.
5.2	Sufficient relevant information is crucial to good decision-taking, particularly where formal assessments are required (such as Environmental Impact Assessment, Habitats <del>Regulations</del> <a href="#">Regulation</a> Assessment and Flood Risk Assessment). To avoid delay, applicants should discuss what information is needed with statutory environmental bodies as early as possible.	This paragraph is the same as paragraph 5.2 of the existing NPSNN. Factual introductory remarks on 'generic impacts'. No response required.
5.3	<a href="#">Applicants should engage with relevant and statutory bodies regarding their proposal at the pre-application stage.</a>	New paragraph. Factual introductory remarks on 'generic impacts'. No response required.
5.4	<a href="#">Note for the purposes of this NPS, Environmental Impact Assessment is hereafter referred to as environmental assessment. If replaced with a new framework, relevant plans and projects would have to comply with such regulations, including such environmental assessment as is required by them.</a>	New paragraph. Factual introductory remarks on 'generic impacts'. No response required.

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5.5	<p><a href="#"><u>The Environment Act requires that at least one target in each of four priority areas is set in: air, water, biodiversity, and resource efficiency and waste reduction. It also requires targets to be set for fine particulate matter (PM2.5) and species abundance. The Secretary of State must consider duties under the Environment Act 2021 in relation to environmental targets and have regard to the policies set out in the Government’s Environment Improvement Plan for improving the natural environment.</u></a></p>	<p>New paragraph to reflect the Environment Act 2021, which post-dates the existing NPSNN. Factual introductory remarks on ‘generic impacts’. No response required.</p>
5.6	<p><a href="#"><u>Applicants should look for opportunities to take a holistic approach to avoiding, reducing or mitigating multiple impacts on the natural or built environment, on landscapes and on people by using nature-based solutions. Nature-based solutions can deliver multiple benefits for climate, biodiversity, and people, and can therefore play a critical role in tackling these interrelated impacts in an integrated way. Carefully designed and implemented nature-based solutions are beneficial because they may be able to deliver a range of benefits to society beyond their primary purpose. For example, trees planted to sequester carbon could offer benefits for flood management, soil stability, biodiversity and recreation. A Green Infrastructure approach can be used to plan multifunctional networks of natural features to integrate the various benefits and solutions (see paragraphs 5.171 to 5.195). Well-designed nature-based solutions could also contribute to achieving biodiversity net gain requirements.</u></a></p>	<p>New paragraph not included in the existing NPSNN. Throughout the options appraisal and design refinement process, the Project has sought to avoid or minimise impacts on known ecological, historic, landscape and visual, and socio-economic receptors as far as practicable and in an integrated manner which recognises the interconnected nature of adverse impacts across the life of the Project. The Project Design Report Part C: Design Rationale <b>[APP-508]</b> explains the design rationale in further detail. In particular, the design has been developed to be landscape led, to support the recovery of nature and to be safe, resilient and easy to use (among various other considerations). With regard to nature based solutions, the Planning Statement Appendix H: Green Infrastructure (GI) Study <b>[APP-503]</b> includes a number of recommendations to ensure the Project contributes to wider Green Infrastructure by working with stakeholders to support prioritisation of initiatives of projects to ensure improved and enhanced access to open space as well as enhancement and creation of ecological assets and networks. The key themes/objectives outlined in Section 2 of the Study include:</p> <ul style="list-style-type: none"> <li>• To contribute to the management, conservation and enhancement of the local landscape.</li> </ul>

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		<ul style="list-style-type: none"> <li>• To enhance, manage and protect existing key habitats and species.</li> <li>• To support initiatives that contribute to sustainable development, including renewable energy, floodwater retention and water gathering areas.</li> <li>• Open Space and recreational links.</li> <li>• Green Infrastructure can provide much needed opportunity and motivation to increase activity and exercise.</li> <li>• Interconnected green infrastructure is vital for managing a range of climatic changes.</li> </ul> <p>These objectives (among others) have informed the recommended approach to embedding GI within the Project, contained within Section 9 of the study which has in turn informed the Project design. The means of implementing these measures is set out in the Implementation Plan, and also in Section 9 of the Appendix.</p> <p>Further measures have been incorporated in the design to mitigate adverse impacts that would arise and that cannot be avoided. Some of the measures adopted include landscaping, noise mitigation and the provision of GI along the Project route, including a number of green bridges. The Project would create new areas of ecological habitat, with a focus on providing opportunities for habitat connectivity providing mitigation or compensation for the impacts on existing areas. Two recreational new parks would be created including Tilbury Fields to the west of the North Portal, and Chalk Park south of the River Thames. A landscape-scale approach to mitigation and enhancements has been incorporated into the Project with the agreement of relevant statutory environmental bodies.</p>



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<b>Air Quality and Emissions</b>		
5.7	<p><del>Increases in emissions of pollutants during the infrastructure development can have adverse effects on air quality. The construction <b>or</b> and operation phases of projects on the national networks can <b>result in the worsening of local air quality</b> involve emissions to air which could lead to adverse impacts on health, on protected species and habitats, <b>or on the wider countryside and species</b> (though they can also have <b>future</b> beneficial effects on air quality, for example through reduced congestion).</del></p> <p><del>Increased emissions can contribute to adverse impacts on human health, on protected species and habitats. Impacts on protected species and habitats are covered in later paragraphs.</del></p> <p><del>Current UK legislation sets out health-based ambient air quality objectives. In addition, the European Union has established common, health-based and eco-system based ambient concentration limit values (LVs) for the main pollutants in the Ambient Air Quality Directive (2008/50/EU) ('the Air Quality Directive'), which Member States are required to meet by various dates.</del></p>	<p>This is an amended version of paragraph 5.3 of the existing NPSNN.</p> <p>Factual introductory remarks on air quality. No response necessary.</p>
5.8	<p><u>Air emissions include Particulate Matter, for example, dust, considered in the following size fractions: up to a diameter of ten microns (Particulate Matter 10) and up to a diameter of 2.5 microns (Particulate Matter 2.5) as well as gases such as Nitrogen Oxide, sulphur dioxide and ammonia. The maximum permissible levels for pollutants in ambient air are set out in the Air Quality Standards Regulations 2010 and reiterated in the Air Quality Strategy. The government has legally binding targets to reduce emissions of five key air pollutants (Particulate Matter 2.5, Nitrogen Dioxide, Sulphur Dioxide, ammonia and non-methane volatile organic compounds) by 2030. As well as</u></p>	<p>This paragraph is a new addition (was not included in the existing NPSNN).</p> <p>ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] presents an assessment of the likely significant effects of the Project on local air quality. The potential for possible exceedance of Air Quality Strategy objectives is also considered within the assessment. Chapter 5 considers air quality impacts on both human health and ecological receptors over both the construction and operational stage. The impact of the Project in terms of greenhouse gas emissions (CO<sub>2</sub>) are</p>

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	<p><a href="#"><u>having direct effects on public health, habitats and biodiversity, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems.</u></a></p>	<p>considered within ES Chapter 15: Climate <a href="#"><u>[APP-153]</u></a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.</p> <p>ES Appendix 5.6 also comprises a Project Air Quality Action Plan <a href="#"><u>[APP-350]</u></a> which sets out the measures proposed to mitigate and compensate for the air quality impacts of the Project on designated ecological sites.</p> <p>ES Chapter 5: Air Quality <a href="#"><u>[APP-143]</u></a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> considers the impacts at receptors near the Project and across the Affected Road Network (ARN) which covers hundreds of kilometres of road network. The ARN is based on the criteria defined in DMRB LA 105<sup>35</sup>. The operational air quality study area is presented in ES Figure 5.3: Operational Study Area <a href="#"><u>[APP-172 to APP-174]</u></a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.</p> <p>The construction dust assessment study area includes a 200m buffer around anticipated construction works (which represents the area most at risk of being impacted by construction dust). To provide a precautionary approach, it has been assumed that construction activities could occur up to the boundary of the Order Limits. The extent of the construction phase assessment study area is presented in ES Figure 5.2: Construction Traffic Study Area <a href="#"><u>[APP-171]</u></a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.</p> <p>Paragraphs 5.3.85 to 5.3.89 of ES Chapter 5 sets out how meteorological data has been included within the air quality assessment.</p>

<sup>35</sup> Highways England (2019). DMRB LA 105 – Air quality. <https://www.standardsforhighways.co.uk/search/10191621-07df-44a3-892e-c1d5c7a28d90>

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5.9	<a href="#">The Secretary of State for Environment, Food and Rural Affairs is required to make available up to date information on air quality to any relevant interested party.</a>	This paragraph was not included in the existing NPSNN. Factual introductory remarks on air quality. No response necessary.
5.10	The geographical extent and distribution of these effects can cover a large area, well beyond an individual scheme. Air quality impacts are generated by all types of infrastructure development to varying extents. Development on the national networks in general and road schemes in particular, creates complex challenges <del>with regards to</del> <a href="#">for</a> air air quality, given the very wide geographical area over which impacts (positive and negative) can potentially be felt. The guidance below provides additional clarity (when compared to other NPS guidance) given the complex nature of impacts created by national network development.	Other than in respect of a minor textual change shown, this paragraph is the same as paragraph 5.5 of the existing NPSNN. Factual introductory remarks on air quality. No response necessary.
5.11	Where <del>the impacts of the</del> <a href="#">project (both on and off scheme) are</a> <del>likely to have significant</del> <a href="#">adverse effects on</a> air quality <del>effects in relation to meeting EIA requirements and / or affect the UKs ability to comply with the Air Quality Directive 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</del> <sup>90</sup> , the applicant should undertake an assessment <del>of the impacts of the proposed project as part of the environmental statement</del> <a href="#">their Development Consent Order application</a> .	This is an amended version of paragraph 5.6 of the existing NPSNN. An assessment of air quality is presented in ES Chapter 5: Air Quality [ <a href="#">APP-143</a> ] and Environmental Statement Addendum [ <b>Document Reference 9.8 (9)</b> ] and supporting appendices.
5.12	The <del>environmental statement</del> <a href="#">assessment</a> should describe: <ul style="list-style-type: none"> <li>• <del>existing air quality levels;</del></li> <li>• <del>forecasts of air quality at the time of opening, assuming that the scheme is not built (the future baseline) and taking account of the impact of the scheme; and</del></li> </ul>	This is an updated version of paragraph 5.7 of the existing NPSNN which expands on the air quality measures to be addressed. Accordingly, a bespoke response is provided: ES Chapter 5: Air Quality [ <a href="#">APP-143</a> ] and Environmental Statement Addendum [ <b>Document Reference 9.8 (9)</b> ] considers air quality impacts over both the construction and operational stage and identifies the air pollutant emissions that

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	<ul style="list-style-type: none"> <li>any <del>significant</del> <u>air pollutant emissions, that would lead to a deterioration in</u> air quality <del>effects, and</del> their mitigation <del>and any residual effects</del>, distinguishing between the <u>project stages, including</u> construction and operation <del>stages</del> and taking account of <del>the impact of</del> <u>emissions such as from any</u> road traffic generated by the project-</li> <li><u>the predicted absolute emission levels</u> of the proposed project <u>after mitigation methods have been applied</u></li> <li><u>existing air quality levels, how they are monitored and the relative change in air quality from existing levels</u></li> <li><u>any potential impacts on nearby protected habitats from air pollutant emissions</u></li> </ul>	<p>could lead to a deterioration in air quality. The assessment of likely significant effects contained within Section 5.6 of ES Chapter 5 has had regard to the Project design and mitigation measures set out in Section 5.5. The assessment includes an assessment of road traffic emissions at different stages in the construction and operation of the Project and on both human receptors and habitats.</p> <p>ES Chapter 5: Air Quality [<a href="#">APP-143</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] sets out the existing air quality conditions (Base scenario) and future air quality at the time of opening both 'Without Scheme' (Do Minimum scenario) and 'With Scheme' (Do Something scenario). This has considered predicted absolute emission levels and impacts on air quality post mitigation. Existing arrangements for local authority monitoring are described in paragraphs 5.4.9 to 5.4.21 of ES Chapter 5. Other monitoring (including that undertaken by the Applicant) is described in paragraphs 5.4.22 to 5.4.23. Project-specific monitoring is set out in paragraphs 5.4.24 to 5.4.26.</p> <p>The assessment of the effects of nitrogen deposition on nearby protected habitats affected by changes to the wider network is included within ES Appendix 8.14: Designated Sites Air Quality Assessment [<a href="#">APP-403</a>, <a href="#">APP-404</a>, <a href="#">APP-405</a>, <a href="#">APP-406</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] and Habitats Regulations Assessment – Screening Report and Statement to Inform an Appropriate Assessment [<a href="#">APP-487</a>]. The assessments are summarised in ES Chapter 8: Terrestrial Biodiversity [<b>Document Reference 6.1 ES Chapter 8 (2)</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].</p>

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5.13	<p>Defra publishes future <del>national</del> projections of <u>UK air quality pollutant emissions</u> based on evidence of future emissions, traffic and vehicle fleet. Projections are updated as the evidence base changes. <del>Applicant</del><u>The applicant's</u> assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts. <u>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.</u></p>	<p>This is an amended version of paragraph 5.8 of the existing NPSNN.</p> <p>The assessment undertaken has used the latest Defra air quality tools available at the time of the assessment, including background air quality maps and emission projections, which are incorporated into the Applicant's speed band emission factors. These tools have been used together with detailed modelling to determine the air quality effects of the Project, as described in Section 5.3 of ES Chapter 5: Air Quality [APP-143] Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>Paragraphs 5.3.94 to 5.3.97 of ES Chapter 5: Air Quality [APP-143] Environmental Statement Addendum [Document Reference 9.8 (9)] set out how the Applicant has sought to address uncertainty around vehicle emission factors. As explained in paragraph 5.3.94 of ES Chapter 5, the approach required a gap analysis to be carried out. In the gap analysis, adjustment factors were applied to uplift the modelled results to account for the gap between measured roadside NO<sub>2</sub> concentrations and the concentrations predicted in the future when using Defra air quality modelling tools.</p> <p>Adjustments to Defra modelling are explained further in paragraphs 2.1.2 to 2.1.5 of ES Appendix 5.1: Air Quality Methodology [APP-345] Environmental Statement Addendum [Document Reference 9.8 (9)].</p>
5.14	<p>Mitigation measures may affect the project design, layout, construction, operation and/or may <del>comprise</del><u>consist of</u> 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</p>	<p>This is an extended version of paragraph 5.15 of the existing NPSNN. A reference to nature-based solutions and CO<sub>2</sub> absorption/GHG emissions has been added.</p> <p>The measures proposed to mitigate the air quality impacts during both construction and operation of the Project are described in Section 5.5 of ES Chapter 5: Air Quality [APP-143] Environmental Statement Addendum [Document</p>

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	<p>emissions, and/or speed control. <a href="#">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 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).</a></p>	<p><b>Reference 9.8 (9)</b>. Construction phase good practice measures for air quality are outlined in the REAC (ES Appendix 2.2: Code of Construction Practice [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>]). The REAC includes measures to reduce the air quality effects associated with construction dust as well as emissions from non-road mobile machinery (NRMM) and construction vehicles. The Project is not predicted to lead to a significant air quality effect on human health or delay compliance with the Air Quality Directive, but there are significant effects on designated habitats as a result of changes in nitrogen deposition. Mitigation has been considered as a result of operational effects on designated habitats and is presented in ES Appendix 5.6: Project Air Quality Action Plan [<b>APP-350</b>]. With regard to nature based solutions, the identified objectives within the Planning Statement Appendix H: Green Infrastructure (GI) Study [<b>APP-503</b>] have directly informed the Project design and include climate change mitigation and adaptation. The Study recognises that the natural environment delivers essential ‘ecosystem services’ including life-support systems such as the recycling of air and water; capturing and storing carbon in peat, woodland and soil; flood protection; and waste purification (among others). It therefore recognises that green infrastructure can improve air quality and accordingly concludes with a number of recommendations for implementing mitigation measures which include woodland planting as part of the Lower Thames Crossing Legacy Project. See REAC Commitment LV029 in ES Appendix 2.2: CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>]. The woodland planting compensation strategy proposed consists of landscape-scale habitat creation across nitrogen</p>

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		<p>deposition compensation sites, located both north and south of the river, and covering an area of approximately 205ha. These compensatory measures are detailed within the Environmental Masterplan [<b>Document Reference 6.2 ES Figure 2.4</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] and the Design Principles [<b>Document Reference 7.5 (7)</b>] which would be legally secured through DCO Requirements 4 and 3 respectively. There are also positive air quality impacts predicted to arise as a direct result of the Project through the alleviation of congestion at the existing Dartford Crossing (see the Need for the Project [<b>APP-494</b>]).</p>
5.15	<p>The <del>implementation of</del> <u>Secretary of State should consider whether mitigation measures may require working with partners to support their delivery 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.</u></p>	<p>This paragraph partly reflects paragraph 5.14 of the existing NPSNN but is largely new text. Accordingly, a bespoke response is provided: ES Chapter 5 deals with matters related to air quality [<b>APP-143</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. The assessment methodology takes into account Local Air Quality Management Technical Guidance (TG22) (LAQM.TG (22) (paragraph 5.3.1)). ES Appendix 5.5: Air Quality Legislation and Policy [<b>APP-349</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] demonstrate how local and regional air quality policy were taken into account in the assessment methodology. ES Appendix 5.6 comprises a Project Air Quality Action Plan [<b>APP-350</b>] which sets out the sites considered likely to be significantly affected by adverse air quality effects alongside the mitigation and compensation measures considered and those proposed. The Applicant considers these measures sufficiently and proportionately address the impacts assessed as likely to arise.</p>

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5.16	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.	<p>This sentence comprises the last sentence of paragraph 5.14 of the existing NSPNN. The response to that paragraph remains relevant:</p> <p><i>'The mitigation measures identified for the Project are described in Section 5.5 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Construction phase good practice measures for air quality are outlined in the REAC (ES Appendix 2.2 Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)]). The REAC includes measures to reduce the air quality effects associated with construction dust as well as emissions from NRMM and construction vehicles.</i></p> <p><i>The Project is not predicted to lead to a significant air quality effect on human health or delay compliance with the Air Quality Directive, but there are significant effects on designated habitats as a result of changes in nitrogen deposition. Mitigation has been considered as a result of operational effects on designated habitats and is presented in ES Appendix 5.6: Project Air Quality Action Plan.</i></p> <p><i>A number of potential compensation measures are proposed to fully compensate for residual significant effects. The compensation strategy proposed consists of landscape scale habitat creation across nitrogen deposition compensation sites, located both north and south of the river, and covering an area of approximately 240 ha.</i></p> <p><i>These compensatory measures are detailed within Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] and the Design Principles</i></p>



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		<p><i>Document [Document Reference 7.5 (7)] which would be legally secured through DCO Requirements 4 and 3 respectively.</i></p> <p>Note that the area of ‘approximately 240ha’ referred to above would change to 205ha if change MRC-01 is accepted.</p>
5.17	<p><a href="#">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.</a></p>	<p>This paragraph is not included in the existing NPSNN.</p> <p>The Statement of Statutory Nuisance [APP-489] identifies whether the Project would create one or more of the statutory nuisances set out in section 79(1) of the Environmental Protection Act (EPA) 1990, and if so, how the Applicant would mitigate or limit such nuisances.</p> <p>Section 79(1)(d) is identified as one of the provisions which could be engaged as a result of the Project because (as set out in ES Chapter 5: Air Quality and Environmental Statement Addendum [Document Reference 9.8 (9)]), the construction of the Project would involve activities that could generate dust, such as movement of excavated materials, impacting on receptors within 200m of the Order Limits.</p> <p>The measures described in ES Chapter 5, would ensure dust generated during construction would be appropriately controlled. This impact is therefore unlikely to constitute a nuisance or be prejudicial to health under section (79)(1)(d) of the EPA 1990.</p> <p>Therefore, no statutory nuisance is expected to arise in respect of dust over the operational phase.</p> <p>See also the Applicant’s approach to the environmental permitting regime set out in Appendix A to the Consents and Agreements Position Statement [Document Reference 3.3 (8)].</p>

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5.18	<p><u>The Secretary of State must should give air quality considerations substantial weight where, after taking into account mitigation, 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.</u></p>	<p>This a re-drafted and expanded version of paragraph 5.12 of the existing NPSNN. However, the response given previously to that paragraph remains relevant:</p> <p><i>'The air quality assessment has been undertaken in accordance with DMRB LA 105 standards, which provide an assessment of Project impacts on human health, designated habitats and compliance with the Air Quality Directive to determine whether the Project results in significant air quality effects. The air quality effects are described in Section 5.6 ES Chapter 5: Air Quality and Environmental Statement Addendum [Document Reference 9.8 (9)], and the mitigation measures identified are described in Section 5.5 of ES Chapter 5.</i></p> <p><i>The assessment has concluded that, taking into account the implementation of good practice measures in the Register of Environmental Actions and Commitments (REAC), which forms part of ES Appendix 2.2: Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)] and the predicted changes in air quality during construction and operation, the Project does not affect the UK's ability to comply with the Air Quality Directive in the shortest time possible and does not lead to a significant air quality effect on human health. The Project does however lead to a significant air quality effect on designated habitats as a result of changes in nitrogen deposition, including after consideration of the mitigation measures outlined in ES Appendix 5.6: Project Air Quality Action Plan [APP-350].'</i></p>
5.19	<p><u>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 content that the</u></p>	<p>The sentiment of this paragraph reflects that of paragraph 5.10 of the existing NPSNN. The response to that paragraph of the existing NPSNN remains relevant:</p>

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	<p><a href="#"><u>applicant has taken all reasonable steps to reduce emissions in the construction and operational stage of the development.</u></a></p>	<p><i>‘The air quality assessment has considered impacts at receptors within the vicinity of the Project route and across the Affected Road Network (ARN) which covers a wider area. This is described in Section 5.3 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Air quality effects have been considered in relation to relevant statutory thresholds in order to consider the significance of effects and risk of non-compliance with the Air Quality Directive. The effects are described in Section 5.6 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)], and the mitigation measures identified are described in Section 5.5 of Chapter 5. In addition, where the Project does lead to an exceedance of air quality thresholds, regardless of whether the Project is considered to have a significant effect, measures have been investigated to determine whether the impact of the Project could be reduced.</i></p> <p><i>The Project does not affect the UK’s ability to comply with the Air Quality Directive in the shortest time possible and does not lead to a significant air quality effect on human health. The Project does however lead to a significant air quality effect on designated habitats as a result of changes in nitrogen deposition. A Project Air Quality Action Plan has been developed to consider mitigation for the significantly affected habitats and is presented in ES Appendix 5.6: Project Air Quality Action Plan [APP-350]. However, the considered measures do not eliminate the significance of effect on all the designated habitats, and it has been concluded that the Project leads to a significant air quality effect.’</i></p>

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5.20	<p><u>Where a project is likely to lead to a breach of such limits or objectives, the applicant should work with the relevant authorities to secure appropriate mitigation measures to avoid any breach and allow the proposal to proceed. Where a project is located within, or in close proximity to, a Local Air Quality Management Area or Clean Air Zone, applicants should engage with the relevant local authority to ensure the project is compatible with the local Air Quality Plan.</u></p>	<p>This paragraph is a new addition – not included in the existing NPSNN.</p> <p>ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] set out the location of Air Quality Management Areas (AQMAs) in the wider area with the potential to be impacted by the Project (see ES Figure 5.2: Construction Traffic Study Area [APP-171], ES Figure 5.3: Operational Study Area [APP-172 to APP-174] and Environmental Statement Addendum [Document Reference 9.8 (9)]. In addition, air quality effects have been considered in relation to Air Quality Strategy objectives and Limit Values for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> which are shown in Table 5.4 of ES Chapter 5 [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>There are no exceedances of AQS objectives predicted for PM<sub>10</sub> and PM<sub>2.5</sub>.</p> <p>Table 5.33 of ES Chapter 5 presents the number of receptors in each magnitude guideline band that experience a worsening or improvement in annual mean NO<sub>2</sub> as a result of the Project (where an exceedance of AQS objective is predicted). Where the Project leads to a worsening in annual mean NO<sub>2</sub>, the total concentrations predicted are such that there are unlikely to be exceedances of the 1-hour mean NO<sub>2</sub> AQS objective. Where the Project leads to a small or medium worsening in annual mean NO<sub>2</sub>, the magnitude of change in NO<sub>2</sub> is in the mid-range of the magnitude band. Furthermore, the number of receptors experiencing a small or medium worsening in annual</p>

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		<p>mean NO<sub>2</sub> is well below the lower range of the corresponding guideline band in DMRB LA 105<sup>36</sup>.</p> <p>Overall, the air quality effects of the Project on human health are not considered to be significant. Furthermore, with future improvements in air quality (particularly for AQMA designated due to road traffic because vehicle emissions will improve over time), it is anticipated that there would be fewer areas where the NO<sub>2</sub> AQS objective is exceeded across the study area by the Project's opening year.</p> <p>As stated in paragraph 5.6.138 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)], while the Project does not lead to a significant effect, work has been undertaken to determine whether there are measures that could be put in place to reduce the Project impacts in areas where there are predicted worsenings in air quality above the AQS objectives.</p>
5.21	<p><u><a href="#">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.</a></u></p>	<p>This paragraph is additional – not included in the existing NPSNN.</p> <p>As set out above, overall the air quality effects of the Project on human health are not considered to be significant.</p> <p>It is acknowledged that (as set out above) the Project would lead to a significant air quality effect on designated habitats as a result of changes in nitrogen deposition, including after consideration of the mitigation measures outlined in ES Appendix 5.6: Project Air Quality Action Plan [APP-350].</p> <p>The identification of proposed nitrogen deposition compensation areas with associated planting, would provide</p>

<sup>36</sup> Highways England (2019). DMRB LA 105 – Air quality. <https://www.standardsforhighways.co.uk/search/10191621-07df-44a3-892e-c1d5c7a28d90>

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		<p>permanent compensation for these effects. Furthermore, the Project would deliver improvements in air quality in some locations, such as around the Dartford Crossing as a result of the relief of congestion. On balance, because the Project road would provide a free-flowing crossing of the River Thames alongside the provision of mitigation and compensation measures to address the identified impacts on ecological sites the impacts identified in this instance are not considered to justify refusal of development consent.</p>
5.22	<p><a href="#">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.</a></p>	<p>This paragraph is a new addition (not currently included in the existing NPSNN). As set out above the Project is not expected to affect the UK's ability to comply with the Air Quality Directive (Directive 2008/50/EC) (see footnote 7) in the shortest possible timescales.</p>
5.23	<p>The Secretary of State should refuse consent where, after taking into account mitigation, the air <a href="#">pollutant emissions resulting from the proposed scheme will either:</a></p> <ul style="list-style-type: none"> <li>• Result in a zone/agglomeration which is currently reported as being compliant with the <a href="#">Air Quality Standards Regulations 2010 becoming non-compliant</a></li> <li>• Affect the ability of a non-compliant area to achieve compliance within the most recent timescales reporting to the <a href="#">Examining Authority at the examination.</a></li> </ul>	<p>This paragraph is similar in wording to paragraph 5.13 of the existing NPSNN (no fundamental change). A compliance risk assessment has been undertaken to determine whether the Project would affect compliance with the Air Quality Directive, as presented in Section 5.6 of ES Chapter 5: Air Quality [<a href="#">APP-143</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. The assessment concluded that there is no risk to the reported date of compliance with the Directive (i.e. the Project does not cause a compliant zone to become non-compliant, or affect the ability of a noncompliant area to achieve compliance within the most recent timescales reported).</p>

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5.24	<a href="#"><u>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.</u></a>	This paragraph is not included in the existing NPSNN. See response to paragraph 5.14 above.
<b>Greenhouse Gas emissions – This is a new generic impact but replaces the chapter on Carbon Emissions in the existing NPSNN</b>		
5.25	<a href="#"><u>As referenced in chapter 2, carbon budgets are set to ensure the UK keeps to a trajectory consistent with meeting its 2050 net zero emissions target. Section 4 of the Climate Change Act 2008 describes the duty of the Secretary of State for Business, Energy and Industrial Strategy, which is to ensure that the net UK carbon account for a budgetary period does not exceed the carbon budget.</u></a>	Factual introductory remarks. No response necessary.
5.26	<del>The <b>Government has a legally binding framework</b> <a href="#"><u>construction and operation of national network infrastructure will in itself lead to cut greenhouse gas emissions by at least 80% by 2050.</u></a> <del>As stated above, the impact of road development on aggregate levels of emissions is likely to be very small. Emission reductions will be delivered through a system of five year carbon budgets that set a trajectory to 2050<sup>69</sup>. Carbon budgets and plans will include policies to reduce transport emissions, taking into account the impact of the Government’s overall programme of new infrastructure as part of that.</del></del>	This line is additional (not included in the existing NPSNN). Factual introductory remarks. No response necessary.
5.27	<a href="#"><u>In considering this section, applicants should also have regard to chapters 2 and 3 of this NPS, which explains the current policy on climate change and how this NPS interacts with that policy, and chapter 4 of this NPS, which deals with climate change adaptation.</u></a>	Additional paragraph (not included in the existing NPSNN). Factual introductory remarks. No response necessary.
5.28	<a href="#"><u>As discussed in chapters 2 and 3, national network infrastructure plays an important role in supporting decarbonisation. While all steps should be taken to reduce and mitigate climate change</u></a>	Additional paragraph (not included in the existing NPSNN). With regard to the role of the Project in supporting decarbonisation, the DCO application makes it clear that the

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	<p><a href="#"><u>impacts, there will likely be residual emissions from national networks infrastructure, particularly during the economy wide transition to net zero, and potentially beyond.</u></a></p>	<p>Applicant is in a position to <i>‘influence but not control the emissions from user carbon (i.e. user traffic). Policies to drive reductions in road user emissions are set out in wider Government policy, principally the Transport Decarbonisation Plan’</i> (Table B1 of the Carbon and Energy Management Plan [Document Reference 7.19 (4)] and paragraph 15.5.5 of ES Chapter 15: Climate and Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>Nevertheless the Project is committed to promoting low carbon innovation and approaches and the DCO application includes provision for a number of interventions/measures to reduce GHG emissions as referenced in paragraph 15.5.14 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>As explained in the Benefits and Outcomes Document [APP-553] the Applicant has also established the Lower Thames Crossing Sustainable Transport Working Group (STWG) which is investigating sustainable travel and cross-river connectivity enhancements that could be delivered in future to complement the Project and would ensure local authorities in the area would retain their control of local transport provision.</p> <p>With regard to interventions beyond the scope of the DCO, paragraph 15.5.5 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] states that <i>‘National Highways has committed to publishing a blueprint for EV charging services on the strategic road network by 2023 and delivering £950 million of charging infrastructure by 2023, aiming at providing at least six 150-350kW charge points at each motorway service area. The availability of sufficient, reliable, and convenient EV charging</i></p>



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		<p><i>stations will promote the uptake of electric vehicles and facilitate the reduction of carbon emissions by end users.'</i></p> <p>Impacts resulting from residual emissions (presented as a worst case scenario) are considered in Section 15.6 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] which concludes that the GHG emissions from the Project (for both the construction and operational phase) do not have a material impact on the ability of the government to meet the carbon reduction targets.</p>
5.29	<p><u><a href="#">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.</a></u></p>	<p>This paragraph is additional – i.e. the existing NPSNN does not explicitly refer to the requirement to undertake a whole life carbon assessment.</p> <p>As set out in paragraph B.2.2 of the Carbon and Energy Management Plan [Document Reference 7.19 (4)] the Applicant has quantified the carbon impact of the Project across the whole life cycle, in line with PAS 2080. Appendix C of the Carbon and Energy Management Plan outlines which modules have been included and justifies any exclusions. The Plan sets out the Applicant’s carbon ambitions for the Project and the mechanisms to be used to deliver them (which will be secured through Requirement 16 of Schedule 2 of the draft DCO [Document Reference 3.1 (11)]).</p> <p>In line with DMRB GG 103<sup>37</sup> Section 11 of the Sustainability Statement [APP-544] presents how the Project design delivers sustainable development goal number 8: <i>‘be resource efficient and reflect a circular approach to the use of materials’</i>.</p>

<sup>37</sup> Highways England (2019). DMRB GG 103 – Introduction and general requirements for sustainable development and design. <https://www.standardsforhighways.co.uk/search/89d10ef2-7833-44df-9140-df85cd6382b9>

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		<p>As stated in the Planning Statement Appendix I: Carbon Strategy and Policy Alignment [REP7-138] the Project is one of the first major UK infrastructure projects to use carbon as a central issue in procurement to drive innovation and material efficiency from Contractors prior to detailed design and to incentivise further reductions in GHG emissions.</p> <p>From early on in the design process the Applicant has been undertaking a number of activities to prepare for the challenge of emissions reduction. As a result, the carbon model, following preliminary design represents best practice in the industry today as it incorporates an extensive range of commercially available, low carbon technologies and approaches.</p>
5.30	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph was not included in the existing NPSNN. Nonetheless, all critical stages of the Project life cycle have been included in the whole life carbon assessment for the Project which is contained within Appendix C of the Carbon and Energy Management Plan [Document Reference 7.19 (4)] .</p> <p>The Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [APP-526] monetises the emissions and provides an explanation of the carbon emissions from road users. Chapter 4 of the report summarises the appraisal methodologies which are based on DfT’s TAG guidance. This guidance provides methods for quantifying many of the impacts of the Project and giving them a monetary value.</p> <p>The Level 1 appraisal includes four embodied carbon impacts arising from the Project’s construction and its operations, maintenance and renewals programmes over 60 years from Project opening.</p>

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5.31	<p><u>Having regard to current knowledge, a carbon management plan should be produced as part of the Development Consent Order submission and include:</u></p> <ul style="list-style-type: none"> <li><u>An explanation of the steps that have been taken to drive down the climate change impacts at each of those stages</u></li> <li><u>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 (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)</u></li> <li><u>Whether and how any residual carbon emissions will be (voluntarily) offset or removed using a recognised framework</u></li> <li><u>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.</u></li> </ul>	<p>This paragraph is additional – there is no explicit requirement for a Carbon Plan within the existing NPSNN.</p> <p>The DCO application has been accompanied by a Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>].</p> <p><b>Steps taken to drive down the climate change impacts at each stage</b></p> <p>Paragraphs 15.5.5 to 15.5.26 of ES Chapter 15: Climate [<b>APP-153</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] set out the various measures and interventions included in the Project to drive down climate change impacts (including the various measures contained within the Carbon and Energy Management Plan). A summary of the plan is provided in Plate 15.4 of ES Chapter 15.</p> <p>Paragraph 15.5.7 of ES Chapter 15 [<b>APP-153</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] summarises the overarching approach as follows: ‘Applying resource efficiency and circular economy principles will reduce the material demand for the Project and consequently save GHG emissions by reducing:</p> <ol style="list-style-type: none"> <li>The need to import material (embodied carbon in the material)</li> <li>The need to transport new material to the Order Limits</li> <li>The need to transport (waste) materials offsite (in case of on-site reuse / recycling of excavated soil and demolition materials)’</li> </ol> <p>The Project would apply the hierarchy for GHG emissions at all stages.</p> <p>Preliminary design and REAC/outline Materials Handling Plan commitments are outlined in paragraphs 15.5.12 to 15.5.19 of ES Chapter 15 [<b>APP-153</b>] and Environmental Statement</p>

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		<p>Addendum [<b>Document Reference 9.8 (9)</b>] while Table 15.11 summarises the technologies and approaches set out within the Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>] which are included in the construction emissions calculation. The Carbon and Energy Management Plan would be legally secured through DCO Requirement 16 [<b>Document Reference 3.1 (11)</b>], and sets out an energy strategy for the Project, identifying potential opportunities for the utilisation of renewable energy on the Project. For example, the Applicant would require Contractors to commit to procuring renewable electricity to cover the consumption by compounds (including the consumption of the tunnel boring machine and concrete batching plant).</p> <p><b>Reducing operational emissions</b></p> <p>The third iteration of the management plan will explain how carbon emissions will be managed and minimised during the operation and maintenance of the Project. This will be legally secured through DCO Requirement 16. The emphasis will be on continuous improvement and compliance with evolving best practice.</p> <p><b>Voluntary measures specific to residual carbon emissions</b></p> <p>As explained in paragraph 15.6.2 of ES Chapter 15 [<a href="#">APP-153</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] and Planning Statement Appendix I [<a href="#">REP7-138</a>] because of the various carbon reduction measures described above the Applicant is committing to a process which would ensure that the Project’s construction emissions would not exceed 1.44MtCO<sub>2</sub>e which represents current best practice and is an industry-leading position. However, the Applicant is committed to going further and to using the time available before construction of the Project</p>

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		<p>begins to explore ways of achieving greater reductions in emissions, reflecting the Project’s ‘pathfinder’ status. Specifically (as set out in paragraph 15.6.4 of ES Chapter 15) the Project incorporates the following carbon aims:</p> <ul style="list-style-type: none"> <li>• To construct it for the lowest practicable carbon emissions</li> <li>• To test low-carbon innovation and approaches</li> <li>• To leave a legacy that enables future projects to achieve carbon-neutral construction</li> </ul> <p>These measures would be secured through the framework of the Carbon and Energy Management Plan [<b>Document Reference 7.19 (4)</b>] which aligns with guidance contained within PAS 2080.</p> <p><b>Residual emissions in the context of national and international efforts to limit climate change,</b></p> <p>Modelled construction and operational phase emissions compared to relevant carbon budgets are presented in Table 15.18 of ES Chapter 15 [<b>APP-153</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] which demonstrates that the GHG emissions from the Project do not have a material impact on the ability of the government to meet the carbon reduction targets.</p>
5.32	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph is additional (not included in the existing NPSNN).</p> <p>With regard to nature based approaches, the themes and objectives identified in Section 2.2 of the Planning Statement Appendix H: Green Infrastructure (GI) Study [<b>APP-503</b>] acknowledge the important role of green infrastructure in storing carbon. Identified delivery mechanisms within the study therefore include increased woodland cover to contribute towards UK’s national mitigation, with tree planting mixes</p>

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		<p>selected with adaptation in mind. The various recommendations within the study (in particular woodland planting) have had a direct influence on the Project design. These mandatory mitigation measures are detailed within the list of Tier 1 recommendations.</p> <p>The DCO application documents reflect the above recommendations and identify the locations of habitat creation sites proposed as compensation for the effects of nitrogen deposition which would also achieve carbon storage benefits. The design and management regimes for these locations, including resilience against climate change, would be developed as part of the detailed design, in accordance with the control plan documents including the outline Landscape and Ecology Management Plan (oLEMP) [Document Reference 6.7 (7)], Design Principles [Document Reference 7.5 (7)] and the Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>An extensive range of commercially available, low carbon technologies and approaches are proposed to be incorporated in the Project. Appendix D of the Carbon and Energy Management Plan [Document Reference 7.19 (4)] illustrates and Table 15.11 of ES Chapter 15: Climate [APP-153] Environmental Statement Addendum [Document Reference 9.8 (9)] summarises these technologies and approaches.</p>
5.33	<p><u>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 Code, contributing</u></p>	<p>This is a new paragraph/requirement although similar provisions regarding Applicants providing evidence of carbon mitigation exist in paragraph 5.19 of the existing NPSNN. While a Greenhouse Gas Reduction Strategy is not included in the DCO submission, Section 12 of the Sustainability Statement [APP-544] and also the Carbon and Energy</p>

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	<p><a href="#"><u>significantly to offsetting residual emissions. Applicants may wish to refer to the Institute of Environmental Management and Assessment Greenhouse Gas Management Hierarchy guidance when drafting their Greenhouse Gas Reduction Strategy.</u></a></p>	<p>Management Plan [<b>Document Reference 7.19 (4)</b>] together set out the approach to minimising GHG emissions.</p> <p>In considering the Project design options, the Applicant has applied the GHG emission hierarchy (avoid, prevent, reduce, remediate). Accordingly, ES Chapter 15: Climate [<b>APP-153</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] outline measures embedded within the design to reduce greenhouse gas emissions, including:</p> <ul style="list-style-type: none"> <li>• Removing the bridge at Hornsby Lane</li> <li>• Reducing the number of lanes on the Project road south of the M25</li> <li>• Widening the existing Rectory Road rather than constructing a new highway</li> <li>• Reducing the span of the Tilbury Viaduct from 1.2km to 600m</li> <li>• Removing the formerly proposed A226 junction</li> <li>• Removing the formerly proposed A128 junctions with the Project and A13</li> <li>• Reducing the import of fill through the retention and reuse of excavated materials</li> <li>• Maximising the potential for reusing demolition and waste concrete materials as recycled aggregate onsite</li> <li>• No backfilling of the tunnel deck gallery with ballast concrete</li> <li>• Use of energy efficient equipment during the construction phase</li> <li>• Procurement of renewable electricity to cover the compounds' electricity consumption</li> <li>• LED lighting</li> </ul>

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		<ul style="list-style-type: none"> <li>• Tunnel sensors for ventilation control to ensure efficient operation.</li> </ul> <p>Overall, these design measures have sought to reduce emissions by ensuring that the design improves efficiency of the network, placing sustainability as a key driver of material choice and guiding, as far as is possible, driver behaviour which reduces emissions through the deliberate removal of certain existing network features.</p> <p>Section 15.6 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] considers the Project against Institute of Environmental Management and Assessment (IEMA) guidance Assessing Greenhouse Gas Emissions and Evaluating their Significance<sup>38</sup>. Alongside wider proposals to implement the policies of the Transport Decarbonisation Plan<sup>39</sup>, the Project approach to procurement, commercial incentives and management arrangements would drive further reductions in GHG emissions to the extent that projected emissions would not have a significant impact within the meaning of the IEMA guidance.</p>
5.34	<p><u><a href="#">The Secretary of State must be satisfied that the applicant has as far as possible assessed the greenhouse gas emissions at all stages of the development.</a></u></p>	<p>This paragraph is additional (not currently included in the existing NPSNN).</p> <p>As stated in Section 12 of the Sustainability Statement [APP-544] the Project has quantified its emissions across the construction and operational phases following the principles of PAS 2080.</p>

<sup>38</sup> IEMA (2022). IEMA Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance. 2nd edition.

