Appendix 10C

Operational and construction noise assessment detail, assumptions and limitations

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J1 Construction noise assessment

J1.1 Introduction

This note summarises the results of the outline construction noise assessment of the Global Centre for Rail Excellence. The outline assessment of effects from construction on noise sensitive receptors has been carried out using the ABC method from Annex E of BS 5228-1.[1]

J1.2 Limitations and assumptions

The predicted level of noise from construction depends on the particular items of plant used. At this stage in the programme, a fully detailed schedule of construction equipment is not available. A representative schedule has been prepared by the engineering specialists developing the design, based on their experience. This is considered to be a reasonable, illustrative scenario for the purpose of this assessment.

The following assumptions have been made:

- For each construction stage, the shortest distance to each receptor that is likely to occur was used, as a reasonable worst case.
- All activities associated with each construction stage were assumed to take place simultaneously.
- All ground between the location of each construction stage and the noise sensitive receptors was assumed to be soft (acoustically absorptive).
- There was assumed to be no screening between the converter station and noise sensitive receptors.
- All background noise levels were assumed to be less than 65dB(A), i.e. this would relate to the most sensitive BS 5228 ABC category (category A) for all receptors.
- It was assumed that all works take place during the daytime (07:00 – 19:00 Monday – Friday, 07:00 – 13:00 Saturday).
- Assumed activities for the calculation, alongside the estimated durations and the corresponding equipment are shown in

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
Demolition of existing	4 – 6	Excavator with breaker	1	50	118
		Excavator with pulveriser	1	50	104

[1] BS 5228-1:2009+A1:2014 and BS 5228 Part 2 Code of Practice for Noise and Vibration Control on Open Construction Sites

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
washery site and site establishment		Wheeled mobile crane	1	50	98
		Articulated dump truck	2	20	109
		Tracked crusher	1	50	110
		Tracked excavator	2	50	104
		Handheld pneumatic breaker	1	50	111
		Dozer	1	30	106
		Telehandler	2	80	99
		Vibratory roller	1	30	105
Construction of 12no. warm storage sidings, including track, walkways, shore supply units and lighting	8 – 10	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
Construction of electrical infrastructure – Primary DNO MV intake room and customer MV room. 2no. further substations. Connection to electric network.	6 – 8	Telehandler	2	50	99
		Mobile telescopic crane	1	20	99
		Concrete mixer truck & pump	1	20	103
		Tracked excavator	2	70	104
Internal highways and hardstanding work	2 – 4	Dozer	1	50	106
		Articulated dump truck	2	20	109
		Vibratory roller	1	50	105
		Road planer	1	20	110
		Asphalt paver	1	40	105
		Tracked excavator	2	70	104
		Telehandler	2	80	99
Construction of track system for Infrastructure Test Track, including	4 – 6	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
vehicle access route, fencing and rail access track		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
Neath and Brecon Branch line trackwork	1 – 2	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
OLE installation on test track and onto selected sidings. Discrete activities (foundation works, column erection, boom and registration installation, wiring)	4 – 6	Concrete pump and mixer truck	1	20	103
		Tracked drilling / piling rig	2	50	110
		Wheeled mobile crane	2	50	98
		Tracked excavator	2	50	104
		MEWP RRV	2	50	95
		High output wiring system	2	20	109
		Road rail excavator crane	2	50	106
Construction of rail crossings; 2 no. bridge crossings	9 – 12	Mobile Crane	4	70	99
		Tracked Excavator	2	30	104
		Concrete mixed truck and pump	2	30	103
		Articulated dump truck	2	30	109
		Poker Vibrator	2	30	97
		Rotary Bored piling rig	1	20	111
		Disk Cutter	2	50	108
Additional electrical infrastructure. 3no. substations.	2 – 4	Telehandler	2	50	99
		Mobile telescopic crane	1	20	99
		Concrete mixer truck & pump	1	20	103
		Tracked excavator	2	70	104
Rolling Stock Maintenance	12 – 18	Wheeled excavator	2	50	105
		Lorry with lifting boom	1	10	105

