Appendix 17.3

Construction Noise Data



1

1

Contents

1 Construction Noise

1.1 Data Tables

Tables

Table 1: Construction Plant Data	1
Table 2: Distances of Receptors to Various Phases of Construction (m)	3
Table 3: Predicted Construction Noise Levels in Each Construction Phase (LAeq, T dB)	3
Table 4: Predicted Total Construction Noise Levels in each Construction Phase ($L_{Aeq,T} dB$)	4



1 Construction Noise

1.1 Data Tables

- 1.1.1 The tables in this section present the detailed assumptions and noise calculation information for the construction noise assessment.
- 1.1.2 Acoustic 'On-Times' have been derived based upon experience, given the definition of the term contained in BS5228-1:2009+A1:2014. The acoustic on-time is the period of time that the equipment is working at full power, or within 3dB of its maximum.

Petrol driven chain saw (sawing timbler)C6.36115111510ClearanceTracked ExcavatorC5.18108411430LoryC2.34108411430UnyC2.34108493302. Compound ConstructionMeeled Backhoe LoaderC2.896196302. Compound ConstructionLoryC2.34108110810102253. Compound OperationDissel GeneratorC2.341081945052108200. DumperC4.910521082010610025OperationDumperC4.9105210820OperationDumperC2.341081108100. CoryC2.34108110820OperationDumperC4.9105210820OperationDumperC4.91051108100. CoryC2.341081108101001. Grave CoryC2.34108110820ProofingTracked ExcavatorC5.681151111301. Stacked ExcavatorC5.181082111302. StarthworksTracked ExcavatorC5.18108211125CoryC2.341082111252111 <t< th=""><th>Phase</th><th>Plant</th><th>BS5228 -1 ref</th><th>LWA dB</th><th>Quantity</th><th>Multiple Plant LWA dB</th><th>%Acoustic on-time</th></t<>	Phase	Plant	BS5228 -1 ref	LWA dB	Quantity	Multiple Plant LWA dB	%Acoustic on-time
Instruction Instruction <thinstruction< th=""> <thinstruction< th=""></thinstruction<></thinstruction<>		Petrol driven chain saw (sawing timber)	C5.36	115	1	115	10
Lony CL.34 108 4 114 30 Wheeled Excavator C4.12 87 4 93 30 2. Compound Construction Wheeled Backhoe Loader C2.8 96 1 96 30 2. Compound Construction Lorry C2.34 108 1 102 25 3. Compound Operation Diesel Generator C4.78 94 1 94 50 2. Compound Operation Umper C4.9 105 2 108 20 Wheeled Backhoe Loader C2.8 96 1 96 30 Lorry C2.34 108 1 108 10 Arstock Proctor (towing trailer) C4.75 107 1 107 25 Post Rammer MD* 113 1 113 10 113 10 113 10 107 5 5. Pre- Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 30	1. Site	Tracked Excavator	C5.18	108	4	114	30
Wheeled Backhoe Loader C2.8 96 1 96 30 2. Compound Construction Lorry C2.34 108 1 108 10 Vibratory Roller C2.39 102 1 102 25 3. Compound Operation Dissel Generator C4.78 94 1 94 50 3. Compound Operation Dumper C4.9 105 2 108 20 Wheeled Backhoe Loader C2.8 96 1 96 30 Lorry C2.34 108 1 108 10 A. Stock Post Rammer MD* 113 1 113 20 Post Rammer MD* 113 1 113 20 5 Proofing Hand-held circular saw C5.36 115 1 115 10 Nail Gun MD* 120 1 120 5 5 5 7 Tracked Excavator C5.18 108 2 111	Clearance	Lorry	C2.34	108	4	114	30
2. Compound Construction Lorry C2.34 108 1 108 10 Vibratory Roller C2.34 108 1 102 25 A. Compound Operation Disel Generator C4.78 94 1 94 50 Jumper C4.9 105 2 108 20 Wheeled Backhoe Loader C2.34 108 1 108 10 Lorry C2.34 108 1 108 20 Wheeled Backhoe Loader C2.34 108 1 108 10 Lorry C2.34 108 1 108 10 Lorry C2.34 108 1 108 10 Lorry C2.34 108 1 108 10 Artory C2.34 108 1 107 25 Post Rammer MD* 113 1 113 1 120 5 S. Pre-Earthworks General Tracked Excavator C5.18		Wheeled Excavator	C4.12	87	4	93	30
Construction Lory L2.34 108 1 108 10 Vibratory Roller C2.39 102 1 102 25 A. Compound Operation Diesel Generator C4.78 94 1 94 50 Jumper C4.9 105 2 108 20 Wheeled Backhoe Loader C2.8 96 1 96 30 Lorry C2.34 108 1 108 10 4. Stock Post Rammer MD* 113 1 113 20 Proofing Tracked Excavator C5.36 115 1 115 10 Nail Gun MD* 120 1 120 5 5 Fere-Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 Atticulated Dump Truck C6.26 107 3 111.8 30 Dozer (411) C2.10 108 4 114 30 Doz		Wheeled Backhoe Loader	C2.8	96	1	96	30