<sup>39</sup> DfT (2021). Decarbonising Transport: A better, greener Britain.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf)



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5.35	<p><u><a href="#">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.</a></u></p>	<p>This paragraph is additional (not currently included in the existing NPSNN).</p> <p>Section 15.6 in ES Chapter 15: Climate <a href="#">[APP-153]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> assesses the carbon impacts of the Project during the construction and operational phases and compares these to the government's relevant carbon budgets.</p> <p>Modelled construction and operational phase emissions compared to relevant carbon budgets are presented in Table 15.18 of ES Chapter 15 <a href="#">[APP-153]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>. Paragraph 15.9.12 provides a high level summary of the impacts of the Project and states that:</p> <p><i>'a. The GHG emissions from the Project do not have a material impact on the ability of the Government to meet the carbon reduction targets.</i></p> <p><i>b. The Project is compatible with (or goes beyond) the budgeted, science-based 1.5°C trajectory of the Paris Agreement (in terms of rate of emissions reduction) and complies with up-to-date policy and 'good practice' reduction measures to achieve that.'</i></p> <p>The Carbon and Energy Management Plan <b>[Document Reference 7.19 (4)]</b>, secured through Requirement 16 of Schedule 2 of the draft DCO <b>[Document Reference 3.1 (11)]</b> sets out the Applicant's carbon ambitions for the Project and the mechanisms that will be used to deliver them.</p>

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5.36	<p><u>The Secretary of State should be content that the applicant has taken all reasonable steps to reduce the total greenhouse gas emissions from a whole life carbon perspective. The Secretary of State should also give positive weight to projects that embed nature-based or technological processes to mitigate or offset the emissions of construction and within the proposed development. However, given the important role national network infrastructure plays in supporting the process of economy wide decarbonisation, the Secretary of State accepts that there are likely to be some residual emissions from construction of national network infrastructure.</u></p>	<p>This paragraph is additional (not currently included in the existing NPSNN). See responses above to paragraphs 5.29, 5.30, 5.32 and 5.33.</p>
5.37	<p><u>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 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.</u></p>	<p>This paragraph is additional (not currently included in the existing NPSNN). As set out above in the response to paragraph 5.33, Section 15.6 of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] includes an assessment of operational GHG emissions. Table 15.15 presents the operational GHG emissions associated with the ongoing maintenance and repair of the Project as well as emissions from road users for the 2030 opening year, the 2045 design year and the cumulative total over the 60-year appraisal period. Overall, it is concluded that the GHG emissions from the Project would not be significant. Table 15.17 presents the modelled construction and operational phase emissions compared to relevant carbon budgets and shows that the contribution of the Project's carbon emissions to the UK carbon budgets is small, in particular when the government's carbon reduction policies to achieve the legally binding carbon budgets are taken into account.</p>

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		<p>With regard to net zero, the Project cannot control the implementation of the policies related to reducing road-user emissions. However, carbon emissions related to corporate level operations related to the Project (such as network lighting and use of traffic officer vehicles) would be net zero throughout the appraisal period and emissions related to maintenance, repair and replacement would be net zero by 2040, in line with the Net Zero Highways plan<sup>40</sup>. With regard to user emissions, as indicated in Section 15.6 of ES Chapter 15 [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] <i>'the implementation of the policies of the Transport Decarbonisation Plan (DfT, 2021a) will have a large effect in reducing road-user emissions associated with the Project and reflects a net zero trajectory consistent with the UK carbon budgets. The Project does not impede the Government from meeting its net zero carbon targets in relation to road user emissions.'</i></p> <p>With regard to the UK's Nationally Determined Contribution, as identified in Section 15.7 of ES Chapter 15 [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)], the cumulative effect of the Project's GHG emissions has been assessed at a national level, against the UK carbon budgets. The assessment concludes that the GHG emissions of the Project would not have a material impact on the ability of the government to meet the UK carbon budgets.</p>

<sup>40</sup> National Highways (2021). Net zero highways: our 2030/2040/2050 plan. <https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf>

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<b>Biodiversity and nature conservation</b>		
5.38	Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals, <u>the genetic diversity they contain</u> and the complex ecosystems of which they are a part. <del>Government policy for the natural environment is set out in the Natural Environment White Paper (NEWP). The NEWP sets out a vision of moving progressively from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures.</del> Geological conservation relates to the sites that are designated for their geology and/or their geomorphological importance. <sup>74</sup> <u>The policy set out in the following sections recognises the need to protect and enhance biodiversity and geological conservation interests.</u>	General introductory paragraphs. No response required. Reference added relating to Environment Act 2021, enhanced biodiversity duty for public authorities, biodiversity net gain and Local Nature Recovery Strategies, etc.
5.39	<del>Government policy and priorities</del> for the natural environment <u>are set out in the government's Environmental Improvement Plan<sup>93</sup>. The publication and regular updating of the Environmental Improvement Plan is required by the Environment Act 2021, alongside legally binding long-term environmental targets, an enhanced biodiversity duty for public authorities, biodiversity net gain and Local Nature Recovery Strategies.</u>	
5.40	The wide range of <del>legislative provisions at the</del> international and national <del>level that can impact on</del> <u>legislative provisions impacting</u> planning decisions affecting biodiversity and <del>geological</del> <u>nature</u> conservation issues are set out in <del>a Government Circular.</del> <sup>72</sup> <u>the National Planning Policy Framework. The Natural Environment Planning Practice Guidance document sets out good practice in England in relation to planning for biodiversity and geological conservation.</u>	

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5.41	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph is a reworded version of paragraph 5.22 of the adopted NPSNN. The response given previously to that paragraph remains relevant (note: also covers paragraph 5.23 of the adopted NPSNN – see paragraph 5.42 of the revised draft NPSNN below):</p> <p><i>‘ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] outlines the effects of the Project on sites, habitats and species. The potential impacts on ecosystems, summarised in Section 8.6 of Chapter 8 include:</i></p> <ul style="list-style-type: none"> <li>• <i>Habitat loss</i></li> <li>• <i>Direct mortality</i></li> <li>• <i>Fragmentation</i></li> <li>• <i>Habitat degradation</i></li> <li>• <i>Disturbance</i></li> </ul> <p><i>Table 8.37 in ES Chapter 8 [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] provides a summary of the likely significant residual effects on internationally, nationally and locally designated sites of ecological or geological conservation importance as follows, taking into consideration agreed mitigation measures:</i></p> <ul style="list-style-type: none"> <li>• <i>Permanent habitat loss at Shorne and Ashenbank Woods SSSI, Claylane Wood ancient semi-natural woodland (ASNW).</i></li> <li>• <i>Permanent loss of veteran trees</i></li> <li>• <i>Habitat loss at Low Street Pit Local Wildlife Site (LWS), Rainbow Shaw LWS, Blackshots Nature Area LWS,</i></li> </ul>

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		<p><i>Codham Hall Wood LWS and ASNW, ancient woodland west of M25 junction 29, Franks Wood ASNW</i></p> <ul style="list-style-type: none"> <li>• <i>Loss of habitat used by terrestrial invertebrates and mortality of terrestrial invertebrate assemblages</i></li> <li>• <i>Permanent effects on ancient woodland at M2 junction 1</i></li> </ul> <p><i>Proposed mitigation for the sites listed above include the translocation of protected species and ancient woodland soils from the construction area to newly created habitats and embedded design measures to reduce the magnitude of potential effects by, for example, providing safe crossing points for wildlife over or under the operational highway.</i></p> <p><i>Areas identified for compensatory ancient woodland planting to offset the loss of ancient woodland would be inoculated, where reasonably practicable, with soils from ancient woodland sites within the Order Limits (as identified on ES Figure 8.1 [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]) that would be disturbed by construction activity. The soils would be translocated in advance of construction activities commencing at the donor sites, avoiding weather constraints, timing conflicts with protected species licensing activities, and only once any essential mitigation required for buried archaeology has been completed. Solid barriers would also be installed to protect retained ancient trees, ancient woodland and veteran trees. An appropriate buffer for fencing would be established for each type to ensure protection of the Root Protection area.</i></p> <p><i>Where removal of veteran trees is required, the intact hulks of lost veteran trees would be relocated in close proximity to a</i></p>

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		<p><i>nearby veteran tree, woodland or parkland area in accordance with government standing advice prepared by Natural England and the Forestry Commission (2018). This would provide opportunity for those invertebrates and fungi residents within the tree to relocate.</i></p> <p><i>Compensatory measures are proposed to counteract significant effects on biodiversity that cannot be avoided or mitigated. This includes habitat creation to offset losses of ancient woodland and the provisions of barn owl nest boxes to compensate for the loss of barn owl individuals. Habitat creation proposals would provide localised benefits to some ecological features, by providing extensive areas of new planting that would improve the connectivity between existing habitats.</i></p> <p><i>A minimum of 30 trees of local provenance would be planted as replacement for 10 lost veteran trees, 15 south of the River Thames and 15 to the north of the River Thames. The location of these would be agreed with the Secretary of State (SoS) following consultation with relevant local authorities.</i></p> <p><i>Section 8.6 of ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] identifies the opportunities taken to protect and enhance biodiversity and geological conservation interests. This includes the following:</i></p> <ul style="list-style-type: none"> <li><i>• Habitat creation to the north of the River Thames, including a number of different habitats created to enhance the environment adjacent to the River, while also increasing the area’s biodiversity value</i></li> <li><i>• Seven green bridges across the Project route, replacing existing road bridges to create habitat corridors, allowing for</i></li> </ul>

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		<p><i>an improved environment for those using, crossing and living in the immediate vicinity of the Project, and enhance the existing connectivity in the wider area</i></p> <ul style="list-style-type: none"> <li>• <i>Within the vicinity of the Mardyke, watercourses to be enhanced to become more suitable for water vole</i></li> </ul> <p><i>ES Chapter 9: Marine Biodiversity [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)] outlines the effects of the Project on marine benthic habitats, benthic invertebrates and marine mammals. Potential effects related to construction, operation and decommissioning of the northern tunnel entrance compound drainage pipeline and outfall; permanent Project water management outfall; tunnel boring operations; and tunnel operation, have been assessed in relation to relevant marine receptors.</i></p> <p><i>A number of embedded, essential and good practice mitigation measures (set out in Section 9.5 of ES Chapter 9: Marine Biodiversity [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)]) have been considered as part of the assessment. Application of these measures resulted in no likely significant effects on designated sites of ecological importance or protected species and habitats being identified.</i></p> <p><i>There are no internationally or nationally designated sites of geological conservation within the study area as detailed in Section 10.4 of ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)]. A number of potential Local Geological Sites, identified by the Essex Field Club, were identified within the geology and soils study area. However, these do not have a statutory designation. Finally, a Habitats Regulations</i></p>



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		<p><i>Assessment Report [APP-487] has been prepared by National Highways to inform the Habitats Regulations Assessment process. The report concludes there would be no adverse effects on the integrity of any European site, and accordingly there is no requirement for consideration of derogation at Stage 3. In order to avoid adverse effects on the integrity of European sites, the Applicant has committed to a number of mitigation measures secured via the Register of Environmental Actions and Commitments (REAC) [Document Reference 6.3 ES Appendix 2.2 (9)] or the Design Principles [Document Reference 7.5 (7)] and set out at Section 1.5 of the Habitats Regulations Assessment Report [APP-487].</i></p>
5.42	<p>The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests <u>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.</u></p>	<p>This paragraph is an extended version of paragraph 5.23 of the adopted NPSNN with the new text underlined. Matters related to BNG are addressed in the responses to paragraphs 4.20 to 4.23 above. Otherwise, the response previously given to paragraph 5.23 of the adopted NPSNN remains relevant. Please note that this response is incorporated in the response to paragraph 5.41 above.</p>
5.43	<p><u>To avoid harm or disturbance in line with the mitigation hierarchy the applicant should demonstrate that:</u></p> <ul style="list-style-type: none"> <li>• <u>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</u></li> <li>• <u>Developments are</u> designed and landscaped to provide green corridors and minimise habitat fragmentation <u>(for example using underpasses or green bridges to link habitats)</u></li> <li>• During construction, they will seek to ensure that activities will be confined to the minimum areas required for the works</li> </ul>	<p>The wording of this paragraph represents an expansion of paragraph 5.25 of the existing NPSNN – new references added in relation to providing green corridors, minimising habitat fragmentation, minimising construction working areas and best practice during construction. That response remains relevant as presented below with the addition of new text to address the expanded requirements of the paragraph: <i>'The Project has sought to avoid significant harm to features of biodiversity and geological interest, both during the consideration of route alternatives (ES Chapter 3: Assessment of Reasonable Alternatives [APP-141]) and as part of the EIA.</i></p>

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	<ul style="list-style-type: none"> <li><a href="#"><u>During construction and operation, best practice will be followed to ensure that risk of disturbance and 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.</u></a></li> </ul>	<p><i>The selected route alignment was chosen to reduce intrusion into the protected sites of the Thames Estuary. Additionally, providing a link to the M2 further east of the selected route through Kent was discounted as an option as this would necessitate direct loss of habitat from and fragmentation of the ancient woodland in this area. The design presented at the 2020 Supplementary Consultation resulted on the removal of one lane southbound between the M25 and A13/A1089 junction to reduce the extent of habitat loss in this area. This approach has ensured any significant effects can be avoided and minimised as far as practicable.</i></p> <p><i>A number of potential compensation measures are proposed to fully compensate for residual significant effects. The compensation strategy proposed consists of landscape scale habitat creation across nitrogen deposition compensation sites, located both north and south of the river, and covering an area of approximately 200 ha. Additionally, hedgerow habitat lost during construction would be compensated by creating new hedgerows at locations shown on the Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)], using native species of local provenance.</i></p> <p><i>These measures (among various others referred to within ES Chapter 8) are detailed within the Environmental Masterplan and the Design Principles [Document Reference 7.5 (7)] which would be legally secured through DCO Requirements 4 and 3 respectively.</i></p> <p><i>Mitigation measures have been informed by best practice guidance, including the translocation of protected species from construction areas to suitable retained or newly created</i></p>

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		<p><i>habitats, as well as embedded design measures to reduce the magnitude of potential effects, for example providing safe crossing points for wildlife over or under the operational highway. Monitoring of the mitigation measures proposed as part of the Project are addressed in ES Appendix 2.2: Code of Construction Practice, First Iteration of Environmental Management Plan [Document Reference 6.3 ES Appendix 2.2 (9)].</i></p> <p><i>With the implementation of mitigation measures such as treating discharge water prior to discharge into the River Thames, there are not expected to be significant effects on marine biodiversity during construction. Additionally, there are no significant effects on marine biodiversity predicted during operation.</i></p> <p><i>ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] confirms that there would be no significant harm to geological conservation interests. Details of the mitigation measures considered as part of the assessment are provided in Section 10.5.'</i></p> <p>The design has been optimised to minimise the footprint required to construct and operate the Project. Project offices, welfare facilities, sleeping accommodation and workshops would be stacked to minimise the surface area taken up at ground level. During construction works compounds, access tracks, haulage routes, material storage areas, generators and other construction activities would not be located within areas of retained vegetation as shown on the Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]. In these areas (which are not required for</p>

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		<p>environmental mitigation), the approach has been to reduce permanent land acquisition by returning construction working areas to previous landowners where practicable. This is addressed in Requirement 35: Temporary use of land for carrying out the authorised development, in Part 5 of the draft DCO [<b>Document Reference 3.1 (11)</b>].</p> <p>The route corridor as proposed has been designed to be a biodiverse wildlife corridor connecting suitable habitats throughout the wider landscape (see the Design Principles [<b>Document Reference 7.5 (7)</b>] Clause no. PLA.05).</p> <p>Biodiversity connectivity would be maintained by crossings of the Project by seven mixed-use green bridges. Further measures to reduce habitat fragmentation resulting from the Project include the following:</p> <ul style="list-style-type: none"> <li>• Woodland planting linking Claylane Wood to Shorne Woods Country Park (via the proposed Thong Lane green bridge north).</li> <li>• Thong Lane green bridge north to mitigate east–west fragmentation south of the River Thames.</li> <li>• Creation of new habitat along the Project around the A2/M2 to provide new corridors for species.</li> <li>• The Project has been designed to span the Mardyke and Orsett Fen by viaducts, which would allow the free passage of species underneath, hence mitigating any fragmentation effects in that area.</li> <li>• Where baseline or future baseline conditions suggest that watercourses may be used by commuting or foraging mammals, culverts have been designed to allow mammal passage.</li> </ul>

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5.44	<p><u>If avoidance or reduction of harm is not possible, applicants should include appropriate mitigation measures, in line with the mitigation hierarchy,</u> as an integral part of their proposed development, including identifying where and how <u>these will be secured in the long term.</u></p>	<p>This is an additional paragraph (not currently included in the existing NPSNN). See response below to paragraph 5.51.</p>
5.45	<p><u>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</u> after construction works have finished.</p>	<p>This is an amended version of the last sentence of paragraph 5.25 of the existing NPSNN. The response given previously to that paragraph remains relevant: <i>‘The Project has sought to avoid significant harm to features of biodiversity and geological interest, both during the consideration of route alternatives (ES Chapter 3: Assessment of Reasonable Alternatives [APP-141]) and as part of the EIA. The selected route alignment was chosen to reduce intrusion into the protected sites of the Thames Estuary. Additionally, providing a link to the M2 further east of the selected route through Kent was discounted as an option as this would necessitate direct loss of habitat from and fragmentation of the ancient woodland in this area. The design presented at the 2020 Supplementary Consultation resulted on the removal of one lane southbound between the M25 and A13/A1089 junction to reduce the extent of habitat loss in this area. This approach has ensured any significant effects can be avoided and minimised as far as practicable.</i> <i>A number of potential compensation measures are proposed to fully compensate for residual significant effects. The compensation strategy proposed consists of landscape scale habitat creation across nitrogen deposition compensation Sites, located both north and south of the river, and covering an area of approximately 205 ha. Additionally, hedgerow habitat lost during construction would be compensated by</i></p>

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		<p><i>creating new hedgerows at locations shown on the Environmental Masterplan, using native species of local provenance.</i></p> <p><i>These measures (among the various other referred to within ES Chapter 8) are detailed within ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] and the Design Principles Document [Document Reference 7.5 (7)] which would be legally secured through DCO Requirements 4 and 3 respectively [Document Reference 3.1 (11)].</i></p> <p><i>Mitigation measures have been informed by best practice guidance, including the translocation of protected species from construction areas to suitable retained or newly created habitats, as well as embedded design measures to reduce the magnitude of potential effects, for example providing safe crossing points for wildlife over or under the operational highway.</i></p> <p><i>With the implementation of mitigation measures such as treating discharge water prior to discharge into the River Thames, there are not expected to be significant effects on marine biodiversity during construction. Additionally, there are no significant effects on marine biodiversity predicted during operation.</i></p> <p><i>ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] confirms that there would be no significant harm to geological conservation interests. Details of the mitigation measures considered as part of the assessment are provided in Section 10.5.'</i></p>

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5.46	<p><u><a href="#">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.</a></u></p>	<p>This is a new paragraph in the draft NPSNN.</p> <p>The Planning Statement Appendix H: Green Infrastructure (GI) Study [APP-503] which includes a number of mandatory recommendations which have directly informed the Project design, acknowledges the biodiversity principles contained within a number of local policy documents. This includes the objective of establishing resilient, functional ecological nature recovery networks and high-quality green infrastructure referred to within the Kent Downs AONB Management Plan.</p> <p>Accordingly, Section 8.6 of ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] identifies the opportunities taken to protect and enhance biodiversity and geological conservation interests and create new habitats covering both construction and operational impacts which have been agreed with the relevant Statutory Environmental Bodies. This includes the following:</p> <ul style="list-style-type: none"> <li>• Habitat creation to the north of the River Thames, including a number of different habitats created to enhance the environment adjacent to the River, while also increasing the area’s biodiversity value.</li> <li>• Seven green bridges across the Project route, replacing existing road bridges to create habitat corridors, allowing for an improved environment for those using, crossing and living in the immediate vicinity of the Project, and enhance the existing connectivity in the wider area.</li> <li>• Within the vicinity of the Mardyke, watercourses to be enhanced to become more suitable for water vole.</li> </ul>

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		<ul style="list-style-type: none"> <li>• Appropriate measures to deal with treatment of potential pollutants that could feasibly leak into surface water runoff from haul routes and construction compounds.</li> <li>• Dust suppression measures would be applied to mitigate dust deposition resulting in an adverse effect on the important habitats and designated sites located in the vicinity of the Project.</li> <li>• Lighting has been designed to avoid and reduce impacts on important biodiversity features such as retained areas of ancient woodland and bat roosts.</li> <li>• Close to the Mardyke, the Project would include a viaduct with sufficient clearance height (4m–5m headroom) to allow animals, (including bats and low-flying bird species such as barn owls) to commute below it, mitigating potential fragmentation effects.</li> </ul> <p>Overall habitat losses and gains associated with the Project to the south and north of the River Thames are summarised in Tables 8.31 and 8.35 of ES Chapter 8: Terrestrial Biodiversity <b>[Document Reference 6.1 ES Chapter 8 (2)]</b> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> respectively. Biodiversity metric calculations have been made to assess the biodiversity unit value of the baseline conditions, and that forecast to be generated by the Project. The assessment uses the Biodiversity Metric 3.1 Calculation Tool to determine whether the Project could result in a net gain in biodiversity units; full details of the methodology and calculations are provided in ES Appendix 8.21: Biodiversity Metric Calculations <a href="#">[APP-417]</a>.</p> <p>The compensation strategy proposed consists of landscape-scale habitat creation across four Nitrogen Deposition Compensation Sites located south of the river, and three north</p>



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		<p>of the river, totalling an area of approximately 205ha. These sites were chosen to replace and supplement the loss of existing habitats. Planting would be designed to increase the amount of high quality wildlife-rich habitat, in order to provide an accurate and representative compensation for the distinctive and significant habitats that were pre-existing and to forge strong links between areas of retained habitat within the wider network of designated sites (see the Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] and the Design Principles [Document Reference 7.5 (7)] Clause no. LSP.27). This would build resilience of the ecological networks.</p> <p>With regard to climate resilience, the planting strategy would be as diverse as reasonably practicable to ensure resilience against potential future diseases. It would include native species of local provenance and would also consider the inclusion of a small percentage of non-native species, where appropriate, in response to forecasted impacts of climate change (Design Principles Clause LSP.02).</p> <p>With regard to Local Nature Recovery Strategies, both the Kent and the Essex local nature partnerships are in the process of developing their LNRS. However, they do not currently exist and so cannot be used to inform the biodiversity assessment for the Project. While these strategies have not been able to be considered, the Project has consulted and cooperated with the relevant local authorities on the proposed measures above to ensure there is some level of consistency with the Projects goals for Biodiversity Net Gain and the conservation aspirations of local authorities.</p>

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5.47	<p><u>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 urban heating; or the restoration of rivers to reduce flood risk and provide attractive amenity areas.</u></p>	<p>This paragraph is additional (not currently included in the existing NPSNN).</p> <p>The Planning Statement Appendix H: Green Infrastructure (GI) Study [APP-503] sets out how the Applicant has worked with stakeholders to support prioritisation of initiatives of projects to ensure improved and enhanced access to open space as well as enhancement and creation of ecological assets and networks. The document (which includes a number of recommendations) advises on a deliverable approach to retain and improve GI and to help define necessary mitigation to be embedded in the Project’s Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)].</p> <p>Accordingly, as set out in paragraph 2.1.3 of the Project Design Report Part C: Design Rationale [APP-508] the Project has been designed to incorporate multifunctional elements and <i>‘Mitigation measures have been developed to meet a variety of environmental needs and to be embedded as far as reasonably practicable into the engineering design. Proposals have been designed to enhance rather than detract from the local environment where practicable and in a way that aligns with broader aspirations of local communities and stakeholders in a more sensitive and imaginative way’.</i></p> <p>The landscape, architecture and engineering designs have been developed concurrently with environmental mitigation and compensation measures resulting in multifunctional landscape proposals across the Project route. The drainage system would provide an integrated design solution that considers management of carriageway runoff, flood risk and pollution risk. As set out in Section 4.4 of the Sustainability Statement [APP-544] the drainage design incorporates SuDS</p>

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		<p>and reduces the risk of causing flooding elsewhere by using attenuation features as presented on the Environmental Masterplan [<b>Document Reference 6.2 ES Figure 2.4</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].</p> <p>Embedded mitigation measures incorporated in the Project design also include wetland restoration which, alongside restoring natural processes to reduce flood risk, also provide benefits to wildlife and people through the creation of healthy, nature-rich wetlands and water-friendly land management practices. This is outlined further in paragraphs 6.3.13 to 6.3.15 of ES Appendix 14.6: Flood Risk Assessment – Part 6 [<b>REP1-171</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. Paragraph 6.9.2 of the FRA Part 6 lists the natural flood management measures incorporated in the Project as follows:</p> <ul style="list-style-type: none"> <li>• Net reduction in the length of culverted watercourses</li> <li>• Reintroduction of meanders in watercourses</li> <li>• Naturalisation of watercourse beds (including those in culverted watercourses)</li> <li>• Planting trees (as part of the landscaping works)</li> </ul>
5.48	<p>The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into <u><a href="#">to ensure that any necessary mitigation and compensatory measures are secured, delivered, and if necessary enforced, and that biodiversity improvements are registered in accordance with Biodiversity net gain requirements.</a></u></p>	<p>The wording of this paragraph is similar to that of paragraph 5.37 of the existing NPSNN.</p> <p>No response required.</p>

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5.49	<p><u>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 the Marine Management Organisation</u> has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences. <u>In advance of the formal submission, applicants are encouraged to use Natural England's Letter of No Impediment Approach and engage with Natural England.</u></p>	<p>This wording of this paragraph is similar to paragraph 5.38 of the existing NPSNN (new text underlined). Reference added to engagement with Natural England and their Letter of No Impediment Approach.</p> <p>As noted in the revised Statement of Common Ground between the Applicant and Natural England [<b>Document Reference 5.4.1.6 (5)</b>] (items 2.1.70 and 2.1.74), Natural England has submitted Letters of No Impediment (LoNI) in respect of great crested newts and badgers and these matters are agreed. Natural England makes reference in its Deadline 3 submission [<b>REP3-193</b>] to the three additional draft licence applications that the Applicant has submitted covering bats, dormice and water vole, stating that these draft applications are under review by them and that they will provide updated advice at a future deadline (paragraph 1.9.1).</p> <p>In other respects, the previous response to that paragraph remains relevant:</p> <p><i>'The Applicant has engaged with both Natural England and the MMO during the design and development process. Mitigation agreed with Natural England and the MMO would be included within the Register of Environmental Actions and Commitments (REAC) [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] and within their respective Statements of Common Ground with the MMO [<b>Document Reference 5.4.1.5 (3)</b>] and Natural England [<b>Document Reference 5.4.1.6 (5)</b>].</i></p> <p><i>The Summary of Envisaged Statements of Common Ground [<b>APP-093</b>] sets out the intention to prepare and agree statements of common ground with both Natural England and the MMO (alongside other stakeholders). The document sets</i></p>

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		<p><i>out how the Project has been working, and is continuing to work, proactively with stakeholders to develop these statements of common ground that would set out matters that have been agreed (including mitigation), and to identify where agreement has not been reached. These statements would continue to be developed throughout the examination, before a final statement is agreed by the end of the examination period.</i></p> <p><i>Appendix A: Permits and Consents that May Be Required of the Consents and Agreements Position Statement [Document Reference 3.3 (8)] sets out the licences that may be required, and includes information on what these are for, the requirements of each licence and the Project’s current position for each.’</i></p>
5.50	<p><a href="#"><u>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.</u></a></p>	<p>This paragraph is additional (not currently included in the existing NPSNN).</p> <p>Overall, the Applicant has sought to achieve biodiversity outcomes developed under the effects hierarchy which is consistent with the government’s obligations. This has resulted in a sustainability-focused design and a comprehensive package of works to provide a Biodiversity Net Gain which makes use of green infrastructure to ensure biodiversity resilience and adaptability which is cognisant of the issues posed by climate change.</p>

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5.51	<p>As a general principle, and subject to the specific policies below, development should <u>at first</u> avoid significant harm to biodiversity and geological conservation interests, including through <del>mitigation and</del> consideration of reasonable alternatives. <del>The applicant may also wish to make use of biodiversity offsetting<sup>75</sup> in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated</del> <u>If avoidance is not possible, mitigation needs to be considered (as set out in paragraphs 5.43 to 5.49 above)</u>. Where significant harm cannot be avoided or mitigated, <u>it should be compensated for</u> as a last resort, <del>appropriate compensation measures should be sought</del> <u>with on-site mitigation being considered prior to off-site.</u> <u>The Secretary of State will give significant weight to any residual harm.</u></p>	<p>The wording of this paragraph is similar to that of existing NPSNN paragraph 5.25 (new text underlined). The response given previously to that paragraph remains relevant: <i>‘The Project has sought to avoid significant harm to features of biodiversity and geological interest, both during the consideration of route alternatives (ES Chapter 3: Assessment of Reasonable Alternatives [APP-141]) and as part of the EIA. The selected route alignment was chosen to reduce intrusion into the protected sites of the Thames Estuary. Additionally, providing a link to the M2 further east of the selected route through Kent was discounted as an option as this would necessitate direct loss of habitat from and fragmentation of the ancient woodland in this area. The design presented at the 2020 Supplementary Consultation resulted on the removal of one lane southbound between the M25 and A13/A1089 junction to reduce the extent of habitat loss in this area. This approach has ensured any significant effects can be avoided and minimised as far as practicable</i> <i>Residual significant effects from nitrogen deposition have been compensated via a compensation strategy that provides landscape scale habitat creation across seven nitrogen deposition compensation sites, located both north and south of the river, and covering an area of approximately 205 ha. Additionally, hedgerow habitat lost during construction would be compensated by creating new hedgerows at locations shown on the Environmental Masterplan, using native species of local provenance.</i> <i>These measures (among the various other referred to within ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)]) are detailed within</i></p>

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		<p><i>ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] and the Design Principles Document [Document Reference 7.5 (7)] which would be legally secured through DCO Requirements 4 and 3 respectively [Document Reference 3.1 (11)].</i></p> <p><i>Mitigation measures have been informed by best practice guidance, including the translocation of protected species from construction areas to suitable retained or newly created habitats, as well as embedded design measures to reduce the magnitude of potential effects, for example providing safe crossing points for wildlife over or under the operational highway.</i></p> <p><i>With the implementation of mitigation measures such as treating discharge water prior to discharge into the River Thames, there are not expected to be significant effects on marine biodiversity during construction. Additionally, there are no significant effects on marine biodiversity predicted during operation.</i></p> <p><i>ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] confirms that there would be no significant harm to geological conservation interests. Details of the mitigation measures considered as part of the assessment are provided in Section 10.5.'</i></p>
5.52	<p>In taking decisions, the Secretary of State should ensure that appropriate weight is attached to: designated sites of international, national, and local importance; <u>irreplaceable habitats</u>; protected species; habitats <del>and</del> other species of principal importance for the conservation of biodiversity; <u>local</u></p>	<p>The wording of this paragraph is similar to that of paragraph 5.26 of the existing NPSNN. Additional reference added for irreplaceable habitats and local nature recovery strategies (underlined). The response given previously to that paragraph remains relevant:</p>

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	<p><a href="#">nature recovery strategies</a>; and to biodiversity and geological interests within the wider environment.</p> <p><sup>i</sup> <a href="#">Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.</a></p>	<p><i>'The presence of designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the defined study area are described in Section 8.4 of ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] and Section 9.4 of ES Chapter 9: Marine Biodiversity [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)]. European sites with the potential to be impacted by the proposals are also described within Section 5 of the Habitats Regulations Assessment (HRA) (Habitats Regulations Assessment - Screening Report and Statement to Inform an Appropriate Assessment [APP-487]).</i></p> <p><i>The identified impacts on these biodiversity interests (having regard to Project design and mitigation) are described within Section 8.6 of ES Chapter 8 [Document Reference 6.1 ES Chapter 8 (2)], Section 9.6 of ES Chapter 9 [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)] and are also addressed in response to the NPSNN paragraphs below.'</i></p> <p>With regards to the impact the Project would have upon irreplaceable habitats, in total the Project would lead to the loss of 7.36ha of ancient woodland habitat. Ten veteran trees would also be lost as a result of the Project. 80.75ha of ancient woodland compensatory planting would be created which would be designed to link up existing areas of woodland to build resilience into the network of designated sites and habitats. Specific tree planting and management measures are also proposed to offset impacts to the veteran tree resource.</p>



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		<p>As identified in paragraph 8.7.16 of the Planning Statement <b>[Document Reference 7.2 (2)]</b>, <i>'it is considered that the national need for, and benefits of, the Project identified in Chapter 4 clearly outweigh these impacts, particularly when considered alongside the significant landscape scale compensatory habitat creation would be provided as part of the Project'</i>. See also response to paragraph 1.58 above. With regard to Local Nature Recovery Strategies, both the Essex and Kent Local Nature Partnerships are currently working on the preparation of their respective LNRS. The strategies do not exist at present and so are unable to inform the biodiversity assessment of the Project. While these strategies have not been available to be considered, the Project has consulted and cooperated with the relevant local authorities on the proposed measures above to ensure there is some level of consistency with the Project's goals for Biodiversity Net Gain and the conservation aspirations of local authorities.</p>
5.53	<p>The most important sites for biodiversity <u>in the UK</u> are those identified <del>through and designated to meet the obligations of</del> international <u>biodiversity</u> conventions, and <del>European Directives. The</del> <u>which are afforded special protection by the</u> Habitats Regulations <del>provide statutory protection for European sites</del><sup>76</sup> <del>(see also paragraphs 4.22 to 4.25). The National Planning Policy Framework states that the</del> <u>These sites are designated as Special Areas of Conservation and Special Protection Areas and are collectively known as Habitats Sites. The</u> following <del>wildlife sites should have been given</del> the same protection as <del>European sites legally protected by the Habitats Regulations</del>; <del>potential</del> Special Protection Areas and possible Special Areas of Conservation; <del>listed or proposed</del> <u>Wetlands of International</u></p>	<p>The wording of this paragraph is similar to that of paragraph 5.27 of the existing NPSNN (content remains broadly the same). The response given previously to that paragraph remains relevant: <i>'European sites with the potential to be affected by the Project and any potentially significant effects can be found in the Habitats Regulations Assessment (HRA) Screening Report [APP-487].</i> <i>The baseline conditions reported in Section 8.4 of ES Chapter 8: Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] identified the Thames Estuary and Marshes Ramsar designation as being located within the</i></p>

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	<p><u>Importance</u> (Ramsar sites),<sup>77</sup> and <del>–</del> sites identified, or required, as compensatory measures for adverse effects on <del>European sites, potential Special Protection Areas, possible Special Areas of Conservation and listed or proposed Ramsar</del> <u>habitats sites</u></p>	<p><i>Order Limits and the Thames Estuary and Marshes SPA, North Downs Woodland SAC and Peter’s Pit SAC within 2km of the Order Limits. Assessments specific to nitrogen deposition impacts also consider the Epping Forest SAC designation, which lies 14km from the Order Limits.</i></p> <p><i>The mitigation measures referred to within the HRA including ecology mitigation areas, operational drainage measures and best practice are all integral to the Project and would all be required irrespective of whether any potential effect pathways on European sites were present. Therefore, these measures have been taken into account within the assessment of LSE and the HRA has concluded that there would be no significant adverse effects from the Project alone or in combination with other plans or projects on these designated sites.’</i></p>
5.54	<p><u>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 must proceed for imperative reasons of overriding public interest with the necessary compensatory measures secured.</u></p>	<p>This paragraph is additional (not currently included in the existing NPSNN).</p> <p>The Habitats Regulations Assessment – Screening Report and Statement to Inform an Appropriate Assessment [<a href="#">APP-487</a>] refers to the stages of assessment which must be undertaken in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended), in circumstances where the plan or project that is not directly connected with or necessary to the management of a European site is likely to have a significant effect on that site.</p> <p>The Stage 2 Appropriate Assessment is set out within Section 7 of the HRA Report. The assessment concluded that there is sufficient evidence to demonstrate beyond reasonable scientific doubt that the Project (alone and in combination with other plans and projects) would not adversely affect the integrity of the following European sites:</p> <ul style="list-style-type: none"> <li>• Thames Estuary and Marshes Ramsar</li> </ul>

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		<ul style="list-style-type: none"> <li>• Thames Estuary and Marshes SPA</li> <li>• Epping Forest SAC</li> </ul> <p>As noted in paragraphs 8.1.1 and 8.1.2 of the HRA [APP-487]: <i>‘The Applicant has concluded there would be no adverse effects on the integrity of any European site, and accordingly there is no requirement for consideration of derogation at Stage 3. At the time of completion of this report, Natural England does not agree with the conclusion of the Stage 2 Appropriate Assessment in respect of Epping Forest SAC only. In the event that the competent authority does not agree with the conclusions of the report, there would in any event be no need to employ Stage 3 Derogation of the HRA process as a mitigation measure has been assessed on a ‘without prejudice’ basis, shown to be feasible and would reduce the impact to below screening thresholds (see Annex A.7 of the Natural England Statement of Common Ground, [Document Reference 5.4.1.6 (5)]). Further, Natural England has agreed that the mitigation measure would be appropriate and, if required to be implemented by the competent authority, would avoid any adverse effects on the integrity of Epping Forest SAC, thereby enabling the competent authority to complete the HRA process at Stage 2.’</i></p>
5.55	<p>Many Sites of Special Scientific Interest (<del>SSSIs</del>) are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of <del>SSSIs</del> <u>Sites of Special Scientific Interest</u> not covered by an international designation, <del>should be</del> <u>are</u> given a high degree of protection. <del>All</del> <u>by the Wildlife and Countryside Act 1981. Most of the land that has been declared by Natural England as</u> National Nature Reserves are <u>also</u> notified as <del>SSSIs</del> <u>Sites of Special Scientific Interest</u>.</p>	<p>This is an amended version of paragraph 5.28 of the existing NPSNN. Response provided in paragraph 5.56 below.</p>

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5.56	<p>Where a proposed development on land within or outside a <del>SSSI</del><u>Site of Special Scientific Interest</u> is likely to have an adverse effect on <del>an SSSI</del><u>a Site of Special Scientific Interest</u> (either individually or in combination with other developments), development consent should not normally be granted. <del>Where an adverse effect on the site's notified special interest features is likely, an</del><u>The only</u> exception <del>should be made only</del><u>is</u> where the benefits of the development <del>at this site</del><u>in the location proposed</u> clearly outweigh both <del>the impacts that it is</del><u>its</u> likely <del>to have</del><u>impact</u> on the features of the site that make it of special scientific interest, and any broader impacts on the national network of <del>SSSIs</del><u>Sites of Special Scientific Interest</u>. The Secretary of State <del>should ensure that the applicant's proposals to mitigate the harmful<sup>78</sup> aspects</del><u>is bound by the duty placed on all public bodies in section 28G of the development</u><u>Wildlife and, where possible, to ensure Countryside Act 1981 to take reasonable steps, consistent with the proper exercise of their functions, to further</u> the conservation and enhancement of the <del>site's biodiversity or geological interest, are acceptable. Where necessary, requirements and/or planning obligations should be used to ensure these proposals are delivered.</del><u>features by reason of which a site is of special scientific interest.</u></p>	<p>The wording of the first part of this paragraph is the same as the first part of paragraph 5.29 of the existing NPSNN but the majority of the paragraph (underlined) is new. Nonetheless, the previous response remains relevant:  <i>'ES Chapter 9: Marine Biodiversity [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)] reports that no adverse impacts upon any designated SSSIs within the marine environment would result from the Project.</i>  <i>Section 8.6 of ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] presents an assessment of the likely significant impacts of the Scheme on SSSI designations. These comprise loss of habitat over the construction phase alongside impacts from nitrogen deposition during the operation of the Project.</i>  <i>The DCO Submission has demonstrably established an obvious and urgent need for the development of the Project generally for the reasons outlined in the Need for the Project [APP-494].</i>  <i>The appraisal of alternative options and routes which resulted in the selection of the PRA has demonstrated the clear benefits that Project will have in the specified location in both an environmental and social context. This was subject to substantial public consultation, which the Proposed Route had the most public support for. National Highways through this process concluded that the benefits of the location/route chosen as a means to respond to a national need clearly outweighs the impacts it will have on SSSIs.</i>  <i>It has been established through the route options selection process and the development of the route following PRA (described in further detail within Chapter 5 of the Planning</i></p>

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		<p><i>Statement [Document Reference 7.2 (2)] that it would not be feasible to completely avoid direct and indirect effects upon SSSI designations. A key reason for the selection of the PRA was that it would necessitate the least amount of direct loss of habitat of SSSI status than the other options considered. The refinement of the scheme has sought to minimise these impacts further (for example through considering various options for utilities diversions and junction designs). The loss of SSSI habitat would be compensated for with extensive woodland planting which would be contiguous with the SSSI designations, enhancing connectivity with existing habitats and increasing the overall extent of planting (as detailed within the outline Landscape and Ecology Management Plan [Document Reference 6.7 (7)]). This would ensure overall resilience to habitats in the longer term. The measures within ES Appendix 5.6: Project Air Quality Action [APP-350] also propose nitrogen deposition compensation sites alongside speed enforcement measures which will offset and mitigate the identified air quality impacts on SSSIs as far as practicable.</i></p> <p><i>It can therefore can be concluded that the adverse impacts identified are significantly outweighed by the national need for the Project, which is required to deliver economic growth, along with the various identified public benefits referred to within Chapter 4 of this Planning Statement [Document Reference 7.2 (2)] and the Need for the Project [APP-494].’</i></p> <p><i>Overall, through the application the Applicant has demonstrated a significant need to provide the Project to deliver economic growth, as well as the various identified public benefits referred to within Chapter 4 of the Planning Statement [Document Reference 7.2 (2)] and the Need for the Project [APP-494]. Furthermore, the specific location which</i></p>

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		<p>makes up the selected routes has been selected on the basis that it provides the most beneficial response to the clear national need for this Project and has been designed in a manner which reduces as far as practicable significant adverse impacts on the environment.</p> <p>For further details on the route optioneering process see the response at paragraph 5.58 of the draft NPSNN below.</p>
5.57	<p><u><a href="#">Ancient woodland, ancient wood pastures and parkland, and ancient and veteran trees are irreplaceable habitats. Their long-standing presence, species and form serve as a rich cultural record of past management practices. Ancient and veteran trees are a valuable biodiversity resource for diversity of species and unique ecological conditions, once lost they cannot be recreated. Many ancient woodlands provide ecosystem services, for example, water and soil health, carbon storage, flood alleviation and pollution mitigation as well as providing public access, allowing people to make important contact with nature that helps to promote interest in the protection of these habitats, while delivering many health and wellbeing benefits. Keepers of Time, the government’s policy for ancient and native trees and woodlands in England sets out the government’s commitment to maintain and enhance the existing area of ancient woodland, maintain and enhance the existing resource of known ancient and veteran trees, excluding natural losses from disease and death, and to increase the percentage of ancient woodland in active management.</a></u></p>	<p>This paragraph is a new paragraph but it largely addresses the same matters covered in paragraph 5.32 of the existing NPSNN (reference to national need and benefits outweighing loss removed and moved to separate paragraph below). It introduces a reference to government’s Keepers of Time<sup>41</sup> policy document for ancient and native trees and woodlands in England but does not alter the thrust or intent of current NPSNN policy. The Keepers of Time document itself notes in the introduction that it updates, but does not change, government’s policy to recognise the value of ancient and native woodlands and ancient and veteran trees in England. The Project has sought, as far as possible to ensure consistency with Keepers of Time by attempting to retain and minimise the impacts on ancient woodland as far as possible. See response below to paragraph 5.58 of the draft NPSNN below.</p>

<sup>41</sup> Defra (2022). Keepers of time: ancient and native woodland and trees policy in England.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1079036/Keepers\\_of\\_time\\_woodlands\\_and\\_trees\\_policy\\_England.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1079036/Keepers_of_time_woodlands_and_trees_policy_England.pdf)

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5.58	<p><u>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.</u></p>	<p>This is an amended version of part of paragraph 5.32 of the existing NPSNN – broadly the same policy tests remain though they are strengthened through the addition of new text (underlined). The response given previously to that paragraph remains relevant as it addresses the strengthened text:</p> <p><i>‘Chapter 5 of the Planning Statement [Document Reference 7.2 (2)] describes the route optioneering undertaken prior to the Preferred Route Announcement in April 2017 and since. The optioneering process involved considering each of the proposed routes against a number of criteria, including achieving traffic objectives, cost, practical feasibility and impacts on the environment, including ancient woodlands. For example, Route 4 (west from junction 29 and through Stanford-le-Hope to the tunnel crossing) was not progressed during the route selection process, in part due to environmental impacts on ancient woodland along the route, north of the River and on Coalhouse Fort. When taking all of the criteria into account, the preferred route was considered to be the most appropriate as it offered a future-proofed crossing of the River Thames, performed well against the Scheme Objectives, and was technically feasible.</i></p> <p><i>ES Chapter 3: Assessment of Reasonable Alternatives [APP-141] considers the impact of the Project on ancient woodland in the route selection process and how the width of the A2 road corridor was reduced after Statutory Consultation and engagement with stakeholders in 2018 to limit the amount of ancient woodland from the Shorne and Ashenbank Woods SSSI to be removed. The Chapter also explains that the Project design at junction 29 was progressed to avoid areas of ancient woodland around this junction.</i></p>

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		<p><i>Chapter 5 of the Planning Statement [Document Reference 7.2 (2)] sets out how, prior to Statutory Consultation in 2018, 2020 and again in 2022 before submission of this document, a review was undertaken to consider the changes in the Project design south of the River Thames, including increased encroachment into the AONB and Ancient Woodland along the A2.</i></p> <p><i>These reviews considered whether the route south of the River chosen at Preferred route announcement (Western Southern Link (WSL)) remained the most appropriate compared to the other route considered (Eastern Southern Link (ESL)). The 2020 review identified that the ESL avoided impacts to Claylane Wood, which is impacted by the WSL, but impacts on Shorne and Ashenbank Woods SSSI and would result in the loss of approximately 50% of Great Crabbles Wood SSSI (ancient woodland), as well as areas of Local Wildlife Sites (some of which support ancient woodland) and an area of ancient woodland compensatory planting immediately south of Great Crabbles Wood – adjacent to the A289. The review concluded that the balance of the community and environmental impacts of the ESL remain more significant than the overall balance of impacts of the WSL.</i></p> <p><i>ES Chapter 7: Landscape and Visual [Document Reference 6.1 ES Chapter 7 (2)] and Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] have considered the impact of the Project on the following:</i></p>



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		<ul style="list-style-type: none"> <li>• Likely significant permanent habitat loss at Shorne and Ashenbank Woods SSSI, including the loss of ancient woodland</li> <li>• Likely significant permanent habitat loss within an area of ancient woodland west of M25 junction 29</li> <li>• Loss of veteran trees</li> <li>• Likely significant habitat degradation at 22 ancient woodland inventory sites as a result of nitrogen deposition.</li> </ul> <p><i>In total, the Project would result in the loss of 7.36ha of ancient woodland and ten veteran trees, and potential deterioration of approximately 73.9ha of ancient woodland.</i></p> <p><i>To compensate for the loss of this woodland, 45.45ha of woodland planting would be created, as shown on ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]. To compensate the effects of nitrogen deposition, including those on ancient woodland, a landscape scale compensation approach is proposed as described in ES Appendix 5.6: Project Air Quality Action Plan [APP-350].</i></p> <p><i>Other forms of mitigation are also proposed to protect retained ancient woodland from construction impacts. Temporary fencing would be used where necessary to prevent access to retained important habitats, including ancient woodland and to protect from accidental damage and to mitigate species mortality. Good practice mitigation including temporary fencing, dust suppression and surface water pollution runoff treatment would safeguard the retained areas of ancient woodland from likely effects during construction.</i></p>

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		<p><i>A minimum of 30 individual specimen trees would be planted as replacement for the total ten lost veteran trees, 15 south of the River Thames and 15 to the north of the River Thames, the locations of which would be agreed with the Secretary of State (SoS) following consultation with relevant local authorities. Additionally, where removal of veteran trees is required, the intact hulks of lost veteran trees would be relocated in close proximity to a nearby veteran tree, woodland or parkland area in accordance with government standing advice prepared by Natural England and the Forestry Commission (2018). This would provide opportunity for those invertebrates and fungi residents within the tree to relocate.</i></p> <p><i>Chapter 3 of the Need for the Project [APP-494] sets out the national need for the Project, as responded to in paragraphs 2.1 to 2.10 above. The Project sits within a wider package of works for the strategic road network in the south-east of England, as described within RIS 1.</i></p> <p><i>The chapter concludes that there is an identified national need for the Project.</i></p> <p><i>The Need for the Project explains the benefits of the Project as being the following:</i></p> <ul style="list-style-type: none"> <li><i>• The considerable journey time savings benefits</i></li> <li><i>• Enhanced connectivity</i></li> <li><i>• Improved productivity of businesses in the Lower Thames and wider region due to faster and more reliable journeys and improved accessibility</i></li> <li><i>• Significantly reduced congestion at the Dartford Crossing</i></li> <li><i>• Provision of substantial additional capacity and new route options across the River Thames east of London'</i></li> </ul>

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		<p>Furthermore, in addition to the measures outlined above the Applicant has engaged with the AONB Unit and agreed a supplemental, compensatory enhancement fund as outlined in the Statement of Common Ground between National Highways (1) and the Kent Downs AONB Unit (2) to be submitted at Deadline 9A [<b>Document Reference 5.4.1.4 (4)</b>]. The compensatory enhancement fund has been agreed to be secured through a Section 106 Agreement, or equivalent legal agreement, with the Kent County Council to be submitted at Deadline 9 [<b>Document Reference 9.167 (2)</b>].</p>
5.59	<p>Marine Conservation Zones (<del>MCZs</del>), introduced under the Marine and Coastal Access Act 2009, <del>are areas that</del> have been designated for the purpose of conserving marine flora or fauna, marine habitat or types of marine habitat or features of geological or geomorphological interest. The protected feature or features and the conservation objectives for the <del>MCZ</del> <u>Marine Conservation Zones</u> are stated in the designation order for the <del>MCZ</del> <u>Marine Conservation Zones</u>, which provides statutory protection for these areas. Measures to restrict damaging activities will be implemented by the Marine Management Organisation (<del>MMO</del>) and other relevant organisations. As a public authority, the Secretary of State is bound by the duties in relation to <del>MCZs</del> <u>Marine Conservation Zones</u> imposed by sections 125 and 126 of the Marine and Coastal Access Act 2009.</p>	<p>Other than changes in the use of abbreviations, the wording of this paragraph matches paragraph 5.30 of the existing NPSNN (no fundamental change). The response given previously remains relevant:</p> <p><i>‘The Swanscombe Marine Conservation Zone (MCZ) is situated approximately 7.5km upstream (west) of the Order Limits. Due to the distance and lack of pathways to impact on MCZ features, it has been agreed with the MMO that an MCZ assessment is not required to consent the activities of the Project. For completeness, the designated elements of the MCZ are still considered in the assessment of effects presented in ES Chapter 9: Marine Biodiversity [<b>APP-147</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].’</i></p>
5.60	<p>Sites of regional and local biodiversity and geological interest, <del>(which include Local Geological Sites, Local Nature Reserves and Local Wildlife Sites and Nature Improvement Areas)</del> <del>have a fundamental role to play in meeting overall national biodiversity targets, in</del> <u>are areas of substantive nature conservation value and make an important contribution to ecological networks and</u></p>	<p>The wording of this paragraph is similar to that of paragraph 5.31 of the existing NPSNN – adjusted wording and a new reference has been added relating to the mitigation hierarchy (underlined).</p>

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	<p><u>nature's recovery. They can also provide wider benefits including</u> contributing to the quality of life and the well-being of the community, and in supporting research and education. The Secretary of State should give due consideration to <u>any</u> such <u>harm to the detriment of biodiversity features of</u> regional or local <u>designations</u> <u>importance which it considers may result from a proposed development</u>. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent; <u>nevertheless the mitigation hierarchy applies to these sites.</u></p>	<p><i>'ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)], ES Chapter 9: Marine Biodiversity [APP-147], ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] provide an assessment of the likely significant effects on regionally and locally designated sites of ecological and geological conservation importance.</i></p> <p><i>Section 8.6 of ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] presents the assessment of likely significant effects on terrestrial ecological features of local and county importance. Habitat losses anticipated for locally designated sites over the construction phase are summarised within Tables 8.29 and 8.33 within ES Chapter 8. The Project has sought to minimise these impacts as far as practicable and, in a number of cases, these losses would be temporary, with habitats expected to re-establish within two to five years following completion of the proposed works.</i></p> <p><i>Extensive compensation habitat creation is proposed (as detailed within the outline Landscape and Ecology Management Plan [Document Reference 6.7 (7)], and the Project has been designed specifically to support the fundamental role that sites of regional and local biodiversity interest have to play in meeting biodiversity targets. This includes, for example, in the case of Blackshots Nature Area the creation of 40ha of grassland habitat, alongside translocation of species.</i></p> <p><i>Section 9.6 of ES: Chapter 9 [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)] concludes that the Project would have no significant adverse</i></p>

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		<p><i>impact upon marine habitats and communities of local importance.</i></p> <p><i>Section 10.6 of ES: Chapter 10 [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] concludes that the Project would have a neutral effect on local geological sites.</i></p> <p><i>The Project has sought to avoid significant harm to biodiversity and enhance the wider network of habitats in the longer term. The measures within ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] would achieve permanent habitat gain in accordance with the policies within the NPSNN.'</i></p>
5.61	<p>Development proposals <del>potentially</del> provide many opportunities for <del>building in</del><u>incorporating</u> beneficial biodiversity or geological features as part of good design<sup>95</sup>.<sup>89</sup><u>Nature contributes to the quality of a place, to people's quality of life, the attractiveness of active travel routes and movements, and it is a critical component of well-designed development. Road and rail projects can also play a part in meeting government tree planting and nature recovery targets through partnership working with adjoining landowners, delivering biodiversity, carbon offsetting and social benefits.</u></p> <p><sup>95</sup> <u>Ministry of Housing, Communities and Local Government. For further information, see National Design Guide: Planning practice guidance for beautiful, enduring and successful places</u></p>	<p>The wording of this paragraph represents an extended version of paragraph 5.33 of the existing NPSNN – reference added to design guidance. The response given previously to that paragraph remains relevant:</p> <p><i>'ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] describes the biodiversity and geological mitigation and enhancements proposed for the Project. These measures seek to maximise the opportunity for the Project to benefit biodiversity or geological habitats by improving existing habitat. The following measures are proposed in order to build in beneficial biodiversity to the scheme:</i></p> <ul style="list-style-type: none"> <li><i>• North of the River Thames the new habitats (in the form of 'stepping stone sites') have been designed to connect existing biodiverse areas</i></li> </ul>

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		<ul style="list-style-type: none"> <li>• 97ha of new habitat creation adjacent to Coalhouse Fort (see ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]) include a number of different habitats created to enhance the environment adjacent to the River Thames, while also increasing the area’s biodiversity value. It would comprise open mosaic habitat, acid grassland and wetland habitat (refer to Design Principles [Document Reference 7.5 (7)], Clause no. S9.13).</li> <li>• Around the North Portal area 46ha of habitat designed for terrestrial invertebrates and reptiles, among other species would comprise open mosaic habitat, with wildflower and scrub planting using species mixes specifically designed to support the range of terrestrial invertebrate species currently recorded here including shrill carder bee, numerous south-facing bunds constructed from nutrient poor substrate and bare ground patches (Design Clause no. LSP.11, LSP.22) (see Environmental Masterplan).</li> </ul> <p>The Planning Statement Appendix H: Green Infrastructure (GI) Study [APP-503] provides the ‘bigger picture’ for the delivery of large-scale green infrastructure as part of the Project connecting and enhancing communities and wildlife at the sub-regional and city-scale. The Project proposes seven multi-functional green bridges, restoration of the historical fen landscape and the creation of a Mardyke Valley Country Park. In addition, the Green Infrastructure Study considers that habitat creation required for mitigation, should be designed in a way that would also provide benefit to ecological features by providing new areas of planting that would improve connections between existing habitats.</p>