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
Shed construction, including full-internal fit-out		Wheeled mobile crane	2	50	98
		Articulated dump truck	2	50	109
		Concrete pump and mixer truck	2	40	103
		Mobile telescoping crane	2	50	99
		Poker vibrator	2	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	2	80	99
Construction of track system for Rolling Stock Test Track, including vehicle access route, fencing and rail access track. (Assumes single-track loop)	6 – 8	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
OLE installation on test track and on roads connecting to maintenance shed. Discrete activities (foundation works, column erection, boom and registration installation, wiring)	9 – 12	Concrete pump and mixer truck	1	20	103
		Tracked drilling / piling rig	2	50	110
		Wheeled mobile crane	2	50	98
		Tracked excavator	2	50	104
		MEWP RRV	2	50	95
		High output wiring system	2	20	109
		Road rail excavator crane	2	50	106
Construction of carriagewash	4 – 6	Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	40	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
		Tracked excavator	1	80	104
Construction of warm storage sidings, including	8 – 10	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
track, walkways, shore supply units and lighting.		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
Internal highways and hardstanding works	8 – 10	Dozer	1	50	106
		Articulated dump truck	2	20	109
		Vibratory roller	1	50	105
		Road planer	1	20	110
		Asphalt paver	1	40	105
		Tracked excavator	2	70	104
		Telehandler	2	80	99
Construction of rail crossings; 1no. bridge crossings	6 – 9	Mobile Crane	2	70	99
		Tracked Excavator	1	30	104
		Concrete mixed truck and pump	1	30	103
		Articulated dump truck	1	30	109
		Poker Vibrator	1	30	97
		Rotary Bored piling rig	1	20	111
		Disk Cutter	1	50	108
Research & Development Centre construction	2 – 4	Wheeled excavator	1	50	105
		Lorry with lifting boom	1	10	105
		Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	40	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
Station Testing facilities and laboratories	6 – 8	Wheeled excavator	1	50	105
		Lorry with lifting boom	1	10	105
		Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	40	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
Rolling stock decommissioning facility	6 – 8	Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	70	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
		Tracked excavator	1	80	104
Construction of warm storage sidings, including track, walkways, shore supply units and lighting	8 – 10	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99

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Table 1: Assumed construction activities and plant items

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
Demolition of existing washery site and site establishment	4 – 6	Excavator with breaker	1	50	118
		Excavator with pulveriser	1	50	104
		Wheeled mobile crane	1	50	98
		Articulated dump truck	2	20	109
		Tracked crusher	1	50	110
		Tracked excavator	2	50	104
		Handheld pneumatic breaker	1	50	111
		Dozer	1	30	106
		Telehandler	2	80	99
		Vibratory roller	1	30	105
Construction of 12no. warm storage sidings, including track,	8 – 10	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
walkways, shore supply units and lighting		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
Construction of electrical infrastructure – Primary DNO MV intake room and customer MV room. 2no. further substations. Connection to electric network.	6 – 8	Telehandler	2	50	99
		Mobile telescopic crane	1	20	99
		Concrete mixer truck & pump	1	20	103
		Tracked excavator	2	70	104
Internal highways and hardstanding work	2 – 4	Dozer	1	50	106
		Articulated dump truck	2	20	109
		Vibratory roller	1	50	105
		Road planer	1	20	110
		Asphalt paver	1	40	105
		Tracked excavator	2	70	104
		Telehandler	2	80	99
Construction of track system for Infrastructure Test Track, including vehicle access route, fencing and rail access track	4 – 6	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
Neath and Brecon Branch line trackwork	1 – 2	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
OLE installation on test track and onto selected sidings. Discrete activities (foundation works, column erection, boom and registration installation, wiring)	4 – 6	Concrete pump and mixer truck	1	20	103
		Tracked drilling / piling rig	2	50	110
		Wheeled mobile crane	2	50	98
		Tracked excavator	2	50	104
		MEWP RRV	2	50	95
		High output wiring system	2	20	109
		Road rail excavator crane	2	50	106
Construction of rail crossings; 2 no. bridge crossings	9 – 12	Mobile Crane	4	70	99
		Tracked Excavator	2	30	104
		Concrete mixed truck and pump	2	30	103
		Articulated dump truck	2	30	109
		Poker Vibrator	2	30	97
		Rotary Bored piling rig	1	20	111
		Disk Cutter	2	50	108
Additional electrical infrastructure. 3no. substations.	2 – 4	Telehandler	2	50	99
		Mobile telescopic crane	1	20	99
		Concrete mixer truck & pump	1	20	103
		Tracked excavator	2	70	104
Rolling Stock Maintenance Shed construction, including full-internal fit-out	12 – 18	Wheeled excavator	2	50	105
		Lorry with lifting boom	1	10	105
		Wheeled mobile crane	2	50	98
		Articulated dump truck	2	50	109
		Concrete pump and mixer truck	2	40	103
		Mobile telescoping crane	2	50	99
		Poker vibrator	2	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	2	80	99
Construction of track system for Rolling Stock Test Track, including vehicle access	6 – 8	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
route, fencing and rail access track. (Assumes single-track loop)		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
OLE installation on test track and on roads connecting to maintenance shed. Discrete activities (foundation works, column erection, boom and registration installation, wiring)	9 – 12	Concrete pump and mixer truck	1	20	103
		Tracked drilling / piling rig	2	50	110
		Wheeled mobile crane	2	50	98
		Tracked excavator	2	50	104
		MEWP RRV	2	50	95
		High output wiring system	2	20	109
		Road rail excavator crane	2	50	106
Construction of carriagewash	4 – 6	Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	40	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
		Tracked excavator	1	80	104
Construction of warm storage sidings, including track, walkways, shore supply units and lighting.	8 – 10	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99
		Mobile telescopic crane (rail-mounted)	1	50	99
Internal highways and hardstanding works	8 – 10	Dozer	1	50	106
		Articulated dump truck	2	20	109
		Vibratory roller	1	50	105
		Road planer	1	20	110
		Asphalt paver	1	40	105
		Tracked excavator	2	70	104

