

A303 Amesbury to Berwick Down

TR010025

6.3 Environmental Statement Appendices

Appendix 9.3 Noise Modelling

APFP Regulation 5(2)(a)

Planning Act 2008

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

October 2018



1 Data Sources

- OS mastermap, OS addressbase and OS building heights: provided by AmW GIS Team 13/9/17.
- Existing topographic survey: file 'A303 Full Topo 120418.dwg' provided by AmW Solutions Team 12/4/18.
- Existing wider area ground heights: 'UpdatedContours_2m.shp' provided by AmW GIS Team 16/5/18.
- 3D Scheme design: file 'HE551506-AMW-HGN-SW_GN_000_Z-M3-CH-0191.dxf' provided by AmW Solutions Team 26/6/18. Adapted by noise team to relocate/extend green bridge 4.
- Round 2 Important Areas: downloaded from data.gov.uk website 13/8/15.
- Area of Detailed Modelling Do-Minimum and Do-Something Traffic data: file 'A303_Speed_Pivoting DCO AoDM 2026 v1.1.xlsx' and 'A303_Speed_Pivoting DCO AoDM 2041 v1.1.xlsx' provided by AmW Traffic Team 27/4/18 with updates 4/5/18 for a single link and 13/7/18 for the Do-Minimum busy period.
- Strategic Do-Minimum and Do-Something Traffic data: file 'A303_Speed_Pivoting DCO Strategic 2026 v1.5.1 vals.xlsx' and 'A303_Speed_Pivoting DCO Strategic 2041 v1.5.1 vals.xlsx' provided by AmW Traffic Team 25/7/18.
- Construction Traffic data: file 'A303_Speed_Pivoting DCO AoDM Construction Traffic v1.1.xlsx' provided by AmW Traffic Team 18/6/18 and additional links provided 09/08/18, and file 'A303_Speed_Pivoting DCO Strategic Construction Traffic v1.7.1 vals.xlsx' provided by AmW Traffic Team 25/7/18.
- Table 1-1 details of the octave band sound power level data assumed for the fans inside the tunnel and the plant at the service building at each portal, as provided by the AmW Solutions Team.

Table 1-1 Plant sound power level data

Plant	Details	Octave band sound power level dB							
		63	125	250	500	1000	2000	4000	8000
TUNNEL FAN	FLAKT WOODS 125JMTS/50/4/9/31/S/1.5DN	93	100	107	99	99	97	92	90
SUMP ROOM VENT INLET	FAN CODE 45JMv/16/4/6/19	71	70	68	69	75	68	61	55
SUMP ROOM VENT OUTLET	FAN CODE 45JMv/16/4/6/19	71	70	68	69	75	68	61	55
AHU VENT INLET	AHU 01-02	77	70	74	78	71	69	61	59
AHU VENT OUTLET	AHU 01-02	86	86	80	75	73	71	63	54
AHU CONDENSOR	CUR092V29-VCO-0	81	85	80	86	84	75	66	60
BATTERY ROOM VENT OUTLET	BIFA251225	73	74	82	75	73	70	67	64
BATTERY ROOM CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
UPS ROOM CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
LV SWITCHROOM RM10 CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
LV SWITCHROOM RM9 CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
HV ROOM	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41

CONDENSOR									
COMMS ROOM CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
CONTROL ROOM CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
RADIO ROOM CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41
MESS ROOM CONDENSOR	mitsubishi PUMY-P200YKM	63	61	61	58	57	52	49	41

2 Modelling Assumptions

- Ground absorption: 1.0 for vegetated areas, 0.0 for road surfaces industrial areas and water bodies, 0.25 for suburban areas.
- Building heights for residential buildings standardized to 3m: 1 storey 6m: 2 storey, 9m: 3 storey etc. based on initial information from OS building heights. Non-residential buildings used height direct from OS mapping. Some adjustments required to estimate missing heights using e.g. google streetview.
- Road surfacing corrections:
 - Standard HRA speed <75 km/hr -1 dB, speed ≥75 km/hr -0.5 dB;
 - New thin surfacing speed <75 km/hr -1 dB, speed ≥75 km/hr -3.5 dB.
- 10 m x 10 m grid used to produce noise change contour plots at height of 4 m above ground.
- Table 2-1 details the absorption co-efficient assumed for the entrance/exit of the tunnel and green bridge 4. This is based on typical tunnel sound absorbing treatment contained within the noise modelling software.

Table 2-1 Absorption co-efficient assumed for the entrance/exit of the tunnel and green bridge 4

Frequency range (Hz) absorption co-efficient			
<160	160-400	500-1600	>1600
0.15	0.50	0.80	0.65

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Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ
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