

M3 Junction 9 Improvement

Scheme Number: TR010055

6.3 Environmental Statement Appendix 11.1 - Construction Activities in Noise and Vibration Assessment

APFP Regulation 5(2)(a)

Planning Act 2008

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

Volume 6

November 2022

Infrastructure Planning

Planning Act 2008

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

M3 Junction 9 Improvement
Development Consent Order 202[x]

6.3 ENVIRONMENTAL STATEMENT - APPENDIX 11.1: CONSTRUCTION ACTIVITIES IN NOISE AND VIBRATION ASSESSMENT

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference:	TR010055
Application Document Reference:	6.3
BIM Document Reference:	HE551511-VFK-ENV-X_XXXX_XX-RP-LE-0002
Author:	M3 Junction 9 Improvement Project Team, National Highways

Version	Date	Status of Version
Rev 0	November 2022	Application Submission

Contents

Appendix 11.1 – Construction Activities in Noise and Vibration Assessment ... 3

Tables

Activity A - Vegetation Clearance and Compound Establishment	3
Activity B - Compound Operation	3
Activity C – Utilities	4
Activity D - Gantry Removal.....	4
Activity E - Earthworks.....	5
Activity F - Laying Asphalt / Road Restraint System.....	5
Activity G - Laying Kerbs	7
Activity H - Borehole Piling	8
Activity I - Reinforced Concrete Works	9
Activity J - Sheet Piling	10
Activity K - Bridge Installation	10
Activity L - Gyratory Demolition	11
Activity M - Traffic Management	12

Appendix 11.1 – Construction Activities in Noise and Vibration Assessment

Activity A - Vegetation Clearance and Compound Establishment

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Tracked excavator	102	22 t	BS 5228-1:2009 Table C.2:3	78	1	10	50%
Dumper ж	60	6 t	BS 5228-1:2009 Table C.4:6	79	1	10	50%
Roller (rolling fill) ж	145	18 t	BS 5228-1:2009 Table C.2:37	79	1	10	50%
Chainsaw	-	-	BS 5228-1:2009 Table D2:14	86	1	10	50%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity B - Compound Operation

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Generator	-	-	BS 5228-1:2009 Table C4:84	74	1	10	100%

Activity C – Utilities

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Tracked excavator	102	22 t	BS 5228-1:2009 Table C.2:3	78	1	10	50%
Dumper ж	60	6 t	BS 5228-1:2009 Table C.4:6	79	1	10	50%
Diesel generator	6.5	—	BS 5228-1:2009+A1:2014 Table C.4:76	61	1	10	100%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity D - Gantry Removal

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Mobile telescopic crane	280	100 t	BS 5228-1:2009+A1:2014 Table C.4:41	71	1	10	100%

Activity E - Earthworks

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Road roller ж	95	22 t	BS 5228-1:2009+A1:2014 Table C.5:19	80	4	10	50%
Tracked excavator	172	35 t	BS 5228-1:2009+A1:2014 Table C.5:18	80	4	10	50%
Dumper ж	81	7 t	BS 5228-1:2009+A1:2014 Table C.4:3	76	4	10	50%
Lorry ж	160	18 t	BS 5228-1:2009+A1:2014 Table C.11:20	83	4	10	50%
Road sweeper	70	—	BS 5228-1:2009+A1:2014 Table C.4:90	76	1	10	50%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity F - Laying Asphalt / Road Restraint System

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Road planer	185	17 t	BS 5228-1:2009+A1:2014 Table C.5:7	82	2	10	50%
Asphalt paver (+ tipper lorry)	112	12 t hopper	BS 5228-1:2009+A1:2014 Table C.5:30	75	2	10	50%
Road roller ж	95	22 t	BS 5228-1:2009+A1:2014 Table C.5:19	80	2	10	50%

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Road sweeper	70	—	BS 5228-1:2009+A1:2014 Table C.4:90	76	1	10	50%
Lorry ж	160	18 t	BS 5228-1:2009+A1:2014 Table C.11:20	83	5	10	50%
Generator	4	18 kg	BS 5228-1:2009+A1:2014 Table C.4:85	66	1	10	50%
Hiab lorry	240	105 t	C4.53	77	1	10	50%
Bobcat and auger	-	-	C3.16	79	1	10	50%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity G - Laying Kerbs

