

Title : Detailed Assessment for Ground Borne Noise

rev 1 - 1/3 Octave: Based on MTR SIL(E) WP 14 Rev E Implementation
08-Jan-10



Project No.:	248137		
Project Title:	SIL(E) EIA - Ground Borne Noise Assessment		
Client:	MTRCL		
Location of Noise Sensitive Receiver:	SLH - Island Shangri-la Hotel		
No. of Floor:	27+ ground level podium		
Assessment Floor:	4		
	Horizontal	Vertical	Slant
Distance from Track (nearside only) :	m	0	23.6 23.6
Rock Head Depth :	m	-16	
Rolling Stock Information:	MTRCL K-stock		
Train Speed:	kph	55	
Length of Train:	m	68	
Passby duration:	s	4.5	
Total No. of Passby during Assessment Period (both direction together):	nos.	Day period 30	Night period 16
Assessment Period	mins.	30	30

Notes Assessment floor is located above podium level

Octave Band Centre Frequency	Hz	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	Overall
Force Density (FDL)	VdB re lb-ft/ft ⁵	47.6	40.8	41.8	47.5	44.6	47.6	42.7	40.6	44.7	47.7	48.5	48.0	44.1	46.3	42.1	39.0	38.1	58.0
Source Corrections																			
Speed	dB	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3
Turn out and cross over (TOC)	dB	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Track Form	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Structure	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source Vibration Level	VdB re 1x10⁻⁶ in/s	54.3	47.5	48.5	54.2	51.3	54.3	49.4	47.3	51.4	54.4	55.2	54.7	50.8	53.0	48.8	45.7	44.8	64.7
-------------------------------	--------------------------------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

Propogation Corrections	Line Source Response	dB re (1x10 ⁻⁶ in/s) / (lb-ft / ft ⁵)	NSR at 23.6m: WIL D012 #1	6.4	10.5	10.4	10.1	6.5	4.8	2.1	-4.5	-7.8	-12.1	-18.3	-22.1	-22.1	-20.9	-24.0	-23.5	-26.3
-------------------------	----------------------	--	---------------------------	-----	------	------	------	-----	-----	-----	------	------	-------	-------	-------	-------	-------	-------	-------	-------

Vibration at NSR Foundation	VdB re 1x10⁻⁶ in/s	60.7	58.0	58.9	64.3	57.9	59.1	51.5	42.9	43.7	42.3	37.0	32.7	28.7	32.1	24.8	22.2	18.5	
------------------------------------	--------------------------------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	--

Building Corrections	Building Foundation Coupling Loss	dB	Large Masonry Building on Pile - Lower	-5.7	-6.0	-6.7	-7.3	-8.0	-9.0	-10.0	-11.0	-11.7	-12.3	-13.0	-13.3	-13.7	-14.0	-13.3	-12.7	-12.0
	Floor and Wall Correction	dB	Total Floor Attenuation	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
	Building Structure Resonance	dB	Building Structure Resonance	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Predicted Groundborne Vibration Level	VdB re 1x10⁻⁶ in/s	53.0	50.0	50.3	55.0	47.9	48.1	39.5	29.9	30.0	28.0	22.0	17.4	13.0	16.1	9.5	7.5	4.5	59.7
--	--------------------------------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	------------	------------	------------	-------------

Room Corrections	Krad	dB	Krad = 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	K A-weighting	dB		-63.4	-56.7	-50.5	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2
	Conversion to A-weighted Audible Noise (CTN)	dB		-63.4	-56.7	-50.5	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2
	Predicted Ground Borne Noise Level inside NSR	dBA		-10.4	-6.7	-0.2	10.3	8.5	13.5	9.3	3.7	7.5	8.9	5.9	4.0	2.1	7.5	2.9	2.7	1.3
	Design Factor	dBA		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Unm)	dBA	-0.4	3.3	9.8	20.3	18.5	23.5	19.3	13.7	17.5	18.9	15.9	14.0	12.1	17.5	12.9	12.7	11.3	29.3
--	------------	-------------	------------	------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

