

**Appendix 5.9 GBN Calculation for PME Operation**

GBNSR ID AUT-G11  
 PME: Hydraulic Breaker

NSR	Ground Type	Ro (m)	no. of storey	lowest occupied	R (m)
AUT-G11	Rock	5.5	3	0	43

  

Item	Description								Remark	
	Octave Band Frequency	16	31.5	63	125	250	500	Hz		
	rms velocity	0.059	0.068	0.062	0.050	0.062	0.121	mm/s	Refernce has been made to Appendix 7.2 of the approved EIA report for Kowloon Southern Link	
1	Vibration Velocity, ref 10 <sup>-6</sup> mm/s	95	97	96	94	96	102	dB(V)		
2	Distance Attenuation	-18	-18	-18	-18	-18	-18	dB		
3	Soil Damping	0.0	0.0	0.0	0.0	0.0	0.0	dB		
4	Building Coupling Loss	0.0	0.0	0.0	0.0	0.0	0.0	dB		
5	Floor to Floor Attenuation	0	0	0	0	0	0	dB		
5	Conversion from Vibration to Noise	-27	-27	-27	-27	-27	-27	dB		
6	Conversion to A-weighted Noise	-56.7	-39.4	-26.2	-16.1	-8.6	-3.2	dB		
7	Octave Noise Level at NSR	0	12	25	33	42	54	dBA		
8	A-weighted Noise Level at NSR								54	dBA

PME: Rock Drill

Using the calculated hydraulic breaker noise to correct to rock drill noise	5.1	dB(A)	20 x log (rms vibration velocity for rock drill / rms velocity for hydraulic breaker) i.e. 20 x log(0.536 / 0.298)
Predicted Ground-borne Noise Level for 1 Rock Drill	59	dB(A)	

Construction Activity	PME	No. of PME	GBN Level
Adits and Tunnel Works	Hydraulic Breaker	1	54 dB(A)
	Rock Drill	2	62 dB(A)
Overall Predicted Ground-borne Noise Level			63 dB(A)
Daytime Ground-borne Noise Criteria			65 dB(A)
Compliance (Yes/No)			Yes

GBNSR ID NTM-G07  
 PME: Hydraulic Breaker

NSR	Ground Type	Ro (m)	no. of storey	lowest occupied	R (m)
NTM-G07	Rock	5.5	3	0	173

  

Item	Description								Remark	
	Octave Band Frequency	16	31.5	63	125	250	500	Hz		
	rms velocity	0.059	0.068	0.062	0.050	0.062	0.121	mm/s	Refernce has been made to Appendix 7.2 of the approved EIA report for Kowloon Southern Link	
1	Vibration Velocity, ref 10 <sup>-6</sup> mm/s	95	97	96	94	96	102	dB(V)		
2	Distance Attenuation	-30	-30	-30	-30	-30	-30	dB		
3	Soil Damping	0.0	0.0	0.0	0.0	0.0	0.0	dB		
4	Building Coupling Loss	0.0	0.0	0.0	0.0	0.0	0.0	dB		
5	Floor to Floor Attenuation	0	0	0	0	0	0	dB		
5	Conversion from Vibration to Noise	-27	-27	-27	-27	-27	-27	dB		
6	Conversion to A-weighted Noise	-56.7	-39.4	-26.2	-16.1	-8.6	-3.2	dB		
7	Octave Noise Level at NSR	0	0	13	21	30	41	dBA		
8	A-weighted Noise Level at NSR								42	dBA

PME: Rock Drill

Using the calculated hydraulic breaker noise to correct to rock drill noise	5.1	dB(A)	20 x log (rms vibration velocity for rock drill / rms velocity for hydraulic breaker) i.e. 20 x log(0.536 / 0.298)
Predicted Ground-borne Noise Level for 1 Rock Drill	47	dB(A)	

Construction Activity	PME	No. of PME	GBN Level
Mined / D&B: NTD to Mainline Underground Tunnels	Hydraulic Breaker	1	42 dB(A)
	Rock Drill	2	50 dB(A)
Overall Predicted Ground-borne Noise Level			51 dB(A)
Daytime Ground-borne Noise Criteria			65 dB(A)
Compliance (Yes/No)			Yes

