

A47 North Tuddenham to Easton Dualling

Scheme Number: TR010038

Volume 6

6.1 Environmental Statement **Chapter 4 – Environmental assessment** **methodology**

APFP Regulation 5(2)(a)

Planning Act 2008

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

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Infrastructure Planning

Planning Act 2008

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

The A47 North Tuddenham to Easton
Development Consent Order 202[x]

**ENVIRONMENTAL STATEMENT CHAPTER 4
ENVIRONMENTAL ASSESSMENT METHODOLOGY**

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4. Environmental assessment methodology

4.1. Environmental Scoping

- 4.1.1. The purpose of the scoping process is to determine which environmental topics should be included in the environmental impact assessment (EIA) process, the level of detail to which they should be assessed and to set out the proposed methodology to be presented within the Environmental Statement (ES).
- 4.1.2. The EIA Scoping Report (**TR010038/APP/6.5**) was produced for the Proposed Scheme and submitted to the Planning Inspectorate on 23 September 2019.
- 4.1.3. The EIA Scoping Report considered the environmental topics as per Regulation 5(2) of the Infrastructure Planning (EIA) Regulations 2017:
- a) Population and human health
 - b) Biodiversity
 - c) Land, soil, water, air and climate
 - d) Material assets, cultural heritage and the landscape
 - e) The interaction between the factors referred to in sub-paragraphs (a) to (d)
- 4.1.4. The assessment for each of these factors was covered in one or more ES chapters of the EIA Scoping Report (**TR010038/APP/6.5**) as identified below.
- 4.1.5. The structure of the report and topics used were written in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11 and The Planning Inspectorate Advice Note 7.
- 4.1.6. The EIA Scoping Report (**TR010038/APP/6.5**) and subsequent EIA Scoping Opinion (**TR010038/APP/6.6**) identified the need to scope the following topics into the EIA:
- Air quality
 - Cultural heritage
 - Landscape and visual effects
 - Biodiversity
 - Geology and soils
 - Material assets and waste
 - Noise and vibration
 - People and communities (now referred to as population and human health)
 - Road drainage and the water environment

- Climate
- Combined and cumulative effects

4.1.7. The exact scope is detailed in the EIA Scoping Report (**TR010038/APP/6.5**), available here:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/TR010038/TR010038-000028-TUDD%20-%20Scoping%20Report.pdf>

4.1.8. The EIA Scoping Report (**TR010038/APP/6.5**) was submitted to the Planning Inspectorate in order to request a Scoping Opinion (**TR010038/APP/6.6**). The EIA Scoping Report was issued to consultees by the Planning Inspectorate. The responses from these consultees have formed the Scoping Opinion received from the Planning Inspectorate on 01 November 2019. The Scoping Opinion is the official response from the Planning Inspectorate, giving comment on the proposed approach detailed in the EIA Scoping Report (**TR010038/APP/6.5**). A copy of the Scoping Opinion (**TR010038/APP/6.6**) can be access via the following link:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/TR010038/TR010038-000032-TUDD%20-%20Scoping%20Opinion.pdf>

4.1.9. The DMRB environmental and sustainability guidance was updated and published in 2019 and 2020. Where updates to guidance have changed scope compared to that stated in the 2019 Scoping Report, consultation has been undertaken with the Planning Inspectorate and relevant environmental bodies. There have been no changes to the description of the Proposed Scheme since the Scoping Opinion was adopted, therefore it is not necessary to seek a review of the Scoping Opinion. Changes to the DMRB is detailed in individual environmental chapters of this ES and responses to the Scoping Opinion are recorded in Appendix 4.1 (Scoping Opinion responses) (**TR010038/APP/6.3**).

Major accidents and disasters

4.1.10. Regulation 5 (4) of the Infrastructure Planning (EIA) Regulations 2017 require an assessment of '*the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned*'.