Propose Mitigation Treatment	Insertion Loss	dB	Not required	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Mit)	dBA	-0.4	3.3	9.8	20.3	18.5	23.5	19.3	13.7	17.5	18.9	15.9	14.0	12.1	17.5	12.9	12.7	11.3	29.3	

Day Period	Correction for Passby Duration	dB	10 log (4.5s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	Correction for "Tailing Effect"	dB	NSR 23.6m from the nearest track	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	SEL for Passby (include a 10dBA Design Factor)	dBA		6.7	10.3	16.8	27.3	25.5	30.6	26.4	20.7	24.5	25.9	22.9	21.0	19.2	24.6	19.9	19.8	18.4
	Correction for no. of Train Passby	dB	10 log (30nos. of passby)	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
	Correction for duration effect	dB	-10log(1800s)	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6
	Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)	dBA		-11.1	-7.4	-1.0	9.6	7.7	12.8	8.6	2.9	6.8	8.1	5.1	3.2	1.4	6.8	2.2	2.0	0.6
	Design Target (ANL)	dBA	Day Period - ASR Type B																	55
	Margin of Safety	dBA																		36.5
	Minimum Attenuation Requirement (Overall)	dBA																		0.0
	Propose Mitigation Treatment																			
	Insertion Loss	dB	Not required	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)	dBA		-11.1	-7.4	-1.0	9.6	7.7	12.8	8.6	2.9	6.8	8.1	5.1	3.2	1.4	6.8	2.2	2.0	0.6

Night Period	Correction for Passby Duration	dB	10 log (4.5s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	Correction for "Tailing Effect"	dB	NSR 23.6m from the nearest track	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	SEL for Passby (include a 10dBA Design Factor)	dBA		6.7	10.3	16.8	27.3	25.5	30.6	26.4	20.7	24.5	25.9	22.9	21.0	19.2	24.6	19.9	19.8	18.4
	Correction for no. of Train Passby	dB	10 log (16nos. of passby)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
	Correction for duration effect	dB	-10log(1800s)	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6
	Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)	dBA		-13.8	-10.2	-3.7	6.8	5.0	10.0	5.9	0.2	4.0	5.4	2.4	0.5	-1.3	4.1	-0.6	-0.7	-2.2
	Design Target (ANL)	dBA	Night Period - ASR Type B																	45
	Margin of Safety	dBA																		29.2
	Minimum Attenuation Requirement (Overall)	dBA																		0.0
	Propose Mitigation Treatment																			
	Insertion Loss	dB	Not required	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)	dBA		-13.8	-10.2	-3.7	6.8	5.0	10.0	5.9	0.2	4.0	5.4	2.4	0.5	-1.3	4.1	-0.6	-0.7	-2.2

Title : Detailed Assessment for Ground Borne Noise

rev 1 - 1/3 Octave: Based on MTR SIL(E) WP 14 Rev E Implementation
08-Jan-10

Project No.:	248137			
Project Title:	SIL(E) EIA - Ground Borne Noise Assessment			
Client:	MTRCL			
Location of Noise Sensitive Receiver:	YOC4 - Yue On Court - Shan On House Block F			
No. of Floor:	35			
Assessment Floor:	1			
Distance from Track (nearest only) :	Horizontal	Vertical	Slant	
	m	5.4	10.9	12.2
	m		20	
Rolling Stock Information:	MTRCL K-stock			
Train Speed:	kph	55		
Length of Train:	m	68		
Passby duration:	s	4.5		
Total No. of Passby during Assessment Period (both direction together):	Day period	Night period		
	nos.	30	16	
Assessment Period	mins.	30	30	