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		<p><i>The ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] identifies the embedded environmental mitigation measures for the Project including proposals affecting the functionality and connectivity of the Green Infrastructure network.</i></p> <p><i>National Highways has committed to achieving no net loss in biodiversity by the end of Road Investment Strategy (RIS) 2 period (2020-2025) and will work towards net biodiversity gain by 2040. Funding for the Project falls within RIS 2 and RIS 3 (2025-2030).</i></p> <p><i>ES Appendix 8.21: Biodiversity Metric Calculations [APP-417] presents the results of a biodiversity metric assessment to support the Environmental Impact Assessment (EIA) of the Project. While, overall this demonstrates there would be a net loss of biodiversity as calculated by the metric (paragraph 7.2.1 of the BNG Assessment) this needs to be balanced against the new areas of habitat and landscaped creation proposed as part of the Project (which are not counted in the metric) and against the benefits of the Project as a whole (outlined in Need for the Project [APP-494] and Benefits and Outcomes Document [APP-553]).'</i></p>
5.62	<p><u>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.</u></p>	<p>This paragraph is additional – not currently included in the existing NPSNN.</p> <p>The impact the Project would have upon wider biodiversity interests beyond the Order Limits, including habitats which are functionally linked to European sites, is assessed within the Habitats Regulations Assessment (HRA) – Screening Report and Statement to Inform an Appropriate Assessment [APP-487], ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)], ES Chapter 9:</p>

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	<p><a href="#"><u>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.</u></a></p>	<p>Marine Biodiversity [APP-147], ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] .</p> <p>The HRA includes a full assessment of likely significant effects on land functionally linked to European Sites and the approach to assessing the impacts of the Project on functionally linked land is described in paragraphs 2.5.6 to 2.5.9 of the report (including the identification of sites to be included in the assessment).</p> <p>The Applicant's competent expert concludes there would be no adverse effects on the integrity of any European site (including functionally linked land).</p> <p>With regard to nitrogen deposition impacts, for all ecological sites changes in N deposition are predominantly determined by the traffic changes associated with the Project and by how close the designated habitat is to roads affected by the Project (the Affected Road Network). A number of the sites assessed are therefore relatively remote from the Order Limits as a result of the geographical range of the ARN.</p> <p>With regard to N deposition impacts on European sites, the HRA includes an assessment of increased nitrogen deposition impacts on Epping Forest and North Downs Woodland SACs (approximately 10 metres south-east of the M25 and 160 metres east of the A229 respectively).</p> <p>N deposition impacts on all ecological sites within close proximity to the construction and operational ARN are assessed within Section 5.6 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)].</p>



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		<p>Sections 6 and 7 of ES Appendix 5.6: Project Air Quality Action Plan [<a href="#">APP-350</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] set out the various mitigation and compensation measures specific to N deposition impacts, which are primarily focused around habitat creation at an ecological network scale.</p> <p>More widely, enhancement measures (including significant areas of habitat creation away from the Project road) have been directly incorporated into the Project as part of the application of ‘good design’ principles and these are described in Section 5.5 of ES Chapter 5 [<a href="#">APP-143</a>], Section 7.4 of the Project Air Quality Action Plan [<a href="#">APP-350</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>].</p> <p>With regard to marine biodiversity, as identified in paragraphs 9.3.19 and 9.3.20 of ES Chapter 9: Marine Biodiversity [<a href="#">APP-147</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>], the construction study area was significantly more extensive than the operational study area (which is limited to the immediate vicinity of the tunnel crossing and portal areas) and extends 11km up and downstream of the Order Limits to account for the movement of water and sediments within an average tidal excursion and is confined to the area below mean high water springs.</p> <p>Impacts upon certain mobile/transient marine receptors across the full extent of the tidal Thames and an assessment of possible links to populations from distant protected areas has also been undertaken. Impacts upon these receptors are presented within Section 9.6 of ES Chapter 9.</p> <p>The response to dNPSNN paragraph 4.22 above sets out how the Project would provide enhanced connections between habitat ecosystems while having regard to ecosystem services</p>

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		and local nature recovery strategies (notably through the various recommendations contained within the Planning Statement Appendix H: Green Infrastructure Study <a href="#">[APP-503]</a> ).
5.63	When considering proposals, the Secretary of State should consider whether the applicant has maximised such opportunities <u>and enhancement of wider biodiversity</u> , 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, <u>and ongoing management and maintenance secured</u> .	This paragraph is an amended version of the second half of paragraph 5.33 of the adopted NPSNN which is responded to in detail in Appendix A of the Planning Statement [ <b>Document Reference 7.2 (2)</b> ]. Also see response above to paragraph 5.61.
	Many individual wildlife species receive statutory protection under a range of legislative <del>provisions.</del> <sup>84</sup> <del>Other provisions.</del> <u>Some</u> species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and <del>Wales</del> <sup>82</sup> <u>Wales</u> <sup>m</sup> and therefore requiring conservation action. <u>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 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.</u> 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. <del>Where appropriate, by using requirements or, planning obligations may be used in order to deliver this protection, or licence conditions.</del> The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the	This is a lengthened version of paragraph 5.34 of the existing NPSNN. No response was previously given as it was a statement of fact. Surveys (which include marine species, invertebrates, amphibians, reptiles, bats, water voles, otters, dormice, various bird species and badgers among others) are detailed in Section 8.4 of ES Chapter 8: Terrestrial Biodiversity [ <b>Document Reference 6.1 ES Chapter 8 (2)</b> ], Section 9.4 of ES Chapter 9: Marine Biodiversity [ <a href="#">APP-147</a> ] and Environmental Statement Addendum [ <b>Document Reference 9.8 (9)</b> ]. Protected species identified within the Order Limits have been taken into account in the assessment of biodiversity effects presented in Section 8.6 of ES Chapter 8, and Section 9.6 of ES Chapter 9. A range of mitigation measures have been included in the Project to reduce adverse impacts on protected species. These are set out in Section 8.5 of ES Chapter 8, and Section 9.5 of ES Chapter 9. Taking account of mitigation, the predicted effects of the Project on protected species and habitats of importance are

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	<p>benefits of the development (including need) clearly outweigh that harm.</p> <p><u><a href="#">Certain plant and animal species, including all wild birds, are protected under the Wildlife and Countryside Act 1981.</a></u>  <u><a href="#">European plant and animal species are protected under the Conservation of Habitats and Species Regulations 2010 (as amended).</a></u>  <u><a href="#">Some other animals are protected under their own legislation, for example Protection of Badgers Act 1992.</a></u>  <u><a href="#">m Lists of habitats and species of principal importance for the conservation of biological diversity in England published in response to Section 41 of the Natural Environment and Rural Communities Act 2006 are available from the Biodiversity Action Reporting System website.</a></u></p>	<p>set out in Section 8.6 of ES Chapter 8 and Section 9.6 of ES Chapter 9.</p> <p>The delivery of that mitigation is secured through the REAC measures contained in the CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] which, in turn, are secured through Requirement 4 of Part 1 of Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>].</p> <p>As identified in paragraph 6.5.74 of the Planning Statement [<b>Document Reference 7.2 (2)</b>], ‘Loss of habitat used by terrestrial invertebrates and mortality of terrestrial invertebrate assemblages is identified as a significant impact within the ES. These impacts would be temporary, however, and would persist on a short-term temporary basis (approximately five years) between the time when habitat clearance is undertaken and the establishment of the newly created habitats. Given the disturbed and ephemeral nature of Open Mosaic Habitats, colonisation would be quick and the proposed habitat creation at Coalhouse Fort, Tilbury Fields, Chadwell St Mary, the Mardyke and the M25 would offset for the habitat losses’.</p> <p>As identified in the Need for the Project [<b>APP-494</b>] and Chapter 8: Planning Balance of the Planning Statement [<b>Document Reference 7.2 (2)</b>] the Applicant considers that there is a clear, overriding and compelling case for the Project and the benefits it will deliver outweigh any adverse effects identified.</p>
<b>Resource and Waste Management</b>		
5.65	<p>Government policy on <del>hazardous</del>resource and <del>non-hazardous</del> waste <u>management</u> is intended to protect human health and the environment by <del>producing less</del><u>preventing or reducing the use of resources and favouring the practical application of the</u> waste</p>	<p>This paragraph is an updated version of paragraph 5.39 of the adopted NPSNN reflecting more up-to-date thinking on the waste hierarchy and the concept of the circular economy.</p>

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	<p><del>and hierarchy</del><sup>96</sup> by <del>using it</del> <u>maximising its reuse</u> as a resource <u>and recycling</u> wherever possible. <u>Improving the efficiency of such use is crucial for the transition to a circular economy.</u></p> <p><sup>96</sup> Department for Environment, Food and Rural Affairs. ‘Waste Management Plan for England 2021’</p>	<p>As an introductory paragraph, no response is required.</p>
5.66	<p><u>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.</u> Where <del>this is not</del> possible, <del>waste management regulation ensures that waste is disposed of in a way</del> <u>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 improve appropriate soil reuse on construction sites and reducing the volume</u> that is <del>least damaging</del> <u>sent to the environment and to human health</u> <del>landfill</del>.</p>	<p>This is a wholesale re-working of paragraph 5.42 of the adopted NPSNN to reflect updated thinking on the operation of the waste hierarchy and circular economy.</p> <p>In spite of the new wording, the response previously given to paragraph 5.42 of the adopted NPSNN (and paragraph 5.43 – see response to paragraph 5.71 of the revised draft NPSNN below) remains relevant:</p> <p><i>‘ES Chapter 11: Material Assets and Waste [Document Reference 6.1 ES Chapter 11 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] sets out the proposed arrangements for managing waste produced by the Project. Material use and waste generation is expected during both construction and operation of the Project, with considerably more waste estimated to be generated during the construction phase. Design mitigation includes identifying, securing and using materials onsite, reducing the need to import fill materials. Estimates of materials to be generated onsite and used during construction are presented in ES Appendix 11.4: Material Assets Assessment Supporting Data [APP-438] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>The Contractors would be required to produce a Site Waste Management Plan (or equivalent) setting out procedures for the characterisation, management and monitoring of waste</i></p>

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		<p><i>arisings and to ensure the waste hierarchy is implemented with opportunities to reduce waste generation or improve recovery/recycled rates.</i></p> <p><i>Good practice mitigation forms part of ES Appendix 2.2 Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)] with the Project’s commitments recorded in the Register of Environmental Actions and Commitments (REAC).</i></p> <p><i>The Contractors would be expected to use the methodology contained within ES Appendix 11.1: Excavated Materials Assessment [APP-435] [Document Reference 6.3 (9)], both in validating available offsite capacity at third-party potential receiver sites for bulk inert excavated materials, including stone, chalk and tunnel-related arisings and in identifying opportunities for reuse while complying with legislation and relevant permitting processes.</i></p> <p><i>Designing out the volume of materials to be used through the design process includes removing the bridge at Hornsby Lane, reducing the number of lanes south of the M25, widening the existing Rectory Road rather than constructing a new highway, and reducing the span of the Tilbury Viaduct.’</i></p>
5.67	<p>Sustainable waste management is implemented through the waste hierarchy:</p> <ul style="list-style-type: none"> <li>• prevention</li> <li>• preparing for reuse</li> <li>• recycling</li> <li>• other recovery, including energy recovery <b>and</b></li> <li>• disposal</li> </ul>	Information only. No response required.
5.68	<p><a href="#"><u>Waste management beyond the waste hierarchy is also encouraged, such as adopting a circular approach from the offset, for example, sustainable procurement exercises.</u></a></p>	As above.

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5.69	<p>Large infrastructure projects may generate hazardous and non-hazardous waste during <del>the</del> construction and operation. The <a href="#">Environmental Permitting regime, regulated by the Environment Agency's environmental permitting regime in England</a>, incorporates operational waste management requirements for certain activities. <del>When an applicant applies to the Environment Agency for an environmental permit, the Agency will require the application to demonstrate that processes are in place to meet all relevant permit requirements</del> <a href="#">Applicants should therefore give consideration to the Environmental Permitting regime and whether this applies to their development.</a></p>	<p>Matters related to the environmental permitting regime are addressed in the responses provided to paragraphs 4.44 and 4.45 (and elsewhere) in this accordance table.</p>
5.70	<p><a href="#">Infrastructure projects should look to use legal and sustainable timber<sup>97</sup> and other Modern Methods of Construction where possible.</a></p> <p><sup>97</sup> <i>Department for Environment, Food and Rural Affairs. 'Timber: definition of legal and sustainable'</i></p>	<p>This is a newly introduced paragraph in the draft revised NPSNN.</p> <p>The Applicant addresses matters related to Modern Methods of Construction (MMC) in paragraphs 10.1.4 and 10.1.5 of the Sustainability Statement <a href="#">[APP-544]</a> which state that: <i>'The Contractors would be required to review the design and investigate opportunities to standardise (where reasonably practicable) construction aspects, for example, beam depths, abutment sizes and piers to increase efficiency of materials use in production and reduce waste production. This initiative would be progressed through detailed design and documented in a material efficiency design report submitted to National Highways prior to construction [MW003]. The Contractors would be required to review the design to investigate the use of prefabricated structures and components; and encourage a process of assembly rather than construction onsite where economically and technically feasible [MW004].'</i></p>

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		<p>These measures would be secured through the REAC which forms part of the CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] and is legally secured through Requirement 4 of Part 1 of Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>].</p> <p>Other relevant measures in the REAC include MW002 Responsible Sourcing which requires Contractors to use BRE Framework Standard for Responsible Sourcing (BES 6001)<sup>42</sup> to verify that imported materials are sustainably sourced and managed. While BES 6001 does not specifically mention wood or timber, any material, product or product group can be certified against the standard.</p> <p>Finally, the Project is a CEEQUAL project (BREEAM standards for infrastructure and civil engineering projects) which seeks to comply with the sustainability standards set out in BREEAM Infrastructure Projects (Version 6) (Technical Manual SD6051)<sup>43</sup>. Section 7.5 of the manual deals with the responsible sourcing of construction products including legal and sustainable timber and compliance with BES 6001: 2008 Framework Standards for Responsible Sourcing. In order to achieve CEEQUAL accreditation the Applicant would need to demonstrate it has complied with these requirements (see paragraph 2.2.5 of the CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>]).</p>

<sup>42</sup> BRE (2008). BES 6001 – Framework Standard for Responsible Sourcing. <https://bregroup.com/services/standards/bes-6001-the-framework-standard-for-responsible-sourcing/>

<sup>43</sup> BRE (n.d.). BREEAM Infrastructure Projects Version 6 Technical Manual SD6051. <https://bregroup.com/products/ceequal/the-ceequal-technical-manuals/#section1>

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5.71	<p>The Secretary of State should consider the extent to which the applicant has proposed an effective process that will be followed to ensure <u>safe and</u> effective management of <del>hazardous and non-hazardous</del> waste arising from the construction and operation of the proposed development. <u>It is advised that this is detailed in the dedicated plans summarising the sustainable use of resources and waste for both construction and operation as part of the application documentation.</u> The Secretary of State should be satisfied that the process sets out:</p> <ul style="list-style-type: none"> <li>• <del>any such</del> <u>how</u> waste will be <del>properly</del> managed, both on-site and off-site;</li> <li>• <del>the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area; and that</del> <u>consideration has been given to available waste management infrastructure capacity to manage wastes arising from the development</u></li> <li>• adequate steps have been taken to minimise the volume of waste <del>arisings, arising</del> and <del>of the volume of waste arisings sent to disposal, except where an alternative is the most sustainable outcome overall.</del> <u>maximise opportunities for reuse and recycling</u></li> </ul>	<p>This paragraph is a re-worked and updated version of paragraph 5.43 of the adopted NPSNN (additional text underlined). Despite the re-wording, the thrust remains the same and the response provided previously to this paragraph remains relevant:</p> <p><i>'ES Chapter 11: Material Assets and Waste [Document Reference 6.1 ES Chapter 11 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] shows that waste from the Project can be dealt with appropriately by the waste infrastructure, which is, or is likely to be, available.</i></p> <p><i>ES Appendix 11.1: Excavated Materials Assessment [APP-435] and Environmental Statement Addendum [Document Reference 9.8 (9)] demonstrates that there is sufficient capacity at suitable potential sites to manage excavated materials. It also provides a mechanism for assessing any additional suitable potential sites for the treatment, handling or use of excavated material.</i></p> <p><i>Paragraph 11.6.44 of ES Chapter 11 [Document Reference 6.1 ES Chapter 11 (2)] notes that the Project would use less than 1% of the inert and non-hazardous landfill capacity in England, which would be below the threshold to trigger a significant effect. However, the Project would use more than 1% of inert and non-hazardous landfill capacity in the study area. This is above the threshold outlined within DMRB LA 110 Material assets and waste (Highways England, 2019), and is judged to be moderate adverse effect and therefore significant.</i></p> <p><i>However, this assessment of significance uses the criteria set out within DMRB LA 110 (Highways England, 2019), which only reports against landfill capacity, not reuse, recycling or recovery within the study area. With regard to paragraph 5.43</i></p>



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		<p><i>of the NPSNN, the assessment demonstrates that an adverse effect on the capacity of existing waste management facilities, as a whole, to deal with other waste arisings in the area would not occur. The Project would use approximately 2.59% of inert and non-hazardous landfill capacity within the study area, which includes a landfill site located within the Order Limits. If this site was excluded from the assessment, the Project would use approximately 0.94% of inert and non-hazardous landfill capacity within the study area, which would be less than the 1% threshold required to trigger a significant effect. In addition, the Project would use only 0.5% of the annual recycling/treatment and/recovery capacity in the study area (paragraph 11.6.45 of Chapter 11 [Document Reference 6.1 ES Chapter 11 (2)]).</i></p> <p><i>Section 11.5 of ES Chapter 11 [Document Reference 6.1 ES Chapter 11 (2)] also outlines the steps taken towards waste minimisation through design to divert waste from disposal, except where an alternative is the most sustainable outcome overall. Table 11.12 in Chapter 11 provides details of the waste reduced as a result of design changes.</i></p> <p><i>Onsite and offsite waste management arrangements, targets and Contractors performance are detailed in the Environmental Statement in line with essential mitigation and good practice and forming part of ES Appendix 2.2: Code of Construction Practice (CoCP) [Document Reference 6.3 ES Appendix 2.2 (9)].</i></p> <p><i>An outline Site Waste Management Plan [Document Reference 6.3 ES Appendix 2.2 Annex A (4)] (or equivalent) and an outline Materials Handling Plan [Document Reference 6.3 ES Appendix 2.2 Annex B (5)] would be produced by the Contractors setting out procedures for the characterisation,</i></p>

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		<p><i>management and monitoring of wastes arisings and would contain initial waste forecasts of construction waste listed by waste type, waste code, source and anticipated weight. All wastes entered would have a final destination entered and the offsite destination, i.e. reuse, recycling, recovery or disposal. Waste management offsite would be completed under the Duty of Care (section 34 of the Environmental Protection Act 1990), with all waste transported using licensed carriers and taken only to appropriately permitted facilities.</i></p> <p><i>In line with the initial calculations presented in ES Appendix 11.5: Waste Assessment Supporting Data [APP-439] and Environmental Statement Addendum [Document Reference 9.8 (9)] the Contractors would be required to demonstrate that sufficient space has been allowed for within the construction working areas for stockpiles for topsoil, contaminated material (for later offsite management), materials to be reused, excess clean material and imported materials for construction. This would enable the segregation of waste types, thus preventing the mixing of hazardous and non-hazardous wastes and to enhance recovery rates by minimising degradation, damage and loss.</i></p> <p><i>In line with the requirements of Design Manual for Roads and Bridges (DMRB) LA 110 Material Assets and Waste (Highways England, 2019), enhancement opportunities shall be identified, reported and implemented during detailed design and construction to reduce the Project’s material demand and amount of waste sent for final disposal in landfill.’</i></p> <p><i>In addition, in terms of maximising opportunities for reuse and recycling, the creation of Chalk Park at the South Portal will use spoil arisings from the excavation of the Project tunnel under the River Thames so reducing the need for material to</i></p>

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		be exported offsite. See Section 12 of Part G: Design Evolution of the Project Design Report [ <a href="#">APP-514</a> ].
5.72	Where the project will be subject to the <del>Environment Agency's environmental permitting</del> <a href="#">Environmental Permitting</a> regime, waste management arrangements during operations will be covered by the permit and the considerations set out in paragraphs <del>4.48</del> <a href="#">4.42</a> to <del>4.56</del> <a href="#">4.50</a> will apply.	This paragraph replicates paragraph 5.45 of the adopted NPSNN. Please see responses to paragraphs 4.42 to 4.50 above.
5.73	<a href="#">Where possible, projects should include the reuse of materials and use of sustainable materials such as timber, or recycled materials.</a>	This is a new addition to the draft revised NPSNN. It is addressed in the responses to paragraphs 5.66 and 5.71 above.
<b>Civil and Military Aviation and Defence Interests</b>		
5.74	Civil and military aerodromes, aviation technical sites, and other types of defence interests (both onshore and offshore) can be affected by new national networks infrastructure development.	These introductory paragraphs replicate paragraphs 5.46 to 5.55 of the adopted NPSNN. No response is required.
5.75	UK airspace is important for both civilian and military aviation interests. It is essential that the safety of UK aerodromes, aircraft and airspace is not adversely affected by new national networks infrastructure. Similarly, aerodromes can have important economic and social benefits, particularly at the regional and local level. Commercial civil aviation is largely confined to designated corridors of controlled airspace and set approaches to airports. However, civilian leisure and military aircraft may often fly outside of 'controlled air space'. The approaches and flight patterns to aerodromes are not necessarily routine and can be irregular owing to a variety of factors including the performance characteristics of the aircraft concerned and the prevailing meteorological conditions.	

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5.76	<p>Certain civil aerodromes, and aviation technical sites, selected on the basis of their importance to the national air transport system, are officially safeguarded in order to ensure that their operation is not inhibited by new development. <del>A similar official safeguarding system applies to certain military aerodromes and defence assets, selected on the basis of their strategic importance.</del> Areas of airspace around aerodromes used by aircraft taking off or on approach and landing are described as “obstacle limitation surfaces” <del>(OLS)</del> and defined according to criteria set out in relevant Civil Aviation Authority <del>(CAA)</del> guidance<sup>98</sup> <sup>83</sup>. Aerodromes that are officially safeguarded will have <del>CAA</del> <a href="#">Civil Aviation Authority</a> certified <del>Safeguarding</del> <a href="#">Safeguarding</a> maps showing the <del>OLS</del> <a href="#">obstacle limitation surfaces</a>. <del>A similar official safeguarding system applies to certain military aerodromes and defence assets, selected on the basis of their strategic importance.</del></p>	
5.77	<p>The certified safeguarding maps depicting the <del>OLS</del> <a href="#">obstacle limitation surfaces</a> and other criteria (e.g., to minimise <del>birdstrike</del> <a href="#">bird strike</a> hazards) are deposited with the relevant local planning authorities. Circular 1/2003<sup>84</sup> provides advice to planning authorities on the official safeguarding of aerodromes and includes a list of the aerodromes which are officially safeguarded. The Circular and <del>CAA</del> <a href="#">Civil Aviation Authority</a> guidance also recommends that the operators of aerodromes which are not officially safeguarded should take steps to protect their aerodrome from the effects of possible adverse development by establishing an agreed consultation procedure between themselves and the local planning authority or authorities.</p>	

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5.78	There are also “Public Safety Zones” at the end of runways of the busiest airports in the UK, within which development is restricted to minimise risks to people on the ground in the event of an aircraft accident on take-off or landing. Advice is provided on Public Safety Zones in Circular 01/2002.	
5.79	The military Low Flying system covers the whole of the UK and enables low flying activities as low as 75m (mean separation distance). A considerable amount of military flying for training purposes is conducted at as low as 30m in designated Tactical Training Areas <del>(TTAs)</del> in mid Wales, Cumbria, the Scottish Border region and in the Electronic Warfare Range in the Scottish Border area. New national networks infrastructure may cause obstructions in Ministry of Defence <del>(MoD)</del> low flying areas.	
5.80	Safe and efficient operations within UK airspace is dependent upon communications, navigation and surveillance <del>(CNS)</del> infrastructure, including radar (often referred to as ‘technical sites’). National Networks infrastructure development may interfere with the operation of radar by limiting the capacity to handle air traffic, and aircraft landing systems. It may also act as a reflector or diffractor of radio signals on which navigational aids rely (an effect which is particularly likely to arise when large structures are located close to radar installations).	
5.81	The <del>MoD</del> <a href="#">Ministry of Defence</a> operates military training areas, military danger zones (offshore Danger and Exercise areas), military explosives storage areas and <del>TTAs</del> <a href="#">Tactical Training Areas</a> . There are extensive Danger and Exercise Areas across the UK Continental Shelf Area <del>(UKCS)</del> for military firing that are essential for national defence.	

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5.82	Other operational defence assets may be affected by new development, e.g. the maritime acoustic facilities used to test and calibrate noise emissions from naval vessels, such as at Portland Harbour. The <del>MoD</del> <a href="#">Ministry of Defence</a> also operates Air Defence <del>radars and Meteorological</del> radars which have wide coverage over the UK (onshore and offshore). It is important that new national networks infrastructure does not significantly impede or compromise the safe and effective use of any defence assets.	
5.83	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.	
5.84	The applicant should consult the <del>MoD, CAA</del> <a href="#">Ministry of Defence, Circular and Civil Aviation Authority</a> , National Air Traffic Services ( <del>NATS</del> ) and any aerodrome <del>—</del> licensed or otherwise <del>—</del> likely to be affected by the proposed development in preparing an assessment of the proposal on aviation or other defence interests.	These paragraphs replicate paragraphs 5.56 to 5.58 of the adopted NPSNN. The response given previously remains relevant:  <i>‘The National Air Traffic Service (NATS) has been consulted on the Project as part of the Environmental Scoping consultation undertaken by the Planning Inspectorate. In response, NATS advised that, ‘The proposed development has been examined from a technical safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company (‘NERL’) has no safeguarding objection to the proposal.’</i>
5.85	Any assessment on aviation or other defence interests should include potential impacts during construction and operation of the project upon the operation of <del>CNS</del> <a href="#">communications, navigation and surveillance</a> infrastructure, flight patterns (both civil and military), other defence assets and aerodrome operational procedures.	
5.86	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.	

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5.87	<p>Where a proposed national networks infrastructure project would significantly impede or compromise the safe and effective use of civil or military aviation or defence assets and/or significantly limit military training, the Secretary of State may consider the use of ‘Grampian conditions’<sup>n</sup> or other forms of requirement which relate to the use of future technological solutions to mitigate impacts. Where technological solutions have not yet been developed or proven, the Secretary of State will need to consider the likelihood of a solution becoming available within the time limit for implementation of the development consent.</p> <p><sup>n</sup> <i>A negative condition that prevents the start of a development until specific actions, mitigation or other development have been completed.</i></p>	<p>These paragraphs replicate 5.59 to 5.66 of the adopted NPSNN. As there would be no adverse impacts on aviation assets, no response is necessary.</p>
5.88	<p>Mitigation for infringement of <a href="#">obstacle limitation surfaces may include:</a></p> <ul style="list-style-type: none"> <li>• amendments to layout or scale of infrastructure to reduce the height, provided that it does not result in an unreasonable reduction of capacity or unreasonable constraints on the operation of the proposed national networks infrastructure</li> <li>• changes to operational procedures of the aerodromes in accordance with relevant guidance, provided that safety assurances can be provided by the operator that are acceptable to the <a href="#">Civil Aviation Authority</a> where the changes are proposed to a civilian aerodrome (and provided that it does not result in an unreasonable reduction of capacity or unreasonable constraints on the operation of the aerodrome)</li> <li>• upgrading of installation of obstacle lighting and/or by notification in Aeronautical Information Service publications</li> </ul>	

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5.89	<p><a href="#">For communications, navigation and surveillance</a> infrastructure, the UK military Low Flying system (including <a href="#">Tactical Training Areas</a>) and designated air traffic routes mitigation may include:</p> <ul style="list-style-type: none"> <li>• <a href="#">lighting</a></li> <li>• <a href="#">upgrading of existing communications, navigation and surveillance infrastructure, the cost of which the applicant may reasonably be required to contribute in part or in full</a></li> </ul>	
5.90	<p>Mitigation for effects on radar and navigational systems may include reducing the scale of a project, although in some cases it is likely to be unreasonable to require mitigation by way of a reduction in the scale of development, for example where this would result in a material reduction in capacity or where operations would be severely constrained. However, there may be exceptional circumstances where a small reduction in capacity or other small change to a project will result in proportionately greater mitigation. In these cases, the Secretary of State may consider that the benefits of the mitigation outweigh the marginal loss, for example, of capacity.</p>	
5.91	<p>The Secretary of State should be satisfied that effects on civil and military aviation and other defence assets have been addressed by the applicant and that any necessary assessment of the proposal on aviation or defence interests has been carried out. In particular, it should be satisfied that the proposal has been designed to minimise adverse impacts on the operation and safety of aerodromes and that reasonable mitigation is carried out. It may also be appropriate to expect operators of the aerodrome to consider making reasonable changes to operational procedures. The Secretary of State will have regard to the necessity, acceptability and reasonableness of operational changes to aerodromes, and the risks or harm of such changes</p>	<p>These paragraphs replicate paragraphs 5.63 to 5.66 of the adopted NPSNN. It has been confirmed there would be no adverse impacts on aviation infrastructure or assets. No response is required.</p>



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	when taking decisions. When making such a judgement in the case of military aerodromes, the Secretary of State should have regard to interests of defence and national security.	
5.92	If there are conflicts between the <del>Government</del> <u>government</u> 's national networks policies and military interests in relation to the application, the Secretary of State expects the relevant parties to have made appropriate efforts to work together to identify realistic and pragmatic solutions to the conflicts. In so doing, the parties should seek to protect the aims and interests of the other parties as far as possible.	
5.93	There are statutory requirements concerning lighting to tall structures. Where lighting is requested on structures that go beyond statutory requirements by any of the relevant aviation and defence consultees, the Secretary of State should be satisfied of the necessity of such lighting, taking into account the case put forward by the consultees. The effect of such lighting on the landscape, local residents and ecology may be a relevant consideration, depending on the particular circumstances. <del>be a</del> <u>relevant consideration</u>	
5.94	Where, after reasonable mitigation, operational changes and planning obligations and requirements have been proposed, development consent should not be granted if the Secretary of State considers that <u>either</u> : <ul style="list-style-type: none"> <li>• a development would prevent a licensed aerodrome from maintaining its licence</li> <li>• the benefits of the proposed development are outweighed by the harm to aerodromes serving business, training, or emergency service needs <del>or</del></li> </ul>	

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	<ul style="list-style-type: none"> <li>the development would significantly impede or compromise the safe and effective use of defence assets or significantly limit military training.</li> </ul>	
<b>Coastal Change <u>and marine impacts</u></b>		
5.95	Where infrastructure projects are proposed on the coast, coastal change is a key consideration. This section is concerned both with the impacts which national networks infrastructure can have as a driver of coastal change and with how to ensure that developments are resilient to ongoing and potential future coastal change. The aim of the <del>Government</del> <u>government</u> 's planning policy is to reduce risk from coastal change by avoiding inappropriate development in vulnerable areas or adding to the impacts of physical changes to the coast.	These paragraphs directly replicate paragraphs 5.67 to 5.69 of the adopted NPSNN. As general introductory paragraphs, no response is required.
5.96	The construction of national networks infrastructure on the coast may involve, for example, dredging, dredge spoil deposition, marine landing facility construction, and flood and coastal protection measures which could result in direct effects on the coastline, seabed, marine ecology and biodiversity, and the historic environment.	
5.97	Additionally, indirect changes to the coastline and seabed might arise as a result of a hydrodynamic response to some of these direct changes. This could lead to localised or more widespread coastal erosion or accretion and changes to offshore features such as submerged banks and ridges, marine biodiversity, and the historic environment.	
5.98	This section only applies to national networks infrastructure projects situated on or near the coast. The sections on biodiversity and <del>geological</del> <u>nature</u> conservation, flood risk, the historic environment and climate change adaptation, including	Other than in the change from the word 'geological' to 'nature' ( <u>underlined</u> ) this paragraph directly replicates paragraph 5.70 of the adopted NPSNN. As the Project is not sited on or near the coast, no response is required.

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	<p>the increased risk of coastal erosion, are also relevant, <del>as is advice on access to coastal recreation sites and features in the section on land use.</del></p>	
5.99	<p><u>As detailed in paragraphs 170 to 173 of the National Planning Policy Framework, guidance should be followed for:</u></p> <ul style="list-style-type: none"> <li>• <u>The National Planning Policy Framework concept of integrated coastal zone management</u></li> <li>• <u>National Planning Policy Framework policy against the location of new, potentially vulnerable, infrastructure within existing coastal change management areas</u></li> <li>• <u>Strong assumption that land likely to be needed for future flood or coastal erosion risk management infrastructure will be safeguarded from development that would in any way prevent or hinder its delivery or operation</u></li> <li>• <u>Development will not hinder the creation, use of, and maintenance of a continuous signed and managed route along the coast (as required by the Marine and Coastal Access Act 2009)</u></li> </ul>	<p>This is a newly introduced paragraph in the draft revised NPSNN. However, as the Project is not located within, close to, nor would it impact a coastal change management area, no response is considered necessary on that point, nor the coastal access point. Matters related to flood and coastal erosion risk management are addressed in the section of the draft revised NPSNN dealing with Flood Risk below. No further response is considered necessary.</p>
5.100	<p>Applications for development in a Coastal Change Management Area <del>(CCMA)</del> should make it clear why there is a need for it to be located in a <del>CCMA</del> <u>Coastal Change Management Area</u>.<sup>88</sup> For developments <u>requested</u> in a <del>CCMA</del> <u>Coastal Change Management Area</u>, 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 <u>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.</u></p>	<p>As noted above, the Project is no located within or close to a coastal change management area. No further response is considered necessary.</p>

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	<p>° <i>Coastal Change Management Areas are areas identified in Local Plans as likely to be affected by coastal change (physical change to the shoreline through erosion, coastal landslip, permanent inundation or coastal accretion).</i></p>	
5.101	<p>For any projects <del>involving</del><u>with any impacts (not just on coastal change) in marine waters as described in section 42(2) of the Planning Act 2008, including</u> dredging or disposal into the sea, the applicant should <u>consider the relevant marine plan and also</u> consult the Marine Management Organisation <del>(MMO)</del>, and where appropriate, for cross-boundary impacts, Natural Resource Wales and <del>Scottish Natural Heritage</del><u>NatureScot</u>, at an early stage. The applicant should also consult the <del>MMO</del><u>Marine Management Organisation</u> on projects which could impact on coastal change, since the <del>MMO</del><u>Marine Management Organisation</u> may also be involved in considering other projects which may have related coastal impacts.</p>	<p>This paragraph broadly reflects the provisions of paragraph 5.72 of the adopted NPSNN (additional text underlined). The response given previously to that paragraph remains relevant: <i>‘Dredging is not required for the construction or operation of the Project. Due to the small-scale nature of the works in relation to the marine environment, it has been concluded that the Project would not influence coastal protection. The Marine Management Organisation (MMO) has been engaged throughout the EIA process, with discussions on a range of issues affecting the River Thames and the foreshore arising from the Project.</i></p> <p><i>This has included the marine monitoring and modelling programme, the need for Marine Conservation Zone (MCZ) and Marine Strategy Framework Directive assessments, proposed dewatering, discharge and intake structures in the Project design and a programme for the submission of the draft Deemed Marine Licence. A record of outstanding issues with the MMO will be presented in a Statement of Common Ground with the MMO [Document Reference 5.4.1.5 (3)].’</i></p>
5.102	<p>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<sup>p</sup>.</p> <p><sup>p</sup> <i>The relevant information will include Shoreline Management Plans.</i></p>	<p>This paragraph directly replicates paragraph 5.73 of the adopted NPSNN.</p> <p>Because the Project is not located on the coast, no response was previously given to that paragraph. No response is required.</p>

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5.103	<p>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 <del>(SACs)</del>, coastal <del>SACs</del> <a href="#">Special Areas of Conservation</a> and candidate coastal <del>SACs</del> <a href="#">Special Areas of Conservation</a>, coastal Special Protection Areas <del>(SPAs)</del> and potential coastal <del>SPAs</del> <a href="#">Special Protection Areas</a>, Ramsar sites, Sites of Community Importance <del>(SCIs)</del> and potential <del>SCIs</del> <a href="#">Sites of Community Importance</a> and <del>sites</del> <a href="#">Sites</a> 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 <del>Scottish Natural Heritage</del> <a href="#">Nature Scot</a>, at an early stage.</p>	<p>Other than in respect of updated nomenclature/use of abbreviations, this paragraph directly replicates paragraph 5.74 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>‘ES Chapter 9: Marine Biodiversity [APP-147] and Environmental Statement Addendum [Document Reference 9.8 (9)] identifies three European designated sites (Southern North Sea SAC, Thames Estuary and Marshes Ramsar site and Thames Estuary and Marshes SPA) alongside six nationally designated sites (Swanscombe MCZ, South Thames Estuary and Marshes SSSI, Mucking Flats and Marshes SSSI, Holehaven Creek SSSI, West Thurrock Lagoon and Marshes SSSI and Swanscombe Peninsula SSSI) that have potential to be impacted by the Project’s activities. Subsequent engagement with the MMO has resulted in agreement that an MCZ assessment is not required as the Project would be unlikely to affect the MCZ in the Thames Estuary.’</i></p>
5.104	<p>Applicants should propose appropriate mitigation measures to address adverse physical changes to the coast in consultation with the <a href="#">Marine Management Organisation</a>, the Environment Agency, Natural England, Natural Resource Wales, <a href="#">Nature Scot</a>, Local Planning Authorities, other statutory consultees, Coastal Partnerships, <a href="#">Coastal Protection Authorities</a> and other coastal groups, as it considers appropriate. The Secretary of State should consider whether the mitigation requirements put forward by an applicant are acceptable and will be delivered and whether requirements should be attached to any grant of development consent in order to secure their delivery.</p>	<p>This paragraph directly replicates paragraph 5.79 of the adopted NPSNN. The response given to that paragraph remains relevant:</p> <p><i>‘The Marine Management Organisation (MMO) has been engaged throughout the EIA process, with discussions on a range of issues affecting the River Thames and the foreshore. A programme of engagement has also been undertaken with the Environment Agency, which has considered all aspects of coastal protection with respect to proposed construction and operational activities. Due to the small-scale nature of the proposed works in relation to the marine environment, it has been concluded that the Project would not adversely influence the coast or any associated coastal protection.’</i></p>

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5.105	<p><a href="#"><u>The Secretary of State should also ensure development granted consent in a Coastal Change Management Area is not at risk of being impacted by coastal change (including flooding and erosion) – if necessary, by limiting the planned lifetime of the proposed development and including restoration requirements where these are necessary to reduce the risk to people and the development.</u></a></p>	<p>This paragraph replicates paragraph 5.80 of the adopted NPSNN. No response is necessary as the Project is not within, nor would it impact on, any Coastal Change Management Area (CCMA).</p>
5.106	<p>In considering the impact on maintaining coastal recreation sites and features, the Secretary of State should expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast. In doing so, <a href="#"><u>the Secretary of State should consider the implications for development of the creation of a continuous signed and managed route around the coast, as proposed in Part 9 of the Marine and Coastal Access Act 2009.</u></a></p>	<p>This paragraph directly replicates paragraph 5.177 in the Land Use including Open Space, Green Infrastructure and Greenbelt section of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>‘Coalhouse and Tilbury Forts lie immediately east of the Order Limits and are also located along the coastal path and cycle path networks. It is acknowledged that Thurrock Council’s Active Travel Strategy (Thurrock Council, 2017b) highlights the priority of addressing east–west connections for cycling and walking. Construction impacts for Coalhouse Fort relate primarily to amenity impacts for visitors (as a result of changes in noise, traffic and landscape quality). Potential disturbance impacts from construction traffic may arise due to the use of Princess Margaret Road. Tilbury Fort may similarly experience amenity impacts for users arising from changes in noise and landscape quality.</i></p> <p><i>Whilst the forts would not experience any impacts over the operational phase, the popularity of this coastal route has nevertheless been noted and as part of the landscaping strategy around the North Portal, the Project has been designed to include a pair of looping footpaths that climb the new landforms created from the excavated material. These footpaths are designed to be connected at both ends back to FP146 so that users of the Two Forts Way may divert from the</i></p>

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		<p><i>existing route and experience newly created views over the River Thames. The extended landforms have been designed to align with the cannon mounts on the nearby forts, to focus the viewer’s eye toward the heritage features. Placemaking features and interpretation material will also increase the legibility of the landscape and increase the recreational value of the route between Coalhouse Fort and Tilbury Fort.’</i></p>
5.107	<p>When assessing applications in a <a href="#">GCMA Coastal Change Management Area</a>, the Secretary of State should not grant development consent unless it is demonstrated that the development:</p> <ul style="list-style-type: none"> <li>• will be safe over its planned lifetime and will not have an unacceptable impact on coastal change;</li> <li>• will <del>not compromise</del> <a href="#">be consistent with</a> the <a href="#">special</a> character of the coast covered by designations; <del>and recognise the importance of its conservation</del></li> <li>• provides wider sustainability benefits; <del>and</del></li> <li>• does not hinder the creation and maintenance of a continuous signed and managed route around the coast.</li> </ul>	<p>These paragraphs largely replicate the provisions of paragraphs 5.75 and 5.76 of the adopted NPSNN. As the Project is not in a CCMA, no response is necessary.</p>
5.108	<p>Essential infrastructure may be granted <a href="#">by</a> development consent in a <a href="#">GCMA Coastal Change Management Area</a>, provided there are clear plans to manage the impacts of coastal change on it, and it will not have an adverse impact on rates of coastal change elsewhere.</p>	
5.109	<p>The Marine and Coastal Access Act 2009 provides for the preparation of a Marine Policy Statement (<del>MPS</del>) and <del>a number of</del> marine plans. The Secretary of State must have regard to the <del>MPS</del> <a href="#">Marine Policy Statement</a> and applicable marine plans in taking any decision which relates to the exercise of any function</p>	<p>This paragraph replicates paragraph 5.77 of the adopted NPSNN. The response given previously remains relevant: <i>‘The Project would not impact on the coast/marine environment directly as both portals will be located away from the coast. The construction of the tunnel would be undertaken</i></p>

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	<p>capable of affecting any part of the UK marine area<sup>100</sup>.<del>99</del> <del>In the event of a conflict between any of these marine planning documents and this NPS, the NPS prevails for the purposes of decision making given the national significance of the infrastructure.</del></p> <p><sup>100</sup> GOV.UK Legislation. 'Planning Act 2008, Section 104(2)(aa)'</p>	<p><i>without any disturbance of the seabed. Minimal operational development (discharge and intake structures within the existing flood defence) is proposed within the Marine Environment and therefore it would not be necessary to consider the policies within the Marine Plan in this case.'</i></p>
5.110	<p><del>Substantial weight</del> <u>Consideration</u> should be <del>attached</del> <u>given</u> to the risks of flooding and coastal erosion. The applicant must demonstrate that full account has been taken of the policy on assessment and mitigation in paragraphs <del>5.91–5.114</del> <u>5.120 to 5.145</u> of this NPS, taking account of the potential effects of climate change on these risks <u>and the relevant Shoreline Management Plan</u>.</p>	<p>This paragraph reflects a change of weight in the planning balance in respect of flooding and coastal erosion. Paragraph 5.78 of the adopted NPSNN started '<i>Substantial weight should be attached...</i>' in place of the underlined text. The new text also adds reference to any relevant Shoreline Management Plan (SMP) (also underlined) which is not relevant to the Project as it does not impact on any SMP areas.</p> <p>The responses given to paragraphs 5.120 to 5.145 provide the response to this paragraph.</p>
<b>Dust, Odour, Artificial Light, Smoke, Steam</b>		
5.111	<p>As well as noise and vibration (<del>paragraphs 5.186</del> <u>paragraph numbers 5.218 to 5.200</u> <u>5.232</u>) the construction and operation of national networks infrastructure has the potential to create a range of emissions such as odour, dust, steam, smoke and artificial light. All have the potential to have a detrimental impact on amenity or cause a common law nuisance or statutory nuisance under Part III, Environmental Protection Act 1990. Note that pollution impacts from some of these emissions (e.g. <u>dust, smoke</u>) are covered in the section on air emissions and that these and others (e.g. <u>odour</u>) may also be covered by pollution control or other environmental consenting regimes so that paragraphs <del>4.48</del> <u>5.7</u> to <del>4.56</del> <u>5.24</u> and <del>5.34</del> <u>4.42</u> to <del>5.15</del> <u>4.50</u> will apply</p>	<p>This paragraph directly replicates paragraph 5.81 of the adopted NPSNN. It is an introductory factual paragraph and no response is necessary.</p>



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5.112	<p><del>Because</del> <u>As a result</u> of the potential effects of these emissions and in view of the availability of the defence of statutory authority against nuisance claims</p>	<p>This paragraph directly replicates paragraph 5.82 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'The nature of the Project is such that no impacts arising from odour, smoke or steam are predicted.</i></p> <p><i>A Statement of Statutory Nuisance [APP-489] has been prepared to identify whether the Project engages in one or more of the statutory nuisances set out in section 79 (1) of the Environmental Protection Act 1990, and if so, how National Highways would mitigate or limit such nuisances.</i></p> <p><i>The Statement concludes that the Project has the potential to engage in five of the statutory nuisances listed in the Environmental Protection Act 1990. These comprise dust arising from industrial, trade or business premises, accumulation or deposits, artificial light, noise from premises and noise from vehicles/machinery/equipment.</i></p> <p><i>However, with the appropriate mitigation measures in place, none of the statutory nuisances identified are predicted to arise during the construction or operation of the Project.'</i></p>
5.113	<p>For nationally significant infrastructure projects of the type covered by this NPS, some impact on amenity for local communities is likely to be unavoidable. Impacts should be kept to a minimum and should be at a level that is acceptable.</p>	<p>This paragraph directly replicates paragraph 5.83 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'The impacts of the Project on amenity are described in ES Chapter 13: Population and Human Health [APP-151] and Environmental Statement Addendum [Document Reference 9.8 (9)] which consider the potential effects on the economy, property, community facilities, development land and businesses including agricultural holdings. The assessment has also considered the potential effects on walkers, cyclists and horse riders (WCH).</i></p>

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		<p><i>The majority of adverse impacts would occur over the construction phase and (with the exception properties at risk from demolition or land-take as a result of the Project) would be localised and temporary in nature. No adverse air quality impacts are predicted over the construction phase.</i></p> <p><i>A range of mitigation measures to manage potential effects have been proposed, including good practice mitigation and essential mitigation. The most significantly affected receptors would be properties at risk from demolition or acquisition as a result of the Project. Mitigation measures relate to appropriate compensation mechanisms. Community land would also be affected by virtue of temporary possession and permanent acquisition of land. However, replacement land would be provided where permanent effects have been identified.</i></p> <p><i>A range of enhancement opportunities have been identified to improve the Public Rights of Way (PRoW) network through enhanced facilities, the creation of missing links and provision of open space. The Project would also achieve improvements in relation to noise and vibration, work and training and air quality over specific areas, and would therefore deliver significant benefits to local communities in the longer term.</i></p> <p><i>Sensitive communities and populations have been identified as part of the human health assessment. Effects on these populations are described in further detail within the Health and Equalities Impact Assessment [REP7-144].’</i></p>
5.114	<p><del>Where the development is subject to an Environmental Impact Assessment, the</del><u>The</u> applicant should assess <del>any likely significant effects on amenity from</del><u>the potential for</u> emissions of odour, dust, steam, smoke and artificial light <del>and describe these</del></p>	<p>Paragraph 5.114 broadly reflects the sentiment of paragraph 5.84 of the adopted NPSNN. The response previously given to that paragraph remains relevant:</p> <p><i>‘The nature of the Project is such that no significant impacts in relation to steam or smoke are predicted.</i></p>

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	<p><del>in the Environmental Statement</del> <u>to have a detrimental impact on amenity.</u></p>	<p><i>A Scoping Report (Highways England, 2017) was issued to the Planning Inspectorate on 2 November 2017, setting out the proposed approach to this Project’s EIA. A Scoping Opinion received from the Secretary of State on 13 December 2017 included comments on the scope of assessment from the Planning Inspectorate and Statutory Environmental Bodies. These comments have been taken into account in the preparation of the Environmental Statement.</i></p> <p><i>Section 5.3 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] sets out the consultation process for the Project and the engagement undertaken with the relevant local planning authorities and stakeholders to agree the methodology of the air quality impact assessment.</i></p> <p><i>Given the size of the Project and the location of receptors, the overall dust risk potential is rated ‘large’ and properties located within 200m of construction activities have the potential to be adversely affected by construction dust. However, ES Chapter 5: Air Quality and Environmental Statement Addendum [Document Reference 9.8 (9)] concludes that these effects would be temporary in nature and suitably controlled using best practice measures. Proposed mitigation includes a range of measures to manage dust emissions. This includes wheel washing vehicles on entering and leaving the site, ensuring that spoil is covered and damp when being transported and using water suppression for dust control. No adverse dust impacts are predicted over the operational phase and therefore no mitigation is needed.</i></p> <p><i>Construction activity would involve excavation of varying depths with excavated materials potentially containing contaminants that may have a bad or strong smell. To ensure</i></p>

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		<p><i>that there are no significant effects to local residents, appropriate mitigation has been proposed, such as storing odorous material as far away as possible from residential receptors and for this to be prioritised for removal as quickly as possible. Material that is odorous would be covered when transported from site and contaminated material that is odorous would be stockpiled separately to material that is non-contaminated.</i></p> <p><i>During construction, artificial lighting would be required at construction compounds to facilitate ongoing works. Although it is anticipated that artificial lighting may be perceived at some receptors during construction, this is not expected to give rise to an unacceptably harmful impact upon local amenity. ES Appendix 2.2: Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)] for the construction phase of the Project, states that lighting would be designed, positioned and directed to prevent or minimise light disturbance to nearby residents, reduce light splay, ecological receptors, as well as motorists and rail and marine operations. This provision would apply particularly to sites where night working or security lighting would be required.</i></p> <p><i>For the operational phase of the Project, guidance would be taken from the Institution of Lighting Professionals’ (2020) Guidance Notes for the Reduction of Obtrusive Light – Guidance Note 01/2020, which includes details of proposed embedded mitigation on light pollution, including measures such as minimising lighting column heights and using LED luminaires with reduced light spill to reduce the impact of lighting in the AONB.’</i></p>
5.115	In particular, the assessment provided by the applicant should describe:	Paragraph 5.115 directly replicates paragraph 5.85 other than in the addition of the word ‘species’ (underlined).

