

Appendix 9A: Construction Noise Assessment Methodology

APPENDIX 9A – CONSTRUCTION NOISE ASSESSMENT METHODOLOGY

9A.1 Introduction

9A.1.1 The indicative construction and demolition noise levels were calculated using the procedures for prediction of construction noise set out in BS 5228-1:2009+A1:2014.

9A.1.2 Façade construction noise levels were predicted at eight receptor locations for the following construction activities:

- pipeline construction –
 - site preparation including hedge removal, fencing, land drainage and topsoil strip,
 - pipe stringing, pipe bending, pipeline welding,
 - excavation and lay,
 - re-instatement including backfill, regrading and subsoil/ topsoil replacement
 - trenchless crossing (auger crossing of A19 and HDD crossing of River Aire),
 - testing; and
- AGI construction;
- construction within the existing coal-fired power station site –
 - site clearance,
 - piling and foundation works,
 - building and general site activities,
 - fit out, and
 - landscaping; and
- demolition of the existing coal-fired power station.

9A.1.3 A full list of plant associated with each construction/ demolition phase and associated sound power data from BS 5228 and % on time is presented in Tables 9A.1 to 9A.5 below. The list of plant was sourced from other similar projects.

Table 9A.1: Plant and equipment associated with pipeline construction

Plant/ equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Number of Plant
Preparing access to and from right of way inc. hedge removal			
Tractor & trailer	107	91	2
20T backhoe	99	91	2
JCB (3CX)	97	91	2
Right Of Way fencing			
20T backhoe	99	91	2
JCB (3CX)	97	91	2
Quad bike	82	91	2
Tractor & trailer	107	91	2
Pre and post construction land drainage			
20T backhoe	99	91	1
JCB (3CX)	97	91	2
Stone wagons	107	91	8
Mastenbroek trencher	98	91	2
Stone carts	107	91	6
Topsoil strip			
30T backhoe	108	91	3
CAT D5	106	91	1
CAT D6	109	91	1
CAT D8	114	91	4
Preparing Right of Way			
25T backhoe	105	91	2
JCB (3CX)	97	91	1
Stone compactor (Teran)	106	91	1
Stone wagons	107	91	8
Tractor & trailer	107	91	2
Pipe stringing, pipe bending, pipeline welding			
Crane 40T	98	33	1
Pipe carrier D8 cradle	108	33	8
Tele - handler	99	33	1
Sideboom	108	33	10
20T backhoe	99	33	1
Weldsets (3 Bedford)	101	66	6
Dumpers	105	33	4
25T backhoe	105	33	2
Cutting equipment (Bedford)	93	66	1
Welding rigs	108	66	2
Welding rigs	108	66	4
Welding rigs (backend)	108	66	8

Plant/ equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Number of Plant
Generator for welding	85	66	p
Angle grinder	108	66	1
Excavation and lay			
20T backhoe	99	91	6
30T backhoe	103	91	5
Flatbed (waggon)	108	91	1
Sideboom	108	91	8
Tele - handler	99	91	1
Welding rigs	108	91	2
Re-instatement- regrading and subsoil			
25T backhoe	105	91	1
CAT D6	109	91	1
Re-instatement- topsoil replacement			
30T Backhoe	103	91	3
CAT D5	106	91	1
CAT D6	109	91	1
CAT D8	114	91	4
Tractor & trailer	107	91	2
Re-instatement-pipeline markers			
CAT D8	114	91	2
Harrow / seeder	107	91	1
Power harrow	107	91	1
Subsoilers	107	91	2
Tractor & trailer	107	91	2
20T backhoe	99	91	1
CAT D6	109	91	1
Re-instatement- mainline backfill/ pipeline bed and surround			
25T Backhoe (Long Reach)	105	91	5
20T Backhoe	99	91	7
CAT D6	109	91	2
Vibrating roller (Ramax)	103	91	5
Auger crossings			
Auger inc screws and rails	103	33	1
Side boom	108	66	1
Stone Compactor (Teran)	108	91	1
HDD crossings			
Concrete pour	103	91	1
Mixing tank -	104	91	1
Directional drill	105	91	1
Mounting supports for mounting drill	115	91	1

Plant/ equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Number of Plant
Crane 40T	98	33	1
Diesel generator	104	91	1
Testing			
Sideboom	108	16	1
Welding rigs	108	25	1
Flatbed (waggon)	108	16	1
Fill pumps	103	91	2
25T Backhoe	105	16	1