Octave Band Centre Frequency	Hz	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	Overall	
Force Density (FDL)	VdB re lb-ft/l ^{0.5}	47.6	40.8	41.8	47.5	44.6	47.6	42.7	40.6	44.7	47.7	48.5	48.0	44.1	46.3	42.1	39.0	38.1	58.0	
Source Corrections																				
Speed	dB	+20 log (55kph / 80kph)																		
Turn out and cross over (TOC)	dB	Without Turnout or Cross Over																		
Track Form	dB	No Special Treatment																		
Others	dB	0																		
Structure	dB	Concrete Tunnel in Rock																		
Source Vibration Level	VdB re 1x10⁻⁶ in/s	44.3	37.5	38.5	44.2	41.3	44.3	39.4	37.3	41.4	44.4	45.2	44.7	40.8	43.0	38.8	35.7	34.8	54.7	
Propagation Corrections																				
Line Source Response	dB re (1x10 ⁻⁶ in/s) / (lb-ft / ft ^{0.5})	15.9	17.3	16.0	7.0	15.5	17.7	17.5	17.2	11.9	7.6	0.2	-5.9	-7.3	-6.6	-6.8	-4.5	-9.4		
Vibration at NSR Foundation	VdB re 1x10⁻⁶ in/s	60.2	54.8	54.6	51.3	56.8	62.0	56.9	54.6	53.3	52.0	45.4	38.9	33.5	36.4	32.0	31.3	25.4		
Building Corrections																				
Building Foundation Coupling Loss	dB	Foundation on Rock																		
Floor and Wall Correction	dB	Total Floor Attenuation																		
Building Structure Resonance	dB	Building Structure Resonance																		
Predicted Groundborne Vibration Level	VdB re 1x10⁻⁶ in/s	64.2	58.8	58.6	55.3	60.8	66.0	60.9	58.6	57.3	56.0	49.4	42.9	37.5	40.4	36.0	35.3	29.4	71.5	
Room Corrections																				
Krad	dB	Krad = 0																		
K A-weighting	dB	-63.4	-56.7	-50.5	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2		
Conversion to A-weighted Audible Noise (CTN)	dB	-63.4	-56.7	-50.5	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2		
Predicted Ground Borne Noise Level inside NSR	dBA	0.8	2.1	8.1	10.6	21.4	31.4	30.7	32.4	34.8	36.9	33.3	29.5	26.6	31.8	29.4	30.5	26.2	43.0	
Design Factor	dBA	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Unm)	dBA	10.8	12.1	18.1	20.6	31.4	41.4	40.7	42.4	44.8	46.9	43.3	39.5	36.6	41.8	39.4	40.5	36.2	53.0	

Propose Mitigation Treatment																				
Insertion Loss	dB	Not required																		
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Mit)	dBA	10.8	12.1	18.1	20.6	31.4	41.4	40.7	42.4	44.8	46.9	43.3	39.5	36.6	41.8	39.4	40.5	36.2	53.0	

Day Period																				
Correction for Passby Duration	dB	10 log (4.5s)																		
Correction for "Tailing Effect"	dB	NSR 12.2m from the nearest track																		
SEL for Passby (include a 10dBA Design Factor)	dBA	17.4	18.7	24.6	27.1	38.0	48.0	47.3	48.9	51.4	53.5	49.9	46.0	43.2	48.4	46.0	47.0	42.8	59.5	
Correction for no. of Train Passby	dB	10 log (30nos. of passby)																		
Correction for duration effect	dB	-10log(1800s)																		
Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)	dBA	-0.4	0.9	6.9	9.4	20.2	30.2	29.5	31.1	33.6	35.7	32.1	28.3	25.4	30.6	28.2	29.3	25.0	41.8	
Design Target (ANL)	dBA	Day Period - ASR Type B																		
Margin of Safety	dBA																			
Minimum Attenuation Requirement (Overall)	dBA																			
Propose Mitigation Treatment																				
Insertion Loss	dB	Not required																		
Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)	dBA	-0.4	0.9	6.9	9.4	20.2	30.2	29.5	31.1	33.6	35.7	32.1	28.3	25.4	30.6	28.2	29.3	25.0	41.8	