Vibratory Roller C2.39 102 1 102 25 A. Compound Operation Diesel Generator C4.78 94 1 94 50 Dumper C4.9 105 2 108 20 Wheeled Backhoe Loader C2.8 96 1 96 30 Lorry C2.34 108 1 108 10 A. Stock Post Rammer MD* 113 1 113 20 Post Rammer MD* 113 1 113 20 5 S. Pre- Earthworks Tracked Excavator C5.36 115 1 115 10 S. Earthworks Tracked Excavator C5.18 108 2 111 30 General C410 108 2 111 30 30 S. Earthworks Tracked Excavator C5.18 108 2 111 30 General Dump Truck C6.26 107 3 111.8 <		Lorry	C2.34	108	1	108	10
3. Compound Operation Dumper C4.9 105 2 108 20 Wheeled Backhoe Loader C2.8 96 1 96 30 Lorry C2.34 108 1 96 30 4. Stock Proofing Tractor (towing trailer) C4.75 107 1 107 25 Post Rammer MD* 113 1 113 20 116 10 116 10 Hand-held circular saw C5.36 115 1 115 10 107 5 5. Pre- Earthworks General Tracked Excavator C5.18 108 2 111 30 Articulated Dump Truck C6.26 107 3 111.8 30 Dozer (41t) C2.10 108 2 111 25 Lorry C2.34 108 4 114 30 7. Earthworks General Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t)		Vibratory Roller	C2.39	102	1	102	25
Stochpound Operation Image: Compound Lorry Image: Compound Compound Image: Compound Compound Image: Compound Image: Compound <thimage: compound<="" td=""><td></td><td>Diesel Generator</td><td>C4.78</td><td>94</td><td>1</td><td>94</td><td>50</td></thimage:>		Diesel Generator	C4.78	94	1	94	50
Interest backhoe Loader C2.3 50 1 50 10 Lorry C2.34 108 1 108 10 4. Stock Proofing Tractor (towing trailer) C4.75 107 1 107 25 Post Rammer MD* 113 1 113 20 Hand-held circular saw C5.36 115 1 115 10 Nail Gun MD* 120 1 120 5 5. Pre- Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 7. Earthworks General Mini excavator with hydraulic breaker C5.2 111 1 111 25 Lorry C2.34 108 4 114 30 7. Earthworks General Mini excavator with hydraulic breaker C5.2 111 1 111 40 7. Earthworks Formation Mini excavator C5.18<	3. Compound	Dumper	C4.9	105	2	108	20
A. Stock Proofing Tractor (towing trailer) C4.75 107 1 107 25 Post Rammer MD* 113 1 113 20 Hand-held circular saw C5.36 115 1 113 20 S. Pre- Earthworks Drainage Tracked Excavator C5.36 115 1 1120 5 S. Pre- Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 2 111 30 8. Sub- Formation Tracked Excavator C5.18 108 2 111 30 Pozer (towing roller) C2.36 109 2	Operation	Wheeled Backhoe Loader	C2.8	96	1	96	30
A. Stock Proofing Post Rammer MD* 113 1 113 20 Hand-held circular saw C5.36 115 1 115 10 Nail Gun MD* 120 1 120 5 5. Pre- Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 Articulated Dump Truck C6.26 107 3 111.8 30 Dozer (41t) C2.10 108 2 111 25 Lorry C2.34 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 Dozer (41t) C2.10 108 1 108 25 <		Lorry	C2.34	108	1	108	10
Hand-held circular saw C5.36 115 1 115 10 Nail Gun MD* 120 1 120 5 5. Pre- Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 7. Earthworks General Tracked Excavator C5.18 108 2 111 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 114 30 8. Sub- Formation Tracked Excavator C5.18 108 2 111 30 9. Drainage Tracked Excavator C5.18 108 2 111 25 Lorry C2.34 108 4 114 30 Dozer (411) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 Jozer (411) C2.10 108		Tractor (towing trailer)	C4.75	107	1	107	25
Transformed Circulal Saw Co.sci Tris Tris <th< td=""><td>4. Stock</td><td>Post Rammer</td><td>MD*</td><td>113</td><td>1</td><td>113</td><td>20</td></th<>	4. Stock	Post Rammer	MD*	113	1	113	20
5. Pre- Earthworks Drainage Tracked Excavator C5.18 108 2 111 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 111 40 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 8. Sub- Formation Tracked Excavator C5.18 108 2 111 30 9, Drainage Tracked Excavator C5.18 108 2 111 30		Hand-held circular saw	C5.36	115	1	115	10
