Noise Appendix 1.1 – Glossary of Acoustic Terms

The following section describes some of the parameters that are used to quantify noise.

Decibels dB

Noise levels are measured in decibels. The decibel is the logarithmic ratio of the sound pressure to a reference pressure ($2x10^{-5}$ Pascals). The decibel scale gives a reasonable approximation to the human perception of relative loudness. In terms of human hearing, audible sounds range from the threshold of hearing (0 dB) to the threshold of pain (140 dB).

A-weighted Decibels dB(A)

The 'A'-weighting filter emulates human hearing response for low levels of sound. The filter network is incorporated electronically into sound level meters. Sound pressure levels measured using an 'A'-weighting filter have units of dB(A) which is a single figure value to represent the overall noise level for the entire frequency range.

A change of 3 dB(A) is the smallest change in noise level that is perceptible under normal listening conditions. A change of 10 dB(A) corresponds to a doubling or halving of loudness of the sound. The background noise level in a quiet bedroom may be around 20 –30 dB(A); normal speech conversation around 60 dB(A) at 1 m; noise from a very busy road around 70-80 dB(A) at 10m; the level near a pneumatic drill around 100 dB(A).

Façade Noise Level

Façade noise measurements are those undertaken near to reflective surfaces such as walls, usually at a distance of 1m from the surface. Façade noise levels at 1m from a reflective surface are normally around 3 dB greater than those obtained under freefield conditions.

Freefield Noise Level

Freefield noise measurements are those undertaken away from any reflective surfaces other than the ground

Frequency Hz

The frequency of a noise is the number of pressure variations per second, and relates to the "pitch" of the sound. Hertz (Hz) is the unit of frequency and is the same as cycles per second. Normal, healthy human hearing can detect sounds from around 20 Hz to 20 kHz.

Octave and Third-Octave Bands

Two frequencies are said to be an octave apart if the frequency of one is twice the frequency of the other. The octave bandwidth increases as the centre frequency increases. Each bandwidth is 70% of the band centre frequency.

Two frequencies are said to be a third-octave apart if the frequency of one is 1.26 times the other. The third octave bandwidth is 23% of the band centre frequency.

There are recognised octave band and third octave band centre frequencies. The octave or third-octave band sound pressure level is determined from the energy of the sound which falls within the boundaries of that particular octave of third octave band.

Noise Appendix 1.1 (continued)

Equivalent Continuous Sound Pressure Level $L_{Aeq,T}$

The 'A'-weighted equivalent continuous sound pressure level $L_{Aeq,T}$, is a notional steady level which has the same acoustic energy as the actual fluctuating noise over the same time period T. The $L_{Aeq,T}$ unit is dominated by higher noise levels, for example, the $L_{Aeq,T}$ average of two equal time periods at, for example, 70 dB(A) and 50 dB(A) is not 60 dB(A) but 67 dB(A).

The $L_{Aeq,}$ is the chosen unit of BS 7445-1:2003 "Description and Measurement of Environmental noise".

Maximum Sound Pressure Level L_{Amax}

The L_{Amax} value describes the overall maximum 'A'-weighted sound pressure level over the measurement interval. Maximum levels are measured with either a fast or slow time weighted, denoted as $L_{Amax,f}$ or $L_{Amax,s}$ respectively.

Sound Exposure Level L_{AE} or SEL

The sound exposure level is a notional level which contains the same acoustic energy in 1 second as a varying 'A'-weighted noise level over a given period of time. It is normally used to quantify short duration noise events such as aircraft flyover or train passes.

Statistical Parameters L_N

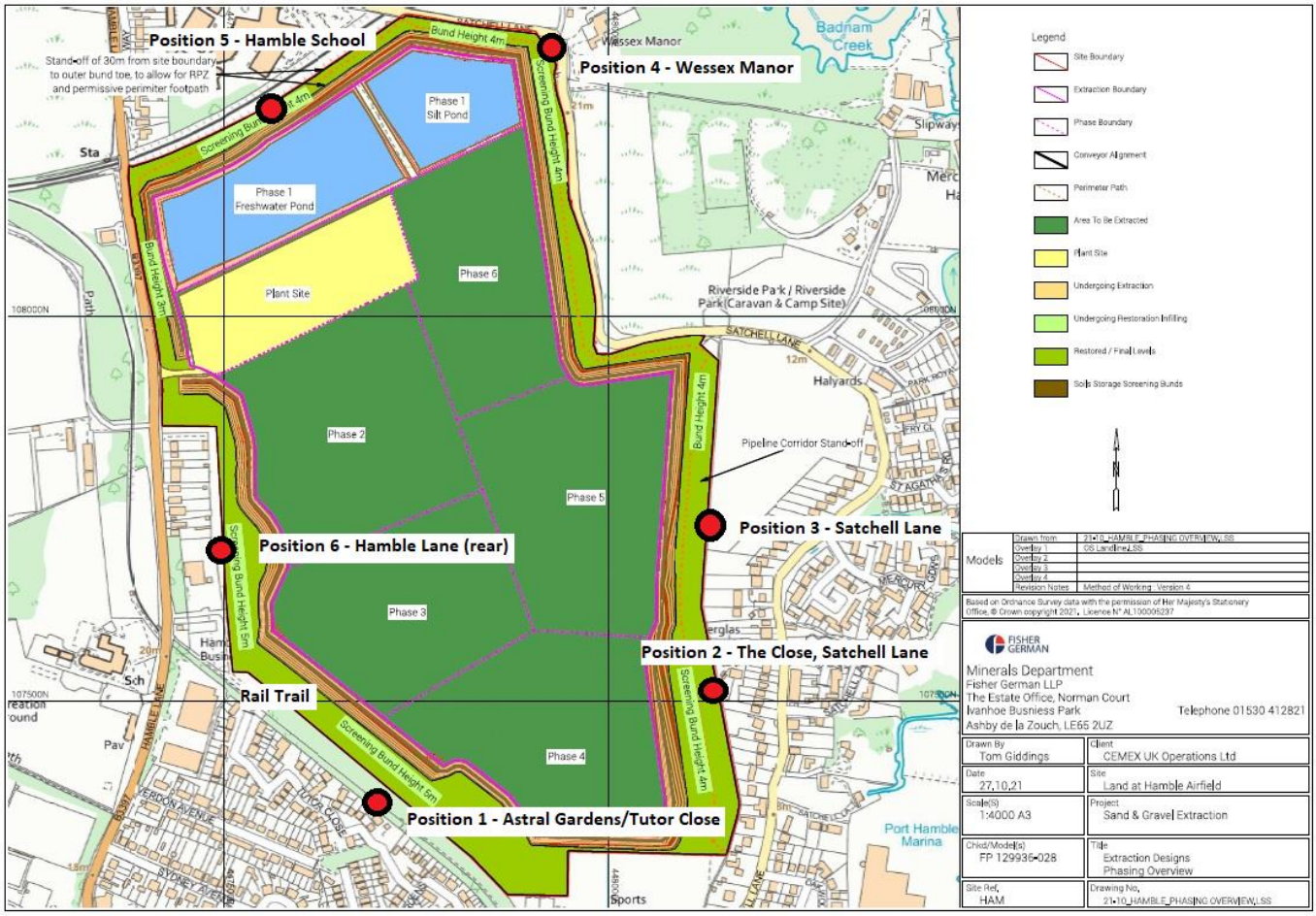
In order to cover the time variability aspects, noise can be analysed into various statistical parameters, i.e. the sound level which is exceeded for N% of the time. The most commonly used are the $L_{A01,T}$, $L_{A10,T}$ and the $L_{A90,T}$.