Night Period																				
Correction for Passby Duration	dB	10 log (4.5s)																		
Correction for "Tailing Effect"	dB	NSR 12.2m from the nearest track																		
SEL for Passby (include a 10dBA Design Factor)	dBA	17.4	18.7	24.6	27.1	38.0	48.0	47.3	48.9	51.4	53.5	49.9	46.0	43.2	48.4	46.0	47.0	42.8	59.5	
Correction for no. of Train Passby	dB	10 log (16nos. of passby)																		
Correction for duration effect	dB	-10log(1800s)																		
Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)	dBA	-3.1	-1.8	4.1	6.6	17.5	27.5	26.8	28.4	30.9	33.0	29.4	25.5	22.7	27.9	25.5	26.5	22.3	39.0	
Design Target (ANL)	dBA	Night Period - ASR Type B																		
Margin of Safety	dBA																			
Minimum Attenuation Requirement (Overall)	dBA																			
Propose Mitigation Treatment																				
Insertion Loss	dB	Not required																		
Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)	dBA	-3.1	-1.8	4.1	6.6	17.5	27.5	26.8	28.4	30.9	33.0	29.4	25.5	22.7	27.9	25.5	26.5	22.3	39.0	

Title : Detailed Assessment for Ground Borne Noise

rev 1 - 1/3 Octave: Based on MTR SIL(E) WP 14 Rev E Implementation
06-Jan-10



Project No.:	248137		
Project Title:	SIL(E) EIA - Ground Borne Noise Assessment		
Client:	MTRCL		
Location of Noise Sensitive Receiver:	SOH8 - South Horizons Phase IV - Dover Court Block 25		
No. of Floor:	35 + 4 level of Podium		
Assessment Floor:	5		
	Horizontal	Vertical	Slant
Distance from Track (nearside only) :	m	4.5	0
Rock Head Depth :	m	-23	
Rolling Stock Information:	MTRCL K-stock		
Train Speed:	kph	35	
Length of Train:	m	68	
Passby duration:	s	7.0	
Total No. of Passby during Assessment Period (both direction together):	nos.	Day period	Night period
		30	16
Assessment Period	mins.	30	30

Notes Turnout or cross over correction apply because rail crossing locate within 1 train length. Assessment floor is located above podium level

Octave Band Centre Frequency	Hz	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	Overall
Force Density (FDL)	VdB re lb-ft/lp ⁵	47.6	40.8	41.8	47.5	44.6	47.6	42.7	40.6	44.7	47.7	48.5	48.0	44.1	46.3	42.1	39.0	38.1	58.0
Source Corrections																			
Speed	dB	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Turn out and cross over (TOC)	dB	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Track Form	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Structure	dB	0.0	0.0	-0.3	-0.7	-1.0	-1.7	-2.3	-3.0	-3.3	-3.7	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
Source Vibration Level	VdB re 1x10⁻⁶ in/s	50.4	43.6	44.3	49.7	46.4	48.8	43.2	40.4	44.2	46.9	47.3	46.8	42.9	45.1	40.9	37.8	36.9	58.7
Propogation Corrections																			
Line Source Response	dB re (1x10 ⁻⁶ in/s) / (lb-ft / ft ^{2.5})	18.6	24.0	26.9	24.3	23.9	31.2	39.0	41.4	42.2	40.8	46.1	32.1	33.0	24.1	12.9	8.2	13.0	
Vibration at NSR Foundation	VdB re 1x10⁻⁶ in/s	69.0	67.6	71.2	74.0	70.3	79.9	82.2	81.8	86.4	87.6	93.4	79.0	75.9	69.2	53.8	46.0	50.0	
Building Corrections																			
Building Foundation Coupling Loss	dB	-5.7	-6.0	-6.7	-7.3	-8.0	-9.0	-10.0	-11.0	-11.7	-12.3	-13.0	-13.3	-13.7	-14.0	-13.3	-12.7	-12.0	
Floor and Wall Correction	dB	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Building Structure Resonance	dB	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Predicted Groundborne Vibration Level	VdB re 1x10⁻⁶ in/s	59.3	57.6	60.5	62.6	58.3	66.9	68.2	66.8	70.7	71.3	76.4	61.6	58.3	51.2	36.4	29.3	34.0	79.7
Room Corrections																			
Krad	dB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K A-weighting	dB	-63.4	-56.7	-50.5	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	
Conversion to A-weighted Audible Noise (CTN)	dB	-63.4	-56.7	-50.5	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	
Predicted Ground Borne Noise Level inside NSR	dBA	-4.1	0.9	10.0	17.9	18.9	32.3	38.0	40.6	48.2	52.2	60.3	48.2	47.4	42.6	29.8	24.5	30.8	61.7
Design Factor	dBA	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Unm)	dBA	5.9	10.9	20.0	27.9	28.9	42.3	48.0	50.6	58.2	62.2	70.3	58.2	57.4	52.6	39.8	34.5	40.8	71.7

