

## **Appendix 18.8:    Site construction noise assumptions**

# Rail Central - Construction Equipment List Sound Power Levels



Revision	Date	Comment
0	15/02/2017	Data based on equipment listed in BS 5228-1 and manufacturers' data.

Equipment	L <sub>WA</sub> (dB)	Comments and source of data	% On-time	No. off
<b>Top soil stripping</b>				
Tracked blade machine (CAT D6 or similar)	111	LwA 109-111 based on manufacturer's data (Caterpillar medium dozers)	80	1
Medium 360o excavator (20-35 tonnes)	104	LwA 99-104 based on manufacturer's data (Caterpillar medium excavators)	80	1
25 ton all terrain dump trucks	110	LwA 110 based on manufacturer's data (Volvo A25G)	20	4
<b>Cut/Fill (Approx. 200,000m<sup>3</sup> areas)</b>				
Large 360o excavator (36-50 tonnes)	106	LwA 106 based on manufacturer's data (Caterpillar large excavators)	80	1
25 ton all terrain dump trucks	110	LwA 110 based on manufacturer's data (Volvo A25G)	20	6
Tracked blade machine (CAT D6 or similar)	111	LwA 109-111 based on manufacturer's data (Caterpillar medium dozers)	80	1
Soil sheep's foot compactor (roller)	113	LwA 110-113 based on manufacturer's data (Caterpillar 825K soil compactor)	80	1
<b>Cut/Fill (Approx. 665,000m<sup>3</sup> areas)</b>				
Large 360o excavator (36-50 tonnes)	106	LwA 106 based on manufacturer's data (Caterpillar large excavators)	80	2
45 ton all terrain dump trucks	113	LwA 112-113 based on manufacturer's data (Volvo 41-55t articulated dump truck)	20	5
Tracked blade machine (CAT D6 or similar)	111	LwA 109-111 based on manufacturer's data (Caterpillar medium dozers)	80	2
Soil sheep's foot compactor (roller)	113	LwA 110-113 based on manufacturer's data (Caterpillar 825K soil compactor)	80	2
<b>Stabilisation (Approx. 200,000m<sup>3</sup> areas)</b>				
Towed integrated mixer and spreader		Powered by tractor drive train		2
Tractor	108	BS 5228-1 Table C.4 Item 74, 100kW Tractor (towing equipment)	100	2
Powder silo		Not significant source		1
<b>Stabilisation (Approx. 665,000m<sup>3</sup> areas)</b>				
Towed integrated mixer and spreader		Powered by tractor drive train		3
Tractors	108	BS 5228-1 Table C.4 Item 74, 100kW Tractor (towing equipment)	100	3
Powder silo		Not significant source		1
<b>Earthworks supporting equipment</b>				
Tractor	108	BS 5228-1 Table C.4 Item 74, 100kW Tractor (towing equipment), 80dB(A) @ 10m	10	1
Water bowser	109	BS 5228-1 Table C.6 Item 37, Water bowser (discharging), 81dB(A) @ 10m	10	1
Fuel bowser	117	BS 5228-1 Table C.6 Item 36, Diesel bowser, 89dB(A) @ 10m	10	1

Equipment	L <sub>WA</sub> (dB)	Comments and source of data	% On-time	No. off
Grader – haul road maintenance	114	BS 5228-1 Table C.6 Item 31, 205kW Grader, 86dB(A) @ 10m	10	1
<b>Drainage</b>				
360° Excavator (20-30t)	104	LwA 99-104 based on manufacturer's data (Caterpillar medium excavators)	80	1
Dumper 6-30t	110	LwA 110 based on manufacturer's data (Volvo A25G)	20	1
Trench Compactor	104	BS 5228-1 Table C.5 Item 28, 12kW Vibratory roller, 77dB(A) @ 10m	50	1
Pump 2"	90	BS 5228-1 Table C.2 Item 46, 4in Water pump, 62dB(A) @ 10m	100	1
Tractor and trailer – materials distribution	108	BS 5228-1 Table C.4 Item 74, 100kW Tractor (towing equipment), 80dB(A) @ 10m	20	1
<b>On-site highways</b>				
Grader/Dozer final formation trims (GPS-equipped)	111	LwA 109-111 based on manufacturer's data (Caterpillar medium dozers)	80	1
8 Wheel tippers – import dry stone aggregate and paving materials	113	BS 5228-1 Table D.3 Item 112, 75kW Tipper lorry, 85dB(A) @ 10m	20	1
Medium 360° excavator (20-35 tonnes)	104	LwA 99-104 based on manufacturer's data (Caterpillar medium excavators)	80	1
Compactor (roller)	108	LwA 104-108 based on manufacturer's data (Volvo single drum soil compactor 55-110kW)	80	1
Paving machine	107	LwA 107 based on manufacturer's data (Volvo tracked paver 175-200kW)	80	1
Twin drum roller	108	BS 5228-1 Table C.5 Item 19, 95kW Road roller, 80dB(A) @ 10m	80	1
Backhoe	95	BS 5228-1 Table C.4 Item 14, 62kW Wheeled backhoe loader, 67dB(A) @ 10m	80	1
<b>Highways structures</b>				
Rotary/CFA piling rig	104	BS 5228-1 Table C.12 Item 40-44, CFA piling, LwA 98-108 depending on depth, soil type and bore diameter. Average of table data used, LwA 104.	50	1
Sheet piling rig	106	BS 5228-1 Table D.4 Item 13, Hydraulic vibratory driven sheet pile into wet clay	50	1
Crane – less than 100 tonnes support to FRC works	105	BS 5228-1 Table C.4 Item 39, 80t Mobile telescopic crane in operation, 77dB(A) @ 10m. (11dB(A) quieter when idling)	50	1
Crane – 500 tonnes (underpass installation)	99	BS 5228-1 Table C.4 Item 50, 600t Tracked mobile crane in operation, 71dB(A) @ 10m. (5dB(A) quieter when idling)	50	1
Crane – 1000 tonnes (bridge deck install A43)	99	BS 5228-1 Table C.4 Item 50, 600t Tracked mobile crane in operation, 71dB(A) @ 10m. (5dB(A) quieter when idling)	50	1
<b>Buildings</b>				
Rotary/CFA piling rig - foundations	104	BS 5228-1 Table C.12 Item 40-44, CFA piling, LwA 98-108 depending on depth, soil type and bore diameter. Average of table data used, LwA 104.	50	1
Crane – steelwork erection	105	BS 5228-1 Table C.4 Item 39, 80t Mobile telescopic crane in operation, 77dB(A) @ 10m. (11dB(A) quieter when idling)	50	1
Mobile Elevated Work Platforms – cladding	106	BS 5228-1 Table C.4 Item 59, Diesel scissor lift, 78dB(A) @ 10m. (8dB(A) quieter when idling)	20	1
Telehandler	107	BS 5228-1 Table C.4 Item 54, Telescopic handler, 79dB(A) @ 10m.	50	1
<b>Railworks</b>				

Equipment	L <sub>WA</sub> (dB)	Comments and source of data	% On-time	No. off
Tracked blade machine for spreading ballast	<b>111</b>	LwA 109-111 based on manufacturer's data (Caterpillar medium dozers)	80	1
Road-rail excavator	<b>102</b>	LwA 101-102 based on manufacturer's data (Doosan wheeled excavators)	80	1
Rail ballast tamper	-	Ballast tamper attachment fitted to road-rail excavator. Additional noise generated by vibrating tamper not significant compared to excavator.		1
Telehandler	<b>107</b>	BS 5228-1 Table C.4 Item 54, Telescopic handler, 79dB(A) @ 10m.	50	1