4.1.11. For the Proposed Scheme, a separate chapter assessing the potential impacts of major accidents and disasters during the construction and operation phase is not required for the following reasons:

- The Proposed Scheme is not considered to have high vulnerability to major accidents or disasters. Whilst the legislation is not explicit, the language of the revised Infrastructure Planning Regulations 2017 is aimed towards hazardous industries or operations (those with a ‘high vulnerability’ to major accidents).
- The design, construction and operation of the Proposed Scheme must comply with legal requirements, codes and standards, such as:
 - Health and Safety at Work etc. Act 1974 (HSWA)
 - The Management of Health and Safety at Work Regulations (1999) o Construction (Design and Management) (CDM) 2015 Regulations
 - The Workplace (Health, Safety and Welfare) Regulations 1992
 - Design Manual for Roads and Bridges (DMRB)

4.1.12. The term major accidents and disasters refers to events both within and external to the Proposed Scheme that have the potential to cause significant harm to the environment (including but not limited to populations, biodiversity, land, soil, water, air, material assets and cultural heritage).

Heat and radiation

4.1.13. Regulation 4 (1) (d) of the Infrastructure Planning (EIA) Regulations 2017 require “*an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases*”. Due to the nature of the Proposed Scheme being a highways scheme and location of the scheme within a rural setting, it is considered unlikely that heat and radiation effects associated with the proposals are likely to arise. This recommendation was accepted as part of the Scoping Opinion (**TR010038/APP/6.6**).

Transboundary effects

4.1.14. Regulation 32 of the EIA Regulations 2017 requires the Secretary of State to consider any likely significant effects on the environment of a European Economic Association (EEA) State. Transboundary effects have been scoped out of this ES, as none of the impact pathways reach other EEA member states.

4.2. Surveys and predictive techniques and methods

4.2.1. The principal guidance documents used to assess and report environmental effects in this ES are contained in DMRB Sustainability and Environment. The methodologies used for the assessments for individual topics in this ES are based on those set out in the EIA Scoping Report (**TR010038/APP/6.5**), Scoping Opinion (**TR010038/APP/6.6**), the Preliminary Environmental Information Report

(PEIR) for the Proposed Scheme (2020), and discussions with relevant consultees.

- 4.2.2. In undertaking the EIA, the Applicant has applied the key principles, topics, approaches and criteria set out in these documents; however, where appropriate these have been supplemented using latest guidance and professional judgement. Individual environmental chapters provide further detail where appropriate, on surveys and methods.
- 4.2.3. The data gathering work undertaken for the environmental assessment is provided in the individual environmental chapters where there is further detail where appropriate, on consultation, surveys and methods.

Updates to guidance

- 4.2.4. The DMRB has been updated since the completion of key documents in the EIA process, in particular the Scoping Report and Scoping Opinion. These documents shape the scope of the environmental assessments reported in this ES.
- 4.2.5. Where changes in the guidance required a change in approach as detailed in the Scoping Opinion, the relevant environmental bodies have been consulted and the approach agreed.
- 4.2.6. This is reported in each of the individual topic chapters of this ES.

Key Stages of EIA Consultation

- 4.2.7. This section describes specifically the environmental consultation that has been undertaken with relevant consultation bodies during the development of the Proposed Scheme design in advance of the DCO application submission. Details of the wider consultation undertaken as part of the scheme is contained within the Consultation Report (**TR010038/APP/5.1**), including details on consultation with statutory stakeholders identified in the Planning Act 2008, as well as non-statutory stakeholders.
- 4.2.8. The Applicant has engaged with the following environmental bodies during the Proposed Scheme development:
- Environment Agency
 - Natural England
 - Historic England
 - Norfolk County Council

- 4.2.9. A summary of the topic specific consultation is outlined in the respective topic chapters where relevant.

Non-Statutory Consultation

- 4.2.10. The Applicant has conducted a period of non-statutory consultation on route options for the Proposed Scheme. It took place from Monday 13 March 2017 to Friday 21 April 2017.
- 4.2.11. The purpose of the non-statutory consultation was to seek views on the outline proposals and route options for the Proposed Scheme from the general public and statutory consultees, including local authorities and other interested bodies. It was stated by the Applicant that comments received as a result of the consultation process will be considered.
- 4.2.12. The Applicant has prepared a Consultation Report following the 2017 consultation, detailing how people, stakeholders and interested bodies were consulted and the feedback received. This report can be accessed via the following link:

https://highwaysengland.citizenspace.com/he/a47-north-tuddenham-to-easton-dualling/results/a47-tuddenham-cons-report_final_080817.pdf