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	<ul style="list-style-type: none"> <li>the type and quantity of emissions</li> <li>aspects of the development which may give rise to emissions during construction, operation and decommissioning</li> <li>premises <del>or</del> locations <u>or species</u> that may be affected by the <del>emissions;</del> <u>emission</u></li> <li>effects of the emission on identified premises or locations; <del>and</del></li> <li>measures to be employed in preventing or mitigating the emissions</li> </ul>	<p>The minor changes do not materially affect the meaning of the equivalent paragraphs in the adopted NPSNN (impacts on ecological receptors are covered in the response). Accordingly, the response given previously to those paragraphs remains relevant:</p> <p><i>‘The nature of the Project is such that no significant impacts in relation to steam or smoke are predicted.</i></p> <p><i>A Scoping Report (Highways England, 2017) was issued to the Planning Inspectorate on 2 November 2017, setting out the proposed approach to this Project’s EIA. A Scoping Opinion received from the Secretary of State on 13 December 2017 included comments on the scope of assessment from the Planning Inspectorate and Statutory Environmental Bodies. These comments have been taken into account in the preparation of the Environmental Statement and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>Section 5.3 of ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] sets out the consultation process for the Project and the engagement undertaken with the relevant local planning authorities and stakeholders to agree the methodology of the air quality impact assessment.</i></p> <p><i>Given the size of the Project and the location of receptors, the overall dust risk potential is rated ‘large’ and properties located within 200m of construction activities have the potential to be adversely affected by construction dust. However, ES Chapter 5: Air Quality [APP-143] and Environmental Statement Addendum [Document Reference 9.8 (9)] conclude that these effects would be temporary in nature and suitably controlled using best practice measures. Proposed mitigation</i></p>

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		<p><i>includes a range of measures to manage dust emissions. This includes wheel washing vehicles on entering and leaving the site, ensuring that spoil is covered and damp when being transported and using water suppression for dust control. No adverse dust impacts are predicted over the operational phase and therefore no mitigation is needed.</i></p> <p><i>Construction activity would involve excavation of varying depths with excavated materials potentially containing contaminants that may have a bad or strong smell. To ensure that there are no significant effects to local residents, appropriate mitigation has been proposed, such as storing odorous material as far away as possible from residential receptors and for this to be prioritised for removal as quickly as possible. Material that is odorous would be covered when transported from site and contaminated material that is odorous would be stockpiled separately to material that is non-contaminated.</i></p> <p><i>During construction, artificial lighting would be required at construction compounds to facilitate ongoing works. Although it is anticipated that artificial lighting may be perceived at some receptors during construction, this is not expected to give rise to an unacceptably harmful impact upon local amenity. ES Appendix 2.2: Code of Construction Practice (CoCP) [Document Reference 6.3 ES Appendix 2.2 (9)] for the construction phase of the Project states that lighting would be designed, positioned and directed to prevent or minimise light disturbance to nearby residents, reduce light splay, ecological receptors, as well as motorists and rail and marine operations. This provision would apply particularly to sites where night working or security lighting would be required.</i></p>

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		<p><i>For the operational phase of the Project, guidance would be taken from the Institution of Lighting Professionals’ (2020) Guidance Notes for the Reduction of Obtrusive Light – Guidance Note 01/2020, which includes details of proposed embedded mitigation on light pollution, including measures such as minimising lighting column heights and using LED luminaires with reduced light spill to reduce the impact of lighting in the AONB.’</i></p>
5.116	<p>The applicant is advised to consult the relevant local <del>planning authority</del><u>environmental health team</u> and, where appropriate, the Environment Agency about the scope and methodology of the assessment.</p>	<p>This paragraph replicates paragraph 5.86 of the existing NPSNN other than the replacement of the underlined text for ‘local planning authority’. See response to paragraph 5.15 above.</p>
5.117	<p><u>The Secretary of State should ensure the applicant has provided sufficient information to show that any necessary mitigation will be put</u> 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. <u>This should be detailed within a Statement Relating to Statutory Nuisance.</u></p>	<p>This paragraph broadly replicates the provisions of paragraph 5.89 of the existing NPSNN albeit with some updates to reflect current guidance (underlined). A Statement of Statutory Nuisance is provided as part of the DCO application <b>[APP-489]</b>. The response previously given to paragraph 5.89 remains relevant:</p> <p><i>‘Mitigation measures to control emissions of dust and artificial light during the construction and operational phases of the Project would be incorporated into ES Appendix 2.2: Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)] and Design Principles [Document Reference 7.5 (7)].</i></p> <p><i>Contractors would be required to produce Site Waste Management, Materials Management, Noise and Vibration, and Construction Traffic Management Plans. There may also be additional topic management plans developed to cover various environmental issues requiring further measures and controls to be implemented during the construction phase. This</i></p>

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		<p><i>may include air quality, ecology, geology and soil management, landscape and water.</i></p> <p><i>ES Chapter 5: Air Quality [APP-143], ES Chapter 7: Landscape and Visual [Document Reference 6.1 ES Chapter 7 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] also provide specific mitigation on how emissions of dust, odours and artificial light would be managed and mitigated during the construction and operation of the Project. Over the operational phase, lighting will be designed, positioned and directed to prevent or minimise light disturbance to nearby residents, ecological receptors, as well as motorists and rail and marine operations. This provision will apply particularly to sites where night working or security lighting will be required.</i></p> <p><i>Mitigation for relevant environmental effects in relation to population and human health have been identified in Section 13.5 of ES Chapter 13: Population and Human Health and Environmental Statement Addendum [Document Reference 9.8 (9)]. Mitigation for impacts on residential amenity (for example from noise, air quality or visual impacts) are described within relevant chapters of the Environmental Statement including ES Chapter 5: Air Quality [APP-143], ES Chapter 12: Noise and Vibration [APP-150], ES Chapter 7: Landscape and Visual [Document Reference 6.1 ES Chapter 7 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] noted above.</i></p> <p><i>With regards to ecological receptors, the HRA considers the impacts of both dust and lighting upon European sites over both the construction and operational phase. In both cases, it is concluded that there is no scientific reason to think that measures that have proved successful on numerous projects</i></p>



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		<i>in the past, protecting multiple habitat types and many people without significant complaint, would not be equally successful at mitigating lighting and dust effects on European site habitats.'</i>
5.118	The Secretary of State should be satisfied that all reasonable steps have been taken, and will be taken, to minimise any detrimental impact on amenity from emissions of odour, dust, steam, smoke and artificial light. This includes the impact of light pollution from artificial light on local amenity, <del>intrinsicly dark</del> landscapes and nature conservation, <u>using directed light when necessary</u> .	Other than in the addition of the reference to 'directed light' at the end of the paragraph (underlined), this paragraph replicates paragraph 5.87 of the adopted NPSNN. The response to paragraph 5.87 of the adopted NPSNN is incorporated into the response to 5.114, 5.115 and 5.116 above. It refers to directed light. No further response is considered necessary.
5.119	If development consent is granted for a project, the Secretary of State should consider whether there is a justification for all of the authorised project (including any associated development) being covered by a defence of statutory authority against nuisance claims. If the Secretary of State cannot conclude that this is justified, then the defence should be disapplied, in whole or in part, through a provision in the Development Consent Order.	This paragraph directly replicates paragraph 5.88 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>'The Statement of Statutory Nuisance [APP-489] concludes that the Project does have the potential to engage five of the statutory nuisances listed in the Environmental Protection Act (EPA) 1990. Those which are of relevance to dust and light are as follows:</i> <ul style="list-style-type: none"> <li>• <i>'any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance;'</i></li> <li>• <i>'any accumulation or deposit which is prejudicial to health or a nuisance;'</i></li> <li>• <i>'artificial light emitted from premises so as to be prejudicial to health or a nuisance;'</i></li> </ul> <i>However, with the appropriate mitigation measures in place, none of the statutory nuisances identified in section 79(1) of the EPA 1990 are predicted to arise during the construction or operation of the Project.'</i>

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<b>Flood Risk</b>		
5.120	<p>Climate change over the next few decades is likely to mean milder wetter winters and hotter drier summers in the UK, while sea levels will continue to rise <a href="#">alongside changes in rainfall patterns</a>. Within the lifetime of nationally significant infrastructure projects, these factors will lead to increased flood risks in areas susceptible to flooding, and to an increased risk of flooding in some areas which are not currently thought of as being at risk. The applicant, the Examining Authority and the Secretary of State (in taking decisions) should take account of the policy on climate change adaptation in paragraphs <del>4.36</del><a href="#">4.30</a> to <del>4.47</del><a href="#">4.41</a>.</p>	<p>Other than in the addition of the text underlined, this paragraph directly replicates paragraph 5.90 of the adopted NPSNN. The response given previously to that paragraph of the adopted NPSNN remains relevant:</p> <p><i>'The Project design has built-in climate change resilience in several ways. For example, the operational drainage design has included an allowance for the predicted changes to rainfall intensity and the implications for operational road drainage volumes and rates. These matters are addressed in the responses to paragraphs 4.36 to 4.47 of the NPSNN earlier in this table.</i></p> <p><i>The findings of the Flood Risk Assessment (FRA) in ES Appendix 14.6 <a href="#">[REP1-171]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> have informed the Project design to ensure its resilience to predicted climate change effects on river flows and water levels in the Thames Estuary. Key elements of the design that deliver this resilience are the vertical alignment of the main road, the design of watercourse crossings and additional protection measures for the tunnel portals. Climate change effects on groundwater resources have also been considered in the design of the Project. Further details are provided in ES Appendix 14.5: Hydrogeological Risk Assessment <a href="#">[APP-458]</a> and <a href="#">[APP-459]</a>, ES Appendix 14.6: FRA <a href="#">[REP1-171]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.</i></p> <p><i>Section 15.4: Baseline conditions of ES Chapter 15: Climate and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> has demonstrated application of the latest</i></p>

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		<p><i>UK climate projections (UKCP18) (Met Office, 2019) during the estimated lifetime of the Project.</i></p> <p><i>Section 15.5: Project design and mitigation, and Section 15.6: Assessment of like significant effects of ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] consider how the Project accounts for the projected impacts on climate, along with appropriate mitigation and adaptation measures. ES Chapter 16: Cumulative Effects Assessment [APP-154] and Environmental Statement Addendum [Document Reference 9.8 (9)] also takes account of climate change and its effects to ensure any mitigation is future-proofed.'</i></p>
5.121	<p>The National Planning Policy Framework (paragraphs <del>100</del>159 to <del>104</del>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 <del>supporting</del>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. <u>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.</u></p>	<p>Other than in updating the National Planning Policy Framework (NPPF) paragraph references and adding in new text defining the Exception Test (underlined) (covered in more detail in paragraphs 5.129 to 5.132 below) this paragraph replicates paragraph 5.191 of the adopted NPSNN. The response previously given to that paragraph remains relevant: <i>'The Project is classed as essential infrastructure and project road will be in tunnel where it crosses the floodplain to the south of the River Thames, thereby avoiding above ground development in Flood Zone 3. The sequential test has been applied to ensure the Project lies within area at lower risk of flooding.</i></p> <p><i>Whilst parts of the Project fall within Flood Zone 3, (high probability of river and sea flooding) this is unavoidable as moving the Project road immediately to the east or west of its proposed location would not significantly change the amount of development in Flood Zone 3. Additionally, extending the tunnel to a point north of the floodplain would not be viable as such an arrangement would compromise future provision of a</i></p>

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		<p><i>link between the A122 Lower Thames Crossing and the Port of Tilbury.</i></p> <p><i>In areas susceptible to flooding, the Project road would mostly be on embankments or viaducts (flood resilience measures). Where there are anticipated to be losses of flood storage volume, these have been compensated for where appropriate. The areas of the Project that lie in Flood Zone 3 benefit from existing flood defences and these are:</i></p> <ul style="list-style-type: none"> <li><i>• Adjacent to the River Thames (north)</i></li> <li><i>• Near to the Mardyke (main river)</i></li> </ul> <p><i>In applying the exception test the FRA (ES Appendix 14.6 [REP1-171]) and Environmental Statement Addendum [Document Reference 9.8 (9)] concludes that the wider sustainability benefits of the Project outweigh flood risk. The flood risk management strategy considers the suite of flood alleviation measures required to make the Project safe without increasing flood risk elsewhere.'</i></p>
5.122	<p>Applications for projects in the following <u>flood zone</u> locations should be accompanied by a <del>flood risk assessment (FRA)</del> <u>Flood Risk Assessment</u>:</p> <ul style="list-style-type: none"> <li><del>• Flood Applications in flood</del> Zones 2 and 3, <u>which represent a</u> medium and high probability of river and sea flooding;</li> <li><del>• Flood Applications in flood</del> Zone 1 (<del>which represent a</del> low probability of river and sea flooding) <del>for</del> <u>This includes</u> projects 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.</li> </ul>	<p>The final criterion (underlined) is a new addition to the revised draft NPSNN. It does not apply to the Project. Otherwise, this paragraph replicates paragraph 5.92 of the adopted NPSNN, the previous response to which remains relevant:</p> <p><i>'The Project crosses areas at high risk of flooding. Whilst the majority of the Order Limits are located in Flood Zone 1, parts of the route alignment lie in Flood Zone 3, indicating that there are areas of high as well as areas of low probability of flooding. A detailed Flood Risk Assessment (FRA) has been prepared to consider all sources of flood risk, the findings of which are detailed in ES Appendix 14.6 [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p>

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	<ul style="list-style-type: none"> <li><a href="#">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)</a></li> </ul>	
5.123	<p><del>This</del> <a href="#">The Flood Risk Assessment</a> should identify and assess the risks of all forms of flooding <u>and coastal erosion</u> to and from the project and demonstrate how these flood risks will be managed, taking climate change into account</p>	<p>This paragraph directly replicates paragraph 5.93 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>‘A Flood Risk Assessment (FRA) in ES Appendix 14.6 <a href="#">[REP1-171]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> has been prepared to demonstrate how flood risk to the Project would be managed now, and when taking future climate change into account. The FRA has also considered the flood risks generated as a result of the Project’s construction. The sources of flood risk which have been scoped into the FRA are:</i></p> <ul style="list-style-type: none"> <li><i>• Fluvial and tidal flooding</i></li> <li><i>• Surface water (pluvial) flooding</i></li> <li><i>• Groundwater flooding</i></li> <li><i>• Sewers</i></li> <li><i>• Water mains</i></li> <li><i>• Reservoirs</i></li> <li><i>• Canals</i></li> <li><i>• Combined sources</i></li> </ul> <p><i>The FRA has had regard to all the recent iterations of the relevant EA Guidance since publication of UK Climate Change</i></p>

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		<p><i>Predictions 2018 (UKCP18) (Met Office, 2018). The FRA therefore considers changes to peak rainfall intensity, peak river flows and sea level rise (among other factors).</i></p> <p><i>The flood risk management strategy considers the suite of flood alleviation measures. In broad terms these comprise the following:</i></p> <ul style="list-style-type: none"> <li><i>• Flood mitigation measures; these comprise those measures necessary to manage floodwater levels in a way that reduces the impact of flooding.</i></li> <li><i>• Flood protection measures; these comprise targeted measures necessary to protect a development and its users during a flood event.</i></li> <li><i>• Flood resilience measures; these comprise those measures necessary to ensure that a development and its users are less vulnerable to the effects of flooding.'</i></li> </ul>
5.124	<p>In preparing <del>an FRA</del> <a href="#">a Flood Risk Assessment</a> the applicant should:</p> <ul style="list-style-type: none"> <li>• 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 <del>lifetime;</del><sup>94</sup> <a href="#">lifetime</a><sup>9</sup></li> <li>• take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made;<sup>101</sup></li> <li>• <a href="#">demonstrate how residual risks to and from reservoirs will be safely managed and/ or mitigated</a></li> </ul>	<p>Other than the addition of a new criterion regarding reservoir safety and a reference to 'escape' alongside access (both underlined) this paragraph replicates paragraph 5.94 of the adopted NPSNN. The response given previously to that paragraph (below) remains relevant.</p> <p>That response addresses egress alongside access (underlined in the response below) but does not address reservoirs.</p> <p>Reservoirs are, however, addressed in Section 5.7 of Part 6 of ES Appendix 14.6: Flood Risk Assessment [<a href="#">REP1-171</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]. The Applicant has summarised the flood risk sources for reservoirs in paragraph 5.11.1 of Part 6 of the FRA. It notes that only one catchment (EFR-4) is subject to a potential flooding risk from reservoirs, which as detailed at paragraph 11.2.33, would be negligible and can be managed through the</p>

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	<ul style="list-style-type: none"> <li>consider the vulnerability of those using the infrastructure including arrangements for safe access and <del>exit</del><a href="#">escape</a></li> <li>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;</li> <li>consider if there is a need to remain operational during a worst <del>case</del> flood event over the development’s lifetime;</li> <li>provide the <del>evidence</del><a href="#">rationale</a> for the Secretary of State <del>to apply on the application of</del> the Sequential Test and Exception Test, as appropriate.</li> </ul> <p><sup>9</sup> Updated flood maps for rivers, the sea, surface water and reservoirs are available on the Environment Agency’s website.</p> <p><sup>101</sup> Environment Agency. For further information, see: ‘Flood risk assessments: climate change allowances</p>	<p>controls placed under the Reservoirs Act 1975. Further, general mitigation and management strategies are detailed further below.</p> <p>In addition, with regard to safe access and egress, the vulnerability of users and the need for safe access has informed an iterative design and route selection process. As detailed below embedded mitigation to reduce the impacts of flooding to maintain safe access has formed a core aspect of the design.</p> <p><i>‘As indicated above, a detailed Flood Risk Assessment (FRA) has been prepared in ES Appendix 14.6 [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)] which has considered all sources of flood risk along with the impacts of climate change. The development is planned to have a minimum lifetime of 100 years and the FRA has assessed the upper end allowances for both the 1% and 3.3% AEP events for the 2070s epoch (2061 to 2125) in accordance with EA guidance.</i></p> <p><i>The FRA has been informed by extensive consultation with the Environment Agency and relevant Lead Local Flood Authorities (LLFA). They have also been consulted on the results of hydrological and hydraulic modelling of the Mardyke, the Tilbury Main and the influence of the tidal River Thames on the flow regimes of these watercourses. As illustrated in the FRA some areas within the Order Limits are in Flood Zone 3. As noted above, the Project has been subject to a detailed FRA which provides the evidence required to satisfy the latter part of the Exception Test. Evidence in support of the first part of the Exception Test, regarding the sustainability benefits of the Project, is summarised in the Need for the Project [APP-494].</i></p>

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		<p><i>The findings of the FRA have informed the Project design to ensure its resilience to predicted climate change effects on river flows and water levels in the Thames Estuary. Key elements of the design that deliver this resilience are the vertical alignment of the main road, the design of watercourse crossings and additional protection measures for the tunnel portals. Climate change effects on groundwater resources have also been considered in the design of the Project. Further details are provided in ES Appendix 14.5: Hydrogeological Risk Assessment [APP-458 and APP-459], Appendix 14.6: FRA [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>Section 15.5: Baseline conditions in ES Chapter 15: Climate [APP-153] and Environmental Statement Addendum [Document Reference 9.8 (9)] has demonstrated the application of the latest UK climate projections (UKCP18) (Met Office, 2019) during the estimated lifetime of the Project.</i></p> <p><i>National Highways sets out its objectives for flood risk in the Design Manual for Roads and Bridges (DMRB) LA 113 (Highways England, 2020). This document states that all projects on motorways and all-purpose trunk roads shall be designed to:</i></p> <ul style="list-style-type: none"> <li><i>• Remain operational and safe for users in times of flood</i></li> <li><i>• Result in no net loss of floodplain storage</i></li> <li><i>• Not impede water flows</i></li> <li><i>• Not increase flood risk elsewhere</i></li> </ul> <p><i>The need for <u>safe access and egress</u> routes has been considered within ES Chapter 14: Road Drainage and the Water Environment [APP-152], ES Appendix 14.6 [APP-460] to</i></p>



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		<p><a href="#">APP-477</a> and <a href="#">REP1-171</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.  <i>Flood mitigation measures identified comprise measures necessary to manage floodwater levels in a way that would reduce the impact of flooding on the road itself and elsewhere within the catchment. This includes:</i></p> <ul style="list-style-type: none"> <li>• <i>Provision of compensatory flood storage areas</i></li> <li>• <i>Creating and restoring wetlands</i></li> <li>• <i>Surface water drainage provisions</i></li> <li>• <i>Inclusion of flood relief culverts</i></li> <li>• <i>Alterations to the watercourse channels and structures</i></li> <li>• <i>Altering the flood plain</i></li> <li>• <i>Reducing discharge rates from existing flow attenuation structures</i></li> </ul> <p><i>Flood protection measures set out in ES Chapter 14 <a href="#">[APP-152]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b> comprise those measures necessary to protect the development during flood events and include flood bunds and flood walls. Flood resilience measures comprises of those measures specifically necessary to ensure that the development is less vulnerable to the effects of flooding.</i></p> <p><i>Flood resilience measures include:</i></p> <ul style="list-style-type: none"> <li>• <i>Constructing roads on embankments and viaducts</i></li> <li>• <i>Changing the road geometry</i></li> <li>• <i>Designing with an allowance for projected climate change.'</i></li> </ul>

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5.125	<p>Applicants for projects which may be affected by, or may add to, flood risk <del>are advised to</del><u>should</u> seek sufficiently early pre-application discussions, <u>before the official pre- application stage of the NSIP process</u> with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, <u>and</u> highways authorities <del>and reservoir owners and operators</del>. Such discussions can be used to identify the likelihood and possible extent and nature of the flood risk, to help scope the <del>FRA</del><u>Flood Risk Assessment</u>, 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 <del>is encouraged to</del><u>should</u> 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, <del>preferably</del> before the application for development consent is submitted.</p>	<p>This paragraph replicates 5.96 of the adopted NPSNN other than in the minor additions (underlined) which increase the emphasis on applicants to engage in early discussions with the EA and other relevant flood risk management bodies. The response given previously to paragraph 5.96 of the adopted NPSNN (below) remains relevant.</p> <p>Please note that Table 4.1 of Part 6 of the FRA at ES Appendix 14.6 <a href="#">[REP1-171]</a> sets out how early engagement with the EA commenced and the nature, extent and duration of that engagement. Chapter 6 of the Statement of Engagement <a href="#">[APP-091]</a> summarises the nature and extent and early engagement with the Statutory Environmental Bodies including the EA.</p> <p><i>‘A detailed Flood Risk Assessment (FRA) has been prepared in ES Appendix 14.6 <a href="#">[APP-460]</a> to <a href="#">APP-477</a> and <a href="#">REP1-171</a>], which has considered all sources of flood risk.</i></p> <p><i>The FRA has been informed by extensive consultation with the Environment Agency and relevant Lead Local Flood Authorities (LLFA), as well as the results of hydrological and hydraulic modelling of the Mardyke, the Tilbury Main and the influence of the tidal River Thames on the flow regimes of these watercourses. The FRA findings, summarised in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment <a href="#">[APP-152]</a> and detailed in full in ES Appendix 14.6 <a href="#">[APP-460]</a> to <a href="#">APP-477</a> and <a href="#">REP1-171</a>] and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>, have informed this environmental assessment. The Applicant has entered into a Statement of Common Ground <a href="#">[REP7-102]</a> with the EA which shows that, the vast majority of matters are agreed between the Applicant and the EA. With specific regard to the FRA, all matters are agreed.’</i></p>

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5.126	<p>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.</p>	<p>This paragraph exactly replicates paragraph 5.97 of the adopted NPSNN. The response given previously remains relevant:</p> <p><i>‘A strategy for managing operational surface water drainage has been prepared centred on the application of Sustainable Drainage Systems (SuDS), appropriate to local conditions. The strategy is summarised in Part 7 of ES Appendix 14.6: Flood Risk Assessment (FRA) [REP1-171]. The drainage principles have been discussed and agreed with relevant Lead Local Flood Authorities (LLFAs), as detailed in ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>The assessment of baseline groundwater flooding for the Project’s defined study area has referred to the LLFA’s Strategic FRAs and bespoke digital mapping products, which are included in the FRA, ES Appendix 14.5: Hydrogeological Risk Assessment [APP-458 and APP-459] and Environmental Statement Addendum [Document Reference 9.8 (9)] which present further details of groundwater flooding.’</i></p>
5.127	<p><u><a href="#">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.</a></u></p>	<p>This is a new paragraph added to the revised draft NPSNN although the prioritisation of SuDS was previously a requirement of paragraph 5.99 (second bullet) of the adopted NPSNN. Similarly, the equivalent to the preparation of a drainage strategy was required under paragraph 5.100. Accordingly, the response previously given to paragraph 5.100 is considered to provide an appropriate response to this new draft paragraph:</p> <p><i>‘A strategy for managing operational surface water drainage has been prepared centred on the application of Sustainable</i></p>

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		<p><i>Drainage Systems (SuDS), appropriate to local conditions. Part 7 of the Appendix 14.6: Flood Risk Assessment (FRA) [REP1-171] of the Environmental Statement details the proposed operational drainage systems, which have been designed in accordance with relevant national standards, as referenced in Section 14.5 of Chapter 14: Road Drainage and the Water Environment of the ES [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The drainage principles have been discussed and agreed with relevant Lead Local Flood Authorities (LLFAs), as detailed in Chapter 14. Provision for maintenance of these drainage systems is also described in Section 14.5 and would be secured via commitments within the Register of Environmental Actions and Commitments (REAC) [Document Reference 6.3 ES Appendix 2.2 (9)].</i></p> <p><i>The proposed drainage design complies with the requirements of all appropriate standards, including the Design Manual for Roads and Bridges (DMRB) (Highways England, 2018) as well as the requirements of the Environment Agency and the local highway authorities. The Flood and Water Management Act 2010 places a duty on the Environment Agency, local authorities, developers and other bodies to manage flood risk. The Act sets out the role of Lead Local Flood Authorities (LLFAs), who are responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and for maintaining a register of flood risk assets. The LLFAs for the Project are Kent County Council, Thurrock Council and the London Borough of Havering who also have lead responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses.'</i></p>

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5.128	<p>Preference should be given to locating projects in <u>areas of lowest flood risk. The Secretary of State should not consent development in flood risk areas (including flood zones 2 and 3 and locations at risk of flooding from local watercourses, surface water, groundwater or reservoirs) accounting for the predicted impacts of climate change unless they are satisfied that the sequential test requirements have been met. The Secretary of State should not consent development in Flood Zone 3 unless they are satisfied that the Sequential and Exception Test requirements have been met. All projects should apply the sequential approach to locating development within the site.</u></p>	<p>This paragraph is a re-drafted equivalent of paragraph 5.105 of the adopted NPSNN. The words are different but the sentiment (locating development in the lowest area of flood risk and not locating development in the higher flood risk zones unless the sequential/exception tests (as relevant) are passed subject to the sequential approach) is the same. Accordingly, the response previously given to paragraph 5.105 of the adopted NPSNN remains relevant:</p> <p><i>‘The Project is classed as essential transport infrastructure and project road will be in tunnel where it crosses the floodplain to the south of the River Thames, thereby avoiding above ground development in Flood Zone 3. The sequential test has been applied to ensure the Project lies within area at lower risk of flooding. Whilst parts of the Project fall within Flood Zone 3, (high probability of river and sea flooding) this is unavoidable as moving the Project road immediately to the east or west of its proposed location would not significantly change the amount of development in Flood Zone 3 (see ES Chapter 3: Assessment of Reasonable Alternatives [APP-141]). Additionally, extending the tunnel to a point north of the floodplain would not be viable as such an arrangement would compromise future provision of a link between the A122 Lower Thames Crossing and the Port of Tilbury. In areas susceptible to flooding, the Project road would mostly be on embankments or viaducts (flood resilience measures).’</i></p>
5.129	<p>If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the project to be located in zones of lower probability of flooding than Flood Zone 3a, the <u>Exception Test can be applied. Flood Zone 3a applies when land has a 1 in 100 or greater annual probability of river flooding. The Exception Test provides a method of</u></p>	<p>This paragraph replicates paragraph 5.106 of the adopted NPSNN other than in the introduction of a new sentence (underlined) clarifying the meaning of Flood Zone 3a. Accordingly the response previously given to that paragraph remains relevant:</p>

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	<a href="#">managing flood risk while still allowing necessary development to occur.</a>	<p><i>'In applying the exception test the FRA (ES Appendix 14.6 [APP-460 to APP-477 and REP1-171]) concludes that the wider sustainability benefits of the Project outweigh flood risk. The flood risk management strategy considers the suite of flood alleviation measures proposed to make the Project safe for its lifetime without increasing flood risk elsewhere.'</i></p>
5.130	<a href="#">The Exception Test should only be applied once the Sequential Test has been satisfactorily applied.</a>	<p>These three paragraphs replicate the policy requirements of paragraphs 5.107, 5.108 and 5.109 of the adopted NPSNN. A response to all three paragraphs was previously given in response to paragraph 109 of the adopted NPSNN which remains a relevant response to paragraphs 5.130 to 5.132 of this revised draft NPSNN as set out below. In addition, as outlined above at paragraph 5.128 the Sequential Test was applied in the FRA:</p> <p><i>'The Project is regarded as essential infrastructure. As illustrated in ES Appendix 14.6: Flood Risk Assessment (FRA) [APP-460 to APP-477 and REP1-171] the following sections of the route alignment within the Order Limits are in Flood Zone 3a and 3b:</i></p> <ul style="list-style-type: none"> <li>• North Portal to Chadwell St Mary</li> <li>• Ockendon link</li> <li>• North Section and M25 junction</li> </ul> <p><i>The FRA [APP-460 to APP-477 and REP1-171] provides the necessary evidence to satisfy the latter part of the Exception Test. Evidence in support of the first part of the Exception Test, regarding the sustainability benefits of the Project, is summarised in the Need for the Project [APP-494]. Details of the measures incorporated into the design of the Project to ensure that the route remains operational and safe for users in times of flood are provided in Section 14.5 of ES Chapter 14: Road Drainage and the Water Environment</i></p>
5.131	<p>Both elements of the test will have to be passed for development to be consented. For the Exception Test to be passed:</p> <ul style="list-style-type: none"> <li>• <a href="#">it must be demonstrated that the project provides wider sustainability benefits to the community<sup>r</sup> that outweigh flood risk</a></li> <li>• <a href="#">a Flood Risk Assessment</a> must demonstrate that the project will be safe for its lifetime, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall</li> </ul> <p><i><sup>r</sup> These would include the benefits (including need) for the infrastructure set out in Chapter 2.</i></p>	
5.132	<p>In addition, any project that is classified as 'essential infrastructure' and proposed to be located in Flood Zone 3a or b should be designed and constructed to remain operational and safe for users in times of flood; and any project in Flood Zone 3b should result in no net loss of floodplain storage and not impede water flows.</p>	

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		<p><a href="#">[APP-152]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.  <i>The FRA <a href="#">[APP-460 to APP-477]</a> and <a href="#">REP1-171</a> has considered all sources of flood risk, informed by extensive consultation with the Environment Agency and relevant Lead Local Flood Authorities, as well as the results of hydrological and hydraulic modelling of the Mardyke, the Tilbury Main and the influence of the tidal River Thames on the flow regimes of these watercourses.</i>  <i>The highway drainage provisions have been designed to accommodate projected climate change and to be safe for the operational life of the Project.'</i></p>
5.133	<p>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 <a href="#">Sustainable Drainage Systems</a> 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.</p>	<p>This paragraph directly replicates paragraph 5.110 of the adopted NPSNN. The response given previously to that paragraph remains relevant:  <i>'A strategy for managing operational surface water drainage has been prepared centred on the application of Sustainable Drainage Systems (SuDS), appropriate to local conditions. The strategy is summarised in Part 7 of Appendix 14.6: FRA of the ES <a href="#">[REP1-171]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>. The drainage principles have been discussed and agreed with the Relevant Lead Local Flood Authorities (LLFA), as detailed in Chapter 14 of the ES <a href="#">[APP-152]</a> and Environmental Statement Addendum <b>[Document Reference 9.8 (9)]</b>.</i>  <i>Where ground conditions are favourable, SuDS employing infiltration techniques would be used for disposal of highway runoff.</i>  <i>It is not intended that planning obligations relating to flood risk management systems would be required.</i></p>

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		<p><i>The various proposed mitigation measures are included as integral design elements within the General Arrangement Plans [Document Reference 2.5 Volume A (5), Volume B (5), Volume C (6)] or within the Design Principles Document [Document Reference 7.5 (7)] along with the Register of Environmental Actions and Commitments (REAC) incorporated within the Construction Code of Practice Document [Document Reference 6.3 ES Appendix 2.2 (9)]. Measures within the General Arrangement Plans [Document Reference 2.5 Volume A (5), Volume B (5), Volume C (6)] and the Design Principles documents would be legally secured through DCO Requirement 3, whilst the measures within the REAC would be legally secured through DCO Requirement 4 [Document Reference 3.1 (11)].</i></p>
5.134	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.	<p>Other than the clarification added to paragraph 5.136 (underlined) which does not change the substance of that paragraph, these four paragraphs directly replicate paragraphs 5.112 to 5.115 of the adopted NPSNN. The response given to those paragraphs of the adopted NPSNN remain relevant: ‘As in the response to paragraphs 5.97 and 5.127 above, the drainage systems for Project have been designed to minimise the risk of flooding elsewhere by incorporating current design standards and future climate change allowances. A strategy for managing operational surface water drainage has been prepared centred on the application of Sustainable Drainage Systems (SuDS), appropriate to local conditions. The strategy is summarised in Part 7 of ES Appendix 14.6: Flood Risk Assessment [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The drainage principles have been discussed and agreed with the relevant</p>
5.135	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 <u>unless specific off-site arrangements are made and result in the same net effect.</u>	
5.136	<u>If there are no viable Sustainable Drainage Systems options available, it</u> 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 where it is appropriate for infiltration attenuation storage to be provided outside the project site, if necessary, through the use of a planning obligation.	



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5.137	<p>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 <a href="#">Sustainable Drainage Systems</a>.</p>	<p><i>Lead Local Flood Authorities LLFAs), as detailed in ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>Assessment of baseline groundwater flooding for the defined study area has referenced the LLFAs’ Strategic FRAs, the bespoke digital mapping products by GeoSmart (2019) and the British Geological Survey (2017). Full details are provided in ES Appendix 14.6 [APP-460 to APP-477 and REP1-171].</i></p> <p><i>Two distinct approaches to drainage design have been taken to the south and north of the River Thames:</i></p> <p><i>South of the River Thames, drainage systems would discharge to soakaways. New or enhanced infiltration basins would include pollution control facilities to provide water quality treatment and would also include facilities to staunch and contain any accidental spillages.</i></p> <p><i>North of the River Thames, drainage systems would generally be positive pipes systems outfalling into watercourses. Nevertheless, there are some locations which lend themselves to infiltration drainage, and where appropriate, swales or infiltration basins would be proposed in these locations. Other features supporting the drainage systems would comprise retention ponds and balancing ponds.</i></p> <p><i>Outfalls to watercourses would include attenuation basins to reduce outflows to green-field runoff rates. Attenuation basins would include constructed wetlands to provide water quality treatment. All outfalls would include facilities to staunch and contain any accidental spillages, either in lined channels or swales or in oversized pipes.</i></p> <p><i>As well as the ground conditions and the permeability of sub-soils at any particular location, the drainage solution adopted</i></p>

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		<p>would also be designed to suit a number of constraints including, for example, the extent of flood plains, the location of landfills and ground water levels.</p> <p>The sequential test is addressed within Section 3.1 of Part 6 of the FRA in ES Appendix 14.6 [REP1-171] and there are a number of reasons why crossing areas at risk of flooding would be unavoidable. Fundamentally there is no way to traverse the River Thames without crossing floodplain to the south. Furthermore, moving the Project further east or west would not alter the amount of flood zone to be crossed.</p> <p>Opportunities to provide flood mitigation areas with multiple benefits have been primarily focused around biodiversity enhancements. A floodplain compensation storage area next to the Mardyke West Tributary would be planted as marshy grassland. Also, in the Mardyke catchment, wetland restoration in the form of creating ditches and open water bodies, and wet woodland planting is proposed on land next to the Mardyke Viaduct, combining habitat improvement in this area with the provision of floodplain compensation storage. Across the Project, freshwater and wetland habitat would be created to compensate for reaches of open watercourse channels lost to culverting or infilling beneath the Project footprint.'</p>
5.138	<p>Where flood risk is a factor in determining an application for development consent, the Secretary of State should be satisfied that, where relevant:</p> <ul style="list-style-type: none"> <li>the application is supported by an appropriate <a href="#">FRA; Flood Risk Assessment</a></li> <li>the Sequential Test (<del>see the National Planning Policy Framework</del>) has been <a href="#">satisfactorily</a> applied as part of site selection and, if required, the Exception Test (<del>see the National Planning Policy Framework</del>).</li> </ul>	<p>Other than in the addition of the word 'satisfactorily' (underlined) this paragraph replicates the provisions of paragraph 5.98 of the adopted NPSNN. Accordingly, the response given to that paragraph remains relevant:</p> <p><i>'The most viable route for the Project lies primarily within Flood Zone 1 but unavoidably crosses three areas classed as being within Flood Zones 2,3a and 3b. A detailed Flood Risk Assessment has been prepared in Part 6 of ES Appendix 14.6 [REP1-171] which has considered all sources of flood risk and</i></p>

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		<p><i>which has been informed by extensive consultation with the Environment Agency and relevant Lead Local Flood Authorities, as well as the results of hydrological and hydraulic modelling of the Mardyke, the Tilbury Main and the influence of the tidal River Thames on the flow regimes of these watercourses.</i></p> <p><i>The FRA has applied the sequential test and sets out in detail the reasons behind parts of the Project unavoidably being located within Flood Zone 3. It also provides the necessary evidence to satisfy the Exception Test. Further evidence in support of the Exception Test, regarding the sustainability benefits of the Project, is summarised in the Need for the Project [APP-494].'</i></p>
5.139	<p>When determining an application, the Secretary of State should be satisfied that flood risk will not be increased elsewhere and only consider development appropriate in areas at risk of flooding where (informed by a <del>flood risk assessment</del> <a href="#">Flood Risk Assessment</a>, following the Sequential Test and, if required, the Exception Test), it can be demonstrated that:</p> <ul style="list-style-type: none"> <li>• within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location</li> <li>• development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and priority is given to the use of <a href="#">Sustainable Drainage Systems</a></li> </ul>	<p>This paragraph directly replicates paragraph 5.99 of the adopted NPSNN. Accordingly, the response given to that paragraph remains relevant:</p> <p><i>'A detailed Flood Risk Assessment (ES Appendix 14.6 [APP-460 to APP-477 and REP1-171]) has been prepared that has considered all sources of flood risk. The FRA has been informed by extensive consultation with the Environment Agency and relevant Lead Local Flood Authorities (LLFA), as well as the results of hydrological and hydraulic modelling of the Mardyke, the Tilbury Main and the influence of the tidal River Thames on the flow regimes of these watercourses. The FRA findings, summarised in Section 14.6 of ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)] and detailed in full in Appendix 14.6 [APP-460 to APP-477 and REP1-171], have informed this environmental assessment.</i></p>

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		<p><i>As illustrated in ES Appendix 14.6 [APP-460 to APP-477 and REP1-171] areas within the Order Limits are located in Flood Zone 3. As noted above, the Project has been subject to a detailed FRA, which provides the necessary evidence to satisfy the latter part of the Exception Test. Evidence in support of the first part of the Exception Test, regarding the sustainability benefits of the Project, is summarised in the Need for the Project [APP-494].</i></p> <p><i>The drainage design for the Project would reduce the risk of causing flooding elsewhere by using attenuation features as shown in ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>Incorporation of a suite of flood alleviation measures as part of the Project, both during construction and operation, is intended to prevent increases in flood risk elsewhere. This includes provision of compensation storage for any permanent losses of floodplain storage volume associated with the Tilbury Main, Mardyke and Mardyke West tributary.</i></p> <p><i>During the Construction phase the Contractor would establish emergency response measures for construction activities in flood risk areas. The two key emergency response measures are:</i></p> <ul style="list-style-type: none"> <li><i>• readiness for the possibility of flooding</i></li> <li><i>• development of a flood response plan.'</i></li> </ul>
5.140	<p><u>The term Sustainable Drainage Systems is taken to cover the whole range of sustainable approaches to surface water drainage systems.</u> <del>management including:</del></p>	<p>Other than the addition of a new criterion referring to water quality (underlined), this paragraph replicates paragraph 5.111 of the adopted NPSNN. It is an informative paragraph only and no response is required.</p>

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	<ul style="list-style-type: none"> <li>• <a href="#">source control measures including rainwater recycling and drainage</a></li> <li>• <a href="#">use of Sustainable Drainage Systems Management Trains to improve water quality</a></li> <li>• infiltration devices to allow water to soak into the ground, that can include individual soakaways and communal facilities</li> <li>• filter strips and swales, which are vegetated features that hold and drain water downhill mimicking natural drainage patterns</li> <li>• filter drains and porous pavements to allow rainwater and run-off to infiltrate into permeable material below ground and provide storage if needed</li> <li>• basins and ponds to hold excess water after rain and allow controlled discharge that avoids flooding</li> <li>• <a href="#">flood routes to carry and direct excess water through developments to minimise the impact of severe rainfall flooding</a></li> </ul>	
5.141	<p>For construction work which has drainage <del>implications</del><a href="#">implications</a><sup>s</sup>,<sup>92</sup> 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 <del>any National</del><a href="#">Technical</a> Standards published by <del>Ministers under Paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010</del><a href="#">Ministers</a><sup>t</sup>.<sup>93</sup> In addition, the <del>development consent order</del><a href="#">Development Consent Order</a>, or any associated planning obligations, will need to make provision for the adoption and maintenance of any Sustainable Drainage Systems <del>(SuDS)</del>, including any necessary access rights to property. <a href="#">Sustainable Drainage Systems should deliver multifunctional benefits and</a></p>	<p>This paragraph broadly replicates the provisions of paragraph 5.100 of the adopted NPSNN other than the additional text (underlined) referring to:</p> <ul style="list-style-type: none"> <li>• The need for SuDS to achieve multi-functional/BNG benefits;</li> <li>• The emerging Sustainable Drainage Systems Approval Bodies in the recently enacted Schedule 3 of the 2010 Flood and Water Management Act (FWMA)</li> <li>• Early pre-application discussions with the EA</li> </ul> <p>Accordingly, the response given to that paragraph remains relevant (see below). It addresses the relevant provisions of the 2010 FWMA.</p>

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	<p><a href="#">help to achieve Biodiversity net gain.</a> The Secretary of State, should be satisfied that the most appropriate body is being given the responsibility for maintaining any <del>SuDS</del><a href="#">Sustainable Drainage Systems</a>, 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, <a href="#">and the relevant Sustainable Drainage Systems Approval Body</a> or another body such as the Internal Drainage Board. <a href="#">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.</a></p> <p><sup>s</sup> As defined in paragraph 7(2) of Schedule 3 to the Flood and Water Management Act 2010. Certain organisations may be exempt from any National Standards under Schedule 3 to the Flood and Water Management Act 2010 and associated secondary instruments.</p> <p><sup>t</sup> The National Standards set out requirements for the design, construction, operation and maintenance of Sustainable Drainage Systems and may include guidance to which the Secretary of State should have regard.</p>	<p>The point about the opportunity for SuDS to deliver multi-functional/BNG benefits is addressed in the response to paragraphs 5.134 to 5.137 of the revised draft NPSNN above. Early engagement with the EA and other relevant bodies is demonstrated in the response to 5.125 of the revised draft NPSNN above.</p> <p><i>'A strategy for managing operational surface water drainage has been prepared centred on the application of Sustainable Drainage Systems (SuDS), appropriate to local conditions.</i></p> <p><i>Part 7 of ES Appendix 14.6: Flood Risk Assessment [REP1-171] and Environmental Statement Addendum [Document Reference 9.8 (9)] details the proposed operational drainage systems, which have been designed in accordance with relevant national standards, as referenced in Section 14.5 of ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The drainage principles have been discussed and agreed with relevant Lead Local Flood Authorities (LLFAs), as detailed in Chapter 14. Provision for maintenance of these drainage systems is also described in Section 14.5 and would be secured via commitments within the Register of Environmental Actions and Commitments (REAC), ES Appendix 2.2 [Document Reference 6.3 ES Appendix 2.2 (9)].</i></p> <p><i>The proposed drainage design complies with the requirements of all appropriate standards, including the Design Manual for Roads and Bridges (DMRB) (Highways England, 2018) as well as the requirements of the Environment Agency and the local highway authorities.</i></p> <p><i>The Flood and Water Management Act 2010 places a duty on the Environment Agency, local authorities, developers and</i></p>

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		<p><i>other bodies to manage flood risk. The Act sets out the role of Lead Local Flood Authorities (LLFAs), who are responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and for maintaining a register of flood risk assets. The LLFAs for the Project are Kent County Council, Thurrock Council and the London Borough of Havering who also have lead responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses.'</i></p>
5.142	<p>If the Environment Agency continues to have concerns and objects to the grant of development consent on the grounds of flood risk, the Secretary of State can grant consent, but <u>would need to be satisfied before deciding whether or not to</u> <del>Secretary of State can grant consent, but would need to be satisfied before deciding whether or not to</del> do so that all reasonable steps have been taken by the applicant and the Environment Agency to try and resolve the concerns.</p>	<p>This paragraph directly replicates paragraph 5.101 of the adopted NPSNN. Accordingly, the response given to that paragraph remains relevant:</p> <p><i>'The Flood Risk Assessment (FRA) in ES Appendix 14.6 [APP-460 to APP-477 and REP1-171] has been informed by extensive consultation with the Environment Agency which has agreed the methodology for assessing flood risk, including the required scope of hydraulic modelling of watercourses. All reasonable steps have been taken to minimise the amount of development within areas at higher risk of flooding through applying the sequential test.</i></p> <p><i>ES Chapter 14: Road Drainage and the Water Environment [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)] provide background in relation to the extensive consultation which has been undertaken with the Environment Agency. This consultation has informed the assessment methodology (including study areas, relevant timeframes, hydraulic monitoring, development design and climate change scenarios). The assessments undertaken have concluded that (having regard to the various mitigation measures proposed) no significant adverse impacts are predicted in relation to the water environment which would give</i></p>

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		<p><i>the EA reason to oppose the Project. The agreed position is reported in the Statement of Common Ground [REP7-102]. The vast majority of matters are agreed between the Applicant and the EA. In terms of FRA, all matters are agreed.'</i></p>
5.143	<p>The Secretary of State should expect that reasonable steps have been taken to avoid, limit and reduce the risk of flooding to the proposed infrastructure and others. However, the nature of linear infrastructure means that there will be cases where:</p> <ul style="list-style-type: none"> <li>• upgrades are made to existing infrastructure in an area at risk of flooding</li> <li>• infrastructure in a flood risk area is being replaced</li> <li>• infrastructure is being provided to serve a flood risk area</li> <li>• infrastructure is being provided connecting two points that are not in flood risk areas, but where the most viable route between the two passes through such an area</li> </ul>	<p>This paragraph directly replicates paragraph 5.102 of the adopted NPSNN. Accordingly, the response given to that paragraph remains relevant:</p> <p><i>'The Project represents the most viable route which unavoidably crosses areas at high risk of flooding. However, the sections of the route alignment that lie in Flood Zone 3 are confined to the following areas that would benefit from existing flood defences:</i></p> <ul style="list-style-type: none"> <li>• <i>Adjacent to the River Thames (north)</i></li> <li>• <i>Near to the Mardyke (main river)</i></li> </ul> <p><i>A Flood Risk Assessment (FRA) has been prepared in ES Appendix 14.6 [APP-460 to APP-477 and REP1-171] which considers the risk of all forms of flooding arising from the Project and demonstrates how all risks would be managed and mitigated. The steps which have been taken to avoid, limit and reduce flood risk are presented in the FRA. This includes a sustainable highway drainage design providing for runoff treatment and attenuation, compensation floodplain storage and measures to reduce groundwater ingress into excavations. The FRA findings have informed the Project design to ensure its resilience to predicted climate change effects on river flows and water levels in the Thames Estuary. Key elements of the design that deliver this resilience are the vertical alignment of the main road, the drainage design, design of watercourse crossings and additional protection measures for the tunnel portals.'</i></p>



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5.144	<ul style="list-style-type: none"> <li>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 <u>while also offering opportunities to enhance biodiversity. It should be demonstrated that there is no increase in flood risk elsewhere.</u> In such cases the Secretary of State should take account of any positive benefit to placing linear infrastructure in a flood-risk area.</li> </ul>	<p>Other than the additional text (underlined) regarding biodiversity and not increasing flood risk elsewhere, this paragraph replicates the provision of paragraph 5.103 of the adopted NPSNN.</p> <p>The biodiversity text is informative and does not require an additional response.</p> <p>The point about not increasing flood risk elsewhere is already addressed in the response and is also addressed in response to paragraphs 5.121, 5.124, 5.129, 5.139 and 5.144 above. Accordingly, the response previously given to paragraph 5.103 of the adopted NPSNN remains relevant:</p> <p><i>‘Proposed embankments within the Project design, including those between viaducts over the Mardyke floodplain area have the potential to reduce rainfall recharge received by aquifers, although the incorporation of a suite of flood alleviation measures is intended to prevent increases in flood risk elsewhere.’</i></p>
5.145	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 the infrastructure remains functional in the event of predicted flooding.	<p>This paragraph directly replicates paragraph 5.104 of the adopted NPSNN. Accordingly, the response given to that paragraph remains relevant:</p> <p><i>‘The Project has been designed and mitigated to ensure that during a flood event the route alignment should always remain operational. The mitigation incorporated within the Project design is set out in Section 14.5 of Chapter 14: Road Drainage and the Water Environment of the Environmental Statement [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)]. The proposed drainage measures for the Project as identified in the FRA (Appendix 14.6 of the ES [APP-460 to APP-477 and REP1-171] are</i></p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p><i>designed to manage surface runoff and include attenuation features to detain runoff. Part 7 of the FRA [APP-466] sets out the drainage design for the Project, whilst Part 10 [APP-477] and Environmental Statement Addendum [Document Reference 9.8 (9)] details how water course diversions and crossings would be designed across each of the catchments. In each case the various design elements respond to the varied constraints and pre-existing conditions within the catchment areas.</i></p> <p><i>Mitigation, including a sustainable highway drainage design providing for runoff treatment and attenuation, compensation floodplain storage and measures to reduce groundwater ingress into excavations, has been proposed.</i></p> <p><i>Table 14.8 in Chapter 14: Road Drainage and the Water Environment of the ES [APP-152] and Environmental Statement Addendum [Document Reference 9.8 (9)] summarises the likely significant effects on road drainage and the water environment. None of the residual effects are categorised as significant other than one which is categorised as a significant beneficial effect.'</i></p>
<b>Land Instability</b>		
5.146	The effects of land instability may result in landslides, subsidence or ground heave. Failing to deal with this issue could cause harm to human health, local property and associated infrastructure, and the wider environment. They occur in different circumstances for different reasons and vary in their predictability and in their effect on development.	This introductory paragraph directly replicates paragraph 5.116 of the adopted NPSNN. No response is necessary.