**Appendix 5.9 GBN Calculation for PME Operation**

GBNSR ID NTM-G08  
 PME: Hydraulic Breaker

NSR	Ground Type	Ro (m)	no. of storey	lowest occupied	R (m)				Remark	
NTM-G08	Rock	5.5	1	0	104					
Item	Description								Remark	
	Octave Band Frequency	16	31.5	63	125	250	500	Hz		
	rms velocity	0.059	0.068	0.062	0.050	0.062	0.121	mm/s	Reference has been made to Appendix 7.2 of the approved EIA report for Kowloon Southern Link	
1	Vibration Velocity, ref 10 <sup>-6</sup> mm/s	95	97	96	94	96	102	dB(V)		
2	Distance Attenuation	-26	-26	-26	-26	-26	-26	dB		
3	Soil Damping	0.0	0.0	0.0	0.0	0.0	0.0	dB		
4	Building Coupling Loss	0.0	0.0	0.0	0.0	0.0	0.0	dB		
5	Floor to Floor Attenuation	0	0	0	0	0	0	dB		
5	Conversion from Vibration to Noise	-27	-27	-27	-27	-27	-27	dB		
6	Conversion to A-weighted Noise	-56.7	-39.4	-26.2	-16.1	-8.6	-3.2	dB		
7	Octave Noise Level at NSR	0	5	17	25	35	46	dBA		
8	A-weighted Noise Level at NSR							46	dBA	

PME: Rock Drill

Using the calculated hydraulic breaker noise to correct to rock drill noise	5.1	dB(A)	20 x log (rms vibration velocity for rock drill / rms velocity for hydraulic breaker) i.e. 20 x log(0.536 / 0.298)
Predicted Ground-borne Noise Level for 1 Rock Drill	51	dB(A)	

Construction Activity	PME	No. of PME	GBN Level
Mined / D&B: NTD to Mainline Underground Tunnels	Hydraulic Breaker	1	46 dB(A)
	Rock Drill	2	54 dB(A)
Overall Predicted Ground-borne Noise Level			55 dB(A)
Daytime Ground-borne Noise Criteria			65 dB(A)
Compliance (Yes/No)			Yes

GBNSR ID NTM-G09  
 PME: Hydraulic Breaker

NSR	Ground Type	Ro (m)	no. of storey	lowest occupied	R (m)				Remark	
NTM-G09	Rock	5.5	1	0	187					
Item	Description								Remark	
	Octave Band Frequency	16	31.5	63	125	250	500	Hz		
	rms velocity	0.059	0.068	0.062	0.050	0.062	0.121	mm/s	Reference has been made to Appendix 7.2 of the approved EIA report for Kowloon Southern Link	
1	Vibration Velocity, ref 10 <sup>-6</sup> mm/s	95	97	96	94	96	102	dB(V)		
2	Distance Attenuation	-31	-31	-31	-31	-31	-31	dB		
3	Soil Damping	0.0	0.0	0.0	0.0	0.0	0.0	dB		
4	Building Coupling Loss	0.0	0.0	0.0	0.0	0.0	0.0	dB		
5	Floor to Floor Attenuation	0	0	0	0	0	0	dB		
5	Conversion from Vibration to Noise	-27	-27	-27	-27	-27	-27	dB		
6	Conversion to A-weighted Noise	-56.7	-39.4	-26.2	-16.1	-8.6	-3.2	dB		
7	Octave Noise Level at NSR	0	0	12	20	30	41	dBA		
8	A-weighted Noise Level at NSR							41	dBA	

PME: Rock Drill

Using the calculated hydraulic breaker noise to correct to rock drill noise	5.1	dB(A)	20 x log (rms vibration velocity for rock drill / rms velocity for hydraulic breaker) i.e. 20 x log(0.536 / 0.298)
Predicted Ground-borne Noise Level for 1 Rock Drill	46	dB(A)	

Construction Activity	PME	No. of PME	GBN Level
Shaft D&B, Adit and Tunnel Works	Hydraulic Breaker	1	41 dB(A)
	Rock Drill	2	49 dB(A)
Overall Predicted Ground-borne Noise Level			50 dB(A)
Daytime Ground-borne Noise Criteria			65 dB(A)
Compliance (Yes/No)			Yes