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Tracked excavator	172	35 t	BS 5228-1:2009+A1:2014 Table C.5:18	80	1	10	50%
Telescopic handler	60	10 t	BS 5228-1:2009+A1:2014 Table C.2:35	71	1	10	50%
Concrete mixer truck	—	—	BS 5228-1:2009+A1:2014 Table C.4:20	80	1	10	50%
Road sweeper	70	—	BS 5228-1:2009+A1:2014 Table C.4:90	76	1	10	50%
Hand-held circular saw (petrol)	3	300 mm diameter / 9.2 kg	BS 5228-1:2009+A1:2014 Table C.5:36	87	1	10	50%
Backhoe mounted hydraulic breaker	67	—	BS 5228-1:2009+A1:2014 Table C.5:1	88	1	10	50%
Core drill (electric)	—	250 mm diameter bit	BS 5228-1:2009+A1:2014 Table C.4:69	85	1	10	50%

Activity H - Borehole Piling

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Large rotary bored piling rig	—	110 t / 20 m deep / 1.2 m diameter	BS 5228-1:2009+A1:2014 Table C.3:14	83	1	10	100%
Road roller ж	95	22 t	BS 5228-1:2009+A1:2014 Table C.5:19	80	1	10	100%
Tracked excavator	172	35 t	BS 5228-1:2009+A1:2014 Table C.5:18	80	1	10	100%
Dumper ж	81	7 t	BS 5228-1:2009+A1:2014 Table C.4:3	76	1	10	100%
Lorry ж	160	18 t	BS 5228-1:2009+A1:2014 Table C.11:20	83	1	10	100%
Road sweeper	70	—	BS 5228-1:2009+A1:2014 Table C.4:90	76	1	10	100%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity I - Reinforced Concrete Works

Equipment	Source Data				Calculation Assumptions		
	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Tracked excavator	172	35 t	BS 5228-1:2009+A1:2014 Table C.5:18	80	1	10	100%
Mobile telescopic crane	280	100 t	BS 5228-1:2009+A1:2014 Table C.4:41	71	2	10	100%
Concrete mixer truck	—	—	BS 5228-1:2009+A1:2014 Table C.4:20	80	1	10	100%
Telescopic handler	60	10 t	BS 5228-1:2009+A1:2014 Table C.2:35	71	1	10	100%
Diesel generator	6.5	—	BS 5228-1:2009+A1:2014 Table C.4:76	61	1	10	100%

Activity J - Sheet Piling

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Mobile telescopic crane	280	100 t	BS 5228-1:2009+A1:2014 Table C.4:41	71	1	10	100%
Vibratory piling rig	—	52 t / 14 m length / soft clay	BS 5228-1:2009+A1:2014 Table C.3:8	88	1	10	100%

Activity K - Bridge Installation

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Tracked excavator	172	35 t	BS 5228-1:2009+A1:2014 Table C.5:18	80	1	10	100%
Wheeled mobile telescopic crane	610	400 t	BS 5228-1:2009+A1:2014 Table C.4:38	78	1	10	100%
Mobile telescopic crane	280	100 t	BS 5228-1:2009+A1:2014 Table C.4:41	71	2	10	100%
Telescopic handler	60	10 t	BS 5228-1:2009+A1:2014 Table C.2:35	71	1	10	100%
Lorry ж	160	18 t	BS 5228-1:2009+A1:2014 Table C.11:20	83	4	10	50%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity L - Gyrotory Demolition

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Hand-held circular saw (petrol)	3	300 mm diameter / 9.2 kg	BS 5228-1:2009+A1:2014 Table C.5:36	87	1	10	100%
Tracked excavator	172	35 t	BS 5228-1:2009+A1:2014 Table C.5:18	80	1	10	100%
Mobile telescopic crane	280	100 t	BS 5228-1:2009+A1:2014 Table C.4:41	71	2	10	100%
Telescopic handler	60	10 t	BS 5228-1:2009+A1:2014 Table C.2:35	71	1	10	100%
Lorry ж	160	18 t	BS 5228-1:2009+A1:2014 Table C.11:20	83	2	10	100%
Backhoe mounted hydraulic breaker	67	—	BS 5228-1:2009+A1:2014 Table C.5:1	88	1	10	100%
Core drill (electric)	—	250 mm diameter bit	BS 5228-1:2009+A1:2014 Table C.4:69	85	1	10	100%

Ж Drive-by maximum sound pressure level in L_{Amax}

Activity M - Traffic Management

Source Data					Calculation Assumptions		
Equipment	Power Rating kW	Other notes	5228 Ref/Source	L _{Aeq} at 10m	No. Units	Distance (m)	On time %
Hydroblaster	-	-	Manufacturer Data	85	1	10	50%
Lorry ж	160	18 t	BS 5228-1:2009+A1:2014 Table C.11:20	83	1	10	50%

Ж Drive-by maximum sound pressure level in L_{Amax}