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
5.147	<p><a href="#"><u>Land contamination from previous uses can harm human health, drinking water supplies, groundwater and surface water, soils, habitats and biodiversity. Failure to deal with this issue may result in the land being determined as contaminated land under Part IIA of the Environmental Protection Act 1990.</u></a></p>	<p>This is a wholly new paragraph in the draft revised NPSNN. As another introductory paragraph, no response is necessary.</p>
5.148	<p>Where necessary, land <a href="#"><u>contamination and</u></a> stability should be considered in respect of new development, <del>as set out in the <i>National Planning Policy Framework and supporting planning guidance</i></del>. Specifically, proposals should be appropriate for the location, including preventing unacceptable risks from land <a href="#"><u>contamination or</u></a> instability. If land stability could be an issue, applicants should seek appropriate technical and environmental expert advice <a href="#"><u>from a competent person</u></a><sup>102</sup> 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, <a href="#"><u>Environment Agency and Local Authority</u></a> if necessary.</p> <p><sup>102</sup> <i>CL:AIRE. Suitably Qualified Person register for the National Quality Mark Scheme for Land Contamination Management</i></p>	<p>This paragraph is an update to paragraph 5.117 of the adopted NPSNN by the addition (underlined) of references to contamination alongside stability and a reference to assessments having to be carried out by a competent person. The response previously given to paragraph 5.117 of the adopted NPSNN (below) remains relevant in terms of addressing these matters.</p> <p>Matters related to contamination are addressed in ES Chapter 10: Geology and Soils [<a href="#"><u>APP-148</u></a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] which assesses the risks from contamination on human health and controlled waters. The assessment methodology for land contamination is presented in paragraphs 10.3.65 to 10.3.67 and Tables 10.2 and 10.3 of [<a href="#"><u>APP-148</u></a>] and has been carried out in line with current best practice as presented in the Land Contamination Risk Management (LCRM) guidance<sup>44</sup>. With regard to land contamination, the Applicant employs a Suitably Qualified Person in the Geology and Soils Technical Team who advises on land contamination and stability issues associated with the construction of the Project.</p>

<sup>44</sup> Environment Agency (2021). Land Contamination: Risk Management (LCRM). <https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks>.

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p><i>'ES Appendix 10.2: Stability Report [APP-423] details the potential geotechnical hazards affecting the Order Limits and provides a review of the potential risks from land stability and geohazards.</i></p> <p><i>The engineering design process has been carried out and would continue in accordance with DMRB CD 622 Managing Geotechnical Risk (Highways England, 2020a). This process ensures that design parameters and mitigating techniques are established for the Project, for example, informing the requirements for ground improvement during the tunnelling works at the North and South Portal, the design of structures to cope with the ground conditions within the Order Limits and the proposed construction methodology.</i></p> <p><i>In line with the requirements of the NPSNN and NPPF, a preliminary assessment of land instability was completed at the early design stage and is presented in ES Appendix 10.2: Stability Report [APP-423]. This reviews the potential for risks from land instability and geohazards within a wide study area around the Project road to help avoid hazards, where possible, or identify where technical solutions are required within the engineering design presented within the Development Consent Order (DCO) application. The conclusions of the assessment confirm that there are no significant risks identified within the study area and where risk cannot be ruled out, feasible engineering solutions are available to manage the risk.</i></p> <p><i>A programme of necessary investigation works was undertaken, as described in Section 10.3 of ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)]. Slope stability</i></p>

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		<p><i>assessments have been carried out to inform the Project design, which has confirmed the requirements for retaining features, earthwork design (for example embankments and cuttings slope angles), structure foundations and ground improvements as described in ES Appendix 2.1: Construction Supporting Information [AS-049]. The validity of this work was confirmed through the data obtained via the necessary investigations completed through Phase 1 and Phase 2 and has confirmed that the study area is and would remain stable for the development.</i></p> <p><i>A review of published historical and geological mapping demonstrated that there are no metalliferous mines present within the study area.</i></p> <p><i>The Coal Authority has not been contacted as no coal bearing geology is present within the study area.'</i></p>
5.149	<p>For developments on previously developed land, applicants should ensure <b>and demonstrate</b> that they have considered the risk posed by land contamination, <u>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<sup>103</sup></u>. 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 <u>the</u> context of</p>	<p>The first half of this paragraph comprises new text (underlined). The second half replicates paragraph 5.118 of the adopted NPSNN.</p> <p>The previous response to the second half of the paragraph is covered in the response to paragraph 5.148 above which covered both paragraphs (5.117 and 5.118) of the adopted NPSNN.</p> <p>In terms of the new text, ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] demonstrates that the Applicant entered into early discussions with the Environment Agency and other relevant stakeholders to discuss preliminary assessments of contamination (see Table 10.1). These</p>

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	<p>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.</p> <p><sup>103</sup> <i>Environment Agency. For further guidance, see 'Land contamination risk assessment'</i></p>	<p>discussions covered all aspects of contamination (land and controlled waters). In line with LCRM, ES Appendix 10.6: Preliminary Risk Assessment Report [<a href="#">APP-427</a>], ES Appendices 10.8 and 10.9: Generic Quantitative Risk Assessments [<a href="#">APP-429</a>, <a href="#">APP-430</a>, <a href="#">APP-431</a> and <a href="#">APP-432</a>]; and ES Appendix 10.11: Remediation Options Appraisal and Outline Remediation Strategy [<a href="#">REP1-165</a>] have been completed. These identify mechanisms and measures to identify, address and mitigate any contamination issues.</p>
5.150	<p>Applicants have a range of mechanisms available to mitigate and minimise risks of land instability. These include:</p> <ul style="list-style-type: none"> <li>• Establishing the principle and layout of new development, for example avoiding mine entries and other hazards</li> <li>• Ensuring proper design of structures to cope with any movement expected, and other hazards such as mine and/or ground gases</li> <li>• 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</li> </ul>	<p>This paragraph replicates paragraph 5.119 of the adopted NPSNN. No response is necessary as this paragraph simply provides guidance to applicants on which forms of mitigation may be appropriate.</p>
5.151	<p><a href="#">Applicants should submit a coal mining risk assessment as part of their application in specific Development High Risk areas.</a></p>	<p>This is a new paragraph in the draft revised NPSNN. As the Project is not located within a high risk area for former coal mines, it is not relevant to the consideration of the Project (see response to paragraph 5.148 above).</p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
<b>Landscape and Visual Impacts</b>		
5.152	The landscape and visual effects of proposed projects will vary on a case-by-case basis according to the type of development, its location and the landscape setting of the proposed development. In this context, references to landscape should be taken as <a href="#">also</a> covering <a href="#">all landscape including</a> seascape and townscape, where appropriate.	Other than in terms of inconsequential presentational alterations this paragraph replicates paragraph 5.143 of the adopted NPSNN. It is a descriptive, scene-setting paragraph and no response is necessary.
5.153	<p><del>Where the development is subject to EIA the</del> <a href="#">The</a> applicant should <del>undertake an assessment of any likely significant</del> <a href="#">carry out a</a> landscape and visual <del>impacts in the environmental</del> impact assessment <del>and describe these in the environmental assessment</del>. A number of guides have been produced to assist in addressing landscape issues <a href="#">104</a>.<sup>402</sup> The landscape and visual assessment <a href="#">for the proposed project</a> should include <a href="#">the impacts during construction and operation, and</a> reference to any <a href="#">operational</a> landscape character assessment and associated studies, <del>as a means of assessing landscape impacts relevant to the proposed project</del>. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England.</p> <p><del>5.145 The applicant's assessment should include any significant effects during construction of the project and/or the significant effects of the completed development and its operation on landscape components and landscape character (including historic landscape characterisation).</del> <a href="#">For seascapes, applicants should consult the Seascape Character Assessment and the</a></p>	<p>This paragraph is an amalgam of paragraphs 5.144 and 5.145 of the adopted NPSNN and also provides additional guidance on seascape assessments (text underlined) not covered in the adopted NPSNN. In terms of the majority of the paragraph, the response given previously remains relevant (see below) which covers paragraphs 5.144 to 5.146 of the adopted NPSNN).</p> <p>In terms of seascape impacts, the Seascape Character Assessment for the South East Inshore marine plan area<sup>45</sup> has been consulted by the Applicant in developing proposals for the Project. Figure 11 of this publication characterises the Thames Estuary within and adjoining the Order Limits as part of South East Marine Character Area (MCA) 18 Thames and Medway Estuaries, as shown on ES Figure 7.1: National Landscape Character including Seascape <a href="#">[APP-197]</a>, with an overview of key characteristics provided in Section 2 of ES Appendix 7.4: National Character Baseline including Seascape Character <a href="#">[APP-379]</a>. These characteristics have shaped the design of the Project as evidenced in Part G: Design Evolution of the Project Design Report <a href="#">[APP-514]</a> and ES Appendix 7.9: Schedule of Landscape Effects <a href="#">[Document Reference 6.3 ES Appendix 7.9 (2)]</a>.</p>

<sup>45</sup> Marine Management Organisation (2018). Seascape Character Assessment for the South East Inshore marine plan area.

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	<p><a href="#"><u>Marine Plan Seascape Character Assessments, and any successors to them</u></a><sup>105</sup></p> <p><sup>104</sup> Natural England and Department for Environment, Food and Rural Affairs. 'Landscape and seascape character assessments'</p> <p><sup>105</sup> Natural England. For further information, see: 'Seascape character assessments: identify and describe seascape types'</p>	<p>'ES Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference 9.8 (9)] assesses the landscape and visual impacts of the Project during construction and during operation (the opening year and the design year 15 years after opening, to allow for the establishment of proposed planting mitigation). The following documents have formed the basis of this assessment:</p> <ul style="list-style-type: none"> <li>• Design Manual for Roads and Bridges (DMRB) LA 107 Landscape and Visual Effects Rev 2 (Highways England, 2020)</li> <li>• Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (Landscape Institute and Institute of Environmental Management and Assessment, 2013)</li> <li>• Relevant Natural England profiles for National Character Areas (NCAs).</li> <li>• Relevant local development plans policies and landscape character studies for Kent County Council, the Kent Downs AONB Unit, Gravesham Borough Council, Medway Council, Essex County Council, Thurrock Council, London Borough of Havering and Brentwood Borough Council.</li> </ul> <p>The assessment considers the four NCAs, namely NCA 119: North Downs, NCA 113: North Kent Plain, NCA 81: Greater Thames Estuary and NCA 111: Northern Thames Basin, which cover the Project area. Through the construction of the Project there would be a moderate adverse and significant effect on NCA 113 with no other NCAs experiencing a significant effect. The Project has also had regard to the Kent Downs AONB Management Plan 2021-2026 which sets out the special characteristics and qualities of the Kent Downs' natural beauty</p>



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		<p><i>and formulates the policies and actions for its management and for carrying out their functions in relation to it.</i></p> <p><i>To enable a full assessment of the visibility and conspicuousness of the Project during construction and the ES Study Area has had regard to:</i></p> <ul style="list-style-type: none"> <li><i>• the wider landscape setting within which the Project/related construction activity has the potential to influence</i></li> <li><i>• the extent of the Project visible from the surrounding area, including representative viewpoints</i></li> <li><i>• the full extent of adjacent or affected landscape receptors of special value (for example, designated areas) whose setting could be influenced by the Project</i></li> <li><i>• the extent of adjacent or affected visual receptors and visual amenity of the area that can be influenced by the Project</i></li> </ul> <p><i>ES Appendix 7.7: Representative Viewpoint and Visual Receptor Baseline Descriptions &amp; Visual Sensitivity [Document Reference 6.3 ES Appendix 7.7 (2)] provides descriptions of the visual baseline view for each Representative Viewpoint, including daytime, (winter and summer views) and night-time views (with reference to light sources). ES Appendix 7.7: Representative Viewpoint and Visual Receptor Baseline Descriptions &amp; Visual Sensitivity [Document Reference 6.3 ES Appendix 7.7 (2)] provides descriptions of the visual baseline view for each Representative Viewpoint, including daytime, (winter and summer views) and night-time views (with reference to light sources).</i></p> <p><i>ES Chapter 12: Noise and Vibration [APP-150] and Environmental Statement Addendum [Document Reference 9.8 (9)] considers noise and vibration impacts in detail. The</i></p>

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		<p><i>study area for the construction and operational noise accords with guidance from Highways England along with the relevant British Standards and comprised an area up to 300m from any proposed construction activities associated with the Project (with an increased distance in the case of more rural areas). The Operational Road Noise and Vibration Study Area includes road links well beyond the order limits (including areas around the Dartford Crossing, West Thurrock and Brentwood).'</i></p>
5.154	<p>The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project <del>and</del> potential impacts on views <u>(including protected views)</u> and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity, and nature conservation. <u>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.</u></p>	<p>This paragraph repeats paragraph 5.146 of the adopted NPSNN with the addition of the underlined text. The response given above covered paragraphs 5.144 to 5.146 of the adopted NPSNN. The above response also addresses matters covered in the new draft revised NPSNN text.</p> <p>In addition ES Appendix 7.9: Schedule of Landscape Effects [Document Reference 6.3 ES Appendix 7.9 (2)] discusses effects on tranquillity.</p> <p>ES Appendix 7.9 [Document Reference 6.3 ES Appendix 7.9 (2)] and ES Appendix 7.10: Schedule of Visual Effects [Document Reference 6.3 ES Appendix 7.10 (2)] discuss effects of lighting on the landscape and views.</p> <p>ES Appendix 8.15: Construction and Operational Light Spill Calculations [APP-407] discusses lighting in relation to ecology.</p> <p>The CoCP [Document Reference 6.3 ES Appendix 2.2 (9)] and Design Principles [Document Reference 7.5 (7)] provide details of how noise and light pollution would be minimised in construction and operation. The Project does not affect any protected views.</p>

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5.155	<p>Any statutory undertaker commissioning or undertaking works in relation to, or so as to affect land in <del>a</del><u>England's National Park</u><del>Parks and the Broads</del>, or <del>Areas</del><u>Area</u> 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<del>5.148</del>. <u>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.</u> For significant road widening or the building of new roads <u>or railways</u> in <u>England's National Parks and the Broads</u> <u>or Area of Outstanding Natural Beauty</u>, applicants also need to fulfil the requirements set out in <del>Defra's English national parks and the broads: UK government vision and circular 2010</del> or successor documents. <del>These requirements</del><u>Management Plans</u> should also be <del>complied with</del><u>considered</u> for <del>significant road widening or the building of new roads in Areas</del><u>National Parks and Area</u> of Outstanding Natural Beauty, <u>especially on identified special qualities of the area and any proposals for enhancement.</u></p>	<p>This paragraph amalgamates paragraphs 5.147 and 5.148 of the adopted NPSNN with the addition of the underlined text regarding the assessment of impacts on the special qualities of National Parks and AONBs.</p> <p>ES Appendix 7.9: Schedule of Landscape Effects [<b>Document Reference 6.3 ES Appendix 7.9 (2)</b>] assesses effects on the relevant special qualities of the Kent Downs AONB (the special qualities were extracted from the AONB Management Plan).</p> <p>The previous response (below) addresses both paragraphs and also covers the new text regarding the importance of respecting the special qualities of AONBs.</p> <p>It is clear from Planning Statement Appendix F: Kent Downs Area of Outstanding Natural Beauty [<b>Document Reference 7.2 Appendix F (2)</b>] (Section F.4, paragraphs F.4.29 to F.4.33 in particular) that appropriate regard has been had to the Kent Downs AONB Management Plan and to the Project's impacts on the AONB.</p> <p><i>'ES Chapter 7: Landscape and Visual</i> [<b>APP-145</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] <i>along with Appendix F: Kent Downs Area of Outstanding Natural Beauty of the Planning Statement</i> [<b>Document Reference 7.2 Appendix F (2)</b>] <i>address the interaction between the Project and the provisions within the National Parks and Access to Countryside Act 1949. ES Chapter 2 (Project Description) details that the Project passes through the West Kent Downs Character Area of the AONB for approximately 2.8km. The area of the development within the AONB is effectively from the existing Thong Lane bridge over the existing A2 to the existing Junction 1 of the M2.</i></p>

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		<p><i>Within the AONB the Project would involve the realignment of the existing A2 to provide four lanes and hard shoulders / intermittent hard shoulders in each direction. Two new two-lane connector roads would be provided, north and south of the realigned A2, connecting to the existing A289 and at the eastern end of the A2.</i></p> <p><i>Paragraph 5.148 of the NPSNN explains that the requirements set out in this Circular apply to AONBs where significant road widening or the building of new roads is proposed. Defra’s ‘English National Parks and the Broads: UK Government Vision’ and Circular 2010 (the Circular) (2010) sets out a number of key outcomes which support the vision for the English National Parks and the Broads.</i></p> <p><i>The Government aims towards achieving the vision can be made through authorities and key partners together focusing on the achievement of the following key outcomes:</i></p> <ul style="list-style-type: none"> <li><i>• A renewed focus on achieving the park purposes</i></li> <li><i>• Leading the way in adapting to and mitigating climate change</i></li> <li><i>• A diverse and healthy natural environment, enhanced cultural heritage and inspiring lifelong behaviour change towards sustainable living and enjoyment of the countryside</i></li> <li><i>• Foster and maintain vibrant, healthy and productive living and working communities</i></li> <li><i>• Working in partnership to maximise the benefits delivered</i></li> </ul> <p><i>The Circular makes clear that achieving these key outcomes should be the Government’s priority for the National Parks and the Broads. Fulfilling the requirements of the Circular (or successor document) for any significant road widening or the</i></p>

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		<p><i>building of new roads within the AONB is a requirement set out in paragraph 5.148 of the NPSNN.</i></p> <p><i>In accordance with NPSNN paragraph 5.148 the following documents demonstrate accordance with the outcomes and overall compliance with the Defra UK Government Vision and Circular 2010:</i></p> <ul style="list-style-type: none"> <li>• <i>The Sustainability Statement [<a href="#">APP-544</a>] recognises the importance of adapting to and mitigating climate change and sets out the key sustainability themes and outcomes for the Project. The intention is to embed sustainability into the Project through the preliminary design, direct specification and, challenging contractors to promote sustainable outcomes or including them in the REAC.</i></li> <li>• <i>ES Chapter 8: Terrestrial Biodiversity [<b>Document Reference 6.1 ES Chapter 8 (2)</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] assesses the potential effects of the Project on biodiversity during both the construction and operational phases and the likely impacts to important ecological features</i></li> <li>• <i>ES Chapter 7: Landscape and Visual [<a href="#">APP-145</a>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] presents an assessment of the landscape and visual impacts associated with the Project, including mitigation measures, residual effects and future monitoring.</i></li> <li>• <i>In response to working in partnership with local authorities, government bodies and the Kent Downs AONB Unit full details of the consultation events are provided in the Consultation Report [<a href="#">APP-064</a> to <a href="#">APP-069</a>].’</i></li> </ul>

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		<p>Furthermore, in addition to the measures outlined above the Applicant has engaged with the AONB Unit and agreed a supplemental, compensatory enhancement fund as outlined in the Statement of Common Ground between National Highways (1) and the Kent Downs AONB Unit (2) <a href="#">[REP6-018]</a>. The compensatory enhancement fund has been secured through a Section 106 Agreement, or equivalent legal agreement, with the Kent County Council <b>[Document Reference 9.167 (2)]</b>.</p>
5.156	<p><a href="#">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</a> to reduce the landscape effects outweigh the marginal loss of scale or function.</p>	<p>This paragraph comprises a re-written version of paragraph 5.159 of the adopted NPSNN. Although the emphasis may have changed slightly in favour of reducing the scale of a project to ensure adverse effects are minimised, the sentiment of the paragraph regarding the mitigation of impacts remains the same. Accordingly, the response previously given to paragraph 5.159 of the adopted NPSNN remains valid:</p> <p><i>‘The iterative design process through the amendment of the design and development of mitigation has considered opportunities, where feasible, to reduce the impact of the Project. Visual appearance and impacts of the Project have been a key factor in both selection of the preferred route and the design of elements of the Project. The design response is that the Project would be a road that lies subservient within its context, the landscape. The existing and proposed landscape would therefore have a higher visual hierarchy than the road and the structures that support it. This would enable impacts on local communities and the environment to be minimised and opportunities for enhancement to be identified, where possible and appropriate.</i></p> <p>The Project Design Report <a href="#">[APP-506 to APP-515]</a> describes the preliminary design and integration of the Project into its</p>

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		<p><i>context and explains how this has been taken into account in the development of the Project design measures. The document discusses the approach in which design of the Project has been developed. Basing the Project on good design, including landscaping design, including landscape design, is an essential focus of the Project.</i></p> <p><i>The Design Principles [Document Reference 7.5 (7)] describes the detailed design phase, setting out how the requirements and guidance within the Design Manual for Roads and Bridges has been met.</i></p> <p><i>Mitigation measures incorporated into the Project design include the replacement of land and landscape features, proposed green bridge structures along the Project route and extensive woodland planting at the junctions, as well as further additional linear planting and wider hedgerow reinstatement adjacent to the Project route to aid visual screening and landscape integration. In addition, typically 4m high false cutting earthworks would provide permanent visual screening.'</i></p>
5.157	Projects need to be designed carefully, taking account of the potential impact on the landscape.	This paragraph is noted. See responses to paragraphs 4.24 to 4.29 above dealing with the principles of good design.
5.158	Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, design (including choice of materials), <u>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</u> the proposed project. Materials and designs for infrastructure should always be given careful consideration <u>in terms of environmental standards.</u>	This paragraph replicates paragraph 5.160 of the adopted NPSNN but with the addition of new text (underlined) which elaborates on the principles already referred to. The response given previously to paragraph 5.160 of the adopted NPSNN remains relevant. Not least as the Design Principles [Document Reference 7.5 (7)] include features such as false cuttings, bunds and green/brown roofs as mentioned in the new text: <i>'ES Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference</i>

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		<p><b>9.8 (9)]</b> <i>considers siting of structures and infrastructure (both temporary and permanent) as well as associated works to overhead powerlines and underground utility diversions to minimise the impacts of the Project on the landscape character and visual amenity.</i></p> <p><i>ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] shows the embedded environmental mitigation measures of the Project.</i></p> <p><i>With regards to design and materials in particular, The Design Principles Document [Document Reference 7.5 (7)] sets out the specific measures proposed to minimise landscape and visual impacts. The design is to be led by the existing landscape, incorporating, and integrating the structures and buildings, so they appear as fully and seamlessly integrated components within the landscape. The goal of the design shall be to have structures that are not overbearing or obtrusive in the landscape, thereby reducing impact on the local character and environment. With regards to materials and design the various measures within the design clauses to be incorporated in the Project are extensive but include:</i></p> <ul style="list-style-type: none"> <li><i>• coherent and distinctive design for Project Enhanced Structures with a recognisable design language and consistent material palette.</i></li> <li><i>• consistent material palette for all structures.</i></li> </ul>



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		<ul style="list-style-type: none"> <li>• <i>Bridge pier material and form shall be distinctive and consistent across the Project and avoid large expanses of planar surfaces at the abutments and adjacent landforms.</i></li> <li>• <i>within and close to the Kent Downs AONB, will be consistent and appropriate to the colour palette required in the Kent Downs AONB.</i></li> <li>• <i>parapet material and form (e.g., weathering steel) will be distinctive and consistent across the Project. Parapets and acoustic barriers shall be combined where reasonably practicable.</i></li> <li>• <i>retaining structures and bridge abutments within the Kent Downs AONB and its setting, shall be either green walls, earth banks, or clad with hard materials in accordance with the Kent Downs AONB Landscape Design Handbook (Kent Downs AONB Joint Advisory Committee, 2018), to be reflective of the local vernacular.'</i></li> </ul>
5.159	<p>Depending on the topography of the surrounding terrain and areas of population, <a href="#"><u>it may be appropriate to undertake landscaping off-site, although if such landscaping was proposed to be consented by the Development Consent Order</u></a>, 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.</p>	<p>This paragraph directly replicates paragraph 5.161 of the adopted NPSNN. The response given previously remains relevant:</p> <p><i>'Landscape works associated with the Project, including offsite planting within the Order Limits, is shown in ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]. For example, the placement of Wet (Carr) Woodland within the Orsett Fen Wetland Creation Land Parcel and Hedgerow reinforcement along an existing field boundary adjacent to Orsett Golf Course are proposed for visual screening purposes.'</i></p>

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5.160	<p><u>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.</u></p>	<p>This is a new paragraph in the draft NPSNN highlighting the importance of landscape management plans.</p> <p>The DCO application is accompanied by an outline Landscape and Ecology Management Plan (oLEMP) [<b>Document Reference 6.7 (7)</b>] which outlines the proposed management and monitoring of the parcels of land that perform landscape and ecological mitigation functions to mitigate impacts of the Project.</p> <p>The oLEMP is secured via Schedule 2, Requirement 5 of the draft DCO [<b>Document Reference 3.1 (11)</b>].</p>
5.161	<p><u>Landscape effects of the project depend on the existing character of the local landscape, its capacity to accommodate change and nature of the effect likely to occur. All of these</u> factors need to be considered in judging the impact of a project on landscape. <u>Projects need to have</u> regard to siting, <u>orientation, height</u> operational and other relevant constraints, <del>the</del> <u>The</u> aim should be to avoid or minimise harm to the landscape, providing reasonable mitigation <u>and opportunities for enhancement</u> where possible and appropriate</p>	<p>This paragraph comprises a re-draft of paragraph 5.149 of the adopted NPSNN. The new text is underlined and addresses the capacity for the landscape to accommodate change and applicants looking for opportunities to enhance the landscape, though the broad thrust of the paragraph remains the same.</p> <p>Susceptibility of landscape receptors is discussed in ES Appendix 7.9: Schedule of Landscape Effects [<b>APP-384</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>], as well as magnitude of effect and significance of effect and the capacity to accommodate change. Table 1.1 of ES Appendix 7.9: Schedule of Landscape Effects comments on the relevant receptors capacity to accommodate the Project, noting that the relevant receptors generally have the capacity to accommodate the Project to varying degrees.</p> <p>The response previously given to paragraph 5.149 of the adopted NPSNN (below) remains relevant.</p> <p><i>'ES Chapter 7: Landscape and Visual [<b>APP-145</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] has divided the area covered by the Project into four National Character Areas (NCAs), namely NCA 119, NCA 113, NCA 81 and NCA 111.</i></p>

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		<p><i>The four NCAs are further broken down into 22 Local Landscape Character Areas (LLCAs). These are summarised in Tables 7.11 to 7.13 of Chapter 7, together with a judgement on their landscape value.</i></p> <p><i>A series of design principles has been established based upon the LLCAs and these have been embedded into the design process. The design principles are secured by Requirement 3 of the draft DCO.</i></p> <p><i>The landscape-first hierarchy has been reflected in the Project design. For example, in the section of Project route that crosses the Mardyke, the road would be treated as a secondary element passing through the landscape.</i></p> <p><i>The Project has incorporated National Highways’ 10 Design Principles of good road design which drives a context-based design response in integrating structures within their setting, ensuring a positive contextual intervention.</i></p> <p><i>The Project’s mitigation measures are detailed within ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)], showing both construction phase and operational phase mitigation.’</i></p> <p><i>Construction phase mitigation is also addressed in the CoCP [Document Reference 6.3 ES Appendix 2.2 (9)].</i></p> <p><i>In terms of enhancements, paragraph 7.5.5 of ES Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference 9.8 (9)] notes that ‘enhancement measures have been directly incorporated into the Project as part of the application of ‘good design’ principles’. They are also addressed in paragraph 7.5.20 and Table 7.16.</i></p>

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5.162	<p><del>Great weight should be given to conserving landscape and scenic beauty in nationally designated areas.</del> <u>England's</u> National Parks, the Broads and Areas of Outstanding Natural Beauty have <u>been confirmed by the government as having</u> the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the Secretary of State <del>has a statutory duty to</del><u>should</u> have regard to in <del>decisions.</del><sup>103</sup><u>their decisions</u><sup>u</sup>. <u>The conservation and enhancement of the natural beauty of the landscape and countryside should be given great weight by the Secretary of State in deciding on applications for development consent in these areas.</u></p> <p><sup>u</sup> For an explanation of the duties which will apply to the Secretary of State, see 'Duties on relevant authorities to have regard to the purposes of National Parks, AONBs and the Norfolk and Suffolk Broads' at <a href="https://landscapesforlife.org.uk/application/files/2015/8928/8605/Duty_of_Regard_Guide_Defra_2005.pdf">https://landscapesforlife.org.uk/application/files/2015/8928/8605/Duty_of_Regard_Guide_Defra_2005.pdf</a></p>	<p>This paragraph is a re-drafted and restructured version of paragraph 5.150 of the adopted NPSNN. Although the order of the text has changed, the meaning and emphasis of the paragraph remains the same. Accordingly, the response given previously to paragraph 5.150 of the adopted NPSNN remains relevant (this response covers both paragraphs 5.150 and 5.151 of the adopted NPSNN):</p> <p><i>'The need for the Project is explained in the Need for the Project [APP-494], which establishes why the Project is in the public interest. There are therefore exceptional circumstances in this case which justify development within the AONB.</i></p> <p><i>The scope to develop outside the AONB designation has been considered in ES Chapter 3: Assessment of Reasonable Alternatives [APP-141]. The case is centred around the fact that the existing A2 is part of an established infrastructure corridor that extends east-west across the northern section of the Kent Downs AONB. The widening of the A2 is an essential element of the Project which is required to accommodate forecast increases in traffic. Alternative routes outside the AONB which were considered failed to accord with the Scheme Objectives due to a higher impact on environmentally sensitive sites and on local communities. These options also would not have relieved the existing congestion pressure at the Dartford Crossing and would not provide value for money. Other reasons for rejection relate to construction cost and time, poor connectivity to the existing highway network, and poor economic benefit, especially in locations of existing and planned development.</i></p> <p><i>This process established that the only viable alternative to the selected route would be the provision of a link to the A2 further east ('the Eastern Southern Link' (ESL)). The ESL junction with</i></p>

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		<p><i>the A2/ M2 would have had a greater physical impact on the Kent Downs AONB as there would be a greater transport infrastructure footprint within it. There would also be a greater loss of ancient woodland that forms an important part of the landscape fabric.</i></p> <p><i>The proposed realignment of the existing utilities within the AONB largely remains within the existing infrastructure corridor in order to minimise further encroachment into the designation.</i></p> <p><i>The Project has been designed to moderate any harm by combining with existing road and rail infrastructure. As the existing utilities are sited within the AONB it is not possible to divert them in a way which would avoid the AONB entirely. However significant improvements and design refinements have been made to reduce the land-take originally required as presented in the Supplementary Consultation (2020). The utility realignments have evolved, with numerous changes made to further reduce their impact on the AONB.</i></p> <p><i>Overall, construction activity would result in a perceived qualitative change in the night-time environment of the AONB, due to the increased activity and removed vegetation resulting in additional light spill and glow. Mitigation during construction through best practice include temporary screens.</i></p> <p><i>Operational impacts would include (among others):</i></p> <ul style="list-style-type: none"> <li><i>• large-scale harm to the integrity of woodland and trees</i></li> <li><i>• partial but noticeable loss of mature woodland,</i></li> <li><i>• permanent impacts on irreplaceable habitats</i></li> <li><i>• changes to landform, increase traffic movements</i></li> </ul> <p><i>Operational mitigation will include:</i></p>

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		<ul style="list-style-type: none"> <li>• <i>minimising lighting columns, their heights, and use LED luminaires with controllable directional lighting reducing light spill</i></li> <li>• <i>multifunctional green bridges at Thong Lane/A2 and Brewers Road</i></li> <li>• <i>restricting the width of the A2 corridor as far as practicable</i></li> <li>• <i>micro-siting of elevated gantries</i></li> <li>• <i>woodland planting</i></li> <li>• <i>false cuttings</i></li> <li>• <i>new circular walks connecting recreational areas within the Kent Downs AONB and access to the Kent Downs AONB.'</i></li> </ul> <p>The following Application Documents are also relevant to the assessment of impacts on the AONB:</p> <ul style="list-style-type: none"> <li>• ES Appendix 7.9: Schedule of Landscape Effects [<b>Document Reference 6.3 ES Appendix 7.9 (2)</b>]</li> <li>• ES Appendix 7.10: Schedule of Visual Effects [<b>Document Reference 6.3 ES Appendix 7.10 (2)</b>] for effects on the AONB</li> </ul> <p>Design Principles [<b>Document Reference 7.5 (7)</b>]</p> <ul style="list-style-type: none"> <li>• Environmental Masterplan Sections 1 to 3 [<b>Document Reference 6.2 ES Figure 2.4 Sections 1 and 1a (4), Section 2 (5) and Section 3 (4)</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] <a href="#">REP2-014</a>, <a href="#">REP3-098</a> and <a href="#">REP2-018</a> for mitigation associated with the AONB and its setting</li> </ul>

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		<p>Furthermore, in addition to the measures outlined above the Applicant has engaged with the AONB Unit and agreed a supplemental, compensatory enhancement fund as outlined in the Statement of Common Ground between National Highways (1) and the Kent Downs AONB Unit (2) [REP6-018]. The compensatory enhancement fund has been secured through a Section 106 Agreement, or equivalent legal agreement, with the Kent County Council [Document Reference 9.167 (2)].</p>
5.163	<p>The Secretary of State should refuse development consent in these areas <del>except in</del> <u>unless there are</u> exceptional circumstances, <u>where the benefits outweigh the harm</u> and where it can be demonstrated that it is in the public interest. Consideration of such applications should include an assessment of:</p> <ul style="list-style-type: none"> <li>• the need for the development, including <del>in terms of</del> any national <del>considerations</del> <u>considerations</u><sup>v</sup>, and the impact of consenting, or not consenting it, upon the local economy;</li> <li>• the cost of, and scope for, developing elsewhere, outside the designated area, or meeting the need for it in some other way; <del>and</del>, <u>taking account of the policy on alternatives set out in paragraphs 4.17 to 4.19</u></li> <li>• any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated</li> </ul> <p><sup>v</sup> <i>National considerations should be understood to include the national need for the infrastructure as set out in Chapter 2.</i></p>	<p>Other than in terms of the addition of the text underlined, this paragraph broadly replicates paragraph 5.151 of the adopted NPSNN.</p> <p>Nonetheless, the thrust of the requirements remain the same. Accordingly, the response given previously to paragraph 5.151 of the adopted NPSNN remains relevant. That response is given above in respect of paragraph 5.162, which covers both paragraphs 5.150 and 5.151 of the adopted NPSNN.</p> <p>The above response deals with the consideration of alternatives in the first two paragraphs. In terms of the benefits of the Project outweighing the harm, this is addressed in the Need for the Project [APP-494] and Section 8: Planning Balance of the Planning Statement [Document Reference 7.2 (9)].</p>

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5.164	<p>There is a strong presumption against any significant road widening or the building of new roads and strategic rail freight interchanges in a National Park, the Broads and Areas of Outstanding Natural Beauty, unless it can be shown there are <del>compelling reasons</del> <u>exceptional circumstances</u> for the new or enhanced capacity and with any benefits <del>outweighing the costs</del> very significantly <u>outweighing the harm</u>. Planning of the Strategic Road Network should encourage routes that avoid <u>impacts to</u> National Parks, the Broads and Areas of Outstanding Natural Beauty.</p>	<p>This paragraph largely replicates paragraph 5.152 of the adopted NPSNN. Exceptional circumstances (<u>underlined</u>) replaces ‘compelling reasons’ in the adopted NPSNN. The Applicant does not consider this wording change would affect the analysis provided (i.e. the demonstration of compelling reasons would equally represent ‘exceptional circumstances’). The response previously given to paragraph 5.152 of the adopted NPSNN therefore remains relevant. It sets out that the Applicant considers that the benefits of the Project do ‘very significantly’ outweigh the adverse effects and addresses the issue of impacts on the AONB:</p> <p><i>‘The Scheme Objectives, agreed by National Highways and the Department for Transport (DfT), include: ‘To relieve the congested Dartford Crossing and approach roads and improve their performance by providing free-flowing north-south capacity.’</i></p> <p><i>The Transport Assessment [REP4-148, REP4-150 and REP4-152] sets out the benefits of the Project in terms of improving the operation of the SRN and providing additional highway capacity. The Dartford Crossing currently experiences high levels of congestion on a regular basis.</i></p> <p><i>The Dartford Crossing was found to have operated above its design capacity on 337 days during 2019 (Highways England, 2019). The Need for the Project [APP-494] recognises that the lack of capacity across the River Thames and the congestion at the Dartford Crossing, ‘threaten to weaken the UK’s Industrial Strategy, increasingly disrupt trade flows, stifle employment growth and hamper efforts to raise national productivity levels’.</i></p> <p><i>The Need for the Project [APP-494] also explains how the Project would reduce congestion at Dartford Crossing, creating</i></p>



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		<p><i>additional capacity and increased resilience across the River Thames east of London.</i></p> <p><i>Selection of the preferred Project route option in relation to the AONB is set out in response to paragraph 5.151(b) of the NPSNN above, including the subsequent project development after PRA leading to the proposed widening of the existing A2 corridor across the northern part of the AONB. This route would provide an essential link connecting the A2 and M2 in Kent to the M25 south of junction 29, creating an all-purpose trunk road connecting Kent, Thurrock and Essex and providing over 80% additional road capacity across the River Thames.</i></p> <p><i>The compelling and very significant need for the Project is explained in the Need for the Project, not only in addressing the long-standing traffic problems at the Dartford Crossing, but in delivering benefits across a wide range of needs and opportunities. In responding to these ongoing issues, the document concludes that, ‘it is considered there is a clear and overriding need for the Project, the adverse effects of which are very significantly outweighed by the benefits’.</i></p> <p><i>In summary, the range of Project benefits can be described, as follows:</i></p> <ul style="list-style-type: none"> <li><i>• An additional crossing of the River Thames, east of London, would provide more reliable journeys across the Thames. The enhanced connectivity would provide increased cross river economic opportunities which would stimulate competition and boost employment in the region. It would also allow for quicker, more reliable access to key markets, resources and labour for the region’s ports.</i></li> <li><i>• The Project would provide enhanced connectivity and facilities for walkers, cyclists and horse riders, alongside improved access to community and businesses.</i></li> </ul>

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		<p><i>Additionally, reduced congestion in the Dartford area would decrease air pollution.</i></p> <ul style="list-style-type: none"> <li><i>As a result of the Project, journeys on both sides of the River Thames, as well as those that cross the River, would be quicker and these journeys would be subject to less frequent delays and uncertainty than is currently experienced. Congestion at the Dartford Crossing would be significantly reduced as the Project provides substantial additional capacity and a new route option across the River Thames. On that basis, and for the reasons set out above and in Need for the Project [APP-494], it is considered that there are compelling reasons for the new or enhanced capacity and that the benefits outweigh the costs very significantly. The Project therefore accords with paragraph 5.152 of the NPSNN.'</i></li> </ul>
5.165	<p>Where consent is given in these areas, the Secretary of State should be satisfied that the applicant has ensured that the project will be carried out to high environmental <a href="#">and design</a> standards and where possible includes measures to enhance <a href="#">the landscape and</a> other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.</p>	<p>Other than in respect of the new underlined text this paragraph replicates paragraph 5.153 of the adopted NPSNN which addresses both design standards and landscape impacts:</p> <p><i>'The Project route within the Kent Downs AONB is focused on the A2 widening works (typically occurring to the south of the existing A2), with an additional eastbound local distributor road to the northern edge. The construction of the M2/A2/Lower Thames Crossing junction includes viaducts, associated structures and green bridges. Proposed associated works include the diversion of walkers, cyclists and horse riders (WCH) tracks, earthworks, infiltration ponds, retaining walls, lighting, signage and gantries.</i></p> <p><i>Chapter 6 of the Planning Statement [Document Reference 7.2 (2)] has noted, in response to the location of the Project route within the AONB, that, over time, the establishment of new landscape features including the replacement ancient woodland planting east of Shorne Woods, replacement</i></p>

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		<p><i>woodland north of the improved A2 corridor adjacent to Shorne and Brewers Wood and linear planting adjacent to HS1 would partially replace the wooded characteristics of this corridor.</i></p> <p><i>Compensation for ancient and SSSI woodland would be provided in the form of replacement tree planting, designed to link together areas of ancient woodland to improve connectivity and resilience. The area of ancient woodland compensatory planting would be approximately 50ha.</i></p> <p><i>The planting east of Shorne Woods would enhance the environment through reinforcing the woodland characteristics of this landscape, this also provides additional visual screening of existing and proposed infrastructure. The woodland mitigation here would include provision for ancient woodland planting compensation (Design Principle LSP.19) [Document Reference 7.5 (7)] with soil translocation (Register of Environmental Actions and Commitments (REAC) entry TB028), including Veteran Tree replacement (REAC entry LV032) and relocation of lost veteran trees (REAC entry LV031). These combined measures would improve biodiversity connectivity of habitats through this landscape.</i></p> <p><i>In addition, proposed shrub planting with intermittent trees and new hedgerow planting above the proposed green bridges at Brewers Road, Thong Lane over the A2 and Thong Lane over the new Project road would provide a degree of containment and reduced perception of the infrastructure corridor below.</i></p> <p><i>The green bridges would be delivered to high environmental standards focusing on improved ecological and recreational connectivity across the infrastructure corridor and within the AONB between Shorne Woods and Ashenbank Woods and Cobham parkland (Design Principles STR.01, STR.03,</i></p>

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		<p><i>STR.06, STR.08, STR.11, S1.04) [Document Reference 7.5 (7)]. The Design Principles are commitments that will be secured through the draft DCO [Document Reference 3.1 (11)] and that are certified in Schedule 16.'</i></p> <p>Furthermore, in addition to the measures outlined above the Applicant has engaged with the AONB Unit and agreed a supplemental, compensatory enhancement fund as outlined in the Statement of Common Ground between National Highways (1) and the Kent Downs AONB Unit (2) [REP6-018]. The compensatory enhancement fund has been secured through a Section 106 Agreement, or equivalent legal agreement, with the Kent County Council [Document Reference 9.167 (2)].</p>
5.166	<p>The duty to have regard to the purposes of nationally designated <del>areas</del><u>landscapes</u> also applies when considering applications for projects outside the boundaries of these areas (<u>in their 'setting'</u>) which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be <u>located and</u> designed sensitively <del>given the various siting, operational, and other relevant constraints, to</del> <u>avoid or minimise impacts</u>. This should include projects in England which may have impacts on designated areas in Wales or on National Scenic Areas in Scotland. <del>5.155</del> The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.</p>	<p>This paragraph is a slightly amended version of paragraph 5.154 of the adopted NPSNN. It is also merged with what was previously paragraph 5.155. There are contextual amendments to the wording as underlined but these do not materially alter the meaning or sentiment of the paragraph. Accordingly, the responses previously given to paragraphs 5.154 and 5.155 of the adopted NPSNN remain relevant as they address avoiding/minimising impacts and also consider the setting of the AONB:</p> <p><i>'The landscape and visual assessment within ES Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference 9.8 (9)] has considered the reasonable worst-case scenario arising from the Project's route alignment within the Kent Downs AONB and its setting, in relation to its landscape character and features, as well as visual receptors. The assessment has concluded that the Project would result in a range of significant</i></p>

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		<p><i>effects on the landscape resource and visual receptors of the AONB.</i></p> <p><i>The project design has sought to moderate impacts upon the Kent Downs AONB and as a result, the visual impacts of the Project across the wider area would be tempered by the presence of the existing transport corridor.</i></p> <p><i>Notwithstanding this, there would be unavoidable adverse impacts upon views of and from within the AONB as a result of the loss of defining woodland and the introduction of new elevated and permanent prominent features (gantries, green bridges, and street lighting). Partial harm to views from the Kent Downs to the surrounding landscape within the setting will result from the M2/A2/Lower Thames Crossing junction. The western setting of the AONB will be adversely affected, initially from permanent loss of arable farmland and construction of the elevated M2/A2/Lower Thames Crossing junction and latterly from the presence of new infrastructure at the junction, together with further vegetation loss.</i></p> <p><i>Within the setting of the AONB the mitigation will include:</i></p> <ul style="list-style-type: none"> <li><i>• large scale woodland planting</i></li> <li><i>• minimising impacts on Claylane Ancient Woodland and other vegetation</i></li> <li><i>• new earthworks providing 4m high false cuttings</i></li> <li><i>• multifunctional green bridges</i></li> <li><i>• new circular walks connecting recreational areas and access to the Kent Downs AONB.</i></li> </ul> <p><i>Whilst there would be a perceivable qualitative change in the night-time environment due to the change in street lighting, LED luminaires would be on reduced height columns with reduced light spill and glow. The Project design has therefore</i></p>

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		<p><i>had regard to the special purposes of the AONB and has sought to minimise harmful impacts on its setting. Residual impacts would be mitigated as far as practicable.'</i></p> <p>Matters related to the mitigation of impacts both on the AONB and on its setting are presented in the following Application Documents:</p> <ul style="list-style-type: none"> <li>• Design Principles [<b>Document Reference 7.5 (7)</b>]</li> <li>• Environmental Masterplan Sections 1 to 3 [<b>Document Reference 6.2 ES Figure 2.4 Sections 1 and 1a (4), Section 2 (5) and Section 3 (4)</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>]</li> </ul>
5.167	<p>Outside nationally designated <del>areas</del><u>landscapes</u>, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development <del>document</del><u>plan</u> in England has policies based on landscape character assessment, these should be given particular consideration. However, local landscape designations should not be used in <u>and of</u> themselves as reasons to refuse consent, as this may unduly restrict acceptable development.</p>	<p>Other than in respect of minor textual tweaks (underlined), this paragraph replicates paragraph 5.156 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'Section 5.1 of Priority 5 of the Kent Environment Strategy (Kent County Council, 2016) requires the establishment of a 'coherent, landscape-led approach to decision making...' and a '...strategic approach to assessment of character...' The landscape and visual assessment has reviewed existing published landscape character assessments and used these to inform the Local Landscape Character Areas identified and assessed in ES Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference 9.8 (9)], ES Appendix 7.5: Local Landscape Character Baseline [APP-380], and ES Appendix 7.9: Schedule of Landscape Effects [Document Reference 6.3 ES Appendix 7.9 (2)], with significant effects identified that might affect decision making. These effects have been moderated,</i></p>