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
		Telehandler	2	80	99
Construction of rail crossings; 1no. bridge crossings	6 – 9	Mobile Crane	2	70	99
		Tracked Excavator	1	30	104
		Concrete mixed truck and pump	1	30	103
		Articulated dump truck	1	30	109
		Poker Vibrator	1	30	97
		Rotary Bored piling rig	1	20	111
		Disk Cutter	1	50	108
Research & Development Centre construction	2 – 4	Wheeled excavator	1	50	105
		Lorry with lifting boom	1	10	105
		Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	40	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
Station Testing facilities and laboratories	6 – 8	Wheeled excavator	1	50	105
		Lorry with lifting boom	1	10	105
		Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	40	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
Rolling stock decommissioning facility	6 – 8	Articulated dump truck	1	50	109
		Concrete pump and mixer truck	1	70	103
		Mobile telescoping crane	1	50	99
		Poker vibrator	1	20	97
		Rotary bored piling rig	1	20	111
		Telehandler	1	80	99
		Tracked excavator	1	80	104
Construction of warm storage sidings, including track, walkways, shore supply units and lighting	8 – 10	Handheld welder	2	20	101
		Handheld angle grinder	2	20	108
		Tamper	1	20	91
		Hydraulic vibratory compactor	1	20	106
		Articulated dump truck	2	50	109
		Ballast train / hoppers	1	20	108
		Tracked excavator	2	50	104
		Concrete mixer truck & pump	1	20	103
		Telehandler	2	80	99

Construction stage / activity	Estimated Construction Time (months)	Equipment	Number of items	% of day in operation	Lw (dB(A)) per item
		Mobile telescopic crane (rail-mounted)	1	50	99

J1.3 Results

Results for each construction stage are given in

Construction stage / activity	Predicted noise level (dB LAeq) Receptor												
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
Demolition of existing washery site + site establishment	26	32	33	37	40	47	67	39	53	35	35	61	57
Construction of warm storage sidings	21	27	28	32	35	42	52	33	44	30	30	46	41
Construction of electrical infrastructure	15	21	22	27	29	36	47	27	38	24	24	41	36
Internal highways + hardstanding work	19	25	26	30	32	39	46	29	38	27	27	49	46
Construction of track system - infrastructure test track + delta junction	27	35	37	47	49	46	47	43	56	40	41	39	34
Neath and Brecon Branch line trackwork	21	27	28	32	34	40	49	36	53	32	30	40	35
OLE installation	28	36	38	48	50	47	48	43	56	41	42	40	35
Additional electrical infrastructure	15	21	22	26	28	35	49	27	38	24	24	43	36
Rolling stock maintenance shed construction	20	25	27	30	33	39	51	31	40	28	28	52	47
Construction of track system - rolling stock test track	34	54	53	58	55	47	38	43	41	42	55	34	31
OLE installation	35	55	54	59	56	48	39	44	41	43	56	35	32