Earthworks Drainage Meeled Mobile Crane C4.43 98 1 98 30 6. Earthworks General Tracked Excavator C5.18 108 2 111 30 Articulated Dump Truck C6.26 107 3 111.8 30 Dozer (41t) C2.10 108 2 111 25 Lorry C2.34 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 8. Sub- Formation Tracked Excavator C5.18 108 2 111 30 9, Drainage Tracked Excavator <		Nail Gun	MD*	120	1	120	5
Drainage Wheeled Mobile Crane C4.43 98 1 98 30 Articulated Dump Truck C5.18 108 2 111 30 Articulated Dump Truck C6.26 107 3 111.8 30 Dozer (41t) C2.10 108 2 111 25 Lorry C2.34 108 4 114 30 7. Earthworks rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 4 114 30 7. Earthworks rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 8. Sub- Formation Dozer (towing roller) C5.18 108 2 111 30 8. Sub- Formation Dozer (towing roller) C2.37 107 <td></td> <td>Tracked Excavator</td> <td>C5.18</td> <td>108</td> <td>2</td> <td>111</td> <td>30</td>		Tracked Excavator	C5.18	108	2	111	30
Articulated Dump Truck C6.26 107 3 111.8 30 Dozer (41t) C2.10 108 2 111 25 Lorry C2.34 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 Articked Excavator C5.18 108 2 111 30 8. Sub- Formation Dozer (towing roller) C2.36 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30		Wheeled Mobile Crane	C4.43	98	1	98	30
O. Earthworks General Dozer (41t) C2.10 108 2 111 25 Lorry C2.34 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 1 108 25 Lorry C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 Tracked Excavator C5.18 108 2 111 30 Sub- Formation Dozer (towing roller) C2.36 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37		Tracked Excavator	C5.18	108	2	111	30
Dozer (41t) C2.10 108 2 111 23 Lorry C2.34 108 4 114 30 7. Earthworks, rolling and compaction Mini excavator with hydraulic breaker C5.2 111 1 111 40 Dozer (41t) C2.34 108 1 108 25 Lorry C2.34 108 1 108 25 Lorry C2.34 108 2 111 30 Articulated Excavator C5.18 108 2 111 30 8. Sub- Formation Dozer (towing roller) C2.36 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30	6. Earthworks	Articulated Dump Truck	C6.26	107	3	111.8	30
Mini excavator with hydraulic breaker C5.2 111 1 111 40 7. Earthworks, rolling and compaction Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 8. Sub-Formation Tracked Excavator C5.18 108 2 111 30 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30	General	Dozer (41t)	C2.10	108	2	111	25
7. Earthworks, rolling and compaction Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 8. Sub-Formation Tracked Excavator C5.18 108 2 111 30 Articulated Dump Truck C6.26 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30		Lorry	C2.34	108	4	114	30
rolling and compaction Dozer (41t) C2.10 108 1 108 25 Lorry C2.34 108 2 111 30 Arricked Excavator C5.18 108 2 111 30 Dozer (towing roller) C2.36 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30	7 Earthworks	Mini excavator with hydraulic breaker	C5.2	111	1	111	40
Lorry C2.34 108 2 111 30 8. Sub- Formation Tracked Excavator C5.18 108 2 111 30 Articulated Dump Truck C2.36 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30	rolling and	Dozer (41t)	C2.10	108	1	108	25
B. Sub- Formation Dozer (towing roller) C2.36 109 2 112 40 Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30	compaction	Lorry	C2.34	108	2	111	30
Articulated Dump Truck C6.26 107 3 111.8 25 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30		Tracked Excavator	C5.18	108	2	111	30
Aniculated Dump Fluck C6.26 107 3 111.8 23 Roller (rolling fill) C2.37 107 2 110 30 9, Drainage Tracked Excavator C5.18 108 2 111 30		Dozer (towing roller)	C2.36	109	2	112	40
9, Drainage		Articulated Dump Truck	C6.26	107	3	111.8	25
9, Drainage		Roller (rolling fill)	C2.37	107	2	110	30
Wheeled Mobile Crane C4.43 98 1 98 30		Tracked Excavator	C5.18	108	2	111	30
	a, Dramage	Wheeled Mobile Crane	C4.43	98	1	98	30