$L_{A01,T}$ is the 'A'-weighted level exceeded for 1% of the time interval T and is often used to gives an indication of the upper maximum level of a fluctuating noise signal.

$L_{A10,T}$ is the 'A'-weighted level exceeded for 10% of the time interval T and is often used to describe road traffic noise. It gives an indication of the upper level of a fluctuating noise signal. For high volumes of continuous traffic, the $L_{A10,T}$ unit is typically 2–3 dB(A) above the $L_{Aeq,T}$ value over the same period.

$L_{A90,T}$ is the 'A'-weighted level exceeded for 90% of the time interval T, and is often used to describe the underlying background noise level.

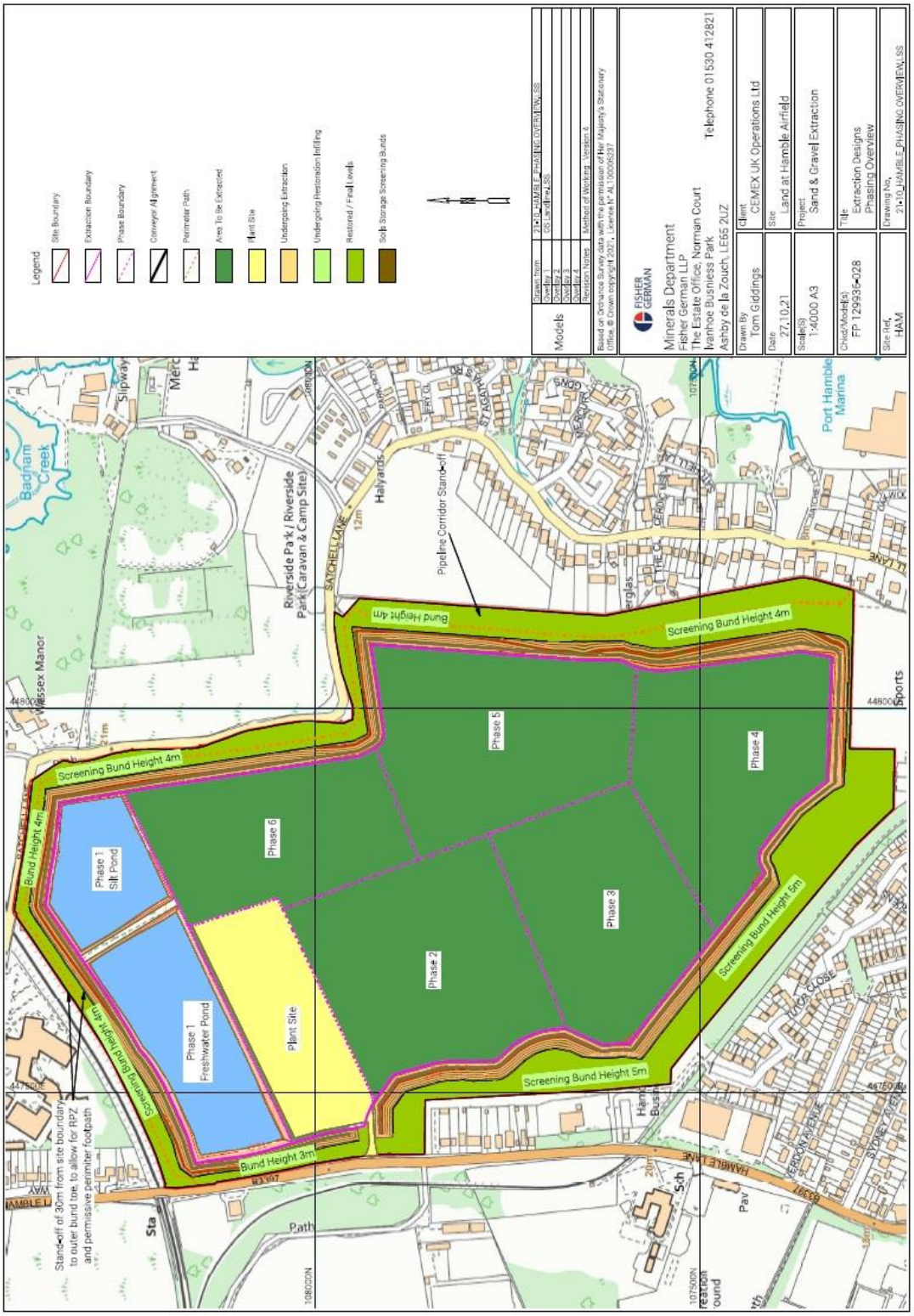
Noise Appendix 1.2 – Baseline Survey and Assessment Locations



● Approximate positions of baseline noise survey locations

Location	Description
1. Astral Gardens/Tutor Close	On footpath at rear of properties leading to Rail Trail
2. The Close, Satchell Lane	On site at rear of properties
3. Satchell Lane	On site at rear of properties
4. Wessex Manor	At start of footpath on site opposite entrance to property
5. Hamble School	On site to south of main school buildings
6. Hamble Lane (Rear)	On site at rear of properties