Table 9A.2: Plant and equipment associated with AGI construction

Plant/ equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Number of plant
Tractor (Cat 583 or equivalent) with sideboom	108	91	2
Purpose-made welding rig, lorry mounted	108	91	3
Tracked crane 50t	103	91	1
Lorry ordinary up to 18t	111	91	2
Small tools	108	91	1
25T backhoe	105	91	2
CAT D6	109	91	2
Dumper	105	91	2
JCB 3cx	97	91	2
Stone roller	107	91	2
Generator for welding	85	91	1
Angle grinder	108	91	1

Table 9A.3: Plant and equipment associated with cofferdam installation

Plant/ equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Number of plant
Mobile telescopic crane (55t)	82	30	1
10T dumper (hydrema back tipper)	76	20	2
Piling rig - excavator (35-40t)	81	75*	1
Piling rig - piling driver	59	75*	1
Flatbed vehicle with HIAB (max of 4 one way trips per day - 10mph)	83	10	1
Boat with piling rig on board (motor noise)	75	100	1
Rig power pack	68	75	1

*Plant not expected to run simultaneously operate simultaneously

Table 9A.4: Plant and equipment associated with cofferdam removal

Plant/ equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Number of plant
Breaker mounted on wheeled backhoe (7.4 t)	92	75	1

Table 9A.5: Plant and equipment associated with the demolition and construction work within the existing coal-fired power station site

Plant / Equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Stage of work					
			Site Clearance	Piling and Foundation Works	Building and General Site Activities	Fit Out	Landscaping	Demolition
Compressors	108	60	3	6	6	6	0	3
Hand held pneumatic breaker	111	60	3	0	0	0	0	3
Dump truck (tipping fill)	107	60	2	2	0	0	0	2
Dump truck (pass-by)	115	60	3	3	0	0	0	3
Wheeled loader	108	60	0	0	2	0	0	0
Lorry (delivery and collection)	108	60	4	10	10	10	0	4
Water pump (20 kW)	93	60	0	0	1	0	0	0
Pre-cast concrete piling hydraulic hammer rig	117	60	0	4	0	0	0	0
Hand-held welder (welding piles)	101	60	0	1	0	0	0	0
Generator for welding	101	60	0	1	0	0	0	0
Dumper (idling)	91	60	0	0	1	0	0	0
Wheeled backhoe loader	95	60	0	0	2	0	0	0
Tracked excavator	99	60	5	5	5	0	0	5

Plant / Equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Stage of work					
			Site Clearance	Piling and Foundation Works	Building and General Site Activities	Fit Out	Landscaping	Demolition
Concrete mixer truck	108	60	6	25	25	0	0	6
Truck mounted concrete pump and boom arm	108	60	0	3	3	0	0	0
Poker vibrator	106	60	0	0	1	0	0	0
Wheeled mobile telescopic crane	106	60	2	4	4	4	0	2
Tower crane	105	60	1	2	2	2	0	1
Lorry with lifting boom	105	60	1	0	0	1	0	1
Lifting platform	95	60	0	0	0	1	0	0
Fork lift truck	103	60	0	0	4	1	0	0
Mini tracked excavator	102	60	0	0	0	1	0	0
Electric core drill (drilling concrete)	113	60	0	0	1	1	0	0
Concrete floor cutter	119	60	0	0	1	1	0	0
Hand-held circular saw (cutting paving slabs)	112	60	0	0	0	1	0	0
Roller	101	60	0	0	0	0	2	0
Diesel generator	94	60	2	4	4	4	1	2

Plant / Equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day)	Stage of work					
			Site Clearance	Piling and Foundation Works	Building and General Site Activities	Fit Out	Landscaping	Demolition
for site cabins								
Diesel generator for site lighting	93	60	1	2	2	2	1	1
Road sweeper	96	60	1	1	1	1	1	1
Angle grinder	108	60	1	1	1	1	0	1
Hand-held cordless nail gun	101	60	0	0	0	1	0	0
Road planer (road construction)	110	60	0	0	1	0	0	0
Vibratory compactor (asphalt)	110	60	0	0	1	0	0	0
Asphalt paver + tipper lorry	105	60	0	0	1	0	0	0
Electric water pump	96	60	2	2	2	2	0	2
Screen stockpiler	115	75	0	0	0	0	0	1
Concrete breaker mounted on wheeled backhoe	120	75	0	0	0	0	0	6
Tracked crusher	112	75	0	0	0	0	0	1