Table 1: Construction Plant Data



Phase	Plant	BS5228 -1 ref	LWA dB	Quantity	Multiple Plant LWA dB	%Acoustic on-time
	Asphalt Paver	C5.31	105	2	108	40
	Vibratory compactor	C5.29	110	2	110	40
10. Paving	Lorry	C2.34	108	2	111	30
	JCB Airmaster	MD*	101	1	101	40
	Pneumatic Breaker	C1.6	111	1	111	20
	Dozer (towing roller)	C2.36	109	2	112	40
11. Central Reserve	Wheeled Excavator	C4.12	87	4	93	30
	HH Circular saw	C5.36	115	1	115	10
12. Road Marking	Lorry	C2.34	108	2	111	30
	Hydraulic Hammer Rig	C3.1	117	1	117	30
12 Signature	Wheeled mobile crane	C4.43	98	1	98	30
13. Signage	Gas Cutter	C3.34	96	1	96	10
	Lorry	C2.34	108	2	111	30
	Crawler Mounted Rig	C3.21	107	1	107	50
	Tracked Excavator	C3.24	102	1	102	40
	Concrete Pump & cement mixer truck	C4.24	95	1	95	30
14 Dridge	Concrete Mixer Truck	C4.27	107	1	107	20
14. Bridge Foundation	Petrol HH Circular Saw	C4.70	119	1	119	10
Construction	Lorry (44t)	C11.4	111	1	111	20
	Wheeled mobile crane	C4.43	98	1	98	30
	Wheeled mobile telescopic crane	C4.38	106	1	106	25
	Diesel Generator	C4.86	93	1	93	80
	Petrol HH Circular Saw	C4.70	119	1	119	10
	Wheeled mobile telescopic crane	C4.38	106	1	106	25
	Lorry (44t)	C11.4	111	1	111	20
15. Bridge	Tracked Excavator	C3.24	102	2	105	30
Abutment	Concrete Mixer Truck & Truck Mounted Concrete Pump	C4.32	106	1	106	50
	Poker Vibrator	C4.34	97	1	97	30
	Vibratory Tamper	C4.35	91	1	91	40
	Lorry (44t)	C11.4	111	1	111	20
	Wheeled mobile telescopic crane	C4.38	106	2	109	25
16. Bridge Deck	Concrete Mixer Truck & Truck Mounted Concrete Pump	C4.32	106	1	106	50
<u>.</u>	Compressor	C5.5	93	1	93	50
	Poker Vibrator	C4.34	97	1	97	30
	Vibratory Tamper	C4.35	91	1	91	40