Noise Appendix 1.3 – Phasing Plan Showing Proposed Bunding



Noise Appendix 1.4 – Instrumentation and Calibration Details

Dates and Location of Surveys

Monday 12 February 2018;

Tuesday 24 April 2018; and

Tuesday 15 May 2018

In vicinity of former Hamble Airfield site, Hamble-Le-Rice

Surveys carried out by

Dr Robert Storey

Weather Conditions

Monday 12 February 2018: Dry, light cloud, 7-8ºC, W wind 0-3 m/s

Tuesday 24 April 2018: Dry, sunny, light cloud, 14-17ºC, SW wind 1-5 m/s

Tuesday 15 May 2018: Dry, clear, sunny, 22-26ºC, N wind 0-3 m/s

Instrumentation used (Serial Number)

Norsonic 140 Sound Level Meter (1404819)

Norsonic 1251 Calibrator (33321)

Calibration

The sensitivity of the meter was verified on site immediately before and after the survey. The measured calibration levels were as follows:

Survey Date	Start Cal	End Cal
Monday 12 February 2018	113.6 dB(A)	113.8 dB(A)
Tuesday 24 April 2018	113.7 dB(A)	113.3 dB(A)
Tuesday 15 May 2018	113.7 dB(A)	113.3 dB(A)

The meter and calibrator are tested monthly against Norsonic Calibrators, type 1253 (serial number 22906) and type 1256 (serial number 125626100) both with UKAS approved laboratory certificate of calibration. In addition, the meter and calibrator undergo traceable calibration at an external laboratory every two years.

Survey Details

Attended sample measurements of 15 minute duration were taken at each of the chosen locations. The microphone was at a height of approximately 1.4 metres above local ground level, with a windshield used throughout. The start times of each sample are tabulated with the results in Appendix X.5.

Noise Appendix 1.5 – Baseline Noise Survey Results

Results and Observations

Monday 12 February 2018, 13:10 to 15:30

Dry, light cloud, 7-8°C, W wind 0-3 m/s

Position	Start Time	Results dB (T = 15 minutes)			Comments
		$L_{Aeq,T}$	$L_{A10,T}$	$L_{A90,T}$	
1. Astral Gardens/Tutor Close	13:13	44	45	40	Distant and local road traffic, birdsong, activity at properties, aircraft, voices of walkers, distant power tool at one point, distant car horn, cyclists on Rail Trail footpath
2. The Close, Satchell Lane	13:37	41	43	38	Distant road traffic, birdsong, aircraft, distant voices/basketball game, breeze in foliage, distant hammering towards end of measurement
3. Satchell Lane	14:00	47	50	40	Distant road traffic, breeze in trees, distant dog barking, distant reversing bleeper, occasional cars on Satchell Lane, aircraft, distant police siren
4. Wessex Manor	14:33	55	59	45	Distant and some local road traffic, hammering, voices and power tool at house renovation, aircraft, birdsong, breeze in trees, distant trains
5, Hamble School	14:53	56	55	45	Distant and some local road traffic, birdsong, breeze in trees, aircraft, some car movements in car park, distant voices, distant dog barking, trains

Noise Appendix 1.5 – Baseline Noise Survey Results (continued)

Results and Observations

Tuesday 24 April 2018, 12:05 to 14:20

Dry, sunny, light cloud, 14-17°C, SW wind 1-5 m/s

Position	Start Time	Results dB (T = 15 minutes)			Comments
		$L_{Aeq,T}$	$L_{A10,T}$	$L_{A90,T}$	
6. Hamble Lane (rear)	12:08	50	51	45	Road traffic on Hamble Lane, activity/voices at commercial properties, breeze in foliage/trees, birdsong, barking dogs, aircraft, voice of dog walker, distant children's voices, car horn, cutting tool to south-west, distant train
5, Hamble School	12:31	49	50	46	Distant road traffic, birdsong, aircraft, breeze in trees, distant children playing, train
4. Wessex Manor	12:51	54	57	48	Distant road traffic, birdsong, aircraft, breeze in trees, some local traffic, activity including reversing bleeper, cutting tool/drill at house renovation, distant dog barking
3. Satchell Lane	13:16	45	48	41	Distant road traffic, birdsong, aircraft, breeze in trees, distant mowing at houses at start of measurement, some traffic on Satchell Lane
2. The Close, Satchell Lane	13:39	47	49	42	Distant road traffic, aircraft, birdsong, breeze in trees, distant dog barking, distant mowing and strimming to south at times, voices of walkers, distant reversing bleeper, hammering at houses
1. Astral Gardens/Tutor Close	14:03	49	51	43	Distant and some local road traffic, birdsong, aircraft, breeze in trees, distant clatter to south-west, activity and voices at houses, distant prolonged horn, distant dog barking

Noise Appendix 1.5 – Baseline Noise Survey Results (continued)

