

# A303 Amesbury to Berwick Down

TR010025

## Deadline 1

A response to Dr Shuttleworth's request for confirmation of validation of Highways England's data and approach

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

April 2019



# 1 A response to Dr Shuttleworth's request for confirmation of validation of Highways England's data and approach

## 1.1 Introduction

- 1.1.1 This Technical Note has been drafted in response to a request from the Examining Authority which was raised during the Preliminary Meeting. The request was to provide a table which describes the models used in the Environmental Statement (ES) and to confirm if they have been validated pursuant to Office of National Statistics (ONS) requirements.
- 1.1.2 The Aqua Book<sup>1</sup> sets out the government's guidance on producing quality analysis. This is interpreted and applied by different departments and governmental organisations appropriately for their distinct activities. The ONS interpretation is not therefore directly relevant to assessing the quality of evidence presented for environmental appraisal; in parallel to the ONS, different government departments have procedures to ensure the suitability and veracity of evidence. The National Policy Statement for National Networks (NPSNN) in paragraphs 4.5 to 4.7, for example, refers to the use of WebTAG used by the Department for Transport (DfT) schemes.
- 1.1.3 The Table below provides a response to the point made for each of the relevant technical disciplines.

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<sup>1</sup> Aqua Book:

([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/416478/aqua\\_book\\_final\\_web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/416478/aqua_book_final_web.pdf))

Topic	Models Used	Relevant Guidance	Ref [App Number]	Stakeholders Liaised With	Validation method
Operational Traffic Noise and Vibration	DoT, Welsh Office (1988), Calculation of Road Traffic Noise (CRTN), as implemented in industry standard noise modelling software and as mandated in para 5.191 of the NPSNN.	Highways Agency (2011), Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 7, HD 213/11 Revision 1.	APP-047	Wiltshire Council. As detailed in the SoCG with Wiltshire Council, to be submitted to the Examination in due course, the methodology and outcomes of the assessment have been agreed with Wiltshire Council and their external peer review team.	UK industry standard methodology, guidance and software adopted. Baseline traffic noise levels verified against baseline noise monitoring.
Construction Noise and Vibration	British Standards Institution (2014), BS 5228:2009 + A1:2014 Code of Practice for noise and vibration control on construction and open sites, as implemented in industry standard noise modelling software as mandated in para 5.191 of the NPSNN.	Highways Agency (2011), Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 7, HD 213/11 Revision 1.	APP-047	Wiltshire Council. As detailed in the SoCG the methodology has been agreed and the results discussed with Wiltshire Council and their external peer review team.	UK industry standard methodology, guidance and software adopted.
Traffic modelling	'A303 Stonehenge SWRTM (DCO)'	Department for Transport's (DfT) Web-based Transport Analysis Guidance (WebTAG) (Various Units), as anticipated by paras 4.6-4.7 of the	APP-297; APP-298; APP-299; APP-300; APP-301; APP-302.	DfT have reviewed the evidence in considering the business case for the scheme; The Transport Planning Group (TPG)	The traffic model and its various inputs have been validated to guidance given, principally, in the Department for Transport's Web-

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		NPSNN.		are the division responsible within Highways England to review and assure the technical quality of traffic modelling. The TPG have independently reviewed and approved the work undertaken; Wiltshire Council (as per the Statement of Common Ground to be submitted to the Examination in due course) have reviewed and agreed that the modelling approach and outputs are suitable for assessment of the scheme impacts.	based Transport Analysis Guidance (WebTAG). Supplementary guidance has also been followed where relevant. This includes Highways England's guidance on the Regional Traffic Models (RTMs). DfT produced and validated software and datasets have also been used in production of the traffic model and economic impacts appraisal, including: NTEM, Dynamic Integrated Assignment and Demand Model (DIADEM), Transport User Benefits Appraisal (TUBA) and Costs and Benefits to Accidents – Light Touch (COBA-LT).
Traffic Modelling	VISSIM Operational Model	Department for Transport's (DfT) Web-based Transport Analysis Guidance (WebTAG) (Various Units) as anticipated	APP-300	Highways England Transport Planning Group (TPG) have independently reviewed and approved this model.	The traffic model and its various inputs have been validated to guidance given, principally, in the Department for

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		by paras 4.6-4.7 of the NPSNN.		Wiltshire Council have reviewed and agreed that the modelling approach and outputs are suitable for assessment of the scheme impacts (as expressed in the statement of common ground to be submitted to the Examination in due course).	Transport's Web-based Transport Analysis Guidance (WebTAG). Supplementary guidance has also been followed where relevant. Independent review by Highways England, and by Wiltshire Council. Following review Wiltshire Council are using the model for their own planning purposes.
Road Drainage and the Water Environment	Highways England Water Risk Assessment Tool (HEWRAT) Version 2.0.3.	Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 10 HD45 – Road Drainage and the Water Environment.	APP-279	HEWRAT is the standard UK tool used in all major road schemes to assess any risk of pollution impacts upon water quality and aquatic ecology. It was jointly developed by Highways England and the Environment Agency. The HEWRAT methodology is based on the Design Manual for Roads and Bridges (DMRB)	UK industry standard tool. Inputs were validated to guidance provided in HAWRAT (now renamed HEWRAT) v2.0 User Guide (November 2016).

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				Volume 11, Section 3, Part 10 HD45 – Road Drainage and the Water Environment with additional enhancements to reflect current best practice in use since the DMRB’s publication. Further explanation is outlined in the ES section 11.3.3 [APP-049].]	
Groundwater	Wessex Basin groundwater model with local refinements	Widely accepted code MODFLOW. Model developed on behalf of the EA and Wessex Water by the consultants Amec (now Wood) with peer review by Mott MacDonald with validation against flow and water levels.	APP-282 (Annex 1)	Environment Agency and Wiltshire Council accept the Wessex Basin model as a starting point with more detailed validation in the area of interest. The approach and validation was discussed and agreed at monthly technical calls and meetings.	Range of climate from 1976 drought to 2014 floods. Validation against local flows and levels. Sensitivity testing using local pumping test data and climate change.
Fluvial flood risk	Flood Modeller Pro (ISIS) – TUFLOW (coupled model)	R&D Technical Report W5-105/TR0 Benchmarking of hydraulic river modelling software packages – Project	APP-049 APP-283	Environment Agency	UK industry standard methodology, guidance and software adopted. Validation undertaken against known and recent

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		overview June 2004			events where information has been made available. Validation is demonstrated in ES Appendix 11.5 Flood Risk Assessment [App-283].
Pluvial flood risk	ESTRY-TUFLOW	SC120002 – 2D Benchmarking – Evaluating the Latest Generation of Hydraulic Models for FCRM Purposes.	APP-049 APP-283	Wiltshire Council	UK industry standard methodology, guidance and software adopted. A range of validation techniques were undertaken to this small-scale localised model as demonstrated in ES Appendix 11.5 Flood Risk Assessment [App-283].
Operational and Construction Traffic Air Quality	Cambridge Environmental Research Consultants (CERC) Atmospheric Dispersion Modelling System for Roads (ADMS-Roads).	Highways Agency (2007), Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 1, HA 207/07.	APP-043	Wiltshire Council. As detailed in the SoCG with Wiltshire Council, to be submitted to the Examination in due course, the methodology and outcomes of the assessment have been agreed with Wiltshire Council and their external peer review team.	UK industry standard methodology, guidance and software adopted. Software validated by CERC. Baseline air quality verified locally against baseline air quality monitoring, as demonstrated in ES Appendix 5.2 Air Quality Methodology [APP-191], Section

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					3.7.



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