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		<p>wherever practicable, through the Project design, as discussed below.</p> <p>Design-related policies, which require development to conserve and enhance the character of an area include the following:</p> <ul style="list-style-type: none"> <li>• Sections 5.2 and 5.4 of Priority 5 of the Kent Environment Strategy (Kent County Council, 2016)</li> <li>• Policy BNE6 Landscape Design, Medway Local Plan (Medway Council, 2003)</li> <li>• Policy CS19 Development and Design Principles, Local Plan Core Strategy (Gravesham Borough Council, 2014)</li> <li>• Principles SD2, SD3, SD8, SD9, SD11, SD12, LLC1, BD1, HCH1 and HCH2 of the Kent Downs AONB Management Plan 2021-2026, (Kent Downs AONB Unit, 2021)</li> <li>• Policies CSTP22, Part 3 and CSTP23 of the Thurrock Local Development Framework (Thurrock Council, 2015)</li> <li>• Policies 12, 27 and 29 of the Havering Local Plan 2016-2031 (London Borough of Havering, 2021)</li> <li>• Policies NE02, NE03 and NE04 of the Brentwood Local Plan 2016- 2033 (Brentwood Borough Council, 2022)</li> <li>• The development of the detailed Project design is required to have regard to the existing landscape character, as set out throughout the Design Principles [<b>Document Reference 7.5 (7)</b>]. Specifically, design principle LSP.01 discusses the retention of existing vegetation to reduce harm to the landscape, while design principles LSP.02, LSP.04, LSP.09, LSP.10, LSP.13, LSP.14 and LSP.20 discuss landscape mitigation measures.</li> </ul> <p>ES Figure 2.4: Environmental Masterplan [<b>Document Reference 6.2 ES Figure 2.4</b>] and Environmental Statement</p>

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		<p>Addendum [<b>Document Reference 9.8 (9)</b>] <i>has been prepared to show the embedded environmental mitigation measures of the Project.</i></p> <p><i>It is therefore considered that the Project accords with paragraph 5.156 of the NPSNN.'</i></p>
5.168	<p><a href="#"><u>Within areas defined as Heritage Coast<sup>w</sup> that are not already within one of the nationally designated landscape areas, planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate unless it is compatible with its special character.</u></a></p> <p><sup>w</sup> Areas of undeveloped coastline which are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors.</p>	<p>This is a new paragraph of text in the draft revised NPSNN. The Project is not located in, nor would it affect, an area defined as Heritage Coast. No response is considered necessary.</p>
5.169	<p>In taking decisions, the Secretary of State should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by <del>reasonable</del><a href="#"><u>appropriate</u></a> mitigation</p>	<p>Other than in the exchange of the word 'reasonable' for the word 'appropriate' (<u>underlined</u>) this paragraph replicates paragraph 5.157 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'Minimising adverse impacts on health and the environment is one of the overarching Scheme Objectives. The Project Design Report [<a href="#"><u>APP-506</u></a> to <a href="#"><u>APP-515</u></a>] sets out the measures to avoid adverse effects on landscape, to minimise harm to the landscape, and to mitigate residual impacts. Another key document in the development of the design proposals for landscape was the Green Infrastructure (GI) Study commissioned by the Project. Further information on the</i></p>



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		<p><i>Green Infrastructure Study is provided in the Planning Statement Appendix H [<a href="#">APP-503</a>].</i></p> <p><i>Inevitably, traffic volume and capacity has been a significant operational element which has influenced the design. For example, traffic modelling predicted that fewer vehicles would use the route between the M25 and A13. Following review, the previous design, featuring two lanes southbound between the M25 and A13 junctions, instead of the previous three land design. By making this change, the amount of land required for the Project route on this section has been reduced, lessening the environmental impact. The nature of the Project also brings about a need to incorporate a number of operational elements including tunnel portals, retaining structures, noise barriers, gantries etc. Rather than such requirements acting as a constraint on achieving a sympathetic design, the Project design narrative has bound these together within a coherent strategy in which the aesthetic quality is considered in relation to the places through which the Project route passes. The engineering, landscape and architecture proposals have therefore been designed to work together as one, both functionally and aesthetically and the Project adopts a landscape led approach developed to be green and sympathetic (forming a positive response) to its context within the constraints.</i></p> <p><i>Mitigation measures have been developed to meet a variety of environmental needs and to be embedded as far as reasonably practicable into the engineering design. Engineering proposals have been designed to enhance rather than detract from the local environment where practicable.'</i></p>

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5.170	<p>The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development. Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast, especially those defined as Heritage Coast. <u><a href="#">Within areas defined as Heritage Coast, planning policies and decisions should be consistent with the special character of the area and the importance of its conservation.</a></u></p>	<p>Other than the addition of text referring to Heritage Coast at the end of the paragraph (underlined) which is not relevant to this Project, this paragraph directly replicates paragraph 5.158 of the adopted NPSNN. Accordingly, the response given previously to that paragraph remains relevant:</p> <p><i>‘The effects of the Project on views and visual amenity, including views from the River Thames, are detailed in Section 7.7 of Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference 9.8 (9)] and Appendix 7.10: Schedule of Visual Effects [Document Reference 6.3 ES Appendix 7.10 (2)] of the Environmental Statement (ES).</i></p> <p><i>Construction and operational mitigation are described in Section 7.5 of Chapter 7: Landscape and Visual [APP-145] and Environmental Statement Addendum [Document Reference 9.8 (9)] and in Figure 2.4: Environmental Masterplan of the ES [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] showing the embedded environmental mitigation measures of the Project.</i></p> <p><i>The Project Design Report [APP-506 to APP-515] acknowledges that its scale means that the Project will be experienced by large numbers of people in many different ways, including people travelling along the route, those living in the towns and villages close to it, those who make recreational use of the landscape through which it passes and those who will be employed in its construction or operation.</i></p> <p><i>With regards to coastal landscapes, the proposal for the crossing to be in the form of a tunnel as opposed to a bridge would significantly reduce the overall impact on the coastal</i></p>

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		<p><i>landscape. Whilst it is inevitable that some coastal impacts would still occur, the ES concludes that in the case of the Greater Thames Estuary National Character Area, the most significant impacts will be associated with the construction phase (including temporary loss of farmland and conspicuous construction activity) and would be temporary in nature. No likely significant effects are predicted during construction or operation within the South East Marine Character Area 18: Thames and Medway Estuaries. There are no Heritage Coasts affected by the Project.</i></p> <p><i>The ES concludes that although there would be some very large and large adverse effects arising from the Project overall, these would be localised due to extensive mitigation proposals which would help screen views of the new road and reinstate landscape features removed to facilitate construction. For the most part, effects of the Project would be moderate or below. It is therefore concluded that the Project would result in a combined moderate adverse significance of overall landscape and visual effect on the existing landscape and visual amenity, which is considered significant in the context of the EIA Regulations. However, as set out in Chapter 8: Planning Balance of the Planning Statement [Document Reference 7.2 (2)], it is considered that the overriding need for the project outweighs the significant residual effects.'</i></p>
<b>Land Use including Open Space, Green Infrastructure and Green Belt</b>		
5.171	<p>Access to high quality open spaces and the <del>countryside</del><sup>105</sup> <u>countryside</u><sup>X</sup> and opportunities for sport and recreation can be a means of providing necessary mitigation and/or compensation requirements. <u>Green infrastructure is a network of multi-functional green and blue features and other</u></p>	<p>This introductory paragraph largely reflects the principles of paragraph 5.162 of the adopted NPSNN albeit with the addition of the underlined text. This new text highlights the broader multi-functional benefits of green infrastructure including to deliver social and BNG objectives.</p>

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	<p><a href="#">natural features, urban and rural, which are capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity. Green Infrastructure can include nature-based solutions to prevent or reduce environmental impacts.</a> Green infrastructure can also enable developments to provide positive environmental, <a href="#">social</a> and economic benefits.<sup>106</sup></p> <p><i><sup>x</sup>All open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity.</i></p> <p><sup>106</sup> Natural England 'Introduction to the Green Infrastructure Framework – Principles and Standards for England'</p>	<p>No response necessary.</p>
5.172	<p>The re-use of previously developed land for new development can make a major contribution to sustainable development by reducing the amount of countryside and undeveloped greenfield land that needs to be used. However, this may not be possible for some forms of infrastructure, particularly linear infrastructure such as roads and railway lines. Similarly, <del>for SRFIs</del> <a href="#">strategic rail freight interchanges</a>, brownfield <del>land</del><sup>y</sup> may not be economically or commercially feasible. <del>albeit applicants will need to demonstrate clearly why the use of brownfield land is not appropriate.</del></p> <p><sup>y</sup> <a href="#">Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure. This excludes: land that is or was last occupied by agricultural or</a></p>	<p>Other than for the addition of new text (underlined) which applies to strategic rail freight interchanges, this text replicates the introductory text presented at paragraph 5.163 of the adopted NPSNN.</p> <p>No response necessary.</p>

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	<p><u>forestry buildings; land that has been developed for minerals extraction or waste disposal by landfill, where provision for restoration has been made through development management procedures; land in built-up areas such as residential gardens, parks, recreation grounds and allotments; and land that was previously developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape.</u></p>	
5.173	<p>Green Belts, defined in a development plan, are situated around certain cities and large built-up areas. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence. <del>For further information on the purposes and protection of</del><u>The Examining Authority should ensure that substantial weight is given to any harm to the Green Belt see the <i>National Planning Policy Framework</i> when assessing a proposal. Under very special circumstances, development in the Green Belt is allowed if the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations<sup>107</sup>.</u></p> <p><sup>107</sup> <i>National Planning Policy Framework. For further information, see Chapter 13</i></p>	<p>The first two sentences of this paragraph replicate those in paragraph 5.164 of the adopted NPSNN. The underlined text is new. However, that new text does reflect the provisions of paragraph 5.178 of the existing NPSNN in terms of the degree of weight to be attached to harm to the Green Belt and that development in the Green Belt is allowed in very special circumstances. The response given previously to paragraph 5.178 of the NPSNN remains relevant (see also the response to paragraph 5.177 below):</p> <p><i>‘As an ‘inappropriate’ form of development within the Green Belt, Chapter 6 [Document Reference 7.2 (2)] and Appendix E [Document Reference 7.2 Appendix E (2)] of the Planning Statement explain, by reference to the following matters, the ‘very special circumstances’ that exist in justifying the Project within the Green Belt:</i></p> <ul style="list-style-type: none"> <li>• <i>The defined and overriding need for the Project: The need case for the Project, as a form of linear infrastructure.</i></li> <li>• <i>No viable alternatives: The unavailability of viable alternatives with less adverse impacts on the Green Belt.</i></li> <li>• <i>Policy support: Specific policy support for the Project as a major new road infrastructure and for the proposed route alignment through the Green Belt.</i></li> </ul>

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		<ul style="list-style-type: none"> <li>• <i>Temporary and limited impacts: The potential temporary visual impacts and effects on the landscape character of the Green Belt that are reversible and amount to ‘very special circumstances’</i></li> </ul> <p><i>Project Wide Mitigation at construction and operational stages is also relevant in the overall planning balance, and will assist in controlling construction activities, integrating the Project into the Green Belt landscape where possible while minimising impact and working towards the fundamental aims of Greenbelt policy. These matters are considered to demonstrate the ‘very special circumstances’ in support of the Project, sufficient to overcome the presumption against ‘inappropriate’ development in the Green Belt, as set out in national and local planning policy. See also response to NPSNN paragraphs 5.170-5.171 above.’</i></p>
5.174	<p><a href="#"><u>Where it has been concluded that it is necessary to release Green Belt land for development, plans should give first consideration to land which has been previously developed. They should also set out ways in which the impact of removing land from the Green Belt can be offset through compensatory improvements to the environmental quality and accessibility of remaining Green Belt land.</u></a></p>	<p>No response necessary.</p> <p>This requirement is directed at local authorities and the release of land through development plans. It is not directly relevant to the Project.</p>
5.175	<p><a href="#"><u>Productive forests, trees and woodlands contribute to a number of sustainability considerations. The 25 Year Environment Plan recognises the need to protect existing trees and forests. Specific actions are set out in the England Trees Action Plan 2021 to 2024, including a commitment to ensure strong planning reforms will lead to more trees being planted and ensure strong protections for existing trees</u></a></p>	<p>This is wholly new text in the revised draft NPSNN. However, it is a statement of policy intent.</p> <p>No response required.</p>

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5.176	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 <del>and</del> quality <u>and functionality</u> in a suitable <u>and accessible</u> 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	Other than in respect of the additional text (underlined) this paragraph replicates paragraph 5.166 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>‘Impacts of the Project on open space are addressed in Appendix D: Open Space [REP7-136] of this Planning Statement and impacts of the Project on private recreational facilities are addressed in Appendix G: Private Recreational Facilities [APP-502]. Where land is provided to replace impacted special category land, Appendix D sets out how that land is no less advantageous and complies with this paragraph and 5.181 (5.186 of the revised draft NPSNN). This paragraph must also be seen in the context of 5.174 of the NPSNN (5.192 of the revised draft NPSNN) which allows for a loss to any relevant buildings or land to be justified by the benefits of the Project (including need), taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities.’</i>
5.177	The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and, if so, whether their proposal may be considered inappropriate development within the meaning of Green Belt policy. Metropolitan Open Land, and land designated as Local Green Space in a local or neighbourhood plan, are subject to the same policies of protection as Green Belt, and inappropriate	This paragraph exactly replicates paragraph 5.170 of the adopted NPSNN. The response given previously to that paragraph (which covered both paragraphs 5.170 and 5.171 of the adopted NPSNN) remains relevant (see also response to paragraph 5.179 below): <i>‘With the exception of the tunnel across the River Thames, the Project lies wholly within designated Green Belt. Both Chapter 6 [Document Reference 7.2 (2)] and Appendix E: Green Belt [Document Reference 7.2 Appendix E (2)] of this Planning Statement consider the implications for the Green Belt and whether any potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the</i>

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	<p>development should not be approved except in very special circumstances<sup>108</sup>.</p> <p><sup>108</sup> National Planning Policy Framework. For further guidance, see Chapter 13</p>	<p><i>proposal, would be clearly outweighed by other considerations, so as to amount to very special circumstances necessary to justify the development.</i></p> <p><i>As a strategic highway scheme, it is acknowledged to be ‘inappropriate development’ within the Green Belt. The proposal thereby constitutes definitional harm. Built development of the scale and form proposed would incur harm to the openness of the Green Belt, and harm through encroachment. There would also be other, more limited non-Green Belt harms as identified (e.g. in relation to heritage assets).</i></p> <p><i>Balanced against this harm, the circumstances of current road congestion acting as an impediment to economic growth (as outlined in Chapter 4 (Needs and Benefits) of the Planning Statement [Document Reference 7.2 (2)] and in the Need for the Project [APP-494]) are compelling and substantive. Identified harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is shown to be clearly outweighed by these considerations. An additional consideration is that a number of elements associated with the Project (environmental mitigation etc) are classed as appropriate development and (in many cases) also align with Greenbelt objectives. Very special circumstances therefore exist to justify the proposal. Accordingly, such very special circumstances mean the proposal would not conflict with the NPSNN.’</i></p>
5.178	<p><u>The applicant should identify existing and proposed</u> 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</p>	<p>This paragraph directly replicates paragraph 5.165 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p>



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	<p>continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate.</p> <p><sup>z</sup> For example, where a planning application has been submitted.</p>	<p><i>'ES Chapter 13: Population and Human Health [APP-151] and Environmental Statement Addendum [Document Reference 9.8 (9)] identifies existing and proposed land uses within the vicinity of the Project, including private property and housing; community land and assets; development land and businesses and agricultural land holdings during the construction and operational phases.</i></p> <p><i>The Interrelationship with other NSIPs and major development schemes is addressed in Chapter 7 of this Planning Statement [Document Reference 7.2 (2)]. It identifies NSIPs and major development schemes that interface the Project. It describes how other development schemes have been addressed in the DCO application for the Project as well as work being done by National Highways and the promoters of other schemes to ensure the Project is designed and delivered in a way that does not prevent the satisfactory delivery of another scheme.'</i></p>
5.179	<p>Linear infrastructure linking an area near a Green Belt with other locations will often have to pass through Green Belt land. The identification of a policy need for linear infrastructure will take account of the fact that there will be an impact on the Green Belt and, as far as possible, of the need to contribute to the achievement of the objectives for the use of land in Green Belts.</p>	<p>This paragraph exactly replicates paragraph 5.171 of the adopted NPSNN. Please see response given to paragraph 5.177 of the draft revised NPSNN above which responds to both paragraphs.</p>
5.180	<p>Applicants should take into account the economic and other benefits of the best and most versatile agricultural 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 <a href="#">health and protect and improve soils</a>.</p>	<p>The first half of this paragraph replicates the first part of paragraph 5.168 of the adopted NPSNN. However, the second half comprises new text dealing with impacts on soil health. Even though this is new text and the response given previously does not directly refer to Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction</p>

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	<p>taking into account any mitigation measures proposed. <a href="#">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).</a></p>	<p>Sites<sup>46</sup>, the document, published in 2009, is referred to as part of the Project design and mitigation in Section 10.5 of ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] which is referred to in the response (paragraph 10.5.8g – soils would be handled in accordance with this Defra guidance).</p> <p>Accordingly, it is considered that the response given previously remains relevant and addresses impacts on soil health:</p> <p><i>'The Project design has been optimised to minimise the land-take required to construct and operate the Project. As part of this exercise Agricultural Land Classification surveys have been undertaken to assess the extent of Best and Most Versatile land, which are defined as Grades 1, 2 and 3a. An assessment of the construction and operation impacts on Best and Most Versatile land is presented in Section 10.6 of ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>Current and historic land uses have been considered as part of the evolving design and investigated through desk-based and intrusive ground investigation to establish soil quality and potential contamination levels, as presented in Section 10.4 of ES Chapter 10 [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>The detailed Agricultural Land Classification survey has recorded agricultural land in Grades 1 (17.22ha), 2 (263.34ha) and 3a (68.11ha) covering approximately 54% of the land within the Order Limits south of the River Thames. The survey</i></p>

<sup>46</sup> Defra (2009). Code of practice for the sustainable use of soils on construction sites. <https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites>

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		<p><i>has recorded agricultural land in Grades 1 (7.4ha), 2 (71.02ha) and 3a (343.85ha) covering approximately 25.5% of the Order Limits north of the River Thames.</i></p> <p><i>It should be noted that over half of the Best and Most Versatile Agricultural Land (BMV) falls within the lowest BMV category (Grade 3a) with only a very small proportion (less than 2%) within the highest BMV category (Grade 1). Also, that this includes land that is both temporarily and permanently lost. Of the 770.94ha of BMV loss overall, 263.17ha (34.14%) is a temporary loss during construction which will be reinstated by the completion of the Project. 507.77ha (65.86%) will be permanently lost. Table 10.21 of ES Chapter 10: Geology and Soils [APP-148], summarises the situation in respect of temporary and permanent loss of BMV.</i></p> <p><i>Nonetheless, it is acknowledged (paragraph 10.6.21 of ES Chapter 10: Geology and Soils [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] that this loss of Best and Most Versatile Agricultural Land (BMV) represents a very large adverse effect, both during the construction phase of the Project and after completion, which is considered to be significant (paragraphs 10.6.21 and 10.6.22 of ES Chapter 10: Geology and Soils).</i></p> <p><i>Whilst, to a degree, there is partial mitigation of these impacts by virtue of the reinstatement of BMV post completion of the works, the residual impact is not capable of mitigation as it is an inevitable effect of implementing the Project in this location. In this regard, the adverse effect has to be weighed in the balance against the multitude of benefits the Project will deliver which are addressed in Chapter 8: Planning Balance of this Planning Statement.</i></p>

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		<p><i>ES Chapter 10 [APP-148] and Environmental Statement Addendum [Document Reference 9.8 (9)] also sets out Project’s design and mitigation in relation to the prevention and control of contamination and how effects on geological receptors are to be mitigated, including measures relating to the handling and management of soils during the construction phase.’</i></p>
5.181	<p><a href="#"><u>The Agricultural Land Classification<sup>109</sup> 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<sup>110</sup>. 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 in the 25 Year Environment Plan to manage all of England’s soils sustainably by 2030.</u></a></p> <p><sup>109</sup> <a href="#"><u>GOV.UK Open data ‘Provisional Agricultural Land Classification’</u></a></p> <p><sup>110</sup> <a href="#"><u>GOV.UK Guidance ‘Code of practice for the sustainable use of soils on construction sites’</u></a></p>	<p>This is a wholly new paragraph in the revised draft NPSNN. The first part is descriptive and requires no response. The majority of the remainder of the paragraph is addressed in the response given to paragraph 5.180 of the draft revised NPSNN above.</p> <p>Whilst not labelled a Soil Resources and Management Plan, the Register of Environmental Actions and Commitments (Table 7.1) within ES Appendix 2.2: Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)] deals with the handling of soils (e.g. GS006 to GS015). It also requires the future production of a Soil Management Plan as part of the EMP2 in accordance with the draft DCO, Schedule 2, Requirement 4(3) [Document Reference 3.1 (11)].</p>
5.182	<p><a href="#"><u>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</u></a></p>	<p>While the first part of this paragraph comprises new text, the remainder (and the paragraph as a whole) reflects the sentiment of paragraph 5.167 of the adopted NPSNN. The response previously given to that paragraph is considered to</p>

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	<p><u>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</u>, 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 <u>is submitted during examination and after an application for development consent has been accepted</u>.</p>	<p>address the amended version of the paragraph in the revised draft NPSNN:</p> <p><i>'Pre-application consultation undertaken is detailed in the Consultation Report [<a href="#">APP-064</a> to <a href="#">APP-069</a>] showing how consultation feedback has been incorporated into the Project. As part of the Supplementary Consultation additional information has been included within the 'Guide to Supplementary Consultation' and the relevant plans set out in the 'Map Book 1 – General Arrangements'. Due to further design refinement, the open space / private recreational facilities, and replacement land were consulted on as part of the Design Refinement Consultation. Additional information was included within the 'Guide to Design Refinement Consultation', describing the special category land that the Project would impact and explaining the reasons for this.'</i></p> <p>The Applicant has also sought to enter into Statements of Common Ground with affected local planning authorities and other regulatory bodies as evident in submission documents [<a href="#">APP-094</a> to <a href="#">APP-099</a> and <a href="#">APP-121</a> to <a href="#">APP-136</a>] and subsequent updates.</p>
5.183	<p>Applicants should safeguard any mineral resources on the proposed site as far as possible. <u>Taking into account the policies of the Minerals Planning Authority, applicants should consider whether prior extraction of the minerals would be appropriate.</u></p>	<p>The first half of this paragraph replicates paragraph 5.169 of the adopted NPSNN. The second sentence (underlined) is new text. The response given previously remains relevant:</p> <p><i>'An evaluation of existing mineral resources and the potential for extractable minerals to be present within the Order Limits is presented within ES Appendix 11.2: Mineral Safeguarding Assessment Report [<a href="#">APP-436</a>]. The Report has been prepared to assess whether the Project route would sterilise the mineral resource capacity within defined Mineral Safeguarding Areas and, if so, whether removal prior to development is warranted.'</i></p>

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		<p><i>The assessment has confirmed that the opportunity exists for the extraction of mineral resources within the Order Limits, prior to construction. There are, however, areas deemed unfeasible for the prior extraction of mineral resources, due either to adverse impacts or being economically unviable that would be safeguarded, along with safeguarded minerals where further information is needed. Ground investigation is currently ongoing to properly understand the economic viability of mineral extraction.</i></p> <p><i>Many of the mineral resources identified fall within areas of temporary land take or proximity to existing land use that renders future exploitation unlikely. Therefore, it is not considered that the linear nature of the permanent land take would result in sterilisation of such resources.'</i></p> <p>An assessment of the alignment of the Project with relevant local minerals and waste policies is addressed in Appendix C: Local Authority Policy Review of the Planning Statement <b>[Document Reference 7.2 Appendix C (2)]</b> (Tables C9, C11, C14, C15, C17 and C19 in particular). No issues of conflict or inconsistency with local policy requirements are identified.</p>
5.184	Applicants can <u>avoid, or</u> 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.	<p>Other than in the addition of the words 'avoid, or' (underlined) this paragraph replicates paragraph 5.179 of the adopted NPSNN. The response given previously to that paragraph remain relevant:</p> <p><i>'Matters related to the design of the Project are set out in the Project Design Report <a href="#">[APP-506]</a> to <a href="#">APP-515</a> and Design Principles <b>[Document Reference 7.5 (7)]</b>.'</i></p>
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	This paragraph directly replicates paragraph 5.180 of the adopted NPSNN. The response given previously to that paragraph remains relevant:

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	<p>are undertaken, where possible, to mitigate any adverse impact <del>and, where appropriate,</del> <u>Applicants should endeavour</u> to improve <del>that network</del><u>networks</u> and other areas of open space, including appropriate access to new coastal access routes, National <del>Trails</del><u>Trails</u><sup>aa</sup> and other public rights of way</p> <p><sup>aa</sup> Long distance routes for walking, cycling and horse riding.</p>	<p><i>'Appendix H: Green Infrastructure Study [APP-503] of the Planning Statement has been commissioned for the Project and sets out the 'bigger picture' for the delivery of large-scale Green Infrastructure and is intended to focus attention, 'on land that is to be safeguarded, managed or secured in positive ways to create a multifunctional network of green spaces and assets for which investment can deliver the greatest range of sustainable benefits.'</i></p> <p><i>ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)] identifies the embedded environmental mitigation measures for the Project. To maintain functionality and connectivity, any replacement land has been allocated to areas directly adjacent to the relevant site and has been designed to be larger in size. Landscaping measures will enable spaces to interlink together and function as one (for example through connecting with existing internal footpaths). Where practicable, replacement land would be equally to the wider community.</i></p> <p><i>The Project seeks to generate a positive legacy of Green Infrastructure, through the provision of a recreational landscape for north-eastern Gravesend, Chalk and also the North Portal, currently areas of limited public open space provision. In particular, the landscaping strategy around the North Portal will provide recreational users with newly created views over the River Thames.</i></p> <p><i>To mitigate construction impacts, the durations over which footpaths, cycleways and bridleways will need to be closed will be minimised. All severed WCH routes would be re-linked across the Project unless better quality routes can be provided.</i></p>

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		<i>Measures to Improve networks and open space include ensuring footbridges, green bridges and underpasses would be accessible to all users, including those using wheelchairs, and would be designed so as to ensure the safety of vulnerable users.'</i>
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 <u>an exchange of land between two owners</u> 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 <del>Sections</del> <u>sections</u> 131 and 132 of the Planning Act- <del>2008</del> apply, any replacement land provided under those sections will need to conform to the requirements of those sections.	Other than in the minor textual amendments underlined, this paragraph replicates paragraph 5.181 of the adopted NPSNN. Accordingly, the response given previously to that paragraph remains relevant: <i>'An assessment has been undertaken to consider the potential effects of the Project on existing open space, sports and recreational facilities. This is presented in Appendix D: Open Space [REP7-136] and Appendix G: Recreational facilities [APP-502] of the Planning Statement.'</i>
5.187	<u>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 woodland loss is unavoidable, compensation schemes will be required, and the long-term management and maintenance of newly planted trees should be secured.</u>	This is a wholly new paragraph in the revised draft NPSNN. ES Chapter 8: Terrestrial Biodiversity [ <b>Document Reference 6.1 ES Chapter 8 (2)</b> ] and Environmental Statement Addendum [ <b>Document Reference 9.8 (9)</b> ] identifies at paragraphs 8.6.53 and 8.6.54 that the Project would result in the loss of an area of ancient woodland and also ancient/veteran trees. These losses (and also gains) are quantified in Tables 8.31 and 8.35 (south and north of the River Thames respectively). In terms of ancient woodland the tables show that, while a total of 7.36ha would be lost (2.01ha north of the river and 5.35ha south of the river) a total of 80.75ha of new habitat would be created (32ha north of the river and 48.75ha south of the river). Both mitigation and



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		<p>compensation for these impacts are summarised in paragraphs 8.9.4 and 8.9.5.</p> <p>It is noted in paragraph 8.9.5 that the habitat creation proposed to compensate for the loss of ancient woodland would provide <i>'long-term benefits to some ecological features, by providing extensive areas of new planting that would improve the connectivity between existing retained habitats and the wider network of designated sites.'</i></p> <p>The Applicant considers that the need for the Project overrides these losses and they are weighed in the planning balance in Section 8 of the Planning Statement [<b>Document Reference 7.2 (2)</b>]. These compensation and mitigation measures are secured via the LEMP in Requirement 5 of Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>]. This Requirement also includes commitments to aftercare, monitoring and maintenance activities relating to the landscaping and ecological features.</p> <p>Paragraph 7.3.3 of ES Chapter 7: Landscape and Visual [<b>Document Reference 6.1 ES Chapter 7 (2)</b>] and Environmental Statement Addendum [<b>Document Reference 9.8 (9)</b>] notes that:</p> <p><i>'In accordance with paragraph 3.17 of DMRB LA 107, the effects on the constituent landscape features and elements, such as trees, woodland, hedgerows and landform, have been considered in combination as part of the effects on landscape character.'</i></p> <p>More detail about vegetation loss (and also proposed mitigation for this loss) is presented in ES Appendix 7.9: Schedule of Landscape Effects [<b>Document Reference 6.3 ES Appendix 7.9 (2)</b>].</p>

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		<p>Paragraph 7.5.6 notes: <i>'A planting strategy for the Project has been set out in the Design Principles [Document Reference 7.5 (7)]. This describes, where practicable, the use of trees, shrub and grassland species that would not only provide landscape mitigation (screening and integration) functions, but also offer wider biodiversity benefits and adaptability against the backdrop of climate change. As such, the use of some non-native species is included, with the overall objective being resilience through diversity.'</i></p> <p>The approach to new planting is also addressed in the oLEMP [Document Reference 6.7 (7)].</p> <p>Table 7.14 of ES Chapter 7: Landscape and Visual [Document Reference 6.1 ES Chapter 7 (2)] and Environmental Statement Addendum [Document Reference 9.8 (9)] sets out the construction phase mitigation measures proposed to be employed to minimise impacts on trees. REAC measures LV001 and LV013 in the CoCP [Document Reference 6.3 ES Appendix 2.2 (9)] deal with the retention of vegetation.</p> <p>Mitigation measures in Table 7.14 include requiring the preparation of an Arboricultural Method Statement and a Tree Protection Plan. REAC measures LV001 and LV013 in the CoCP also deal with the retention of vegetation.</p> <p>ES Appendix 7.12 [APP-387] comprises an Arboricultural Impact Assessment which presents an assessment of the arboricultural impacts of the Project during construction. It also describes the approach to be followed in the preparation of the aforementioned Arboricultural Method Statement. REAC</p>

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		<p>measures LV028 and LV013 in the CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] also deal with the protection of retained woodland, trees and hedges. LV030 refers to the buffers to be applied to avoid adverse impacts to the root zones of ancient and veteran trees.</p> <p>Requirements 4 (6b) (Construction and handover environmental management plans) and 5 (2civ) (Landscaping and Ecology) in Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>] secure the means of ensuring the appropriate management and maintenance arrangements are in place in respect of landscape and ecological features and long-term commitments to aftercare, monitoring and maintenance activities relating to the environmental features and mitigation measures delivered as part of the Project.</p>
5.188	<p>Where a proposed development has an impact on a Mineral Safeguarding <del>Area (MSA)</del> <u>Area<sup>bb</sup></u>, the Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to safeguard mineral resources.</p> <p><u><sup>bb</sup> An area designated by minerals planning authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development</u></p>	<p>This paragraph replicates paragraph 5.182 of the adopted NPSNN. Accordingly, it is considered that the response given previously to that paragraph remains relevant:</p> <p><i>'ES Appendix 11.2: Mineral Safeguarding Assessment [APP-436] has been prepared to assess whether the Project route would sterilise the mineral resource capacity within defined Mineral Safeguarding Areas and, if so, whether removal prior to development is warranted.</i></p> <p><i>The assessment has confirmed that the opportunity exists for the extraction of mineral resources within the Order Limits, prior to construction. There are, however, areas deemed unfeasible for the prior extraction of mineral resources, due either to adverse impacts or being economically unviable. Therefore, it is not considered that the linear nature of the permanent land take would result in sterilisation of such resources. The alignment is also unlikely to substantially</i></p>

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		<p><i>constrain/prevent existing and potential future use and extraction of these materials in the wider area.</i></p> <p><i>The Project design has been optimised to minimise the land required to construct and operate the Project and maximise the land reinstated and returned to owners. Where land is returned, the Project would not result in the permanent sterilisation of underlying mineral resource.</i></p> <p><i>Where avoidance of safeguarded mineral units has not been possible the Project has identified mitigation measures to reduce the magnitude of effects on mineral resources.</i></p> <p><i>Mitigation measures proposed include a requirement for the contractor use the information and data available to identify what site-won excavated materials can be used as Class I-IV material or aggregate. Should it be required, supplementary data and information shall be obtained in order to assess the potential availability and suitability of excavated materials to meet the relevant material specifications (REAC:MW008) and that all excavated materials and soils proposed for reuse under a Materials Handling Management Plan would be required to meet risk-based acceptability criteria applicable to its intended use. The procedures and criteria to be used would be set out in the Materials Handling Management Plan (REAC ref. MW007) prior to commencement of that part of the works (GS006) secured though the REAC in ES Appendix 2.2: Code of Construction Practice (CoCP) <a href="#">[REP3-104]</a>.'</i></p> <p><b>Note that an outline Materials Handling Plan [Document Reference 6.3 ES Appendix 2.2 Annex B (5)] is presented at Annex B to the CoCP.</b></p>

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5.189	Where a project has a sterilising effect on land use there may be scope for this to be mitigated through, for example, using the land for nature conservation or wildlife corridors, or <del>for</del> <a href="#">improving access and connectivity</a> . Other examples include, <a href="#">prioritising active travel or well-designed optimised</a> parking and storage in employment areas <a href="#">with appropriate landscaping</a>	As was noted in respect of the equivalent paragraph (5.183) of the adopted NPSNN, the Project would not sterilise any existing land use. No further response is considered necessary.
5.190	Public rights of way, National Trails, and other rights of access to land ( <del>e.g. for example</del> , open access land) are important recreational facilities for walkers, <a href="#">wheelers</a> , 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, <del>where appropriate</del> , to consider what opportunities there may be to improve access <a href="#">and connectivity</a> . 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.	Other than in respect of two minor textual additions (underlined), this paragraph replicates paragraph 5.184 of the adopted NPSNN. It is not considered that these minor additions materially affect the sentiment or thrust of the paragraph and, accordingly it is considered that the response previously given to this paragraph remains relevant. The response addresses the issues of connectivity and multi/shared use tracks: <i>'Appropriate mitigation measures to address the adverse effects of the Project on existing routes and networks for walkers, cyclists and horse riders (WCH), both during construction and operation, are considered in ES Chapter 13: Population and Human Health [APP-151] and Environmental Statement Addendum [Document Reference 9.8 (9)]. This has taken a Project-wide approach for opportunities to improve accessibility for WCH where the existing provision would be affected by the Project.</i> <i>Proposed mitigation for WCH include:</i> <ul style="list-style-type: none"> <li>• <i>NCR177 realignment: A permanently realigned east-west route south of HS1 and improvements to existing routes, and by redesignation of existing PRoW to bridleway status.</i></li> <li>• <i>Recreational loops: Providing links between key open areas and country parks surrounding the M2/A2/Lower Thames Crossing junction and the South Portal.</i></li> </ul>

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		<ul style="list-style-type: none"> <li>• <i>Muckingford Road: Improved links from Linford and East Tilbury to Chadwell St Mary.</i></li> <li>• <i>Stifford Clays Road: Incremental improvements to extend cycle routes between Orsett and William Edwards Academy.</i></li> <li>• <i>A1013 and Rectory Road: Re-provide and improve commuter cycle routes along the A1013 between Stanford-le-Hope, Orsett and Little Thurrock. Provide an equestrian standard link across the A13.</i></li> <li>• <i>Fenland access: Provide better WCH access to the fenland and Mardyke by connecting the existing Public Rights of Way (PRoW) and upgrading to new shared-use tracks.</i></li> <li>• <i>North Road: To mitigate the severance of informal off-road routes between North and South Ockendon and improved connections between North and South Ockendon.</i></li> <li>• <i>Addressing severance of the M25: To counter historical severance caused by the M25 and provide better recreational access to the fenland landscape from Thames Chase.</i></li> </ul> <p><i>Where any open access land would be directly impacted by the Project, replacement land of a larger area would be provided. Such sites would also be designed to relate closely to the existing network of recreational space and also to deliver additional benefits (such as biodiversity enhancements).</i></p> <p><i>The measures proposed in respect of open access land and PRoWs would be attached to any grant of development consent as specified in Schedule 4 of the Development Consent Order (DCO) [Document Reference 3.1 (11)].'</i></p>

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5.191	Public rights of way can be extinguished under <del>Section</del> <a href="#">section</a> 136 of the <a href="#">Planning Act</a> if the Secretary of State is satisfied that an alternative has been or will be provided or is not required.	This paragraph replicates paragraph 5.185 of the adopted NPSNN. The point is noted.
5.192	<p>The Secretary of State should not grant consent for development on existing open space, sports and recreational buildings and land, including playing <a href="#">fieldscc</a>, unless an assessment has been undertaken either by the local authority or independently, which has shown the open space or the buildings and land to be <a href="#">surplus to requirements</a>. <u>Additionally, if</u> the Secretary of State determines that the benefits of the project (including need) outweigh the potential loss of such facilities, <a href="#">taking into account any</a> positive proposals made by the applicant to provide new, improved or compensatory land or facilities.</p> <p><sup>cc</sup> <i>The whole of a site which encompasses at least one playing pitch as defined in the Town and Country Planning (Development Management Procedure) (England) Order 2015</i></p>	<p>Other than in respect of some minor changes (underlined), the text of this paragraph replicates paragraph 5.174 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'The impact on existing open space is addressed in Chapter 6 of the Planning Statement [Document Reference 7.2 (2)] and Appendix D Open Space [REP7-136] and [REP6-097]. Chapter 7 of the Statement of Reasons [Document Reference 4.1 (8)] states that the Project would result in the loss of existing open space land (either permanently, temporarily, or through the permanent acquisition of rights) that is either currently designated public open space or common land or allotment.</i></p> <p><i>The impact on private sports and recreational land and buildings is also addressed within Appendix G: Recreational Facilities [APP-502] and Chapter 6 of the Planning Statement [Document Reference 7.2 (2)] and ES Chapter 13: Population and Human Health [APP-131] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p> <p><i>Where the loss of open space and recreational facilities has been unavoidable, a greater amount of replacement land with enhanced quality is to be provided in each case. These measures will also incorporate enhanced biodiversity benefits at many sites (e.g. Thames Chase Community forest and Folkes Land Woodland). In the case of the Southern Valley Golf Course (which would be lost as a result of the Project) the assessments undertaken have shown that viability for the facility (which has previously been promoted as a housing site)</i></p>

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		<p><i>and uptake for the sport in the immediate locality is limited. A number of golf facilities also exist in the wider area. The additional benefit to be delivered through providing associated replacement land at Chalk Park would be that this site would be accessible to the public and would therefore introduce wider benefits.'</i></p>
5.193	<p>Where networks of green infrastructure have been identified in development plans, they should <u>be protected from development, and, where possible, strengthened. The environmental and visual value of linear infrastructure and its footprint in supporting biodiversity and ecosystems should also be taken into account, including the creation of new green infrastructure, when assessing the impact on green infrastructure. The value of the development in improving connectivity, particularly through active travel links and recreation should also be taken into account when assessing the impact on green infrastructure.</u></p>	<p>This paragraph replicates paragraph 5.175 of the adopted NPSNN other than it now includes an additional sentence (underlined) at the end of the paragraph. The response on matters related to connectivity, green infrastructure and active travel are addressed in the response to paragraph 5.190 of the draft revised NPSNN above. Otherwise, the response given previously to this paragraph remains relevant:</p> <p><i>'There are no green infrastructure networks currently identified within development plans that are likely to be affected by the Project, although the Thames Chase Community Forest is identified where relevant. Generally, existing vegetation would be retained, wherever practicable, as stated in LSP.01 of the Design Principles [Document Reference 7.5 (7)]. In addition, design principles LSP.02, LSP.04, LSP.06, LSP.10, LSP.13 and LSP.14 discuss landscape mitigation measures that would contribute to green infrastructure, and design principles PEO.01 to PEO.11 discuss provision and/or enhancement to walking, cycling, horse-riding (WCH) networks.</i></p> <p><i>The Project Design Report [APP-506 to APP-515] discusses in detail the design intent along the Project route, including the provision of mitigation planting, enhanced recreational routes and improved green infrastructure, for example, through the use of green bridges.</i></p> <p><i>ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement</i></p>



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		Addendum [ <b>Document Reference 9.8 (9)</b> ] shows the embedded environmental mitigation measures for the Project including the provision of new green infrastructure along the Project route, as well as new green bridges.’
5.194	<p><a href="#">The Secretary of State</a> should take into account the economic and other benefits of the best and most versatile agricultural land. <a href="#">Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. The Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to minimise impacts on soils or soil resources.</a></p>	<p>The first part of this paragraph reflects the sentiment of paragraph 5.176 of the adopted NPSNN. However, it repeats references made above in paragraph 5.181 of the draft revised NPSNN to the mitigation of impacts on soil resources. See responses to paragraphs 5.180 and 5.181 above. See also the response previously given in response to paragraph 5.176 of the adopted NPSNN which remains relevant: ‘The extent of land at each grade, as defined by the Agricultural Land Classification system, is presented in Section 10.4 of ES Chapter 10: Geology and Soils [<b>APP-148</b>] and ES Addendum [<b>Document Reference 9.8 (9)</b>]. The presence of the Best and Most Versatile land and any other environmental benefits derived from the land, irrespective of land grade, has been taken into consideration as part of the assessment presented in Section 10.6 of ES Chapter 10 and in ES Chapter 8: Terrestrial Biodiversity [<b>Document Reference 6.1 ES Chapter 8 (2)</b>] and ES Addendum [<b>Document Reference 9.8 (9)</b>]. Furthermore, BMV land and Soils would be handled and stored to allow their sustainable re-use in line with Defra Guidance.</p> <p>The detailed Agricultural Land Classification survey has recorded agricultural land in Grades 3b (47.06ha) and 4 (19.75ha) covering approximately 9% of the land within the Order Limits south of the River Thames. The survey has recorded agricultural land in Grades 3b (670.13ha) and 4</p>

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		<p><i>(26.63ha) covering approximately 38.3% of the land within the Order Limits north of the River Thames. It should be noted that 34.14% of BMV land would only be temporarily lost (and would be re-instated to the equivalent grade following construction). As referred to in the response to paragraph 5.168, the Project route has been selected through a route optioneering exercise in which the impacts on agricultural land have been weighed in the balance against the multitude of benefits the Project will deliver. The net benefits delivered by the Project are considered to significantly outweigh any adverse impacts such that the Project can be considered to comply with the relevant provisions of the NPSNN.'</i></p>
5.195	<p>Inappropriate development <u>is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances. When considering any Development Consent Order, the Examining Authority and Secretary of State should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal,</u> is clearly outweighed by other considerations. <u>When located in the Green Belt, elements of many national networks infrastructure projects will comprise inappropriate development. In such cases, scheme promoters will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the safety benefits associated with improvements to the relevant section of the national network.</u></p>	<p>This paragraph is a reworded version of paragraph 5.178 of the adopted NPSNN.</p> <p>While emphasis has been added to the importance of the Green Belt, the weight to be attached to harm to it and the need for very special circumstances to be demonstrated to justify inappropriate development in the Green Belt, the sentiment and principles underlying the meaning of the previous paragraph remain.</p> <p>The final sentence of the paragraph (underlined) regarding safety benefits is directly relevant in the context of the Scheme Objectives for the Project, one of which is to improve safety.</p> <p>The Project has taken all reasonable steps to minimise the risk of road casualties and by reason of the traffic accidents per vehicle kilometre decreasing, demonstrates the Project would contribute to the overall safety of the SRN. While a small increase in collision numbers as a result of more traffic in the study area is forecast, there would be a reduction in the collision rate (i.e. collisions per vehicle mile travelled) as a result of a managed, less congested network. This is further</p>

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		<p>detailed in Appendix D (Economic Appraisal Report) of the Combined Modelling and Appraisal Report [<a href="#">APP-526</a>]. Otherwise, the response given to the paragraph 5.178 of the adopted NPSNN remains relevant:</p> <p><i>‘As an ‘inappropriate’ form of development within the Green Belt, Chapter 6 and Appendix E of this Planning Statement explain, by reference to the following matters, the ‘very special circumstances’ that exist in justifying the Project within the Green Belt:</i></p> <ul style="list-style-type: none"> <li>• <i>The defined and overriding need for the Project: The need case for the Project, as a form of linear infrastructure.</i></li> <li>• <i>No viable alternatives: The unavailability of viable alternatives with less adverse impacts on the Green Belt.</i></li> <li>• <i>Policy support: Specific policy support for the Project as a major new road infrastructure and for the proposed route alignment through the Green Belt.</i></li> <li>• <i>Temporary and limited impacts: The potential temporary visual impacts and effects on the landscape character of the Green Belt that are reversible and amount to ‘very special circumstances’.</i></li> </ul> <p><i>Project Wide Mitigation at construction and operational stages is also relevant in the overall planning balance, and will assist in controlling construction activities, integrating the Project into the Green Belt landscape where possible while minimising impact and working towards the fundamental aims of Greenbelt policy. These matters are considered to demonstrate the ‘very special circumstances’ in support of the Project, sufficient to overcome the presumption against ‘inappropriate’ development in the Green Belt, as set out in national and local planning policy. See also response to NPSNN paragraphs 5.170-5.171 above.’</i></p>

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<b>The Historic Environment</b>		
5.196	The construction and operation of national networks infrastructure has the potential to result in adverse impacts on the historic environment.	Introductory paragraphs for information which largely replicate paragraphs 5.120 to 5.125 of the adopted NPSNN.
5.197	The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.	
5.198	<p>Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called ‘heritage assets’. Heritage assets may be buildings, monuments, sites, places, areas or landscapes. The sum of the heritage interests that a heritage asset holds is referred to as its significance. Significance derives not only from a heritage asset’s physical presence, but also from its <a href="#">setting</a><sup>dd</sup>.</p> <p><sup>dd</sup> <i>Setting of a heritage asset is the surroundings in which it is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.</i></p>	
5.199	Some heritage assets have a level of significance that justifies official designation. Categories of designated heritage assets are: World Heritage Sites ( <a href="#">natural and cultural</a> ); Scheduled Monuments; Listed Buildings; Protected Wreck Sites; Protected Military Remains; Registered Parks and Gardens; Registered Battlefields; <a href="#">and Conservation Areas</a> <sup>ee</sup> .	