Tuesday 15 May 2018, 11:10 to 15:40

Dry, clear, sunny, 22-26°C, N wind 0-3 m/s

Position	Start Time	Results dB (T = 15 minutes)			Comments
		$L_{Aeq,T}$	$L_{A10,T}$	$L_{A90,T}$	
6. Hamble Lane (rear)	11:11	48	50	44	Road traffic on Hamble Lane, birdsong, aircraft, breeze in trees, distant impact noise to north, distant van doors, dog barking, voice of dog walker, distant train horn, some activity at commercial properties
5, Hamble School	11:32	45	47	43	Distant road traffic, aircraft, birdsong, breeze in trees, distant dog barking, distant impact noise, train, distant car horn
4. Wessex Manor	11:51	53	55	46	Distant and local road traffic, birdsong, aircraft, breeze in trees, excavator movement, distant reversing bleeper, voices and hammering at house renovation, trains
3. Satchell Lane	12:13	45	48	40	Road traffic (Satchell Lane), aircraft, birdsong, breeze in trees, distant hammering/ mowing
2. The Close, Satchell Lane	12:33	41	44	37	Distant road traffic, birdsong, breeze in trees, distant boat horn, power tool to north, aircraft, distant voices, voice of dog walker
1. Astral Gardens/Tutor Close	12:55	42	44	38	Distant road traffic, birdsong, aircraft, breeze in trees, one local car, voices of dog walkers, distant impact noise to north-west
6. Hamble Lane (rear)	13:14	48	49	43	Road traffic on Hamble Lane, birdsong, breeze in trees, aircraft, dogs barking, van door, some activity at commercial properties, distant train
5, Hamble School	13:36	50	52	45	Distant road traffic, birdsong, breeze in trees, children's voices at school, trains, aircraft
4. Wessex Manor	13:56	49	53	41	Distant and local road traffic, aircraft, birdsong, breeze in trees, hammering, voices and radio at house renovation, car alarm at Manor, trains, distant bird scarer
3. Satchell Lane	14:18	42	44	39	Distant road traffic, some traffic on Satchell Lane, aircraft, birdsong, breeze in trees, distant hammering, distant trains, distant impact noises, distant motor to north-east
2. The Close, Satchell Lane	14:40	41	44	37	Distant road traffic, aircraft, birdsong, breeze in foliage, distant train, activity at houses, distant bird scarer, distant dog barking, voice of dog walker, distant car horns
1. Astral Gardens/Tutor Close	15:02	47	50	39	Distant road traffic, aircraft, birdsong, breeze in trees, distant hammering, two cars on Astral Gardens, distant children's voices, voice of walkers and child, power tool at houses
6. Hamble Lane (rear)	15:21	47	49	43	Road traffic (Hamble Lane), birdsong, breeze in trees, aircraft, distant dog barking, distant voices, distant horn, distant train, some activity at commercial properties, distant car horn

Noise Appendix 1.6 – Noise Calculation Method and Calculation Sheets

Specific noise levels are predicted or measured in terms of the Equivalent Continuous Noise Level, $L_{Aeq,T}$ over a given reference time interval, T. In the Planning Practice Guidance for Minerals the time interval for daytime, evening and night the reference time interval is 1 hour.

The calculation method for any plant which is relatively fixed in location is that set out in BS 5228-1: 2009 + A1: 2014, Annex F, and is the "*Method for activity L_{Aeq}*" described in section F.2.2 or the "Method for plant sound power level" described in section F.2.3.

The calculation method for site mobile plant such as lorries and dump trucks is that set out in BS 5228-1: 2009 + A1: 2014, Annex F, and is the "*Method for mobile plant using a regular well defined route (e.g. haul roads)*" described in section F. 2. 5.

Ground Absorption has been calculated using the technique set out in BS 5228-1: 2009 + A1: 2014, Annex F, assuming 60% soft ground between the extraction / infilling areas and the receiver locations.

The method of assessing screening is that attributed to Maekawa as used in BS 5228-1: 2009 + A1: 2014, Annex F and various other Government published documents. This method uses the calculated path difference and octave band noise data for each noise source over the frequency range stated in BS 5228-1: 2009 + A1: 2014, Annex F.

The effects of ground absorption are not used in the calculations if screening has been assessed and offers a higher attenuation.

The nearest distances to the respective dwellings, from the various items of plant, have been used in an acoustic model for the site to calculate the reasonable worst case $L_{Aeq,T}$ site noise levels.

Summary site noise calculation sheet for each of the receiver locations are included on the following pages.

	CEMEX HAMBLE AIRFIELD	**5173**	**10-Nov-21**	RS											
							Receiver Height :		1.5	m		20			
				Activity	Power LWA	1 hour	Capacity	Source		2 way flow	Speed			BS5228	
Ref	Plant Item	Comments on Plant		LAeq @ 10 m	or LWA / m	On-time %	Tonnes	Height		Q per hour	V kph	Plant Set back(m)		method	
1	Excavator	Mineral Extraction		78	106	100		2				20	m back	1	Activity
2	Main Conveyor	Mineral Extraction		58	86	100		1				20	m back	5	Conveyor
3	Processing Plant	Processing Plant Site		84	112	100		4				0	m back	1	Activity
4	Loading Shovel at Processing Plant	Processing Plant Site		77	105	100		2				0	m back	1	Activity
5	HGVs on Access Road	HGVs		76	104	100		2		12	15	0	m back	4	Haul Road
6	Conveyor to Nearest Phase	Mineral Extraction		58	86	100		1				0	m back	5	Conveyor
7	Loading Shovel Loading Conveyor	Mineral Extraction		77	105	100		2				0	m back	3	Defined Area
8	Importing of Infill Material by HGV on access road	Infilling		76	104	100		2		6	15	20	m back	4	Haul Road
9	Tipping of Infill Material	Infilling		80	108	20		2				20	m back	1	Activity
10	Grading by Dozer	Infilling		79	107	100		2				20	m back	1	Activity
11	HGVs within site	Infilling		76	104	100		2				0	m back	3	Defined Area
12	Plant Item 12			-1027	-999	100		2				0	m back	1	Activity
13	Excavator	Temporary Operations		78	106	100		2				0	m back	1	Activity
14	Dump Trucks	Temporary Operations		77	105	100		2				0	m back	3	Defined Area
15	Dozer	Temporary Operations		80	108	100		2				0	m back	1	Activity
	Location No.	**1**	**Astral Gardens**												
	Receiver Height	21.5	m AOD												
							Suggested Site Noise Limits								
	Site Noise Level for Items 1 to 11	**49**	**dB LAeq, 1 hour, free field**		Routine Extraction		50	**dB LAeq, 1 hour, free field**							
	Site Noise Level for Items 13 to 15	**61**	**dB LAeq, 1 hour, free field**		Temporary Operations		70	**dB LAeq, 1 hour, free field**							
Ref	**Plant Item**	Plan	Working	Ground	Working	Source	Angle	Range	Barrier	Barrier	Path	Barrier	Soft	Ground	Resultant
		Distance	Distance	Height	Height/depth	Height	Degrees	Metres	-Receiver	Height	Diff.	Atten.	Ground %	Atten.	LAeq
1	**Excavator**	120	150	20.0	-2.0	20.0	0	0	90	25.0	0.269	12.7	60.0	2.3	41.8
2	**Main Conveyor**	150	170	20.0	-2.0	19.0	10	0	90	25.0	0.274	12.8	60.0	2.5	33.3
3	**Processing Plant**	690	690	20.0	0.0	24.0	0	0	90	25.0	0.064	9.5	90.0	5.5	37.7
4	**Loading Shovel at Processing Plant**	690	690	20.0	0.0	22.0	0	0	90	25.0	0.075	9.7	90.0	6.5	30.5
5	**HGVs on Access Road**	490	490	20.0	0.0	22.0	15	0	90	25.0	0.079	10.0	90.0	5.8	22.3
6	**Conveyor to Nearest Phase**	100	100	20.0	-2.0	19.0	40	0	90	25.0	1.699	19.6	60.0	1.8	34.9
7	**Loading Shovel Loading Conveyor**	120	120	20.0	-2.0	20.0	0	100	90	25.0	0.472	15.7	60.0	2.0	38.7
8	**Importing of Infill Material by HGV on access road**	490	510	20.0	0.0	22.0	15	0	90	25.0	0.078	10.0	90.0	5.9	19.2
9	**Tipping of Infill Material**	120	150	20.0	-0.3	21.7	0	0	90	25.0	0.159	12.5	60.0	2.3	37.0
10	**Grading by Dozer**	120	150	20.0	-0.3	21.7	0	0	90	25.0	0.159	12.4	60.0	2.3	43.1
11	**HGVs within site**	120	130	20.0	-0.3	21.7	0	0	90	25.0	0.204	13.0	60.0	2.1	40.7
12	**Plant Item 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Excavator**	90	100	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.8	56.2
14	**Dump Trucks**	90	110	20.0	0.0	22.0	10	0	0	5.0	-1.000	0.0	60.0	1.9	54.2
15	**Dozer**	90	100	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.8	58.2