EIA Scoping Report

- 4.2.13. The EIA Scoping Report (**TR010038/APP/6.5**) sets out the scope for this Environmental Statement (ES) and shapes the assessment in each of the environmental topic chapters. The Scoping Opinion is the official response from the Planning Inspectorate, giving comment on the proposed approach detailed in the Scoping Report.
- 4.2.14. The EIA Scoping Report was submitted to the Planning Inspectorate in September 2019. The Planning Inspectorate subsequently issued the scoping report to statutory consultees, with a deadline to respond with comments. The resulting Scoping Opinion from the Planning Inspectorate with consultee responses was received by the Applicant in November 2019 (**TR010038/APP/6.6**), a copy of which can also be accessed via the following link:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/TR010038/TR010038-000032-TUDD%20-%20Scoping%20Opinion.pdf>

- 4.2.15. Responses received from statutory consultation and the Scoping Opinion (**TR010038/APP/6.6**) were taken into consideration and incorporated into the design and assessment process, where appropriate.

Preliminary environmental information report (PEIR)

- 4.2.16. The PEIR was produced in February 2020 to inform the public, landowners, prescribed bodies and other stakeholders about the ongoing EIA work and the preliminary information on the environmental impacts of the development proposals.
- 4.2.17. The PEIR was used as a basis to inform stakeholders during the nine week statutory consultation period (26 February to 30 April 2020), including public exhibitions and engagement with environmental bodies.
- 4.2.18. Further detail on the consultation and responses are detailed in the Consultation Report accompanying the DCO application (**TR010038/APP/5.1**) and referenced within the individual topic chapters of this ES where appropriate.
- 4.2.19. The PEIR is available to view on the Proposed Scheme's website:

https://highwaysengland.citizenspace.com/he/a47-north-tuddenham-to-easton-february/supporting_documents/A47%20North%20Tuddenham%20to%20Easton%20%20Preliminary%20Environmental%20Information%20Report%20PEIR.pdf

Statutory consultation

- 4.2.20. An extensive stakeholder mapping exercise was undertaken to identify relevant stakeholders and their key interests. This list was used to inform the participants of a nine week statutory public consultation, which was held between 26 February and 30 April 2020 and included public information exhibition events held on the 27 and 28 February, 2, 3, 4 and 7 March 2020. The consultation provided an additional 22 days to give feedback to the Applicant due to the COVID-19 pandemic and associated lockdown measures.
- 4.2.21. The purpose of the consultation was to provide an opportunity to comment on the updated proposals for the Scheme, ahead of the Applicant submitting an application to the Planning Inspectorate for a Development Consent Order (DCO). On conclusion of the statutory consultation period, a consultation report was produced (**TR010038/APP/5.1**).
- 4.2.22. The Applicant delivered the consultation under Section 42 of the PA 2008 in parallel with consultation under Section 47 and Section 48 of the PA 2008. All consultation materials made available under Section 47 of the PA 2008 were also available to Section 42 consultees.

Targeted engagement

- 4.2.23. On 7 December 2020, the Applicant issued a letter with a project update brochure to local residents, businesses in the consultation zone and section 42 consultees. This was to provide an update on the Proposed Scheme and set out the changes made by the Applicant to its design since the statutory consultation in early 2020. The update can be accessed via the following link:

<https://assets.highwaysengland.co.uk/roads/road-projects/A47+North+Tuddenham+to+Easton/A47+North+Tuddenham+to+Easton+Project+Update+Winter+2020.pdf>

4.3. General assessment assumptions and limitations

- 4.3.1. This ES considers the potential impacts of the Proposed Scheme as described in Chapter 2 (The Proposed Scheme) (TR010038/APP/6.1), that could result in likely significant effects.
- 4.3.2. Potential impacts and their effects cannot be predicted with absolute certainty. Predictions are limited by the quality and certainty of information available and the accuracy of predictive techniques employed. The assessments presented in the ES therefore indicate the likely magnitude of impacts and the significance of effects rather than providing precise predictions of effects.
- 4.3.3. Individual environmental chapters provide further detail where appropriate, including limitations and assumptions. The extent to which these limitations and assumptions are likely to affect the assessment outcome is also outlined in the individual environmental chapters.