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	<p><sup>ee</sup> <i>Designated heritage assets in Wales also include heritage landscapes. The issuing of licences to undertake works on Protected Wreck Sites in English waters is the responsibility of the Secretary of State for Culture, Media and Sport and does not form part of <a href="#">Development Consent Orders</a>. The issuing of licences for Protected Military Remains is the responsibility of the Secretary of State for Defence.</i></p>	
5.200	<p>Non-designated heritage assets of archaeological interest<sup>ff</sup> that are demonstrably of equivalent significance to Scheduled Monuments, should be considered subject to the policies for designated heritage assets. The absence of designation for such heritage assets does not indicate lower significance.</p> <p><sup>ff</sup> <i>There will be archaeological interest in a heritage asset if it holds, or potentially <a href="#">holds, evidence of past</a> human activity worthy of expert investigation at some point.</i></p>	
5.201	<p>The Secretary of State should also consider the impacts on other non-designated heritage assets (as identified either through the development plan process by local authorities, including 'local listing', or through the nationally significant infrastructure project examination and decision-making process), on the basis of clear evidence that the assets have a significance that merit consideration in that process</p>	
5.202	<p><a href="#">The applicant should undertake an assessment of any significant heritage impacts of the proposed project and</a> 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. <a href="#">As a minimum, the relevant</a></p>	<p>Subject to some minor changes this paragraph reflects paragraph 5.127 of the adopted NPSNN. The response given previously to that paragraph remains relevant:  <i>'ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] identifies those heritage assets that may experience significant impacts and the nature of these as a result of the Project.</i></p>

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	<p><a href="#">Historic Environment Record</a><sup>99</sup> should have been consulted and the heritage assets assessed using appropriate expertise. Where a site on which development is <a href="#">proposed includes, or has the potential to include</a>, heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, a field evaluation.</p> <p>gg Historic Environment Records are information services maintained by local authorities and National Park Authorities with a view to providing access to comprehensive and dynamic resources relating to the historic environment of an area for public benefit and use. <a href="#">Further information is available from the Heritage Gateway website. English Heritage/Historic England should also be consulted, where relevant.</a></p>	<p><i>The predicted temporary effects of the Project on heritage assets during the construction phase would result in changes to the setting of these assets, some of which would be significant. Permanent effects would comprise the removal of heritage assets relating to both archaeological remains and built heritage and permanent impacts through change to setting resulting from the operational Project, some of which would also be significant.</i></p> <p><i>The Project would have significant effects to archaeological remains in the area of the A13/A1089/A122 Lower Thames Crossing junction during construction causing permanent construction effects with the loss of the majority of the Scheduled Orsett Crop Mark Complex (SM1) which would be removed and non-designated archaeological remains associated with this monument being impacted. The assets that remain would be permanently impacted due to the change to the setting caused by large road infrastructure within the Scheduled Monument. Proposed mitigation is through archaeological excavation and recording, although, due to the scale of impact on the Scheduled Monument, the ES recognises this as having ‘a permanent major magnitude impact on this high value asset after mitigation, resulting in a large adverse significance of effect.’</i></p> <p><i>There would also be significant impacts on built heritage with the removal of three Grade II listed buildings at Nos. 1 and 2 Grays Corner Cottages (LB89), Thatched Cottage (LB58) and Murrells Cottages (LB96). This would be mitigated through building recording although this is still regarded within the ES as having ‘a major magnitude permanent impact and a large adverse significance of effect’.</i></p>

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		<p><i>The temporary impacts on the Conservation Areas are noise intrusion on the character of the Conservation Area and the visual changes within its setting. These would be mitigated by screening of construction compounds with close board fencing and good practice construction procedures to reduce the impact of noise, dust and lighting.</i></p> <p><i>There would be permanent construction impacts due to the demolition of non-designated built heritage along the northern approach into Thong Conservation Area. This route would be further impacted by new woodland along the historic approach. No mitigation has been identified that could reduce the impacts of the Project on Thong Conservation Area, which would therefore result in a major magnitude permanent impact and a moderate adverse significance of effect.</i></p> <p><i>The Grade II listed building Baker Street Windmill (LB57) would be temporarily impacted during construction by the introduction of noise, lighting and visible construction machinery. The impact on the listed building during the operational phase would be due to the close proximity of the A13/A1089/A122 Lower Thames Crossing junction and some of the tall structures within the new junction, which would affect the immediate setting of the asset and prevent long range views to the asset from the west and would be taller than the windmill structure when viewed from the east. No mitigation has been identified that could reduce these impacts.</i></p> <p><i>Information regarding the historic environment has been obtained from relevant sources including Historic Environment Records, Historic England’s (2020) National Heritage List for England, local planning authorities, Historic England Archives and relevant archives/record offices. Fieldwork surveys and evaluations to further inform the environmental baseline have</i></p>

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		<p><i>included but not been limited to archaeological walkovers, setting surveys, geophysical surveys and trial trenching. Additional information has been collected through modelling, via a preliminary Palaeolithic and Quaternary Deposit Model. Written Schemes of Investigation for geophysical survey and archaeological trial trenching have been agreed with relevant heritage stakeholders.'</i></p>
5.203	<p><a href="#"><u>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.</u></a></p>	<p>This is a wholly new paragraph in the draft revised NPSNN. It is largely for information. However, Table 6.1 in ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] demonstrates that the Applicant has given early consideration to heritage impacts.</p>
5.204	<p>A documentary record of our past is not as valuable as retaining the heritage asset and therefore the ability to record evidence of the asset should not be a factor in deciding whether consent should be given.</p>	<p>This paragraph replicates paragraph 5.139 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>'It is acknowledged that the recording of heritage assets does not fully mitigate the impact of the Project on heritage assets but provides compensation to the significant effect on heritage assets.'</i></p>
5.205	<p>Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State should require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the Importance and the impact. Applicants should be required to deposit copies of the reports with the relevant Historic Environment Record. They should also be required to deposit the archive generated in a local museum or other public depository willing to receive it.</p>	<p>This paragraph replicates paragraph 5.140 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>'ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] provides details on the recording of heritage assets that are to be lost as a result of the Project. Mitigation through building recording (REAC Ref. CH001; AMS-OWSI) would take place in accordance with NPSNN paragraph 5.140.'</i></p>



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5.206	<p><a href="#">The Secretary of State may add requirements to the Development Consent Order</a> to ensure that this is undertaken in a timely manner in accordance with a written scheme of investigation that meets the requirements of this section, and has been agreed in writing with the relevant Local Authority (or, where the development is in English waters, with the Marine Management Organisation, <a href="#">English Heritage and/or Historic England</a>) and that the completion of the exercise is properly <a href="#">secured<sup>hh</sup></a>.</p> <p><sup>hh</sup> <a href="#">Further details can be found on Historic England’s website.</a></p>	<p>This paragraph replicates paragraph 5.141 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>‘No response required for paragraph 5.141 of the NPSNN. The potential for undiscovered heritage assets with archaeological interest is identified in the Desk-Based Assessment [APP-351 to APP-354] and through field evaluation and is assessed in Section 6.6 of ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)]. Proposed mitigation measures are described in this chapter (Section 6.5) and Appendix 6.9 to the ES: Draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation [Document Reference 6.3 ES Appendix 6.9 (6)] and secured through a requirement of the DCO.’</i></p>
5.207	<p>Where there is a high probability that a development site may include as yet undiscovered heritage assets with archaeological interest, the Secretary of State should consider requirements to ensure that appropriate procedures are in place for the identification and treatment of such assets discovered during construction.</p>	<p>This paragraph replicates paragraph 5.142 of the adopted NPSNN. See response to paragraph 5.206 above which covers both paragraphs.</p>
5.208	<p>In determining applications, the Secretary of State should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development (including by development affecting the setting of a heritage asset). <a href="#">The Secretary of State should take</a> account of the available evidence and any necessary expertise from:</p> <ul style="list-style-type: none"> <li>• relevant information provided with the application and, where applicable, relevant information submitted during examination of the application</li> <li>• <a href="#">any designation records</a></li> </ul>	<p>This paragraph replicates paragraph 5.128 of the adopted NPSNN. No response was given to that paragraph of the adopted NPSNN, as it provides guidance for the Secretary of State.</p>

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	<ul style="list-style-type: none"> <li>the relevant Historic Environment Record(s), and similar sources of <a href="#">information</a><sup>ii</sup>;</li> <li>representations made by interested parties during the examination</li> <li>expert advice, where appropriate, and when the need to understand the significance of the heritage asset demands it.</li> </ul> <p><sup>ii</sup> <a href="#">Further details can be found on Historic England’s website.</a></p>	
5.209	<p>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.</p>	<p>This paragraph replicates paragraph 5.129 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>‘The assessment of effects during both the construction and operational phases of the Project on heritage assets includes archaeological remains, built heritage and historic landscapes. The Assessment has taken into account the particular nature of the significance of the heritage asset and the value that they hold. Tables 6.10 and 6.11 of ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8(9)] provide a summary of impacts and resulting significance of effect.’</i></p>
5.210	<p>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).</p>	<p>This paragraph replicates paragraph 5.130 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>‘In accordance with paragraph 5.130 of the NSPNN an Assessment and design review in ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] have been undertaken to investigate opportunities for the Project to make a positive contribution to the character and local distinctiveness of the historic</i></p>

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		<p><i>environment. This has also aimed to ensure that, as far as feasible, the design and landscaping are sympathetic to, and in keeping with, the character and local distinctiveness of the historic environment in order to minimise or remove adverse effects. This is presented in the Design Principles [Document Reference 7.5 (7)] or as features presented on ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)].</i></p>
5.211	<p>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, <a href="#">and their loss has a cultural, environmental</a>, 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 assets are irreplaceable, harm or loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to <a href="#">or loss of</a> 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.</p>	<p>This paragraph (subject to some minor updates) replicates paragraph 5.131 of the adopted NPSNN. The response given previously to that paragraph remains relevant:  <i>‘The assessment in Section 6.6 of ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] identifies the level of impact on designated heritage assets. The design has been developed to avoid or reduce impacts on designated heritage assets, as described in ES Chapter 3: Assessment of Reasonable Alternatives [APP-141], through an iterative design process. While the NPSNN divides designated heritage assets into those of ‘the highest significance’ and those which are therefore of lesser significance (value), guidelines associated with the latest version of DMRB, groups these assets together as ‘high value’ regardless of their level of designation. The value of Grade II listed buildings and Registered Parks and Gardens has been assessed on a case-by-case basis, with a presumption of their being high value in DMRB terms and of equivalent value with the higher listing grades unless there is a clear reason against this. This takes a precautionary approach to avoid underrepresenting significance of effects.</i></p>

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		<p><i>In planning terms it is considered that the Project would lead to ‘substantial harm’ on the following designated heritage assets:</i></p> <ul style="list-style-type: none"> <li>• <i>Orsett Cropmark Complex (SM1) – Scheduled Ancient Monument</i></li> <li>• <i>1 and 2 Grays Corner Cottages (LB89) – Grade II Listed Buildings sited to the North of the River Thames near to the A1089/A13 junction.</i></li> <li>• <i>Thatched Cottage (LB58) – A Grade II Listed Building sited to the North of the River Thames adjacent to 1 and 2 Grays Corner Cottages.</i></li> <li>• <i>Murrells Cottages (LB96) – Grade II Listed Buildings located to the North of the River Thames on the south side of the A13 Stanford Road, south of Orsett.</i></li> </ul> <p><i>It is recognised that substantial harm to a Scheduled Monument should be ‘wholly exceptional’. The specific circumstances of this Project, taking into account the compromising effect of existing development including the existing road infrastructure links, the mitigation measures, the overriding need for the Project and lack of feasible alternative routes, represent a clear and convincing justification which is considered to be ‘wholly exceptional’ and, therefore, the policy test of 5.131 is satisfied.</i></p> <p><i>It is recognised that substantial harm to a Grade II Listed Building should be ‘exceptional’. The specific circumstances of this Project, taking into account the compromising effect of the existing A13/A1089 junction layout and the constraints of the existing road infrastructure links, the mitigation measures, the overriding need for the Project and lack of feasible alternative routes, represent a clear and convincing justification which is considered to be ‘exceptional’ and therefore the policy test of 5.131 is satisfied.’</i></p>

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5.212	<p>Any harmful impact on the significance of a designated heritage asset should be weighed against the public <a href="#">benefit<sup>jj</sup> of development, recognising that the greater</a> the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss.</p> <p><a href="#"><sup>jj</sup> Public benefits should flow from the proposed development. They should be of a nature or scale to be of benefit to the public at large and not just be a private benefit. However, benefits do not always have to be visible or accessible to the public in order to be genuine public benefits, for example, works to a listed private dwelling which secure its future as a designated heritage asset could be a public benefit.</a></p>	<p>This paragraph largely replicates paragraph 5.121 of the adopted NPSNN with the addition of a footnote. The response given previously to that paragraph remains relevant:</p> <p><i>'The assessment in Section 6.6 of ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] identifies the level of impact on designated heritage assets through assessment of the magnitude of impact, determined based on the degree to which this would affect the value (significance) of heritage assets. This is expressed as either adverse or beneficial. The design has been developed to avoid or reduce impacts on designated heritage assets, as described in Chapter 3: Assessment of Reasonable Alternatives of this ES [APP-141], through an iterative design process. The Need for the Project [APP-494] and Chapter 4 of the Planning Statement [Document Reference 7.2 (2)] explains the need for the Project and the public benefits that the Project would provide to justify the harm to designated heritage assets.</i></p> <p><i>It is considered that the public benefits of the Project as set out in Chapter 4 of this Planning Statement [Document Reference 7.2 (2)] outweigh the harm to the significance of the identified heritage assets and therefore accords with paragraph 5.132 of the NPSNN.'</i></p>
5.213	<p>Where the proposed development will lead to substantial harm to, <a href="#">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:</a></p>	<p>This paragraph largely replicates the wording of paragraph 5.133. Accordingly, the response given previously to that paragraph of the adopted NPSNN remains relevant:</p> <p><i>'The assessment in Section 6.6 of ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] identifies the level of impact on designated heritage assets through assessment of the magnitude of</i></p>

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	<ul style="list-style-type: none"> <li>the nature of the heritage asset prevents all reasonable uses of the site</li> <li>no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation</li> <li>conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible</li> <li>the harm or loss is outweighed by the benefit of bringing the site back into use<sup>111</sup></li> </ul> <p><sup>111</sup> <a href="#">GOV.UK Guidance 'Historic Environment'</a></p>	<p><i>impact, determined based on the degree to which this would adversely affect (harm) the value (significance) of heritage assets, in order to identify any total loss of value/substantial harm. The design has been developed to avoid or reduce impacts on designated heritage assets, as described in ES Chapter 3: Assessment of Reasonable Alternatives [APP-141] through an iterative design process. The Need for the Project [APP-494] sets out the business case for the Project and Chapter 4 of the Planning Statement [Document Reference 7.2 (2)], explains the substantial public benefits that the Project would provide that justify the loss or harm to designated heritage assets.</i></p> <p><i>It is considered that the substantial harm to the four designated heritage assets are necessary to deliver the substantial public benefits, as set out in Chapter 4 of this Planning Statement [Document Reference 7.2 (2)], that outweigh that harm and it is therefore considered that the Project accords with paragraph 5.133 of the NPSNN.'</i></p>
5.214	Where the proposed development will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.	<p>This paragraph replicates paragraph 5.134 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'ES Chapter 6: Cultural Heritage [REP4-116] and ES Addendum [Document Reference 9.8 (9)] provides an assessment of the impact of the Project on heritage assets within the order limits which would result in less than substantial harm to the significance of a designated heritage asset. Table 6.10 within ES Chapter 6: Cultural Heritage provides a summary of cultural heritage significant effects.</i></p> <p><i>The Project would have a significant impact on following heritage assets in the South of the River Thames section that</i></p>

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		<p>would result in less than substantial harm during the construction phase:</p> <ul style="list-style-type: none"> <li>• Temporary impacts to five Grade II listed buildings (LB22, LB25, LB30, LB99, LB78)</li> <li>• Temporary impacts to Filborough Farm (1147)</li> <li>• Temporary impact to Thong (CA10) Conservation Area</li> </ul> <p>The Project would have a significant impact on following heritage assets in the North of the River Thames section that would result in less than substantial harm during the construction phase:</p> <ul style="list-style-type: none"> <li>• Temporary impact to Causewayed enclosure and Anglo-Saxon cemetery 500m east-north-east of Heath Place (SM6)</li> <li>• Temporary impacts to Grade II listed buildings: Heath Place (LB41), Polwicks (LB48), Walnut Tree Cottage (LB49), Thatched Barn at Whitfields (LB52), Baker Street Windmill (LB57), Whitfields (LB60), Buckland (LB66)</li> <li>• Temporary impacts to one Grade I listed building Church of St Mary Magdalene (LB69)</li> <li>• Temporary impacts to one Grade II listed building Franks Farmhouse (LB115)</li> <li>• Temporary impacts to North Ockendon (CA4), East Tilbury (CA6) and West Tilbury (CA7) Conservation Areas</li> <li>• Permanent impact to Grade II listed buildings: White Horse Cottage (LB22), Whitecrofts Farmhouse (LB37)</li> <li>• Permanent impact to six low-value built heritage assets (4153, 4154, 4155, 4156, 4157, 4159)</li> </ul> <p>The Project would have a significant permanent impact to Thong (CA10) Conservation Area in the South of the River</p>

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		<p><i>Thames section that would result in less than substantial harm during the operational phase:</i></p> <p><i>The Project would have a significant impact on following heritage assets in the North of the River Thames section that would result in less than substantial harm during the operational phase:</i></p> <ul style="list-style-type: none"> <li>• <i>Permanent impact to designated Causewayed enclosure and Anglo-Saxon cemetery 500m east-north-east of Heath Place (SM6)</i></li> <li>• <i>Permanent impact to designated Orsett cropmark complex (SM1)</i></li> <li>• <i>Permanent impacts to North Ockendon (CA4), East Tilbury (CA6) and West Tilbury (CA7) Conservation Areas</i></li> <li>• <i>Permanent impacts to Grade II listed buildings: Whitecrofts Farmhouse (LB37), Baker Street Windmill (LB57), Hole Farmhouse (LB153)</i></li> </ul> <p><i>The substantial public benefits of the Project have been summarised above and more detail provided in Chapter 4 of the Planning Statement [Document Reference 7.2 (2)]. The Need for the Project along with the substantial public benefits demonstrates a compelling case in favour of delivery of the Project that overrides the less than substantial harm to heritage assets. The Project therefore complies with paragraph 5.134 of NPSNN. The equivalent paragraph is 5.8.15 of the NPSEN-1 (5.9.24 of the draft NPSEN-1).'</i></p>
5.215	Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. The Secretary of State should treat the loss of a building (or other element) that makes a positive contribution to the site’s significance either as	This paragraph largely replicates paragraph 5.135 of the adopted NPSNN. The response given previously to that paragraph remains relevant:



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	substantial harm or less than substantial harm, as appropriate. <a href="#">This should take</a> into account the relative significance of the elements affected and their contribution to the significance of the Conservation Area or World Heritage Site as a whole.	<i>'There are no World Heritage Sites affected by the Project. The Desk-Based Assessment [<a href="#">APP-351</a> to <a href="#">APP-354</a>] provides descriptions and assessments of value (significance) for any Conservation Areas potentially affected by the Project and takes this into account in determining impact and significance of effect.'</i>
5.216	Where the loss of significance of any heritage asset has been justified by the applicant based on the merits of the new development and the significance of the asset in question, the Secretary of State should consider imposing a requirement that the applicant will prevent the loss <a href="#">occurring</a> , until the relevant development or part of development has commenced.	This paragraph largely replicates paragraph 5.136 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>'The field evaluation necessary to determine the character and value of heritage assets within the Order Limits, will, by its nature, have some physical impact on buried archaeological remains. However, any mitigation in the form of excavation to preserve by record, or physical impacts to built heritage, would only occur once the DCO was granted.'</i>
5.217	Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to, <a href="#">or better reveal</a> , the significance of the asset should be treated favourably.	This paragraph largely replicates paragraph 5.137 of the adopted NPSNN. The response given previously to that paragraph remains relevant: <i>'ES Chapter 6: Cultural Heritage [<a href="#">REP4-116</a>] and ES Addendum [<b>Document Reference 9.8 (9)</b>] and ES Appendix 6.1: Cultural Heritage Desk-Based Assessment [<a href="#">APP-351</a> to <a href="#">APP-354</a>] have provided an assessment of value for those Conservation Areas potentially affected by the Project.</i>  <i>Views into and out of Conservation Areas have formed a key part of the consideration as to whether aspects which contribute to their significance would be impacted by the Project. In the case of the Queen's Farm (CA8) Conservation Area (outside the 1km study area but included in this assessment due to its located within the landscape study area)</i>

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		<p><i>it has been established that key views into and out of the asset, identified within the Conservation Area Appraisal (Gravesham Borough Council, 2017c), do not include the area within the Order Limits. While parts of the Order Limits are distantly visible from the asset, they do not contribute to its value and construction work is unlikely to be intrusive within the views at this distance.</i></p> <p><i>Of the nine Conservation Areas within the defined study area, five are directly impacted by the Project to various degrees, as described below. Thong (CA10) Conservation Area: The Project would have significant impact on the Conservation Area during both the construction and operational phases. The temporary impacts would be noise intrusion and the visual changes to the setting of the Conservation Area. This would be mitigated by screening the construction compounds with close board fencing and good practice construction procedures to reduce the impact of noise, dust and lighting. Permanent construction impacts would result from the demolition of non-designated built heritage along the northern approach and by new woodland planting. No mitigation has been identified that could reduce these impacts.</i></p> <p><i>Shorne (CA9) Conservation Area: Large areas of the Order Limits are within view of the western edge of the Conservation Area which would be returned to agricultural use, with other areas changing from arable to areas of new contoured earthworks with woodland edge planting and species-rich grassland.</i></p> <p><i>West Tilbury (CA7) Conservation Area: Potential impacts on the Conservation Area mitigated through the reinstatement of agricultural land between the asset and the Project route.</i></p>

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		<p><i>East Tilbury (CA6) Conservation Area: Potential temporary impact on the Conservation Area would be mitigated through screening of construction compounds with fencing, good practice measures to reduce the impact of dust, noise and lighting and reinstatement of the agricultural land used for the construction compounds.</i></p> <p><i>North Ockendon (CA4) Conservation Area: Impacts on the Conservation Area from the Project mitigated by earthwork embankments and woodland landscape planting</i></p> <p><i>The iterative design process and development of mitigation has considered opportunities for enhancement and preservation of positive aspects of setting, where feasible. The assessment takes any embedded, good practice or essential mitigation into account, which is documented in the Design Principles [Document Reference 7.5 (7)] or as features presented on ES Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4] and Environmental Statement Addendum [Document Reference 9.8 (9)]</i></p> <p><i>The Design Principles [Document Reference 7.5 (7)] have incorporated the following proposals based on the interpretation of historic features within the landscape and community to better reveal the significance of heritage assets:</i></p> <ul style="list-style-type: none"> <li><i>• PEO.07 heritage interpretation – to identify and document local heritage and connection to the landscape, the Project during the detailed design phase shall consider and implement an approach for signage and wayfinding for the PRow network that includes interpretation of relevant historic features in and of the landscape and their role in the development of that place/area</i></li> </ul>

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		<ul style="list-style-type: none"> <li>• <i>LSP.07 respecting historic landscape – to protect views across historic landscape and topography, the new landscape design will take account of local landscape character, respect historic features and reference historic land use, patterns and boundaries</i></li> <li>• <i>S9.05 heritage interpretation along Two Forts Way – interpretation boards and signage, coordinated with those for Tilbury Fields (Work No. OSR5), shall be provided along Two Forts Way, highlighting the local heritage features and directions to the new placemaking features.</i></li> </ul> <p><i>There are no World Heritage Sites that could experience an impact from the Project and therefore they have not been included in the assessment.'</i></p>
5.218	Where there is evidence of deliberate neglect of, <a href="#">or damage to</a> , a heritage asset the Secretary of State should not take its deteriorated state into account in any decision.	No response required.
<b>Noise and Vibration</b>		
5.219	Excessive noise can have wide-ranging impacts on the quality of human life and health ( <a href="#">e.g. for example</a> , owing to annoyance or sleep disturbance), use and enjoyment of areas of value (such as quiet places) and areas with high landscape quality. The <del>Government</del> <a href="#">government</a> 's policy is set out in the Noise Policy Statement for England. It promotes good health and good quality of life through effective noise management. Similar considerations apply to vibration, which can also cause damage to buildings. In this section, in line with current legislation, references below to “noise” apply equally to assessment of impacts of vibration.	This paragraph replicates paragraph 5.186 of the adopted NPSNN. It is a general introductory statement. No response necessary.

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5.220	<p>Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed in accordance with the Biodiversity and <del>Geological</del><u>Nature</u> Conservation section of this NPS.</p>	<p>Other than the exchange of the word ‘Geological’ with ‘Nature’ (underlined) this paragraph directly replicates paragraph 5.187 of the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>‘The potential effects to terrestrial biodiversity as a result of the operation of the Project on ecological receptors identified in ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and ES Addendum [Document Reference 9.8 (9)] include noise disturbance to various species, including birds, foraging and commuting bats, badger and water vole. Mitigation through noise screening and bunding, as outlined in ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] has been designed to minimise the noise effects on the wider landscape from the Project. In relation to marine biodiversity, underwater noise generated during marine construction is considered within ES Chapter 9: Marine Biodiversity [APP-147] and ES Addendum [Document Reference 9.8 (9)] as having the potential to impact fish, marine mammals and macroinvertebrates. In terms of the marine works associated with the Project, the following construction activities are considered to be sources of underwater noise and with the following effects:</i></p> <ul style="list-style-type: none"> <li><i>• As a result of the higher levels of background noise and the low levels of noise generated from the tunnel boring machine operations, the level of impact from underwater noise on mammals and subtidal and intertidal communities is considered to have a neutral effect overall.</i></li> </ul>

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		<ul style="list-style-type: none"> <li>As a result of the higher levels of background noise, the restrictions of using vibro-piling and limiting piling operations to low water, the level of impact from underwater noise on marine fish, is considered to be neutral to slight on the fish community overall.</li> </ul> <p>Construction phase essential mitigation of relevance to marine biodiversity includes undertaking works to construct the water management pipeline and outfall, including any necessary piling, at low tide to reduce the transmission of noise. For the operational phase of the Project, no underwater noise modelling has been undertaken as there is not considered to be a pathway to effect from Heavy Goods Vehicles using the tunnel. The noise effects of the Project on ecological receptors have been assessed in accordance with the Biodiversity and Geological Conservation section, paragraph 5.36.’</p>
5.221	<p>Factors that will determine the likely noise impact include:</p> <ul style="list-style-type: none"> <li>construction noise and the inherent operational noise from the proposed development and its characteristics</li> <li>the proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces)</li> <li>the proximity of the proposed development to quiet places and other areas that are particularly valued for their <del>tranquility</del>tranquillity, acoustic environment or landscape quality such as National Parks, the Broads or Areas of Outstanding Natural Beauty; <del>and</del></li> <li>the proximity of the proposed development to designated sites where noise may have an adverse impact on the special features of interest, protected species or other wildlife</li> </ul>	<p>This paragraph replicates paragraph 5.188 of the adopted NPSNN. It is a paragraph for information and no response is considered necessary.</p>

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5.222	<p>Where <del>a development is subject to EIA and significant</del> noise impacts are likely to arise from the proposed development, the applicant should include the following in <del>the</del><u>its</u> noise assessment, <del>which should form part of the environment statement:</del></p> <ul style="list-style-type: none"> <li>• a description of the noise sources including likely usage in terms of number of movements, fleet mix and diurnal 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</li> <li>• identification of noise sensitive premises and noise sensitive areas that may be affected</li> <li>• the characteristics of the existing noise environment</li> <li>• a prediction on how the noise environment will change with the proposed development: <ul style="list-style-type: none"> <li>– <del>o</del><u>in</u> the shorter term such as during the construction period;</li> <li>– <del>o</del><u>in</u> the longer term during the operating life of the infrastructure;</li> <li>– <del>o</del><u>at</u> particular times of the day, evening and night (<u>and weekends</u>) as appropriate.</li> </ul> </li> <li>• an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas, <u>including identifying whether any particular groups are more likely to be affected</u></li> <li>• measures to be employed in mitigating the effects of noise. <del>Applicants</del> <u>applicants</u> should consider using best available techniques to reduce noise impacts.</li> <li>• <del>the nature and extent of the noise assessment should be proportionate to the likely noise impact.</del></li> </ul>	<p>Other than in the addition of the phrase underlined in the penultimate bullet point this paragraph replicates paragraph 5.189 of the adopted NPSNN. The response given previously remains relevant:</p> <p><i>'Noise and vibration impacts linked to the Project over both the construction and operational phase have been fully assessed and considered and are set out within ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] Operational road traffic noise assessment has been based upon the most likely mix of light vehicles and Heavy Goods Vehicles over an 18-hour period during the daytime and 8 hours during the night. A description of likely noise sources has been provided in the construction noise assessment and ventilation noise assessment. The assessment of any tonal or impulsive characteristics from the tunnel ventilation has been taken into account in accordance with British Standard (BS) 4142 Methods for rating and assessing industrial and commercial sound (British Standards Institution, 2019).</i></p> <p><i>Noise sensitive premises and areas have been identified within the defined study area and are presented in ES Figure 12.3: Operational Road Traffic Noise Study Area [APP-311]. Short-term and long-term noise surveys during the daytime and night-time have been undertaken at 68 locations within proximity of the Project to understand the existing noise environment. The short-term noise impacts have been taken from the opening year of the Project. Long-term operational noise impacts have been considered by assessing future road traffic noise 15 years after opening, during the night-time (23:00 to 07:00) and daytime (07:00 to 23:00) for construction and operational road traffic and tunnel</i></p>

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		<p>ventilation noise. Section 12.6 of ES Chapter 12 <a href="#">[APP-150]</a> and ES Addendum <b>[Document Reference 9.8 (9)]</b> describes how the noise environment would change during both construction and operation. The results of this assessment are summarised below.</p> <p>For permanent operational road traffic noise impacts, an assessment has been undertaken for the short and long term (15 years after opening) which has predicted that for both periods:</p> <ul style="list-style-type: none"> <li>• Significant adverse impacts along the Project route, though in accordance with UK policy on noise these have been mitigated to a minimum and remain below a SOAEL (Significant Observed Adverse Effect Level-- being the level above which significant adverse effects on health and quality of life could occur).</li> <li>• Beneficial impacts along the by-passed network, though not significant.</li> <li>• Operational tunnel ventilation noise not considered to have a significant impact, subject to inherent mitigation and control.</li> </ul> <p>In relation to construction noise impacts, a total of 171 noise sensitive receptors (NSRs) have been selected as representative of the entire Project route length. The assessment has shown that, other than seven receptors along a section of the Project route north of the River Thames to the A13, the remaining 164 receptors would not experience significant effects (based upon the standards of the Design Manual for Roads and Bridged ((DMRB) LA 111). The seven remaining receptors would not constitute a breach of an appropriately defined SOAEL and as such would be acceptable with regard to UK noise policy. Relative to these receptors no further mitigation is considered be necessary.</p>



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		<p><i>Recommended mitigation measures for the Project includes both construction and operational noise. For construction noise, a set of best practice working methods would be applied for the control of construction noise and vibration, asset out within the Code of Construction Practice (CoCP) (ES Appendix 2.2 [Document Reference 6.3 ES Appendix 2.2 (9)]). This includes implementing Best Available Techniques where necessary through the construction phase of the Project, along with a set of generic best practice working methods referred to as Best Practicable Means.</i></p> <p><i>For the operational phase, embedded mitigation includes locating the road alignment as far away as feasible from identified NSRs and within cuttings or false cuttings/bunds to reduce road traffic noise levels. In addition, all new and altered roads associated with the Project would be surfaced with a thin surfacing system, in order to reduce road traffic noise. For the tunnel control rooms and ventilation system, the quietest plant available would be selected and implemented into the final detailed design.</i></p> <p><i>With respect to the marine environment, modelling has been used to predict underwater noise and vibration levels associated with construction and operation of the Project. The resulting underwater noise and vibration levels have been compared against known injury and disturbance thresholds for marine receptors to assess the potential for significant effects. The results are presented in ES Chapter 9: Marine Biodiversity [APP-147] and ES Addendum [Document Reference 9.8 (9)]. The Habitats Regulations Assessment – Screening Report and the Statement to Inform an Appropriate Assessment [APP-487] concludes that, having regard to embedded</i></p>

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		<p><i>mitigation, there was sufficient evidence to demonstrate beyond reasonable scientific doubt that there would be no adverse noise and vibration effects on integrity of habitats sites from the Project alone and in combination with other plans or projects.'</i></p> <p>In terms of the additional text in the draft revised NPSNN, the Noise and Vibration Assessment presented in ES Chapter 12 [APP-150] and ES Addendum [Document Reference 9.8(9)] considers impacts on groups of receptors and vulnerable/sensitive groups as well as on individual receptors.</p>
5.223	<p>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.</p>	<p>This paragraph replicates paragraph 5.190 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant: <i>'ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] considers the construction and operational effects on road noise and vibration impacts linked to the Project, in line with UK legislation and guidance.</i></p> <p><i>The likely significant environmental effects within the wider study area based on unaltered traffic links outside the bypassed area are presented in Section 12.6 of ES Chapter 12 [APP-150] and ES Addendum [Document Reference 9.8 (9)]. Within this reporting section no identified NSRs are predicted to experience an adverse or beneficial change in road traffic noise level of a large enough magnitude that would change the acoustic character. No significant effects are therefore identified.'</i></p>

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5.224	<p>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 <a href="#">and Common Noise Assessment Methods (CNOSSOS)</a>. The prediction of noise from new railways should be based on the method described in Calculation of Railway Noise <a href="#">and Common Noise Assessment Methods (CNOSSOS)</a>. 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.</p>	<p>Other than the updated reference to the Calculation of Road Traffic Noise and Common Noise Assessment Methods (CNOSSOS) compared to the previous standards referred to in the adopted NPSNN – Calculation of Road Traffic Noise / Calculation of Railway Noise – this paragraph replicates the provisions of paragraph 5.191 of the adopted NPSNN. The response given previously to that paragraph remains relevant.</p> <p>Note that the CNOSSOS is the EU methodology and is not mentioned in the current NPS NN or adopted in the UK. Road traffic noise predictions are undertaken in accordance with Calculation of Road and Traffic Noise (CTRN). As this approach accords with the current NPSNN and the draft NPSNN wording does not require assessment solely against CNOSSOS, the previous response remains relevant.</p> <p><i>'ES Chapter 12: Noise and vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] has fully considered the noise (and vibration) impacts of the Project in accordance with relevant UK legislation and guidance, as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>Operational noise predictions have been undertaken in accordance with the Calculation of Road Traffic Noise and assessed in accordance with the Design Manual for Roads and Bridges (DMRB) LA 111.</i></li> <li>• <i>Construction impacts have been predicted and assessed in accordance with BS 5228 parts 1 and 2 (British Standards Institution, 2014 and 2014b).</i></li> <li>• <i>Tunnel ventilation noise has been assessed in accordance with BS 4142 (British Standards Institution, 2019).'</i></li> </ul>

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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.	<p>This paragraph replicates paragraph 5.192 in the adopted NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'ES Chapter 8: Terrestrial Biodiversity [Document Reference 6.1 ES Chapter 8 (2)] and ES Chapter 9: Marine Biodiversity [APP-147] and ES Addendum [Document Reference 9.8 (9)] outline the consultation undertaken with Natural England since 2013, including agreement on the location of noise surveys. The desk-based and field survey requirements which have informed the Habitats Regulations Assessment were subject to consultation with Natural England via the EIA scoping process and reported within the Scoping Report for the Project [APP-340]. The impacts and effects considered in the HRA assessment were developed in a series of methodology briefs and technical notes which were shared with Natural England for comment prior to the production of the Statement to Inform an Appropriate Assessment for the Project [APP-487].</i></p> <p><i>Data from Natural England publications relating to Thames Estuary and Marshes SPA, and the Thames Estuary and Marshes Ramsar site including SPA and SAC Natura 2000 forms has also informed assessments within the ES.</i></p> <p><i>The assessment of construction and operational phase effects include a consideration of potential effects arising from noise disturbance. Both resident and regularly occurring species have been included in the assessment.'</i></p>
5.226	The Examining Authority and the Secretary of State should consider whether mitigation measures are needed both for operational and construction noise over and above any which	Other than the addition of the words 'and future maintenance' to the last sentence (underlined), this paragraph replicates paragraph 5.197 of the adopted NPSNN.

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	<p>may form part of the project application. The Secretary of State may wish to impose requirements to ensure delivery <a href="#">and future maintenance</a> of all mitigation measures.</p>	<p>ES Chapter 12: Noise and Vibration [<a href="#">APP-150</a>] and ES Addendum [<b>Document Reference 9.8 (9)</b>] addresses, in Section 12.5, the various mitigation measures to be delivered in order to address the noise and vibration impacts of the Project.</p> <p>The measures specific to the construction are contained within the CoCP [<b>Document Reference 6.3 ES Appendix 2.2 (9)</b>] which, in turn is secured through Requirement 4 of Part 1 of Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>], while those specific to the operational phase are included within the Design Principles [<b>Document Reference 7.5 (7)</b>], secured through Requirement 3 of the draft DCO, or as features presented on the Environmental Masterplan [<b>Document Reference 6.2 ES Figure 2.4</b>] secured through draft DCO Requirement 4 [<b>Document Reference 3.1 (11)</b>].</p> <p>In terms of the additional requirement regarding future maintenance, this is addressed in Section 12.8 Monitoring, of ES Chapter 12 [<a href="#">APP-150</a>] and ES Addendum [<b>Document Reference 9.8 (9)</b>]. The maintenance requirements are secured through Requirement 4 of Part 1 to Schedule 2 of the draft DCO [<b>Document Reference 3.1 (11)</b>].</p>
5.227	<p>Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following:</p> <ul style="list-style-type: none"> <li>• engineering: containment of noise generated</li> <li>• materials: use of materials that reduce noise, (for example, low noise road surfacing)</li> <li>• lay-out: adequate distance between source and noise-sensitive receptors</li> </ul>	<p>Other than the addition of the underlined text, this paragraph replicates paragraph 5.198 of the adopted NPSNN. The response given previously to that paragraph remains relevant as it refers to landscaping and topographical issues: <i>'ES Chapter 12: Noise and Vibration [<a href="#">APP-150</a>] and ES Addendum [<b>Document Reference 9.8 (9)</b>] provides details of the proposed mitigation measures for the Project, which are</i></p>

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	<ul style="list-style-type: none"> <li>incorporating good design to minimise noise transmission through <a href="#">landscaping and</a> screening by natural or purpose built barriers; <a href="#">including topographical changes</a></li> <li>administration: specifying acceptable noise limits or times of use (<del>e.g.</del> <a href="#">for example</a>, in the case of railway station <del>PA</del><a href="#">public address</a> systems)-</li> </ul>	<p><i>summarised below: Embedded mitigation – construction phase:</i></p> <ul style="list-style-type: none"> <li><i>Locating construction compounds and route alignment as geographically removed as possible from sensitive receptors</i></li> <li><i>Careful consideration on the layout of compounds</i></li> <li><i>Minimising construction traffic</i></li> <li><i>Reduction in tunnel boring machine activity Embedded mitigation – operational phase</i></li> <li><i>Aligning the Project route away from Noise Sensitive Receptors (NSRs)</i></li> <li><i>Locating the Project route within a cutting or false cutting/bund</i></li> <li><i>Significant use of earth bunding, cuttings and false cuttings</i></li> <li><i>Selecting the quietest plant from the tunnel control rooms and ventilation system.</i></li> </ul> <p><i>Good practice commitments include working methods for the control of construction noise and vibration, as set out within ES Appendix 2.2: Code of Construction Practice (CoCP) [Document Reference 6.3 ES Appendix 2.2 (9)]. This includes implementing Best Available Techniques where necessary through the construction phase of the Project, along with a set of generic best practice working methods referred to as Best Practicable Means. Operational phase good practice includes surfacing all new and altered roads associated with the Project with a thin surfacing system. For operational noise emissions generated from the tunnel control rooms and ventilation system, good practice mitigation would involve selecting appropriate locations for noisy plant during the detailed design. For the operational phase, specific noise</i></p>

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		<i>mitigation measures incorporated as part of the Project design include a range of reflective and acoustically treated barriers and absorptive parapets on viaducts and bridges.'</i>
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 <a href="#">Development Consent Order</a> land in relation to which compulsory acquisition powers are being sought.	This paragraph replicates paragraph 5.199 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant: <i>'ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] presents the results of noise impacts during construction and operation of the Project. This includes the results of a Noise Insulation Regulations assessment, which indicates that none of the 3,240 residential dwellings identified within 300m of the Project would qualify for noise insulation under the Noise Insulation Regulations.'</i>
5.229	Applicants should consider opportunities to address the noise issues associated with the Important Areas as identified through the noise action planning process.	This paragraph exactly replicates paragraph 5.200 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant: <i>'The Project has considered Noise Important Areas within the assessment of operational effects, which are presented in ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)]. The Project would result in likely significant beneficial effects for five Noise Important Areas (located in areas between the Dartford Crossing and M25 junction 28; along the B1421, B188 and the A282; and near the A2) during operation and no likely significant adverse effects on any existing Noise Important Areas within the Project study area.'</i>

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5.230	<p>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 <a href="#">government</a>'s associated planning guidance on noise.</p>	<p>This paragraph replicates paragraph 5.193 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant:</p> <p><i>'ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] refers to the relevant environmental noise and vibration legislative framework that has formed the basis of the noise assessment, including both European and national statutory requirements, as follows:</i></p> <p><i>Operational noise predictions have been undertaken in accordance with the Calculation of Road Traffic Noise and assessed in accordance with Design Manual for Roads and Bridges (DMRB) LA 111.</i></p> <p><i>Construction noise impacts have been predicted and assessed in accordance with BS 5228 Parts 1 and 2 (British Standards Institution, 2014 and 2014b).</i></p> <p><i>Tunnel ventilation noise has been assessed in accordance with BS 4142 (British Standards Institution, 2019).</i></p> <p><i>ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)] has also identified where the national policy requirements in respect of noise have been addressed as part of the Project assessment.</i></p> <p><i>Consents would be obtained from the relevant local authorities under Section 61 of the Control of Pollution Act 1974 (which may include noise and vibration limits where relevant) for the proposed works (REAC reference NV004).'</i></p>



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5.231	<p>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 <a href="#">government policy</a>.</p>	<p>This paragraph replicates paragraph 5.194 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant: <i>'The design of the Project has followed an iterative approach calling on the expertise of the design team to ensure the good acoustic design of the Project.</i> <i>The Design Principles, Environmental Masterplan, LEMP, CoCP and REAC, all form part of the Project control plan. The control plan is the framework for mitigating, monitoring and controlling the effects of the Project. It is made up of a series of 'control documents' which present the mitigation measures identified in the application that must be implemented during design, construction and operation to reduce the adverse effects of the Project. Further explanation of the control plan and the documents which it comprises is provided in the Introduction to the Application [REP4-002].</i> <i>Primarily, the design approach followed, advocates the use of more natural landscaping and earthworks as the main method of noise mitigation, combined with thin surfacing systems (with acoustic mitigation properties). This has been augmented by the inclusion of acoustic fencing where earthworks measures were not possible, but mitigation was considered to be beneficial.</i> <i>The embedded earthworks mitigation for operation is set out in Table 12.28 of ES Chapter 12: Noise and Vibration [APP-150] and presented in Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4]. Relevant Design Principles [Document Reference 7.5 (7)] for embedded earthworks are STR.10, S11.05, S11.09 and S14.06. The acoustic barriers are secured through REAC commitment NV011 (Section 7 of the CoCP [Document Reference 6.3 ES Appendix 2.2 (9)] and relevant Design Principles [Document</i></p>

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		<p><b>Reference 7.5 (7)]</b> are STR.04, STR.06, STR.07, STR.09, STR.10, S10.05, S11.05, and LSP.09. This is presented and discussed in more detail within Section 12.5 of ES Chapter 12: Noise and Vibration, Project design and mitigation [APP-150].’</p>
5.232	<p>The Secretary of State should not grant development consent unless satisfied that the proposals will meet the following aims, within the context of government policy on sustainable development:</p> <ul style="list-style-type: none"> <li>• avoid significant adverse impacts on health and quality of life from noise as a result of the new development</li> <li>• mitigate and minimise other adverse impacts on health and quality of life from noise from the new development</li> <li>• contribute to improvements to health and quality of life through the effective management and control of noise, where possible</li> </ul>	<p>This paragraph replicates paragraph 5.195 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant: <i>‘The alignment of the Project has been located as far away as is feasible from identified Noise Sensitive Receptors. Additionally, through the design process, the alignment of the Project has been located within cuttings and/or false cuttings/bunds where practicable to reduce significant environmental effects including noise. To mitigate and minimise adverse impacts, where earthworks measures were not practicable and additional mitigation was deemed necessary, acoustic fencing has been identified. Further detail of mitigation measures to avoid or reduce adverse impacts on health and quality of life from noise as a result of the Project are set out in ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)].</i> <i>Notwithstanding, significant effects above a SOAEL have not been completely avoided and there remain receptors where significant effects above a SOAEL are predicted during operation. However, due to the scale and nature of the Project, avoiding all significant adverse effects was not possible when considering the principles of sustainable development, and for the reasons as detailed in paragraphs 12.6.116 (Henhurst</i></p>

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		<p>Road), 12.6.126 (Brook Farm Cottages), 12.6.184, (A228 Corridor) and 12.6.193 (A229 Corridor) of ES Chapter 12: Noise and Vibration [APP-150] and ES Addendum [Document Reference 9.8 (9)]. Therefore, based upon the reasons quoted therein and within the context of Government policy on sustainable development, having regard to the Need for the Project [APP-494], the Project is considered to be in accordance with the requirements of NPSNN paragraph 5.195. Across the Affected Road Network the Project will deliver significant improvements to quality of life (including noise impacts). Measures incorporated within the development design to ensure effective management and control of noise are numerous. In particular, operational static plant noise associated with the tunnel ventilation buildings at the North and South Portals, will be mitigated through design and equipment specification suitable to comply with the noise levels specified in REAC (Reference NV014). A number of Noise Important Areas will benefit from mitigation measures embedded in the Project design and would, as a result experience a decrease in noise level. NIAs which lie away from the Order Limits are shown to, at worst, result in minor adverse changes in road traffic noise would be mitigated through the mechanisms already in place by National Highways including relevant noise action plans.'</p>
5.233	<p>In determining an application, the Secretary of State should consider whether requirements are needed which specify that the mitigation measures put forward by the applicant are put in place to ensure that the noise levels from the project do not exceed those described in the assessment or any other estimates on which the decision was based.</p>	<p>This paragraph replicates paragraph 5.196 of the adopted NPSNN. The response given previously in respect of that paragraph remains relevant. See response to paragraph 5.224 above.</p>

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<b>Socio-Economic Impacts (this is a new Generic Impact section in the draft revised NPSNN)</b>		
5.234	<p><u><a href="#">The construction and operation of nationally significant infrastructure projects may have short or longer term economic and social impacts on local communities, businesses or services. The construction period for significant projects can be lengthy; however, this can generate employment through the construction period and benefit the local economy. Applicants should look to maximise local employment opportunities during construction and operational phases.</a></u></p>	<p>Table 5.2 of the Need for the Project [<a href="#">APP-494</a>] sets out how the key benefits the Project would deliver support the Scheme Objectives. One point made is that:</p> <p><i>‘Enhanced connectivity and cross-river economic opportunities would further stimulate competition, boosting employment and increasing inward investment locally and regionally.’</i></p> <p>Section 5.3: Community and Environmental Benefits of the Need for the Project [<a href="#">APP-494</a>] includes a sub-section entitled Local Jobs and Upskilling which addresses how the Project would benefit the <i>‘local community by the provision of additional employment opportunity’</i>.</p> <p>Paragraph 5.3.19 notes that:</p> <p><i>‘National Highways has established targets for numbers of work placements (over 470 placements), apprenticeships (over 430 apprentices) and traineeships (over 290 trainees), together with engagement in STEM (science, technology, engineering and mathematics) activities for local schools (over 5,000 hours)’.</i></p> <p>The Applicant has provided this through the Skills, Education and Employment Strategy the through the Stakeholder Actions and Commitments Register [<b>Document Reference 7.21 (7)</b>].</p> <p>In Table 4.2 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] this is described as ensuring the Project achieves:</p> <p><i>‘Improved access to local jobs and upskilling opportunities for local communities.’</i></p> <p>Paragraph 4.3.28 of the Planning Statement [<b>Document Reference 7.2 (2)</b>] notes that:</p>

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		<p><i>'Additionally, the Project would benefit the local community through provision of jobs during the construction phase, while also increasing the skill base of local residents working on the Project to benefit them post-construction. The Project would have a target of at least 45% of employees to be from within 20 miles of the Project which is provided through the Skills, Education and Employment Strategy which is secured through the Stakeholder Actions and Commitments Register [Document Reference 7.21 (7)].</i></p>
5.235	<p><u>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.</u></p>	<p>The Applicant has assessed these socio-economic impacts in the Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Level 3 Wider Economic Impacts Report [APP-527]. ES Chapter 13: Population and Human Health [APP-151] also addresses the potential impacts of the Project on development land and businesses.</p>
5.236	<p><u>This assessment should consider all relevant socio-economic impacts, which may include:</u></p> <ul style="list-style-type: none"> <li>• <u>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</u></li> <li>• <u>the value of increased connectivity on productivity and access to jobs, services and housing</u></li> <li>• <u>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</u></li> </ul>	<p>The Applicant has assessed these socio-economic impacts in the Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Level 3 Wider Economic Impacts Report [APP-527].</p> <p>The Health and Equalities Impact Assessment [REP7-144] is also relevant in that it presents the findings of the assessment of likely effects of the construction and operation of the Project on human health and equality including job creation, skills and training opportunities and impacts on the wider supply chain.</p> <p>Wider impacts in terms of the effects on the housing market and visitors and tourism impacts are presented in ES Chapter 13: Population and Human Health [APP-151] and the Workers Accommodation Report [APP-551].</p> <p>ES Chapter 16 [APP-154] comprises a Cumulative Effects Assessment which presents an assessment of the likely</p>

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	<p><a href="#">community throughout construction, such as employment or educational programmes</a></p> <ul style="list-style-type: none"> <li>• <a href="#">any indirect beneficial impacts for the region hosting the infrastructure, particularly in relation to use of local support services and supply chains</a></li> <li>• <a href="#">effects on tourism</a></li> <li>• <a href="#">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</a></li> </ul>	<p>significant cumulative effects of the Project taking into account both inter and intra Project effects.</p>
5.237	<p><a href="#">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.</a></p>	<p>Baseline socio-economic conditions are described in Section 5.4 in Chapter 5 of the Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Level 3 Wider Economic Impacts Report [<a href="#">APP-527</a>].</p> <p>An assessment of the Project’s impacts against local planning policies is presented in Appendix C: Local Authority Policy Review of the Planning Statement [<b>Document Reference 7.2 Appendix C (2)</b>] where no significant conflict with local planning policies dealing with socio-economic conditions are identified.</p>
5.238	<p><a href="#">For Strategic Rail Freight Interchange developments, applicants should outline the benefits to workforce conditions of the new development once it is operational. This should include improved facilities for drivers (including Heavy Goods Vehicles) such as parking, hygiene facilities and hospitality establishments.</a></p>	<p>This paragraph relates to Strategic rail freight interchange projects.</p>