1.1.3

It is assumed that there will not be any particular screening between construction activities and receptors. The ground cover has been assumed to be acoustically soft.



- 1.1.4 The times of operation of the construction works themselves; a typical 12 hour working day is assumed, (0700-1900 hours) during the week. It is assumed that construction activities will take place for 10 hours, allowing for breaks.
- 1.1.5 **Table 2** presents the distances assumed for receptors from different phases of work. Where an activity will be undertaken in excess of 350m from works, then the construction phase is not assessed.

Receptor Location Distance to Receptor (m) in Construction Phase(s))	
г		1&4	2&3	5-9	10-13	14-16	
1A	Dalnaspidal*	20	60	20	65	95	
1B	Dalnaspidal*	210	350	210	270	400	
2	2 Balsporran 100 - 100 130 -						
3	Drumochter	40	-	40	50	210	
* 1A is closest receptor to works, 1B is receptor furthest from works.							

Table 2: Distances of Receptors to Various Phases of Construction (m)

1.1.6 The calculated noise level from construction activities in each construction phase are presented in **Table 3**.

Table 3: Predicted Construction Noise Levels in Each Construction Phase (LAeq,T dB)

Construction	Receptors						
Phase	1A	1B	2	3			
1	80.8	55.8	63.8	73.8			
2	57.3	38.2	-	-			
3	60.1	40.9	-	-			
4	79.5	54.4	62.5	72.4			
5	74.2	49.1	57.2	67.2			
6	81.0	55.9	64.0	73.9			
7	78.4	53.3	61.4	71.3			
8	80.5	55.4	63.5	73.4			
9	74.2	49.1	57.2	67.2			
10	68.3	52.8	60.7	71.1			
11	65.7	50.2	58.2	68.5			
12	61.7	46.2	54.1	64.5			
13	68.7	53.2	61.2	71.5			
14	63.8	48.2	-	55.2			
15	63.4	47.8	-	54.8			
16	60.9	45.3	-	52.3			

1.1.7 The total noise level from construction activities in each construction phase are presented in **Table 4**. The total construction noise level includes the contribution from the existing baseline noise level, included in the first row of **Table 3** for information.



Dhasa	Receptors						
Phase	1A	1B	2	3			
Measured $L_{\mbox{\scriptsize Aeq},T} \mbox{ dB}$	MP1 -	- 57.5	MP2 – 57.4	MP3 – 58.8			
1	80.8	59.7	64.7	73.9			
2	60.4	57.6	-	-			
3	62.0	57.6	-	-			
4	79.5	59.2	63.7	72.6			
5	74.3	58.1	60.3	67.7			
6	81.0	59.8	64.9	74.1			
7	78.4	58.9	62.8	71.6			
8	80.5	59.6	64.4	73.6			
9	74.3	58.1	60.3	67.7			
10	68.6	58.8	62.4	71.4			
11	66.3	58.2	60.8	69.0			
12	63.1	57.8	59.1	65.5			
13	69.0	58.9	62.7	71.8			
14	64.7	58.0	-	60.4			
15	64.4	57.9	-	60.3			
16	62.5	57.8	-	59.7			

Table 4: Predicted Total Construction Noise Levels in each Construction Phase (LAeq,T dB)