	CEMEX HAMBLE AIRFIELD	**5173**	**10-Nov-21**	RS											
							Receiver Height :		1.5	m		20			
				Activity	Power LWA	1 hour	Capacity	Source		2 way flow	Speed			BS5228	
Ref	Plant Item	Comments on Plant		LAeq @ 10 m	or LWA / m	On-time %	Tonnes	Height		Q per hour	V kph	Plant Set back(m)		method	
1	Excavator	Mineral Extraction		78	106	100		2				20	m back	1	Activity
2	Main Conveyor	Mineral Extraction		58	86	100		1				20	m back	5	Conveyor
3	Processing Plant	Processing Plant Site		84	112	100		4				0	m back	1	Activity
4	Loading Shovel at Processing Plant	Processing Plant Site		77	105	100		2				0	m back	1	Activity
5	HGVs on Access Road	HGVs		76	104	100		2		12	15	0	m back	4	Haul Road
6	Conveyor to Nearest Phase	Mineral Extraction		58	86	100		1				0	m back	5	Conveyor
7	Loading Shovel Loading Conveyor	Mineral Extraction		77	105	100		2				0	m back	3	Defined Area
8	Importing of Infill Material by HGV on access road	Infilling		76	104	100		2		6	15	20	m back	4	Haul Road
9	Tipping of Infill Material	Infilling		80	108	20		2				20	m back	1	Activity
10	Grading by Dozer	Infilling		79	107	100		2				20	m back	1	Activity
11	HGVs within site	Infilling		76	104	100		2				0	m back	3	Defined Area
12	Plant Item 12			-1027	-999	100		2				0	m back	1	Activity
13	Excavator	Temporary Operations		78	106	100		2				0	m back	1	Activity
14	Dump Trucks	Temporary Operations		77	105	100		2				0	m back	3	Defined Area
15	Dozer	Temporary Operations		80	108	100		2				0	m back	1	Activity
	Location No.	**2**	**The Close**												
	Receiver Height	17.5	m AOD												
							Suggested Site Noise Limits								
	Site Noise Level for Items 1 to 11	**46**	**dB LAeq, 1 hour, free field**		Routine Extraction		49	**dB LAeq, 1 hour, free field**							
	Site Noise Level for Items 13 to 15	**61**	**dB LAeq, 1 hour, free field**		Temporary Operations		70	**dB LAeq, 1 hour, free field**							
Ref	**Plant Item**	Plan	Working	Ground	Working	Source	Angle	Range	Barrier	Barrier	Path	Barrier	Soft	Ground	Resultant
		Distance	Distance	Height	Height/depth	Height	Degrees	Metres	-Receiver	Height	Diff.	Atten.	Ground %	Atten.	LAeq
1	**Excavator**	120	150	20.0	-1.5	20.5	0	0	95	24.0	0.303	13.2	60.0	2.3	41.3
2	**Main Conveyor**	340	360	20.0	-2.0	19.0	20	0	95	24.0	0.266	12.7	60.0	3.5	33.2
3	**Processing Plant**	900	900	20.0	0.0	24.0	0	0	95	24.0	0.199	12.9	90.0	5.9	32.0
4	**Loading Shovel at Processing Plant**	900	900	20.0	0.0	22.0	0	0	95	24.0	0.213	12.9	90.0	7.0	25.0
5	**HGVs on Access Road**	900	900	20.0	0.0	22.0	20	0	95	24.0	0.213	13.2	90.0	7.0	17.7
6	**Conveyor to Nearest Phase**	80	80	20.0	-2.0	19.0	10	0	95	24.0	31.019	20.6	60.0	1.5	28.8
7	**Loading Shovel Loading Conveyor**	120	120	20.0	-2.0	20.0	0	100	95	24.0	0.514	16.0	60.0	2.0	38.4
8	**Importing of Infill Material by HGV on access road**	900	920	20.0	0.0	22.0	20	0	95	24.0	0.214	13.2	90.0	7.0	14.6
9	**Tipping of Infill Material**	200	230	20.0	-0.3	21.7	0	0	170	24.0	0.130	11.9	60.0	2.9	33.9
10	**Grading by Dozer**	200	230	20.0	-0.3	21.7	0	0	170	24.0	0.130	11.7	60.0	2.9	40.1
11	**HGVs within site**	200	210	20.0	-0.3	21.7	0	0	170	24.0	0.148	12.0	60.0	2.8	37.6
12	**Plant Item 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Excavator**	95	105	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.9	55.7
14	**Dump Trucks**	95	115	20.0	0.0	22.0	20	0	0	4.0	-1.000	0.0	60.0	2.0	53.8
15	**Dozer**	95	105	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.9	57.7