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5.239	<a href="#"><u>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.</u></a>	It is demonstrated in the Combined Modelling and Appraisal Report Appendix D Economic Appraisal Package – Level 3 Wider Economic Impacts Report [ <a href="#"><u>APP-527</u></a> ] that the Project would not give rise to any adverse socio-economic impacts; indeed the wider socio-economic impacts identified are net positive to the wider economy.
5.240	<a href="#"><u>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.</u></a>	See response to paragraph 5.234 above.
5.241	<a href="#"><u>The Secretary of State should have regard to the potential socio-economic impacts of new infrastructure identified by the applicant and from any other sources that the Secretary of State considers to be both relevant and important to its decision.</u></a>	See response to paragraphs 5.234 and 5.236 above
5.242	<a href="#"><u>The Secretary of State should consider any relevant positive provisions the applicant has made, or is proposing to make, to mitigate impacts (for example, through planning obligations), and any legacy benefits that may arise. As well as any options for phasing development in relation to the socio-economic impacts.</u></a>	See response to paragraph 5.234 and 5.236 above.
<b>Water Quality and Resources</b>		
5.243	Infrastructure development can have adverse effects on the water environment, including groundwater, inland surface water, transitional waters and coastal waters. During the construction and operation, it can lead to increased demand for water, involve discharges to water and cause adverse ecological effects resulting from physical modifications to the water environment. There may also be an increased risk of spills and leaks of pollutants to the water environment. These effects could	Other than in the change in reference to regulations rather than Directive at the end of the paragraph (underlined) this paragraph replicates paragraph 5.219 of the adopted NPSNN to which the previous response remains relevant: <i>The existing water environment (water quality, water resources and physical characteristics) is described in ES Chapter 14: Road Drainage and the Water Environment [<a href="#"><u>APP-152</u></a>] and ES Addendum [<b>Document Reference 9.8 (9)</b>],</i>

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	<p>lead to adverse impacts on health or on <del>protected</del> species and habitats (see <del>Section</del> paragraphs <del>5.20</del><u>5.49</u> to <del>5.38</del> <del>on biodiversity and geological conservation</del><u>5.64</u>), and could, in particular, result in surface waters, groundwaters or protected areas<sup>42</sup> failing to meet environmental objectives established under the Water Framework <del>Directive</del><u>Regulations</u>.</p>	<p><i>as well as the effects of the Project which are described and assessed.</i></p> <p><i>ES Appendix 14.7: Water Framework Directive Assessment [APP-478] assesses the impacts of the Project on the Water Framework Directive (WFD) quality elements of relevant surface water and groundwater bodies and any dependent designated sites. All surface and groundwater features within 500m of the Order Limits and groundwater features within 3km of the Order Limits have been included in the baseline assessments undertaken. ES Appendix 14.3: Operational Surface Water Drainage Pollution Risk Assessment [APP-456] concludes that the proposed treatment measures will adequately safeguard water quality. With regards to increased risk of spills and leaks of pollutants the ES concludes that the design of highway drainage systems will safeguard receiving watercourses from these impacts. The objectives of the WFD would therefore be met.</i></p> <p><i>ES Appendix 14.5: Hydrogeological Risk Assessment [APP-458 and APP-459] concludes that, having regard to embedded mitigation, there would be no significant adverse impacts upon groundwater quality, groundwater resources or the physical characteristics of the groundwater bodies. With regards to ecological receptors, changes to water quality from land drainage, and dewatering during construction will not lead to significant adverse impacts on protected sites or marine water quality. Additionally, no significant changes to freshwater flows to intertidal and subtidal habitats are predicted. Changes to water quality from construction and decommissioning of the temporary Project water management pipeline and outfall have also been assessed but would not give rise to significant adverse effects on protected sites.'</i></p>



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5.244	<p>The <del>Government's planning policies make clear that the</del> planning system should contribute to and enhance the natural and local environment by, amongst other things, preventing both new and existing development from contributing to, or being put at unacceptable risk from, or being adversely affected by, water pollution. The <del>Government</del><u>government</u> has issued guidance on water supply, wastewater and water quality considerations in the planning system<sup>112,113</sup>. Where applicable, an application for a <del>development consent order</del><u>Development Consent Order</u> has to contain a plan with accompanying information identifying water bodies in a River Basin Management Plan<sup>113,114</sup>.</p> <p><sup>112</sup> <a href="#">GOV.UK. Guidance 'Water supply, wastewater and water quality'</a>  <sup>113</sup> <a href="#">GOV.UK Legislation 'The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009', s5(2)(l)(iii))</a></p>	<p>Introductory paragraph which replicates the detail and sentiment of paragraph 5.220 of the adopted NPSNN to which the previous response was:  <i>'The surface water bodies located within the Project's Zone of Influence are presented in Drawing 2, Annex 3 of ES Appendix 14.7 [APP-478].'</i></p>
5.245	<p>Applicants should make early contact with the relevant regulators, including the Environment Agency, for abstraction licensing <u>or water quality activity or groundwater activity permits</u>, and with water supply companies likely to supply the water. Where <del>a development is subject to EIA and the</del> development is likely to have <del>significant</del> adverse effects on the water environment, the applicant should <del>ascertain</del><u>undertake an assessment of</u> the existing status <del>of,</del> and <del>carry out an assessment of the</del> impacts of the proposed project on water quality, water resources and physical characteristics <u>of the water environment</u> as part of the <del>environmental statement</del><u>Environmental Statement or equivalent. The assessment should also include how this might change due to the impact of climate change on rainfall patterns and</u></p>	<p>This is an amended version of paragraph 5.221 of the adopted NPSNN.  The previous response to paragraph 5.221 of the adopted NPSNN, however, remains relevant:  <i>'Early engagement has been undertaken with the Environment Agency on a range of issues, including the water features survey, hydrogeological monitoring, WFD assessment, surface water discharge, dewatering and contaminated land along with consent requirements. Consultation has also been undertaken with the water supply companies along with Natural England and the North Kent Marshes Internal Drainage Board. Accompanied site visits with the Environment Agency have also been undertaken as part of the engagement process. An</i></p>

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	<p><a href="#">consequently water availability across the water environment (see paragraphs 4.30 to 4.41).</a></p>	<p><i>assessment of the impacts of the Project on these resources is reported in ES Chapter 14: Road Drainage and the Water Environment [APP-152] and ES Addendum [Document Reference 9.8 (9)], Section 14.3 sets out the scope of assessment and methodology while Section 14.4 describes the water environment baseline.</i></p> <p>Climate change impacts on the water environment are addressed in ES Chapter 14: Road Drainage and the Water Environment [APP-152] and ES Addendum [Document Reference 9.8 (9)]; ES Appendices 14.6 (FRA) Part 6 [REP1-171] and 14.7: WFD Assessment [APP-478]; ES Chapter 15: Climate [APP-153] and ES Addendum [Document Reference 9.8 (9)]; and ES Appendix 15.3: Climate Resilience Impacts and Effects [APP-482] and ES Addendum [Document Reference 9.8 (9)]. The Consents and Agreements Position Statement [Document Reference 3.3 (8)] is also relevant in that it sets out the other consents and permits needed in order for the Project to proceed.</p>
5.246	<p>For those projects that are <del>improvements to</del><a href="#">improving</a> the existing infrastructure, such as road widening, opportunities should be taken, where feasible, to improve <del>upon</del> the quality of existing discharges where these are identified and shown to contribute towards Water <a href="#">Environment (Water Framework Directive <del>commitments.</del>) (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 infrastructure, for example, the discharge of contaminated water from roads.</a></p>	<p>This paragraph broadly reflects the provisions of paragraph 5.222 of the adopted NPSNN other than in the updated references to more recent legislation and to the possible need for a permit under the Environmental Permitting (England and Wales) Regulations 2016 (underlined).</p> <p>No response was previously provided to paragraph 5.222 as the paragraph refers to ‘<i>projects that are improvements to the existing infrastructure</i>’ (i.e. the project is a road widening NSIP rather than road widening being part of a new build project). See also response to paragraph 5.247 below regarding the Environmental Permitting Regulations (EPR).</p>

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5.247	<p><a href="#"><u>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<sup>14</sup>.</u></a></p> <p><sup>14</sup> <a href="#"><u>Defra and Environment Agency Guidance ‘Pollution prevention for businesses’</u></a></p>	<p>This is a new paragraph responding to the requirements of the Environmental Permitting Regulations. Matters related to managing surface water runoff to prevent pollution from suspended solids during construction are addressed in ES Chapter 14: Road Drainage and the Water Environment [APP-152]. Consents to discharge to the water environment, and to undertake works on/near watercourses would be secured, as detailed in the Consents and Agreements Position Statement [Document Reference 3.3 (8)].</p>
5.248	<p><a href="#"><u>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.</u></a></p>	<p>This is a wholly new paragraph.</p> <p>An assessment of the pollution related risks to groundwater is presented in ES Appendix 14.5 Hydrogeological Risk Assessment [APP-458 and APP-459] and Section 6 of ES Appendix 14.7: Water Framework Directive [APP-478]. In respect of the former, Table 10.1 summarises the residual significance of impacts as, in all respects, not significant. In respect of the latter, paragraph 8.1.2 concludes that ‘Measures embedded into the Project design, in combination with commitments to methods of construction and compound management, which are documented in the CoCP [Document Reference 6.3 ES Appendix 2.2 (9)] would prevent or mitigate potential effects on surface, transitional and groundwater bodies. These measures are appropriately secured within the DCO application’</p> <p>The first iteration Environmental Management Plan, presented in ES Appendix 2.2:Code of Construction Practice [Document Reference 6.3 ES Appendix 2.2 (9)], is also relevant in that it sets out a framework for how the mitigation and management (i.e. protective measures) of environmental effects would be delivered and maintained. The RDWE commitments secure</p>

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		the required measures to address potential impacts to groundwater which would be secured through Requirement 4 of Schedule 2 to of the draft DCO [ <b>Document Reference 3.1 (11)</b> ].
5.249	<p>Any <del>environmental statement</del> <u>assessment for both the construction and operational phases of the development</u> should describe:</p> <ul style="list-style-type: none"> <li>- the existing quality of waters affected by the proposed project; <u>and how climate change will impact on this</u> existing water resources affected by the proposed project <del>and</del> the impacts of the proposed project on water resources; <u>and how climate change will impact on this</u> 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;</li> <li>- any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive <u>Regulations</u> and source protection zones (<del>SPZs</del>) around potable groundwater abstractions; and <u>how climate change will impact on this</u></li> <li>- any cumulative effects</li> </ul>	<p>The wording of this paragraph is similar to paragraph 5.223 of the adopted NPSNN other than it references the Water Framework regulations (rather than Directive in the adopted NPSNN) and includes references to taking into account the impacts of climate change in the second and last bullet points (underlined). The Regulations derived from the Directive. Accordingly, the previous response to paragraph 5.223 of the adopted NPSNN remains relevant: <i>'The existing water environment (water quality, water resources and physical characteristics) is described in ES Chapter 14: Road Drainage and the Water Environment [APP-152]. Surface water quality has been defined using available data records supplied by the Environment Agency, in addition to field sampling. Further baseline water quality for the River Thames is provided in ES Chapter 9: Marine Biodiversity [APP-147]. Ground water quality (including aquifer vulnerability) has also been assessed and it is evident that agricultural application of fertilisers, landfill leachate migration and other land use pressures have impacted upon existing water quality to varying degrees within the study area. The existing physical characteristics of the water environment assessed within the ES include surface water levels and flows, groundwater levels and flows and surface water interactions. In accordance with best practice to assess compliance of the Project with the WFD, Groundwater Dependent Terrestrial Ecosystems have been assessed.</i></p>

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		<p><i>ES Appendix 14.4: Hydromorphology Assessment [APP-457] presents an assessment of the impacts of physical modifications to watercourses. ES Appendix 14.7: Water Framework Directive (WFD) Assessment [APP-478] assesses the impacts of the Project on the WFD quality elements of relevant surface water and groundwater bodies and any dependent designated sites. The assessment has concluded that the Project would not prevent the future attainment of the WFD objectives for each of the respective water bodies, nor pose barriers to implementing future measures described in the River Basin Management Plans to achieve these objectives. ES Appendix 14.5: Hydrogeological Risk Assessment [APP-458 and APP-459] sets out the impacts from the Project on potable groundwater abstractions. Over both the construction and operational stage, no change is predicted at SPZ1. Only negligible impacts are predicted at Linford public supply well (north of the Thames) and Southern Water Services Ltd supply wells (south of the River Thames). The potential for cumulative effects is addressed in ES Chapter 16: Cumulative Effects Assessment [APP-154]. The overall conclusion of ES Chapter 14: Road Drainage and Water Environment [APP-152], taking into account the Project design and mitigation set out in Section 14.5, is that there would be no likely significant adverse effects on water environment receptors.'</i></p> <p>Climate change impacts on the water environment are addressed in ES Chapter 14: Road Drainage and the Water Environment [APP-152]; ES Appendices 14.6 (FRA) Part 6 [REP1-171] and 14.7: WFD Assessment [APP-478]; ES Chapter 15: Climate [APP-153]; and ES Appendix 15.3: Climate Resilience Impacts and Effects [APP-482].</p>

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5.250	<p><a href="#">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.</a></p>	<p>No protected bathing areas are identified in the vicinity of the Project.</p> <p>The potential impacts of Project discharges (during construction and operation) on existing abstractions and fisheries (insofar as they are relevant to the consideration of the Project) are addressed in ES Chapter 14: Road Drainage and the Water Environment [APP-152] and its supporting appendices ES Appendix 14.5: Hydrogeological Risk Assessment [APP-458 and APP-459] and ES Appendix 14.7: WFD Assessment [APP-478], and the Project’s commitment to attaining permits/consents for relevant discharges are secured within the Code of Construction Practice, First Iteration of Environmental Management Plan [Document Reference 6.3 ES Appendix 2.2 (9)]. Opportunities to improve water quality have been integrated into the Project design, for example, where the Project is adopting existing highways drainage basins, these features would be remodelled and enhanced to provide for additional water treatment measures.</p>
5.251	<p>The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling. <a href="#">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</a></p>	<p>The first sentence in this paragraph replicates paragraph 5.228 of the adopted NPSNN. The second sentence is new text. The response previously given to paragraph 5.225 of the adopted NPSNN remains relevant:</p> <p><i>‘A Water Framework Directive (WFD) Assessment has been undertaken and is presented in ES Appendix 14.7 [APP-478]. The objective of the WFD Assessment is to establish the nature and anticipated magnitude of the impacts of the Project on the WFD quality elements of relevant surface water and groundwater bodies and any dependent designated sites. The assessment has concluded that there would be no deterioration of biological quality, hydromorphology, physicochemical or specific pollutant supporting elements at</i></p>

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		<p><i>the surface water body scale, at which WFD compliance is judged. In addition, the Project would not prevent the future attainment of the WFD objectives for each of the respective water bodies, nor pose barriers to implementing future measures described in the River Basin Management Plans to achieve these objectives.'</i></p> <p>In terms of engagement with the Environment Agency the Agency has been consulted extensively and has agreed methodologies for assessing flood risk, including the required scope of hydraulic modelling of watercourses.</p> <p>The Applicant has also engaged with Northumbrian Water regarding the potential for a supply of water from the Linford borehole, to support tunnelling during construction of the main tunnels.</p> <p>A summary of the consultation undertaken with regulatory authorities is presented in Table 14.4 of ES Chapter 14: Road Drainage and the Water Environment [APP-152].</p> <p>A range of measures have been put forward to mitigate adverse effects on the water environment and these include:</p> <ul style="list-style-type: none"> <li>• Selection of a route that avoids an SPZ1 of public water supply wells, safeguarding potable groundwater quality</li> <li>• To the south of the River Thames, where there is a lack of suitable watercourses to receive operational drainage from the Project, new wide, shallow infiltration basins have been sited to avoid SPZ1s</li> <li>• To ensure no detriment, during the management of vegetation and landform at nitrogen deposition compensation sites the Project would reduce release of diffuse (rural) sources of pollution such as nitrate (fertilisers) and pesticides (including herbicides), to prevent groundwater pollution</li> </ul>

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		<ul style="list-style-type: none"> <li>• Securing and carrying out construction works in accordance with relevant environmental permits and consents</li> <li>• Worksite drainage systems would incorporate pollution control systems</li> </ul> <p>These measures have been informed by the ongoing consultation with the EA and will be referred to within the Statement of Common Ground <a href="#">[REP1-058]</a>. The vast majority of matters relating to water quality and the WFD are agreed with discussion still continuing on a handful of matters relating to some culverting proposals and the impacts of that activity on WFD habitat and one compensation/enhancement proposal.</p>
5.252	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.	<p>This paragraph replicates paragraph 5.229 of the adopted NPSNN. The response given to that paragraph remains relevant:</p> <p><i>'Embedded mitigation is included within the Design Principles <a href="#">[Document Reference 7.5 (7)]</a> and Code of Construction Practice (CoCP) <a href="#">[Document Reference 6.3 ES Appendix 2.2 (9)]</a>. Good practice and essential mitigation are included in ES Appendix 2.2: Register of Environmental Actions and Commitments (REAC) <a href="#">[Document Reference 6.3 ES Appendix 2.2 (9)]</a>.</i></p>
5.253	The project should adhere to any National Standards for <a href="#">Sustainable Drainage Systems. The Sustainable Drainage Systems Technical Standards introduced</a> 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 <sup>115</sup> .	<p>This paragraph replicates paragraph 5.230 of the adopted NPSNN. The response given to that paragraph remains relevant:</p> <p><i>'A strategy for managing operational surface water drainage has been prepared centred on the application of Sustainable Drainage Systems (SuDS), appropriate to local conditions. The strategy is summarised in Part 7 of Appendix 14.6: Flood Risk Assessment <a href="#">[REP1-171]</a> and Environmental Statement Addendum <a href="#">[Document Reference 9.8 (9)]</a> in the Environmental Statement. The drainage principles have been</i></p>



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	<p><sup>115</sup> Defra. <a href="#">‘Sustainable Drainage Systems Non-statutory technical standards for sustainable drainage systems March 2015’</a></p>	<p><i>discussed and agreed with relevant Lead Local Flood Authorities (LLFAs), as detailed in ES Chapter 14 [APP-152]. SuDS have been incorporated into the preliminary design where practicable. The underlying chalk formation south of the Thames and also at the A13 junction is suitable for SuDS features incorporating infiltration techniques; the use of such features would therefore be prioritised in these areas. Using infiltration techniques at the Ockendon Link, the North Portal to Chadwell St Mary and the northernmost section of the Project would not be feasible due to:</i></p> <ul style="list-style-type: none"> <li><i>• Unfavourable ground conditions.</i></li> <li><i>• Presence of landfills along the route.</i></li> <li><i>• Potential for high groundwater</i></li> </ul> <p><i>Notwithstanding this, SuDS components would include Infiltration basins and swales (although these would be used as retention features rather than conveyance features). In the northernmost section of the Project pollution control measures would be used to protect downstream water bodies and flow control measures to attenuate discharge of runoff to watercourses. The various SuDS components are secured by Design Principles Document Reference 7.5 (7)] and is also presented on Figure 2.4: Environmental Masterplan [Document Reference 6.2 ES Figure 2.4].’</i></p>
5.254	<p><a href="#">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.</a></p>	<p>This is a new paragraph in the draft revised NPSNN. A Water Framework Directive (WFD) Assessment has been undertaken and is presented in ES Appendix 14.7 [APP-478]. The objective of the WFD Assessment is to establish the nature and anticipated magnitude of the impacts of the Project on the WFD quality elements of relevant surface water and groundwater bodies and any dependent designated sites. The</p>

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		<p>assessment has concluded that there would be no deterioration of biological quality, hydromorphology, physicochemical or specific pollutant supporting elements at the surface water body scale, at which WFD compliance is judged. Section 4.5 of the Assessment identifies those opportunities presented by the Project to contribute towards improvements in the status of water bodies in the study area. In terms of biodiversity net gain the metric calculations on BNG are presented in ES Appendix 8.21 <a href="#">[APP-417]</a> and summarised in Table 1.1 of that document.</p>
5.255	<p>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. <a href="#">This may also include the need for treatment of water, which may need a permit under the Environmental Permitting Regulations.</a></p>	<p>The first two sentences of this paragraph replicate paragraph 5.231 of the adopted NPSNN. The last sentence regarding EPR (underlined) is new. The previous comments in respect of this paragraph remain relevant:</p> <p><i>'Section 14.5 in ES Chapter 14: Road Drainage and the Water Environment <a href="#">[APP-152]</a> describes the construction and operational mitigation proposed for the Project. This includes measures delivered through the design of the Project and also via construction methods, as well as good practice embodied in the Design Manual for Roads and Bridges (DMRB) LA 113 on Road Drainage and the Water Environment (Highways England, 2020).</i></p> <p><i>During construction worksite drainage systems would incorporate pollution control systems, which would be inspected and maintained to ensure they continue to operate to their design standard, safeguarding surface and groundwater quality. As detailed in the CoCP <b>[Document Reference 6.3 ES Appendix 2.2 (9)]</b>, equipment such as spill kits and absorption mats would be made available. Specific areas would be designated for the storage of chemicals, waste</i></p>

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		<p><i>oils and fuel and refuelling activities and would be bunded to provide capacity for at least 110% of the largest container and placed on hardstanding to prevent downward migration of contaminants. Drainage measures would be designed to isolate any spillages.</i></p> <p><i>With regards to the operational design, where there is a lack of suitable watercourses to receive operational drainage from the Project, new wide, shallow infiltration basins will be sited to avoid SPZ1s. Drainage design would include treatment systems for highway runoff.'</i></p> <p><i>With regard to environmental permits, these are addressed in Section 4.3 and elsewhere within ES Appendix 14.7: Water Framework Directive [APP-478].'</i></p>
5.256	<p>Activities that discharge to the water environment are subject to pollution control <u>and potentially the Environmental Permitting Regulations</u>. The considerations set out in paragraphs <del>4.48-4.56</del> <u>4.42 to 4.50</u> on the interface between planning and pollution control therefore apply. These considerations will also apply in an analogous way to the abstraction licensing regime regulating activities that take water from the water environment, and to the control regimes relating to works to, and structures in, on, or under a controlled water</p>	<p>This paragraph replicates paragraph 5.226 of the adopted NPSNN. The response given previously in respect of paragraph 5.226 remains relevant:</p> <p><i>'A Water Framework Directive (WFD) Assessment has been prepared and is provided in ES Appendix 14.7 [APP-478]. Appropriate design and mitigation measures have been incorporated into the Project to facilitate WFD compliance. These are described in Section 14.5 of ES Chapter 14: Road Drainage and the Water Environment [APP-152].</i></p> <p><i>The Thames River Basin Management Plan (RBMP) (Department for Environment, Food and Rural Affairs and Environment Agency, 2018), along with the 2021 consultation draft update to the Thames RBMP have been considered through the ES. The WFD Assessment has concluded that the Project would not pose barriers to implementing future measures described in the River Basin Management Plan.'</i></p>

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5.257	<p>The Secretary of State will generally need to give impacts on the water environment more weight where a project would have adverse effects on the achievement of the environmental objectives established under the Water Framework <del>Directive</del><a href="#">Regulations</a>.</p>	<p>Other than the updating of the reference from the Water Framework Directive to Water Framework Regulations (the Regulations derive from the Directive), this paragraph replicates paragraph 5.225 of the adopted NPSNN. The response given previously remains relevant:</p> <p><i>'A Water Framework Directive (WFD) Assessment has been undertaken and is presented in ES Appendix 14.7 [APP-478]. The objective of the WFD Assessment is to establish the nature and anticipated magnitude of the impacts of the Project on the WFD quality elements of relevant surface water and groundwater bodies and any dependent designated sites. The assessment has concluded that there would be no deterioration of biological quality, hydromorphology, physicochemical or specific pollutant supporting elements at the surface water body scale, at which WFD compliance is judged. In addition, the Project would not prevent the future attainment of the WFD objectives for each of the respective water bodies, nor pose barriers to implementing future measures described in the River Basin Management Plans to achieve these objectives.'</i></p>
5.258	<p>The Secretary of State should be satisfied that a proposal has had regard to the River Basin Management Plans and the requirements of the Water Framework <del>Directive (including Article 4.7) and its daughter directives, including those on priority substances and groundwater</del><a href="#">Regulations</a>. The specific objectives for particular river basins are set out in River Basin Management Plans. In terms of Water Framework <del>Directive</del><a href="#">Regulations</a> compliance, the overall aim of projects should be <del>no deterioration of ecological status in watercourses, ensuring that Article 4.7 to meet the environmental objectives</del></p>	<p>Other than in terms of the updating of the reference to the Water Framework Directive to Regulations and updating of the relevant article/regulation reference, this paragraph reflects the provisions of paragraph 5.226 of the adopted NPSNN. The response given previously remains relevant:</p> <p><i>'A Water Framework Directive (WFD) Assessment has been prepared and is provided in ES Appendix 14.7 [APP-478]. Appropriate design and mitigation measures have been incorporated into the Project to facilitate WFD compliance.'</i></p>

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	<p><a href="#">under regulation 13 and to avoiding derogation by use of regulation 19</a> of the Water Framework Directive Regulations <del>does not need to be applied</del>. The Secretary of State should also consider the interactions of the proposed project with other plans such as Water Resources Management Plans, Shoreline <del>or</del> Estuary Management Plans and Marine Plans.</p>	<p><i>These are described in Section 14.5 of ES Chapter 14: Road Drainage and the Water Environment [APP-152].</i></p> <p><i>The Thames River Basin Management Plan (RBMP) (Department for Environment, Food and Rural Affairs and Environment Agency, 2018), along with the 2021 consultation draft update to the Thames RBMP have been considered through the ES. The WFD Assessment has concluded that the Project would not pose barriers to implementing future measures described in the River Basin Management Plan.'</i></p>
5.259	<p>The Secretary of State should consider <del>proposals put forward by the applicant to mitigate adverse effects on the water environment and</del> whether appropriate requirements should be attached to any development consent and/or planning obligations. <del>If</del> to mitigate adverse effects on the water environment. <a href="#">This should involve discussions with</a> the Environment Agency <del>continues to have concerns and objects to the grant of development consent on the grounds of impacts on water quality/resources, the Secretary of State can grant consent, but will need to be satisfied before deciding whether or not to do so that all reasonable steps have been taken by the applicant and the Environment Agency to try to resolve the concerns, and that the Environment Agency is satisfied with the outcome..</del></p>	<p>This paragraph reflects the wording of the first half of paragraph 5.227 of the existing NPSNN. The response given previously to that paragraph remains relevant:</p> <p><i>'Early engagement has been undertaken with the Environment Agency on a range of issues, including the water features survey, hydrogeological monitoring, WFD assessment, surface water discharge, dewatering and contaminated land along with consent requirements. Consultation has also been undertaken with the water supply companies along with Natural England and the North Kent Marshes Internal Drainage Board. Accompanied site visits with the Environment Agency have also been undertaken as part of the engagement process. An assessment of the impacts of the Project on these resources is reported in ES Chapter 14: Road Drainage and the Water Environment [APP-152] and ES Addendum [Document Reference 9.8 (9)]. Section 14.3 sets out the scope of assessment and methodology while Section 14.4 describes the water environment baseline.'</i></p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
<b>Impact on Transport Networks</b>		
5.260	<a href="#"><u>This section covers two factors: the impact of construction on local networks whilst the scheme is being developed, and the impact of the scheme on wider transport networks once it is operational.</u></a>	Introductory remarks – no response necessary.
5.261	<a href="#"><u>Government is committed to sustainable development through facilitating a modal shift to active travel and public transport, and reducing transport emissions including through delivering the infrastructure needed to support a transition to alternative fuels including electric vehicles. The impact of construction traffic on local networks needs to be minimised, the distance travelled by construction and goods vehicles needs to be reduced, and developments need to be accessible by various modes of transport.</u></a>	
5.262	Applicants should consult the relevant highway authority, <a href="#"><u>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.</u></a>	This paragraph is more detailed but reflects the principles of paragraph 5.204 of the adopted NPSNN. The response to that paragraph remains relevant: <i>‘Volume 5 of the Consultation Report [APP-068] provides details of the informal engagement that has taken place, including that with the relevant highway and local authorities and how the comments received have been taken into account in developing the Project.’</i> In terms of alignment with local plans and transport plans, an assessment of that alignment is presented in Planning Statement Appendix C: Local Authority Policy Review [Document Reference 7.2 Appendix C (2)].
5.263	<a href="#"><u>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.</u></a>	See responses to paragraphs 5.264 and 5.265 below.

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
5.264	<p><u>Applicants should seek to offer an integrated transport outcome, significantly considering opportunities to support 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</u></p>	<p>This paragraph reflects the sentiment of the first half of paragraph 5.205 of the adopted NPSNN though reframes this with greater emphasis on sustainable modes, vulnerable and non-motorised users. The response given previously remains relevant as it already addresses the matters introduced in this new text:</p> <p><i>‘ES Chapter 13: Population and Human Health [APP-151] and ES Addendum [Document Reference 9.8 (9)] sets out how the Project has considered walkers, cyclists and horse riders (WCH). This includes an assessment of existing routes and networks to understand user needs which has been used to inform the Project design. Additionally, Chapter 5 of the Need for the Project [APP-494] considers the benefits of the Project to WCH, stating that consideration has been given in the Project’s development to repairing existing Public Rights of Way (PRoW) severance, in addition to maintaining, and where practicable, improving existing access. The design proposals have incorporated the provision of new routes for WCH (as referred to in the response to paragraph 5.184 above) and which have been designed to improve access to the existing network, increase access for all users (including those with limited mobility) while considering and mitigating potential impacts from misuse and anti-social behaviour through good design.’</i></p> <p>The response also refers to the Applicant’s response to paragraph 3.17 of the adopted NPSNN which notes:</p> <p><i>‘The Project has considered the needs of pedestrians and cyclists in the design and has identified opportunities to</i></p>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<p><i>improve or enhance facilities for walkers, cyclists and horse riders (WCH). The needs of these users have been considered during both construction and operational phases of the Project and appropriate mitigation measures identified. ES Chapter 13: Population and Human Health [APP-151] and ES Addendum [Document Reference 9.8 (9)].</i></p> <p><i>outlines the provision of opportunities for WCH, which are designed to improve access to the existing network for all users (including those with limited mobility). The Project would include comprehensive new or improved provision of PRoW and cycleways as follows (see also paragraph 7.12.15 of the Transport Assessment [REP4-148, REP4-150 and REP4-152]):</i></p> <ul style="list-style-type: none"> <li>• Existing – Diverted <ul style="list-style-type: none"> <li>– 3.45km of footpath diverted</li> <li>– 2.14km bridleway diverted</li> </ul> </li> <li>• Existing – Improved <ul style="list-style-type: none"> <li>– 0.48km of improved Byway</li> <li>– 3.02m of improved bridleway</li> <li>– 1.5km of improved footpaths</li> <li>– 4.08km of improved pedestrian-cycle path</li> </ul> </li> <li>• Existing – Designation upgrades <ul style="list-style-type: none"> <li>– 10.69km of footpaths upgraded to bridleway</li> <li>– 0.87km of footpaths upgraded to pedestrian-cycle path</li> </ul> </li> <li>• New - 3.2km of new footpath <ul style="list-style-type: none"> <li>– 15.95km of new bridleway</li> <li>– 7.2km of new pedestrian-cycle path</li> <li>– 5.6km of new pedestrian-cycle-equestrian path</li> </ul> </li> </ul>



dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<ul style="list-style-type: none"> <li>– 4.5km of new permissive footpath</li> <li>– 1.4km of new permissive bridleway</li> <li>– 0.95km of new permissive pedestrian-cycle path</li> </ul> <p><i>In response to the severance issues raised by the Project, the needs of WCH are being met in a number of ways, including the creation of green bridges at Thong Lane, Brewers Road, North Road, Muckingford Road, Rectory Road and Green Lane. All severed Public Rights of Way (PRoWs), bridleways and cycle routes are to be re-linked across the Project unless better quality routes can be provided in the vicinity, the route can be rationalised to better link communities, or realigned to provide better connectivity into the existing WCH network. The provisions summarised above demonstrate that the potential impacts on cyclists and pedestrians arising from the Project have been addressed and that where practicable, enhanced provisions have been made.'</i></p>
5.265	<p><a href="#"><u>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.</u></a></p>	<p>A Project response on the matter of severance is given to paragraph 3.22 of the adopted NPSNN. That response remains relevant:</p> <p><i>'ES Chapter 13: Population and Human Health [APP-151] and ES Addendum [Document Reference 9.8 (9)] assesses the severance effects of the Project during construction and operation based on the findings of the HEqIA [REP7-144] where relevant and describes the mitigation measures proposed. The severance assessments during construction and operation consider the potential separation of residents from services they may use within their community as a result of changes in the provision of transport infrastructure or changes in traffic flows arising from the Project.</i></p>

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		<p><i>ES Chapter 13: Population and Human Health [APP-151] and ES Addendum [Document Reference 9.8 (9)] identifies properties that would be temporarily affected by changes to access as a result of construction of the Project. The Project would ensure access to these properties is maintained at all times, as secured in the oTMPfC [Document Reference 7.5 (7)]. HGV movements would also be restricted along a number of local roads and construction compounds would be located away from PRowS, National Trails and cycle routes where feasible to avoid severance during construction. In addition, landscaping has been used to reduce the visual impact of construction compounds for users of PRowS and neighbouring land uses. This is secured through the Design Principles [Document Reference 7.5 (7)].</i></p> <p><i>As a result of these measures, the Health and Equalities Impact Assessment [REP7-144] concludes there would be a neutral effect on the health of the general population resulting from severance during construction and any adverse effect on the health of sensitive populations as a result of severance during construction would not be significant. A wide range of improvements are proposed as part of the Project design, improving connectivity, filling missing links in the PRow network and enhancing the safety of routes through the provision of shared pedestrian-cycle tracks along key routes. These are secured through Requirement 3 (detailed design) of the Schedule 2 (requirements) of the dDCO [Document Reference 3.1 (11)] which requires the Project is carried out in accordance with the General Arrangement Plans [Document Reference 2.5 Volume A (5), Volume B (5), Volume C (6)] and Design Principles [Document Reference 7.5 (7)].</i></p>

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		<p><i>The Project would not create new severance between communities to the west and east of the alignment and opportunities for walking and cycling is enhanced through the provision of green bridges and footbridges at appropriate locations. The response to paragraph 3.17 above provides a list of proposed WCH routes. Historic severance created as a result of the construction of the M25 is mitigated through the creation of new pedestrian and cycle links. In many instances, the quality of routes is improved, making it more attractive for people to walk and cycle, with associated health benefits. All minor roads crossed by the Project would be reconnected, with the exception of Hornsby Lane which would be permanently closed to vehicular traffic and WCH use. In this instance, the Project proposes a diversion route via the Heath Road footpath, and east along Stanford Road shared surface. As a result of these measures, the Health and Equalities Impact Assessment [REP7-144] concludes that there would be no significant harmful long term severance impacts as a result of the Project.'</i></p>
5.266	<p>For road and rail developments, <a href="#">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.</a></p>	<p>This is a new paragraph in the revised NPSNN. The Applicant has undertaken a full assessment of the transport impacts of the Project as presented in the Transport Assessment (TA) [REP4-148, REP4-150 and REP4-152]. In terms of engagement with local highway and planning authorities this is summarised in Section 4.7: Technical Engagement of the TA [REP4-148, REP4-150 and REP4-152]. Further detail is provided in Chapters 4 and 11 of the Consultation Report which set out the full range of issues, including those concerning traffic forecasts and impacts, raised by respondents to the Statutory Consultation and how the Applicant has considered and had due regard to each</p>

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		<p>response (paragraph 4.6.7 of the TA [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>].</p> <p>In response to the Examining Authority’s consideration of wider network impacts at the examination hearings, specifically ExA Actions Points 3, 5 &amp; 6 arising from Issue Specific Hearing 10, the Applicant’s Deadline 6 submission 9.134 Wider Network Impacts Position Paper [<a href="#">REP6-092</a>] supplements the WNIMMP in respect of potential wider network impacts at four specified locations raised by Interested Parties. These locations being the Blue Bell Hill corridor, the A13 corridor, the A2/M2 corridor and the Asda roundabout.</p>
5.267	<p><a href="#">For Strategic Rail Freight Interchanges, the applicant’s assessment should include an assessment of the transport impacts on other networks as part of the application.</a></p>	<p>These paragraphs relate to strategic rail freight interchanges. No response is necessary.</p>
5.268	<p>If a project is likely to have significant transport impacts it should include a Transport Assessment, using the <a href="#">Transport Appraisal Guidance methodology</a> stipulated in Department for Transport guidance, or any successor to such methodology.</p>	
5.269	<p><a href="#">The applicant should also prepare a travel plan outlining management measures to mitigate transport impacts. A successful travel plan and mitigation strategy will understand the needs of pedestrians, cycling and vulnerable users. Audits should be undertaken to understand their movements and establish any barriers and opportunities to improve this environment. This includes detailing the accessibility of the development by active travel modes, such as the provision of safe and secure cycle parking and associated facilities, creating high quality pedestrian environments including through public realm improvements, enhancing modal interchanges to create an integrated transport system and access via public transport</a></p>	

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	<p><a href="#">such as bus stops within close proximity of the development. Mitigating measures should also look to reduce the need for any parking associated with the proposal, ensure the infrastructure needed to support the transition to alternative fuels including electric vehicles are in place during construction and ahead of operation, and to mitigate transport impacts.</a></p>	
5.270	<p><a href="#">For Strategic Rail Freight Interchanges, schemes impacting on the SRN during construction and operation, applicants should have regard to Department for Transport Circular 02/2013, the SRN and the delivery of sustainable development (or relevant update to this document).</a></p>	
5.271	<p>If new transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding <a href="#">by government for any third-party benefits. The government</a> cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time, and cannot provide financial support to a scheme that solely mitigates the impacts of a specific development. Any decisions on co-funded transport infrastructure will need to be taken in the context of the <a href="#">government’s wider policy of transport improvements.</a></p>	
5.272	<p>Mitigation measures for schemes should be proportionate and reasonable, focussed on <a href="#">facilitating journeys by active travel, public transport, and cleaner fuels.</a></p>	<p>This paragraph reflects paragraph 5.215 of the adopted NPSNN albeit with the additions of references to active travel and cleaner fuels in place of ‘promoting sustainable transport’ in the adopted NPSNN. The focus identified for mitigation – i.e. consequences other than traffic impacts, is notable.</p> <p>The response given previously to that paragraph remains relevant.</p> <p><i>‘Mitigation is addressed in a number of places. Mitigation is embedded into the design of the Project and the route selection process as set out in the Project Design Report</i></p>

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		<p>[<a href="#">APP-506</a> to <a href="#">APP-515</a>] and Design Principles [Document Reference 7.5 (7)]. Measures to be taken to mitigate transport impacts during the construction and operation of the Project are set out in the Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] with specific measures contained in the Appendices to the TA including the following:</p> <ul style="list-style-type: none"> <li>• Wider Network Impacts Management and Monitoring Plan [Document Reference 7.12 (2)]</li> <li>• Framework Construction Travel Plan [Document Reference 7.13 (6)]</li> <li>• Outline Traffic Management Plan for Construction [Document Reference 7.14 (9)]</li> </ul> <p>Mitigation measures identified in these documents are committed through the CoCP [Document Reference 6.3 ES Appendix 2.2 (9)] which is secured (along with specific mitigation measures) through requirements 1, 4, 10, 11 and 14 contained in Part 1 to Schedule to the dDCO [Document Reference 3.1 (11)].</p> <p>In terms of active travel, Section 7.12 of the Transport Assessment [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>] sets out the impacts of the Project on walkers, cyclists and horse riders and the extensive suite of measures proposed to mitigate and compensate for these impacts. Further information on these impacts and mitigation is provided in Section 7.5 of the Health and Equalities Impact Assessment [<a href="#">REP7-144</a>].</p> <p>In terms of cleaner fuels these are addressed in Planning Statement Appendix I: Carbon Strategy and Policy Alignment [<a href="#">REP7-138</a>] and the Carbon and Energy Management Plan [Document Reference 7.19 (4)].</p>

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5.273	Where development would worsen accessibility, <a href="#">there is a strong expectation that such impacts should be mitigated.</a> <a href="#">Where impacts cannot be mitigated, the applicant is required to provide reasoning as to why impacts cannot be mitigated.</a>	See response to paragraph 5.272 above.
5.274	<a href="#">The applicant should provide evidence that the development improves the operation of the network and assists with capacity issues.</a>	Evidence is provided in the Need for the Project [ <a href="#">APP-494</a> ] (see in particular Section 4.2: Transport Need) and also the TA [ <a href="#">REP4-148</a> , <a href="#">REP4-150</a> and <a href="#">REP4-152</a> ] (see in particular Section 7.9: Resilience and Reliability).
5.275	Mitigation measures may relate to the design, lay-out or operation of the <a href="#">scheme, or any support or funding to the immediate surrounding area of the scheme.</a>	Statement of fact and no direct response necessary, although please see response to paragraph 5.280 below.
5.276	<a href="#">For Strategic Rail Freight Interchanges,</a> travel planning should be undertaken for all major developments which generate significant amounts of transport movement. There may be circumstances where the implementation of travel plan measures alone would not be sufficient to reduce the traffic demand of a project to acceptable levels. In such instances, the applicant should <a href="#">align with the agreements made with relevant highway authority, local planning authority, and Great British Railways Transition Team, as appropriate, as outlined in paragraphs 4.76 to 4.87.</a>	This paragraph is related to strategic rail freight interchange development.
5.277	<a href="#">The Examining Authority and the Secretary of State should give due consideration to impacts on local transport networks and policies set out in existing and emerging local plans and Local Transport Plans, during both construction and operation.</a>	This paragraph broadly reflects the sentiment of paragraph 5.211 of the adopted NPSNN. The response given previously remains relevant as Appendix C to the Planning Statement includes analysis of existing and emerging local plans and transport plans as relevant: <i>'Impacts on local transport networks are identified and addressed in the TA [<a href="#">REP4-148</a>, <a href="#">REP4-150</a> and <a href="#">REP4-152</a>]. Local plan policy is addressed in Chapter 7: Other matters of potential relevance and importance [<b>Document Reference 7.2 (2)</b>] and Appendix C: Local Authority Policy Review</i>

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		<p><b>[Document Reference 7.2 Appendix C (2)]</b> of the <i>Planning Statement.</i>'</p> <p>The application takes full account of the impacts of the development – notably this is not a requirement that all impacts must be mitigated.</p>
5.278	<p><a href="#"><u>Consideration should also be given to whether the applicant has maximised opportunities to allow for journeys associated with the development to be undertaken via sustainable modes.</u></a></p>	<p>This is a new paragraph in the draft revised NPSNN. Overall the embedded mitigation and provision for WCH and better journey times and greater reliability for buses means that the Project has maximised opportunities to allow for journeys associated with the development to be undertaken via sustainable modes.</p> <p>Opportunities for journeys by sustainable modes are considered in a number of places in the DCO application. Section 7.11 of the TA <a href="#"><u>REP4-148</u></a>, <a href="#"><u>REP4-150</u></a> and <a href="#"><u>REP4-152</u></a> sets out the impacts of the Project on public transport. Section 7.12 sets out the impacts on WCH and the improvements proposed to the WCH network (paragraph 7.12.15).</p> <p>Section 3.6 of ES Chapter 3: Assessment of Reasonable Alternatives <a href="#"><u>APP-141</u></a> and ES Addendum <b>[Document Reference 9.8 (9)]</b> deals with strategic alternatives to the Project and includes an assessment of the consideration other modes might play in any plans for new capacity, as does Section 5.3 of Chapter 5: Project Evolution and Alternatives of the Planning Statement <b>[Document Reference 7.2 (2)]</b>.</p> <p>The Framework Construction Travel Plan <b>[Document Reference 7.13 (6)]</b> seeks to minimise adverse local disruption or traffic impacts on the highway network from worker and visitor travel to and from construction worksites, compounds and Utility Logistics Hubs by reducing the number of single-occupancy vehicle trips and encouraging the uptake of sustainable and active modes of travel.</p>



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5.279	<p><a href="#"><u>Schemes should be developed, and options considered, in the light of relevant policies and plans, both national and local, taking into account local models where appropriate.</u></a></p>	<p>A full and detailed assessment of the Project’s accordance with National Policy is set out in Chapter 6: National Policy – Project-wide Assessment [<b>Document Reference 7.2 (2)</b>] and Appendix A of the Planning Statement [<b>Document Reference 7.2 Appendix A (2)</b>].</p> <p>Alignment with local policy, in so far as this is relevant to the consideration of the Project is addressed in Section 7.11: Development Plan Policy of Chapter 7: Other Matters of Potential Importance and Relevance, of the Planning Statement [<b>Document Reference 7.2 (2)</b>] and Appendix C: Local Authority Policy Review [<b>Document Reference 7.2 Appendix C (2)</b>] of the Planning Statement.</p>
5.280	<p><a href="#"><u>Where a development negatively impacts on surrounding transport infrastructure including connecting transport networks, the Secretary of State should ensure that the applicant has taken reasonable steps to mitigate these impacts. This could include the applicant increasing the project’s scope to avoid impacts on surrounding transport infrastructure and providing resilience on the wider network. In particular, this should recognise the importance of providing adequate lorry parking facilities, taking into account any local shortages, to reduce the risk of parking in locations that lack proper facilities or could cause a nuisance. The applicant may increase the project’s scope to avoid impacts on the surrounding transport infrastructure and improve network resilience.</u></a> Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should expect applicants to accept requirements and/or obligations to <a href="#"><u>fund infrastructure or mitigate adverse impacts on transport networks.</u></a></p>	<p>This paragraph reflects the sentiment of paragraphs 5.215 of the adopted NPSNN as addressed in the response to paragraph 2.272 of the draft NPSNN above. The response given previously to that paragraph remains relevant and demonstrates that the Applicant has taken reasonable steps to mitigate the impacts of the Project including in terms of improving network resilience.</p> <p><i>‘Mitigation is addressed in a number of places. Mitigation is embedded into the design of the Project and the route selection process as set out in the Project Design Report [APP-506 to APP-515] and Design Principles [Document Reference 7.5 (7)]. Measures to be taken to mitigate transport impacts during the construction and operation of the Project are set out in the Transport Assessment [REP4-148, REP4-150 and REP4-152] with specific measures contained in the Appendices to the TA including the following:</i></p> <ul style="list-style-type: none"> <li>• <i>Wider Network Impacts Management and Monitoring Plan [Document Reference 7.12 (2)]</i></li> </ul>

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
		<ul style="list-style-type: none"> <li>• <i>Framework Construction Travel Plan</i> [Document Reference 7.13 (6)]</li> <li>• <i>Outline Traffic Management Plan for Construction</i> [Document Reference 7.14 (9)]</li> </ul> <p><i>Mitigation measures identified in these documents are committed through the CoCP [Document Reference 6.3 ES Appendix 2.2 (9)] which is secured (along with specific mitigation measures) through requirements 1, 4, 10, 11 and 14 contained in Part 1 to Schedule to the dDCO [Document Reference 3.1 (11)]’.</i></p> <p>The Transport Assessment and, in particular, Appendix F [APP-535] identifies, takes account of and explains how the application has considered the relevant tests for the mitigation of impacts. There is no draft policy requirement to mitigate all impacts – impacts are to be mitigated to acceptable levels. Appenix F demonstrates compliance with that policy test.</p> <p>It is also material that the Wider Network Impacts Management and Monitoring Plan [Document Reference 7.12 (2)] sets out the Applicant’s approach to the monitoring of impacts of the Project on the wider road network in order to assist the process of working with local highways authorities in a collaborative manner on the development of their plans, effective management of the strategic road network and management of the interfaces between the SRN and the local road network in their areas. It proposes a traffic impact monitoring scheme, secured through Requirement 14 of Schedule 2 of the draft DCO [Document Reference 3.1 (11)] to facilitate future decisions about funding improvements to the strategic and local road network.</p>

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		<p>If the monitoring identifies issues or opportunities on the wider road network because of traffic growth or new third-party developments, then highways authorities would be able to use this as evidence to support scheme development and case making through existing funding mechanisms and processes. The Applicant will continue to work with local highway authorities and others in a collaborative manner to align national and local plans and investments, balance national and local needs and support better end-to-end journeys for road users (paragraph 5.19 of Highways England: Licence<sup>47</sup>).</p> <p>The Applicant has also undertaken further assessment of localised impacts which were submitted to the Examination at Deadline 3 (see <a href="#">[REP3-126]</a> to <a href="#">[REP3-132]</a>) and further assessments are ongoing.</p> <p>In response to the Examining Authority’s consideration of wider network impacts at the examination hearings, specifically ExA Actions Points 3, 5 &amp; 6 arising from Issue Specific Hearing 10, the Applicant’s Deadline 6 submission 9.134 Wider Network Impacts Position Paper <a href="#">[REP6-092]</a> supplements the WNIMMP in respect of potential wider network impacts at four specified locations raised by Interested Parties. These locations being the Blue Bell Hill corridor, the A13 corridor, the A2/M2 corridor and the Asda roundabout.</p> <p>Accordingly the Applicant considers that proportionate and reasonable steps have been taken to mitigate impacts on the transport network.</p>

<sup>47</sup>DfT (2015). Highways England: Licence. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/431389/strategic-highways-licence.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/431389/strategic-highways-licence.pdf)

dNPSNN paragraph number	Requirement of the draft NPSNN	Compliance with the draft National Policy Statement
5.281	<p>Provided that the applicant is willing to commit to transport planning obligations and <u>to mitigate transport impacts identified in the Transport Appraisal Guidance Transport Assessment</u> (including environment and social impacts), with attribution of costs calculated in accordance with the Department's guidance, then development consent should not be withheld. <u>Where residual effects on the surrounding transport infrastructure remain, appropriately limited weight should be given.</u></p>	<p>Other than in respect of an updated reference to the TA guidance (underlined) this paragraph is the same as paragraph 5.214 of the adopted NPSNN.</p> <p>The Applicant's approach to mitigating the transport impacts of the Project is set out above. Where the NPS test of necessity for Requirements is met, such Requirements would clearly be appropriate. However, it is important that the policy test is correctly applied.</p> <p>Appropriate weight has been given to the residual effects of the Project.</p>

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