Propose Mitigation Treatment	Insertion Loss	dB	0																
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Mit)	dBA	5.9	10.9	20.0	27.9	28.9	42.3	48.0	50.6	58.2	62.2	70.3	58.2	57.4	52.6	39.8	34.5	40.8	71.7

Day Period																			
Correction for Passby Duration	dB	10 log (7s)																	
Correction for "Tailing Effect"	dB	NSR 4.5m from the nearest track																	
SEL for Passby (include a 10dBA Design Factor)	dBA	14.4	19.3	28.5	36.4	37.3	50.8	56.5	59.0	66.6	70.6	78.8	66.7	65.8	61.1	48.3	43.0	49.2	80.1
Correction for no. of Train Passby	dB	10 log (30nos. of passby)																	
Correction for duration effect	dB	-10log(1800s)																	
Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)	dBA	-3.4	1.6	10.7	18.6	19.6	33.0	38.7	41.3	48.9	52.8	61.0	48.9	48.0	43.3	30.5	25.2	31.4	62.3
Design Target (ANL)	dBA	Day Period - ASR Type B																	
Margin of Safety	dBA																		
Minimum Attenuation Requirement (Overall)	dBA																		
Propose Mitigation Treatment	Insertion Loss	dB	0																
Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)	dBA	-3.4	1.6	10.7	18.6	19.6	33.0	38.7	41.3	48.9	52.8	61.0	48.9	48.0	43.3	30.5	25.2	31.4	62.3

Night Period																			
Correction for Passby Duration	dB	10 log (7s)																	
Correction for "Tailing Effect"	dB	NSR 4.5m from the nearest track																	
SEL for Passby (include a 10dBA Design Factor)	dBA	14.4	19.3	28.5	36.4	37.3	50.8	56.5	59.0	66.6	70.6	78.8	66.7	65.8	61.1	48.3	43.0	49.2	80.1
Correction for no. of Train Passby	dB	10 log (16nos. of passby)																	
Correction for duration effect	dB	-10log(1800s)																	
Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)	dBA	-6.1	-1.2	8.0	15.9	16.8	30.2	36.0	38.5	46.1	50.1	58.2	46.2	45.3	40.6	27.8	22.5	28.7	59.6
Design Target (ANL)	dBA	Night Period - ASR Type B																	
Margin of Safety	dBA																		
Minimum Attenuation Requirement (Overall)	dBA																		
Propose Mitigation Treatment	Insertion Loss	dB	0																
Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)	dBA	-6.1	-1.2	8.0	15.9	16.8	30.2	36.0	38.5	46.1	50.1	58.2	46.2	45.3	40.6	27.8	22.5	28.7	59.6