4.4. Baseline and assessment scenarios

- 4.4.1. To identify the effects of the Proposed Scheme on the environment, it is important to understand the baseline conditions prior to the construction of the Proposed Scheme. However, the baseline used for the measurement of environmental effects considers the situation as would exist immediately before the implementation of the Proposed Scheme. This 'future baseline' scenario considers changes which are certain to occur before the implementation of the Proposed Scheme, and entirely independent of the Proposed Scheme.

Traffic assessment scenarios

- 4.4.2. For assessment purposes, the future baseline without the Proposed Scheme is referred to as the 'Do-Minimum' (DM) scenario. The 'Do-Something' (DS) scenario is the future baseline with the Proposed Scheme included. Therefore,

the potential environmental effects are predicted by identifying the differences in effects between the DS scenario and the DM scenario.

- 4.4.3. Seven transport assessment scenarios have been considered as part of the EIA for the Air quality, Noise and vibration, Population and human health, Road drainage and the water environment and Climate chapters.
- 4.4.4. The core traffic model scenario, as outlined in the Case for the Scheme (TR010038/APP/7.1), considers scenarios where the Norwich Western Link (NWL) road is open and operational. To ensure a worst case assessment has been assessed for the ES, a traffic modelling scenario without the NWL road has been considered for the air quality ad noise and vibration assessment.
- 4.4.5. Table 4.1 outlines the scenarios considered for the respective traffic model dependent assessments. The air quality and noise assessment undertook the modelling with the no NWL scenario to provide a worst case assessment outcome. Further detail is provided in the respective chapters.

Table 4.1: Traffic modelling scenarios

Assessment Scenario	Scenario Description	Traffic model scenarios used		
		Air quality and Noise and vibration assessment	Population and human health, Road drainage and the water environment and Climate assessment	Cumulative Assessment (Chapter 15)
Baseline	Environmental baseline as defined by surveys of the existing environment and existing data (2015 for traffic data and 2018 -2020 for non-traffic related data)			
Construction (DM)	Baseline adapted to predict future baseline in 2019 without the Proposed Scheme	<ul style="list-style-type: none"> • Norwich Western Link (NWL) Road not included • Honingham Lane open 	<ul style="list-style-type: none"> • NWL included • Honingham Lane open 	
Construction (DS)	Baseline in 2019 with the Proposed Scheme	<ul style="list-style-type: none"> • NWL not included • Honingham Lane closed 		
Operational (DM) opening year	Baseline adapted to predict future baseline in 2025 without the Proposed Scheme	<ul style="list-style-type: none"> • NWL not included • Honingham Lane open 		
Operational (DS) opening year	Baseline in 2025 with the Proposed Scheme	<ul style="list-style-type: none"> • NWL not included • Honingham Lane closed 		

Assessment Scenario	Scenario Description	Traffic model scenarios used		
		Air quality and Noise and vibration assessment	Population and human health, Road drainage and the water environment and Climate assessment	Cumulative Assessment (Chapter 15)
Operational (DM) design year	Baseline adapted to predict future baseline in 2040 without the Proposed Scheme	<ul style="list-style-type: none"> NWL not included Honingham Lane open 		
Operational (DS) design year	Baseline in 2040 with the Proposed Scheme	<ul style="list-style-type: none"> NWL not included Honingham Lane closed 		

4.5. Significance criteria

- 4.5.1. The environmental assessment reports the likely significance of environmental effects using established significance criteria, as presented within DMRB LA 104 Environmental assessment and monitoring. This requires an assessment of the receptor or resource’s environmental value (or sensitivity) and the magnitude of change (impacts).
- 4.5.2. The DMRB states that the approach to assigning significance of effect relies on reasoned argument, professional judgement and taking on board the advice and views of appropriate organisations. For some individual topic chapters, predicted effects may be compared with quantitative thresholds and scales in determining significance.
- 4.5.3. Assigning each effect to one of the five significance categories enables different topic issues to have consistent terminology in their conclusions, to assist the decision-making process. These five significance categories are set out in Table 4.2.

Table 4.2: Description of the significance of effect categories

Significance category	Typical description
Very large	Effects at this level are material in the decision-making process.
Large	Effects at this level are likely to be material in the decision-making process.
Moderate	Effects at this level can be considered to be material decision-making factors.
Slight	Effects at this level are not material in the decision-making process.