	CEMEX HAMBLE AIRFIELD	**5173**	**10-Nov-21**	RS											
							Receiver Height :		1.5	m		20			
				Activity	Power LWA	1 hour	Capacity	Source		2 way flow	Speed			BS5228	
Ref	Plant Item	Comments on Plant		LAeq @ 10 m	or LWA / m	On-time %	Tonnes	Height		Q per hour	V kph	Plant Set back(m)		method	
1	Excavator	Mineral Extraction		78	106	100		2				20	m back	1	Activity
2	Main Conveyor	Mineral Extraction		58	86	100		1				20	m back	5	Conveyor
3	Processing Plant	Processing Plant Site		84	112	100		4				0	m back	1	Activity
4	Loading Shovel at Processing Plant	Processing Plant Site		77	105	100		2				0	m back	1	Activity
5	HGVs on Access Road	HGVs		76	104	100		2		12	15	0	m back	4	Haul Road
6	Conveyor to Nearest Phase	Mineral Extraction		58	86	100		1				0	m back	5	Conveyor
7	Loading Shovel Loading Conveyor	Mineral Extraction		77	105	100		2				0	m back	3	Defined Area
8	Importing of Infill Material by HGV on access road	Infilling		76	104	100		2		6	15	20	m back	4	Haul Road
9	Tipping of Infill Material	Infilling		80	108	20		2				20	m back	1	Activity
10	Grading by Dozer	Infilling		79	107	100		2				20	m back	1	Activity
11	HGVs within site	Infilling		76	104	100		2				0	m back	3	Defined Area
12	Plant Item 12			-1027	-999	100		2				0	m back	1	Activity
13	Excavator	Temporary Operations		78	106	100		2				0	m back	1	Activity
14	Dump Trucks	Temporary Operations		77	105	100		2				0	m back	3	Defined Area
15	Dozer	Temporary Operations		80	108	100		2				0	m back	1	Activity

	Location No.	**3**	**Satchell Lane**												
	Receiver Height	15.5	m AOD												
							Suggested Site Noise Limits								
	Site Noise Level for Items 1 to 11	**47**	**dB LAeq, 1 hour, free field**		Routine Extraction		50	**dB LAeq, 1 hour, free field**							
	Site Noise Level for Items 13 to 15	**61**	**dB LAeq, 1 hour, free field**		Temporary Operations		70	**dB LAeq, 1 hour, free field**							
Ref	**Plant Item**	Plan	Working	Ground	Working	Source	Angle	Range	Barrier	Barrier	Path	Barrier	Soft	Ground	Resultant
		Distance	Distance	Height	Height/depth	Height	Degrees	Metres	-Receiver	Height	Diff.	Atten.	Ground %	Atten.	LAeq
1	**Excavator**	110	140	20.0	-1.2	20.8	0	0	90	24.0	0.403	14.2	60.0	2.2	40.9
2	**Main Conveyor**	380	400	20.0	-2.0	19.0	35	0	90	24.0	0.426	14.4	60.0	3.6	33.5
3	**Processing Plant**	690	690	20.0	0.0	24.0	0	0	90	24.0	0.348	14.8	90.0	5.5	32.4
4	**Loading Shovel at Processing Plant**	690	690	20.0	0.0	22.0	0	0	90	24.0	0.373	14.9	90.0	6.5	25.3
5	**HGVs on Access Road**	730	730	20.0	0.0	22.0	20	0	90	24.0	0.375	15.3	90.0	6.6	16.6
6	**Conveyor to Nearest Phase**	80	80	20.0	-2.0	19.0	10	0	90	24.0	21.504	20.6	60.0	1.5	28.8
7	**Loading Shovel Loading Conveyor**	110	110	20.0	-2.0	20.0	0	100	90	24.0	0.705	17.3	60.0	1.9	37.9
8	**Importing of Infill Material by HGV on access road**	730	750	20.0	0.0	22.0	20	0	90	24.0	0.375	15.3	90.0	6.6	13.4
9	**Tipping of Infill Material**	135	165	20.0	-0.3	21.7	0	0	110	24.0	0.260	14.2	60.0	2.5	34.5
10	**Grading by Dozer**	135	165	20.0	-0.3	21.7	0	0	110	24.0	0.260	14.0	60.0	2.5	40.7
11	**HGVs within site**	135	145	20.0	-0.3	21.7	0	0	110	24.0	0.271	14.0	60.0	2.3	38.8
12	**Plant Item 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Excavator**	90	100	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.8	56.2
14	**Dump Trucks**	90	110	20.0	0.0	22.0	35	0	0	4.0	-1.000	0.0	60.0	1.9	54.2
15	**Dozer**	90	100	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.8	58.2