Title : Detailed Assessment for Ground Borne Noise

rev 1 - 1/3 Octave: Based on MTR SIL(E) WP 14 Rev E Implementation
06-Oct-09



Project No.:				248137																							
Project Title:				SIL(E) EIA - Ground Borne Noise Assessment																							
Client:				MTRCL																							
Location of Noise Sensitive Receiver:				SOH6 - South Horizons Phase III - Mei Ka Court Block 23A																							
No. of Floor:				39 + 3 level of podium																							
Assessment Floor:				4																							
				Horizontal				Vertical				Slant															
Distance from Track (nearside only) :				m				8				0				8.0											
Rock Head Depth :				m																							
Rolling Stock Information:				MTRCL K-stock																							
Train Speed:				kph																							
Length of Train:				m																							
Passby duration:				s																							
				Day period								Night period															
Total No. of Passby during Assessment Period (both direction together):				nos.								30								16							
Assessment Period				mins.								30								30							
Notes				Turnout or cross over correction apply because rail crossing locate within 1 train length. Assessment floor is located above podium level																							
Octave Band Centre Frequency				Hz																							
				12.5 16 20 25 31.5 40 50 63 80 100 125 160 200 250 315 400 500 Overall																							
Force Density (FDL)				VdB re lb-ft / ft ^{0.5} FDL from WIL EIA at 80kph																							
Source Corrections																											
Speed				dB																							
Turn out and cross over (TOC)				dB																							
Track Form				dB																							
Others				dB																							
Structure				dB																							
Source Vibration Level				VdB re 1x10 ⁻⁶ in/s																							
Propagation Corrections																											
Line Source Response				dB re (1x10 ⁻⁶ in/s) / (lb-ft / ft ^{0.5}) NSR at 6m: WIL D095 #1																							
Vibration at NSR Foundation				VdB re 1x10 ⁻⁶ in/s																							
Building Corrections																											
Building Foundation Coupling Loss				dB																							
Floor and Wall Correction				dB																							
Building Structure Resonance				dB																							
Predicted Groundborne Vibration Level				VdB re 1x10 ⁻⁶ in/s																							
Room Corrections																											
Krad				dB																							
K A-weighting				dB																							
Conversion to A-weighted Audible Noise (CTN)				dB																							
Predicted Ground Borne Noise Level inside NSR				dBA																							
Design Factor				dBA																							
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Unm)				dBA																							
Propose Mitigation Treatment																											
Insertion Loss				dB																							
Predicted Ground Borne Noise Level inside NSR (include a 10dBA Design Factor), Lmax (Mit)				dBA																							
Day Period																											
Correction for Passby Duration				dB																							
Correction for "Tailing Effect"				dB																							
SEL for Passby (include a 10dBA Design Factor)				dBA																							
Correction for no. of Train Passby				dB																							
Correction for duration effect				dB																							
Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)				dBA																							
Design Target (ANL)				dBA																							
Margin of Safety				dBA																							
Minimum Attenuation Requirement (Overall)				dBA																							
Propose Mitigation Treatment																											
Insertion Loss				dB																							
Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)				dBA																							
Night Period																											
Correction for Passby Duration				dB																							
Correction for "Tailing Effect"				dB																							
SEL for Passby (include a 10dBA Design Factor)				dBA																							
Correction for no. of Train Passby				dB																							
Correction for duration effect				dB																							
Predicted Ground Borne Noise - LA eq 30mins (include a 10dBA Design Factor)				dBA																							
Design Target (ANL)				dBA																							
Margin of Safety				dBA																							
Minimum Attenuation Requirement (Overall)				dBA																							
Propose Mitigation Treatment																											
Insertion Loss				dB																							
Predicted Ground Borne Noise with Mitigation Treatment - LA eq 30mins (include a 10dBA Design Factor)				dBA																							