Significance category	Typical description
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Source: DMRB LA 104 Environmental Assessment and Monitoring (Revision 1), Table 3.7

- 4.5.4. The environmental value will be identified for each of the individual topics that have been carried forward from the scoping exercise for further environmental assessment, along with the magnitude of change. In this way, the potential significance of environmental effects will be determined for each relevant environmental topic. Five significance categories can result from the assessment, as defined in Table 4.3.
- 4.5.5. It is important to note that significance categories are required for positive (beneficial) as well as negative (adverse) effects. The greater the magnitude of impact on a receptor, the more significant the effect. For example, the consequences of a highly valued environmental resource suffering a major detrimental impact would be a significant adverse effect.
- 4.5.6. Where the table allows for more than one significance, for example Slight or Moderate, the assessment will report the worst case scenario. Where worst case scenario is not appropriate in the assessment, justification on the approach will be provided.
- 4.5.7. Effects that are identified as Moderate or above (beneficial or adverse) will be considered significant.

Table 4.3: Assessing significance of potential effects

	Magnitude of potential impact (degree of change)					
	No change	Negligible	Minor	Moderate	Major	
Very high	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large	
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large	
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large	
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate	
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight	

Source: DMRB LA 104 Environmental Assessment and Monitoring, Table 3.8.1

4.5.8. As per the DMRB standard, Chapter 5 (Air quality), Chapter 11 (Noise and vibration) and Chapter 14 (Climate) (**TR010038/APP/6.1**) do not explicitly follow this general approach to determine the significance of effects, due to the nature of the topics and their methodologies. The criteria used to determine the significance of effects are outlined in the individual environmental chapters.

Mitigation measures and enhancement

4.5.9. Mitigation measures fall into three broad categories:

- Mitigation in the strict sense: these are measures taken to avoid or reduce negative effects. Measures may include locating the development and its working areas and access routes away from areas of high environmental sensitivity, fencing off sensitive areas during the construction period, or timing works to avoid sensitive periods. Mitigation measures associated with construction are in the Environmental Management Plan (EMP) (**TR010038/APP/7.4**). Embedded mitigation measures are outlined in Chapter 2 (The Proposed Scheme) (**TR010038/APP/6.1**).
- Compensation: the use of replacement areas to make up for the loss of, or permanent damage to resources. Any replacement area should be similar to, with appropriate management and have the ability to reproduce the functions and conditions of those resources that have been lost or damaged. Compensation may also be in the form of a financial payment.
- Offsetting: the provision of a benefit that is related to the effect but is not a like-for-like replacement of the feature to be lost.

4.5.10. Priority has been given to the avoidance of effects at source, whether through amending the design of the Proposed Scheme or by regulating the timing or location of activities. Where it has not been possible to avoid significant negative effects, opportunities have been sought to reduce the effects, ideally to the point where they are no longer significant through mitigation measures. Where this has not been possible, opportunities for compensation have been explored, as detailed in the environmental chapters of this ES.

4.5.11. Each individual topic chapter provides a description of enhancement measures that have been considered as part of this Proposed Scheme and have been assessed as part of the EIA (where practicable).

4.5.12. The assessment of residual effects will take into account the effectiveness of the mitigation measures proposed in the individual topic chapters.

Implementation and enforcement of mitigation

4.5.13. Mitigation would be secured by way of requirement in the DCO including that the Proposed Scheme is undertaken in accordance with the EMP (**TR010038/APP/7.4**), which includes detailed provision on mitigation of

construction impacts and specific mitigation obligations in key topic areas such as landscaping, drainage and contaminated land.

- 4.5.14. The DCO places a legal responsibility on the designers and construction contractors to comply with the DCO requirements. Discharge of these requirements would be consent from the Secretary of State, generally following consultation with relevant planning or environmental authority.

4.6. Duplication of assessment

- 4.6.1. This ES has been prepared with reference to environmental assessments that have been carried out, or are ongoing, for nearby developments. In this way, duplication of assessment or survey effort has been avoided and consistency of approach, unless scheme-specific factors determine otherwise, can be assured.
- 4.6.2. Chapter 15 (Cumulative effect assessment) (**TR010038/APP/6.1**) provides further information on the assessment approach.