	CEMEX HAMBLE AIRFIELD	**5173**	**10-Nov-21**	RS												
							Receiver Height :		1.5	m		20				
				Activity	Power LWA	1 hour	Capacity	Source		2 way flow	Speed			BS5228		
Ref	Plant Item	Comments on Plant		LAeq @ 10 m	or LWA / m	On-time %	Tonnes	Height		Q per hour	V kph	Plant Set back(m)		method		
1	Excavator	Mineral Extraction		78	106	100		2				20	m back	1	Activity	
2	Main Conveyor	Mineral Extraction		58	86	100		1				20	m back	5	Conveyor	
3	Processing Plant	Processing Plant Site		84	112	100		4				0	m back	1	Activity	
4	Loading Shovel at Processing Plant	Processing Plant Site		77	105	100		2				0	m back	1	Activity	
5	HGVs on Access Road	HGVs		76	104	100		2		12	15	0	m back	4	Haul Road	
6	Conveyor to Nearest Phase	Mineral Extraction		58	86	100		1				0	m back	5	Conveyor	
7	Loading Shovel Loading Conveyor	Mineral Extraction		77	105	100		2				0	m back	3	Defined Area	
8	Importing of Infill Material by HGV on access road	Infilling		76	104	100		2		6	15	20	m back	4	Haul Road	
9	Tipping of Infill Material	Infilling		80	108	20		2				20	m back	1	Activity	
10	Grading by Dozer	Infilling		79	107	100		2				20	m back	1	Activity	
11	HGVs within site	Infilling		76	104	100		2				0	m back	3	Defined Area	
12	Plant Item 12			-1027	-999	100		2				0	m back	1	Activity	
13	Excavator	Temporary Operations		78	106	100		2				0	m back	1	Activity	
14	Dump Trucks	Temporary Operations		77	105	100		2				0	m back	3	Defined Area	
15	Dozer	Temporary Operations		80	108	100		2				0	m back	1	Activity	
	Location No.	**4**	**Wessex Manor**													
	Receiver Height	21.5	m AOD													
							Suggested Site Noise Limits									
	Site Noise Level for Items 1 to 11	**49**	**dB LAeq, 1 hour, free field**		Routine Extraction		55	**dB LAeq, 1 hour, free field**								
	Site Noise Level for Items 13 to 15	**60**	**dB LAeq, 1 hour, free field**		Temporary Operations		70	**dB LAeq, 1 hour, free field**								
Ref	**Plant Item**	Plan	Working	Ground	Working	Source	Angle	Range	Barrier	Barrier	Path	Barrier	Soft	Ground	Resultant	
		Distance	Distance	Height	Height/depth	Height	Degrees	Metres	-Receiver	Height	Diff.	Atten.	Ground %	Atten.	LAeq	
1	**Excavator**	160	190	20.0	-0.3	21.7	0	0	140	24.0	0.075	8.9	60.0	2.6	43.5	
2	**Main Conveyor**	270	290	20.0	-2.0	19.0	25	0	140	24.0	0.095	9.6	60.0	3.2	38.2	
3	**Processing Plant**	430	430	20.0	0.0	24.0	0	0	140	24.0	0.015	6.7	90.0	4.7	44.6	
4	**Loading Shovel at Processing Plant**	430	430	20.0	0.0	22.0	0	0	140	24.0	0.029	7.6	90.0	5.6	36.7	
5	**HGVs on Access Road**	150	150	20.0	0.0	22.0	10	0	140	24.0	0.220	13.3	90.0	3.5	22.4	
6	**Conveyor to Nearest Phase**	105	105	20.0	-2.0	19.0	20	0	140	24.0	70.348	20.6	60.0	1.9	30.6	
7	**Loading Shovel Loading Conveyor**	160	160	20.0	-2.0	20.0	0	100	140	24.0	0.411	15.2	60.0	2.4	37.7	
8	**Importing of Infill Material by HGV on access road**	150	170	20.0	0.0	22.0	10	0	140	24.0	0.088	10.3	90.0	3.7	21.9	
9	**Tipping of Infill Material**	420	450	20.0	-0.3	21.7	0	0	400	24.0	0.061	9.7	60.0	3.8	30.2	
10	**Grading by Dozer**	420	450	20.0	-0.3	21.7	0	0	400	24.0	0.061	9.6	60.0	3.8	36.3	
11	**HGVs within site**	420	430	20.0	-0.3	21.7	0	0	400	24.0	0.096	10.6	60.0	3.7	32.7	
12	**Plant Item 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0	
13	**Excavator**	100	110	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.9	55.2	
14	**Dump Trucks**	100	120	20.0	0.0	22.0	25	0	0	4.0	-1.000	0.0	60.0	2.0	53.4	
15	**Dozer**	100	110	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.9	57.2	

	CEMEX HAMBLE AIRFIELD	**5173**	**10-Nov-21**	RS											
							Receiver Height :		1.5	m		20			
				Activity	Power LWA	1 hour	Capacity	Source		2 way flow	Speed			BS5228	
Ref	Plant Item	Comments on Plant		LAeq @ 10 m	or LWA / m	On-time %	Tonnes	Height		Q per hour	V kph	Plant Set back(m)		method	
1	Excavator	Mineral Extraction		78	106	100		2				20	m back	1	Activity
2	Main Conveyor	Mineral Extraction		58	86	100		1				20	m back	5	Conveyor
3	Processing Plant	Processing Plant Site		84	112	100		4				0	m back	1	Activity
4	Loading Shovel at Processing Plant	Processing Plant Site		77	105	100		2				0	m back	1	Activity
5	HGVs on Access Road	HGVs		76	104	100		2		12	15	0	m back	4	Haul Road
6	Conveyor to Nearest Phase	Mineral Extraction		58	86	100		1				0	m back	5	Conveyor
7	Loading Shovel Loading Conveyor	Mineral Extraction		77	105	100		2				0	m back	3	Defined Area
8	Importing of Infill Material by HGV on access road	Infilling		76	104	100		2		6	15	20	m back	4	Haul Road
9	Tipping of Infill Material	Infilling		80	108	20		2				20	m back	1	Activity
10	Grading by Dozer	Infilling		79	107	100		2				20	m back	1	Activity
11	HGVs within site	Infilling		76	104	100		2				0	m back	3	Defined Area
12	Plant Item 12			-1027	-999	100		2				0	m back	1	Activity
13	Excavator	Temporary Operations		78	106	100		2				0	m back	1	Activity
14	Dump Trucks	Temporary Operations		77	105	100		2				0	m back	3	Defined Area
15	Dozer	Temporary Operations		80	108	100		2				0	m back	1	Activity
	Location No.	**5**	**Hamble School**												
	Receiver Height	21.5	m AOD												
							Suggested Site Noise Limits								
	Site Noise Level for Items 1 to 11	**48**	**dB LAeq, 1 hour, free field**		Routine Extraction		55	**dB LAeq, 1 hour, free field**							
	Site Noise Level for Items 13 to 15	**66**	**dB LAeq, 1 hour, free field**		Temporary Operations		70	**dB LAeq, 1 hour, free field**							
Ref	**Plant Item**	Plan	Working	Ground	Working	Source	Angle	Range	Barrier	Barrier	Path	Barrier	Soft	Ground	Resultant
		Distance	Distance	Height	Height/depth	Height	Degrees	Metres	-Receiver	Height	Diff.	Atten.	Ground %	Atten.	LAeq
1	**Excavator**	230	260	20.0	-0.6	21.4	0	0	50	24.0	0.079	9.1	60.0	3.0	40.6
2	**Main Conveyor**	140	160	20.0	-2.0	19.0	10	0	50	24.0	0.157	11.1	60.0	2.4	35.3
3	**Processing Plant**	550	550	20.0	0.0	24.0	0	0	50	24.0	0.057	9.2	90.0	5.1	40.0
4	**Loading Shovel at Processing Plant**	550	550	20.0	0.0	22.0	0	0	50	24.0	0.066	9.4	90.0	6.0	32.8
5	**HGVs on Access Road**	400	400	20.0	0.0	22.0	25	0	50	24.0	0.068	9.6	90.0	5.4	25.8
6	**Conveyor to Nearest Phase**	160	160	20.0	-2.0	19.0	30	0	50	24.0	0.157	11.1	60.0	2.4	40.1
7	**Loading Shovel Loading Conveyor**	230	230	20.0	-2.0	20.0	0	100	50	24.0	0.102	10.6	60.0	2.9	39.2
8	**Importing of Infill Material by HGV on access road**	400	420	20.0	0.0	22.0	25	0	50	24.0	0.068	9.6	90.0	5.5	22.6
9	**Tipping of Infill Material**	250	280	20.0	-0.3	21.7	0	0	50	24.0	0.074	10.2	60.0	3.1	33.9
10	**Grading by Dozer**	250	280	20.0	-0.3	21.7	0	0	50	24.0	0.074	10.1	60.0	3.1	40.0
11	**HGVs within site**	250	260	20.0	-0.3	21.7	0	0	50	24.0	0.075	9.9	60.0	3.0	37.8
12	**Plant Item 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Excavator**	50	60	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.1	61.3
14	**Dump Trucks**	50	70	20.0	0.0	22.0	10	0	0	4.0	-1.000	0.0	60.0	1.3	58.8
15	**Dozer**	50	60	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.1	63.3