Construction stage / activity	Predicted noise level (dB LAeq) Receptor												
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
Construction of carriagewash	17	23	24	28	30	36	47	28	37	26	25	51	41
Construction of warm storage sidings	20	26	28	32	34	41	55	32	43	29	29	48	42
R&D centre construction	17	22	23	27	29	34	41	27	34	24	25	48	44
Station testing facilities + laboratories	17	22	23	27	29	34	40	27	34	24	24	47	45
Rolling stock decommissioning facility	18	23	24	28	31	37	47	29	37	26	26	47	40
Construction of warm storage sidings	23	28	29	31	33	37	44	52	57	40	30	37	33

. As is highlighted, the ABC method threshold value is predicted to be exceeded (by 2 dB over the 65dB criterion) at receptor R7 during the demolition of the buildings/structures on the existing washery site. A short-term noise impact is therefore predicted at receptor R7 for this construction stage. For all other receptors and construction stages the noise levels are predicted to be less than the threshold value, with a comfortable margin.

Table 2: Predicted construction noise levels per stage/activity

Construction stage / activity	Predicted noise level (dB LAeq) Receptor												
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
Demolition of existing washery site + site establishment	26	32	33	37	40	47	67	39	53	35	35	61	57
Construction of warm storage sidings	21	27	28	32	35	42	52	33	44	30	30	46	41
Construction of electrical infrastructure	15	21	22	27	29	36	47	27	38	24	24	41	36
Internal highways + hardstanding work	19	25	26	30	32	39	46	29	38	27	27	49	46
Construction of track system - infrastructure test track + delta junction	27	35	37	47	49	46	47	43	56	40	41	39	34

Construction stage / activity	Predicted noise level (dB LAeq) Receptor												
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
Neath and Brecon Branch line trackwork	21	27	28	32	34	40	49	36	53	32	30	40	35
OLE installation	28	36	38	48	50	47	48	43	56	41	42	40	35
Additional electrical infrastructure	15	21	22	26	28	35	49	27	38	24	24	43	36
Rolling stock maintenance shed construction	20	25	27	30	33	39	51	31	40	28	28	52	47
Construction of track system - rolling stock test track	34	54	53	58	55	47	38	43	41	42	55	34	31
OLE installation	35	55	54	59	56	48	39	44	41	43	56	35	32
Construction of carriagewash	17	23	24	28	30	36	47	28	37	26	25	51	41
Construction of warm storage sidings	20	26	28	32	34	41	55	32	43	29	29	48	42
R&D centre construction	17	22	23	27	29	34	41	27	34	24	25	48	44
Station testing facilities + laboratories	17	22	23	27	29	34	40	27	34	24	24	47	45
Rolling stock decommissioning facility	18	23	24	28	31	37	47	29	37	26	26	47	40
Construction of warm storage sidings	23	28	29	31	33	37	44	52	57	40	30	37	33

J2 Operational Noise Assessment

J2.1 Introduction

The main body of the operational noise assessment text is included in the main ES chapter. This appendix gives any details not included in the main text.

J2.2 Calculation methods used

The Calculation of Rail Noise (CRN 1996) methodology was used to predict noise from the test tracks.

For the washery facility, slow moving trains were represented with line sources with source noise levels verified against measured data made at similar facilities. Predictions were made using ISO 9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation.*

J2.3 Assumptions

The assumptions for the assessment are as follows:

Scheme element	Assumption title	Assumption detail	Comments
Rolling Stock test track	Train speeds	110mph except eastern curve where 85mph is assumed	Curvature of the eastern curve limits speeds to 85mph
	Rolling stock Calculation of Rail Noise (CRN) train correction used	8dB	This value is typical of modern electric or diesel trains
	Number of days per week assumed operation (average across a year)	Day: 5 days Evening: 3 days Nights: 2 days	
	Average number of laps per day assumed in calculations	Day: 175 Evening: 35 Night: 50	
	Number of carriages per train assumed	12	
High tonnage infrastructure test track	Train speeds	40mph	
	Rolling stock Calculation of Rail Noise	Locomotives: +15 for loco	

Scheme element	Assumption title	Assumption detail	Comments
	(CRN) train correction used	power; +8 for loco rolling. +8 for wagons	
	Number of days per week assumed operation (average across a year)	Day: 7 days Evening: 3 days Nights: 2 days	
	Average number of laps per day assumed in calculations	Day: 170 Evening: 25 Night: 35	
	Number of carriages per train assumed	40 wagons hauled by 2 locomotives	
Washery facility	Assumptions listed in main chapter		

Washery Facility assumptions are as follows:

Noise source	Activity	Times assumed active	Noise source levels
Slow-moving trains moving about Washery	Electric traction trains moving about the facility	Daytime, evening and – at a reduced intensity - night-time. Details of patterns included in Section 10.6 of the main chapter and shown on Figure 10.5.	Sound power of 87dB(A) assumed per metre of track for slow-moving trains moving at a speed of 5mph
Train Wash	Train wash washing a train	Day (for assessment, assumed active 10% of the time) Not active in the evening. Not active at night-time	Modelled as an industrial building with sound power per square metre of the building 66dB(A) Lw, based on measurements of a train wash at the New Cross gate depot.
Maintenance shed	Maintenance activity noise within the shed breaking out through shed façade	Daytime, evening and night-time	Based on internal reverberant activity noise level of 70dB(A)* and a shed façade sound

			reduction index performance of Rw23 dB(A)
	Maintenance activity noise breaking out through open door	Daytime only	Based on internal reverberant activity noise level of 70dB(A)*
	Air curtain on maintenance shed doors (only active when doors are open)	Daytime only	Based on measurements of air curtain made at New Cross gate depot: 80dB(A) Lp at 1m
Decommissioning apron	Operation of crane and operation of hand-held power tools	Daytime only: sound sources assumed to be active 10% of the time	Sound powers for tracked crane (Lw 91dB(A),table D.6 item 18) and handheld power tool (Lw=108dB(A))**

Table 3: Details of noise sources in the washery assessment

*Measurements from a train maintenance depot at Northam, Southampton measured a reverberant level of 62dB(A) whilst maintenance tasks were being undertaken. This level has been rounded up to the nearest 10dB(A) for the purposes of this assessment.

**Crane sound power taken from BS5228-1 table D.6 item 18; power tools sound power taken as representative of a variety of tools including impact drivers, hammer drills etc from https://www.cdc.gov/niosh/topics/noise/noise_levels.html

Illustrative pictures of washery noise sources

Below are photos taken at similar facilities to show the kind of facilities which are proposed at the Washery.

Train wash

Maintenance shed

A maintenance shed at East London Line depot at New Cross Gate, London

A maintenance shed at East London Line depot at New Cross Gate, London

A maintenance shed at Northam train depot in Southampton

Inside Northam train depot in Southamptonw

Picture showing an air curtain, which acts to limit airflow in or out of the shed at East London Line depot at New Cross Gate, London when the roller-shutter shed door is open. An air curtain is one of the maintenance shed noise sources assumed during the daytime in the assessment.

J3 Traffic noise

Table 3 shows the traffic flow changes predicted as a result of the scheme. No increases of greater than 3dB are identified during either the construction or operational phases.

Table 4: Traffic noise assessment for both construction and operational phases

Link	Description	Direction	Annual Average Weekday Traffic (AAWT) values			Increase in noise levels from roads during construction, dB(A)	Increase in noise levels from roads during operation, dB(A)
			Without scheme, 2022	During construction, 2024	During operation, 2031		
A4067 North	North of A4221/ Junction 1	Northbound	2,207	2,265	2,389	0.2	0.3
		Southbound	2,276	2,334	2,462	0.2	0.3
A4067 South	South of A4221/ Junction 1	Northbound	3,945	3,961	4,188	0.0	0.3
		Southbound	4,100	4,123	4,359	0.0	0.3
A4221	West of Washery Access/ Junction 2	Eastbound	1,940	1,939	2,050	0.1	0.2
		Westbound	2,007	2,012	2,127	0.1	0.3
A4221	East of Washery Access (between junction 2&3)	Eastbound	1,974	1,980	2,078	0.1	0.2
		Westbound	2,008	2,038	2,139	0.2	0.3
A4109	North of Onllwyn/ Junction 4	Northbound	1,011	1,025	1,083	0.1	0.3
		Southbound	980	991	1,047	0.0	0.3
A4109	South of Onllwyn/ Junction 4	Northbound	1,328	1,425	1,502	0.5	0.5
		Southbound	1,331	1,426	1,503	0.5	0.5
Onllwyn Road	West of A4109/ Junction 4	Eastbound	538	626	658	1.2	0.9
		Westbound	504	591	621	1.3	0.9
A4109	North of Glynneath/ West of Junction 5	Eastbound	3,056	3,087	3,248	0.1	0.3
		Westbound	3,061	3,113	3,274	0.2	0.3
A4109	West of A465 (between junction 5&6)	Eastbound	3,436	3,500	3,681	0.1	0.3
		Westbound	3,604	3,683	3,873	0.2	0.3