	CEMEX HAMBLE AIRFIELD	**5173**	**10-Nov-21**	RS											
							Receiver Height :		1.5	m		20			
				Activity	Power LWA	1 hour	Capacity	Source		2 way flow	Speed			BS5228	
Ref	Plant Item	Comments on Plant		LAeq @ 10 m	or LWA / m	On-time %	Tonnes	Height		Q per hour	V kph	Plant Set back(m)		method	
1	Excavator	Mineral Extraction		78	106	100		2				20	m back	1	Activity
2	Main Conveyor	Mineral Extraction		58	86	100		1				20	m back	5	Conveyor
3	Processing Plant	Processing Plant Site		84	112	100		4				0	m back	1	Activity
4	Loading Shovel at Processing Plant	Processing Plant Site		77	105	100		2				0	m back	1	Activity
5	HGVs on Access Road	HGVs		76	104	100		2		12	15	0	m back	4	Haul Road
6	Conveyor to Nearest Phase	Mineral Extraction		58	86	100		1				0	m back	5	Conveyor
7	Loading Shovel Loading Conveyor	Mineral Extraction		77	105	100		2				0	m back	3	Defined Area
8	Importing of Infill Material by HGV on access road	Infilling		76	104	100		2		6	15	20	m back	4	Haul Road
9	Tipping of Infill Material	Infilling		80	108	20		2				20	m back	1	Activity
10	Grading by Dozer	Infilling		79	107	100		2				20	m back	1	Activity
11	HGVs within site	Infilling		76	104	100		2				0	m back	3	Defined Area
12	Plant Item 12			-1027	-999	100		2				0	m back	1	Activity
13	Excavator	Temporary Operations		78	106	100		2				0	m back	1	Activity
14	Dump Trucks	Temporary Operations		77	105	100		2				0	m back	3	Defined Area
15	Dozer	Temporary Operations		80	108	100		2				0	m back	1	Activity
	Location No.	**6**	**Hamble Lane**												
	Receiver Height	21.5	m AOD												
							Suggested Site Noise Limits								
	Site Noise Level for Items 1 to 11	**50**	**dB LAeq, 1 hour, free field**		Routine Extraction		54	**dB LAeq, 1 hour, free field**							
	Site Noise Level for Items 13 to 15	**61**	**dB LAeq, 1 hour, free field**		Temporary Operations		70	**dB LAeq, 1 hour, free field**							
Ref	**Plant Item**	Plan	Working	Ground	Working	Source	Angle	Range	Barrier	Barrier	Path	Barrier	Soft	Ground	Resultant
		Distance	Distance	Height	Height/depth	Height	Degrees	Metres	-Receiver	Height	Diff.	Atten.	Ground %	Atten.	LAeq
1	**Excavator**	110	140	20.0	-2.0	20.0	0	0	90	25.0	0.309	13.2	60.0	2.2	41.9
2	**Main Conveyor**	250	270	20.0	-2.0	19.0	60	0	90	25.0	0.156	11.1	60.0	3.1	40.8
3	**Processing Plant**	320	320	20.0	0.0	24.0	0	0	90	25.0	0.060	9.4	90.0	4.2	44.5
4	**Loading Shovel at Processing Plant**	320	320	20.0	0.0	22.0	0	0	90	25.0	0.087	10.1	90.0	5.0	36.8
5	**HGVs on Access Road**	45	45	20.0	0.0	22.0	20	0	10	25.0	0.720	17.8	90.0	1.1	26.2
6	**Conveyor to Nearest Phase**	80	80	20.0	-2.0	19.0	40	0	90	25.0	21.691	20.6	60.0	1.5	34.8
7	**Loading Shovel Loading Conveyor**	110	110	20.0	-2.0	20.0	0	100	90	25.0	0.673	17.1	60.0	1.9	38.1
8	**Importing of Infill Material by HGV on access road**	45	65	20.0	0.0	22.0	20	0	10	25.0	0.675	17.6	90.0	1.9	21.7
9	**Tipping of Infill Material**	140	170	20.0	-0.3	21.7	0	0	100	25.0	0.139	12.1	60.0	2.5	36.3
10	**Grading by Dozer**	140	170	20.0	-0.3	21.7	0	0	100	25.0	0.139	11.9	60.0	2.5	42.5
11	**HGVs within site**	140	150	20.0	-0.3	21.7	0	0	100	25.0	0.170	12.4	60.0	2.3	40.1
12	**Plant Item 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Excavator**	90	100	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.8	56.2
14	**Dump Trucks**	90	110	20.0	0.0	22.0	60	0	0	5.0	-1.000	0.0	60.0	1.9	54.2
15	**Dozer**	90	100	20.0	0.0	22.0	0	0	0	0.0	-1.000	0.0	60.0	1.8	58.2