Project: Detailed Calculation of Construction Ground-borne Noise
NSR No.: 26
NSR Usage: Residential Building
NSR Location: Hongway Garden
Foundation Depth: -10 mPD
Lowest Affected Floor: 1

	Horizontal Dist, m	Track Depth, mPD	Rockhead Depth, mPD
Eastbound Alignment	0	-24	-26
Westbound Alignment	0	-24	-27

Descriptions	Unit	1/3 Octave Band Center Frequency, Hz																						
		3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
FDL	dB re 1 lb/in$^{0.5}$	99.0	94.0	89.0	85.0	79.0	78.0	79.0	78.0	70.0	66.0	65.0	64.0	56.0	55.0	53.0	54.0	53.0	52.0	53.0	60.0	58.0	58.0	60.0
LSR	dB re 10^{-6}in/s*in$^{0.5}$/lb	1.9	-0.5	-4.6	-8.5	-1.8	-3.8	-7.4	-6.4	-10.7	-4.4	-2.8	2.9	5.6	5.5	4.2	-1.9	-0.4	-0.8	-3.7	-7.7	-5.2	-6.1	-9.9
BCF	dB Y/N N																							
BVR - Floor to Floor	dB Floor 3	-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	-6.0	-6.0	-6.0	-6.0	-6.0
BVR - Resonance	dB	0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CTN	dB	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB	106.9	99.5	90.4	83.5	85.2	83.2	81.6	82.6	71.3	73.6	74.2	78.9	73.4	72.1	68.6	63.3	63.6	61.2	58.3	60.3	60.1	58.6	56.1
	Oct (Linear), dB		107.7			88.8			85.3			81.1			76.6			67.6			64.4			60.6
	1/3 Oct (A-weighted), dB						**12.8**	**18.2**	**25.9**	**20.8**	**28.9**	**34.8**	**44.3**	**43.2**	**45.9**	**46.1**	**44.2**	**47.5**	**47.8**	**47.4**	**51.7**	**53.5**	**53.8**	**52.9**
	dB(A)	**60.6**																						
Daytime Groundborne Noise Criteria, dB(A)		**65**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 1
NSR Usage: Residential Building
NSR Location: Luen Yee Building
No. of Basement Floors: 0
NSR Floor: 1

Train Speed: 60 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	*Horizontal Dist, m	*Track Depth, m	*Foundation Depth, m	*Slant Dist, m
Eastbound	7	28	2	26.9
Westbound	13	28	2	29.1

Piling Depth	Rockhead Depth
No Info	28
	31

Descriptions	Unit		1/3 Octave Band Center Frequency, Hz																							
			3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																										
FDL	dB re 1 lb/ft0.5		30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	2	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	10.0	10.0	10.0	10.0
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																						
LSR	dB re micro-in/s * ft0.5/lb			9.0	7.0	3.0	0.2	6.3	4.8	1.1	-3.9	-4.4	1.1	2.6	8.0	10.6	9.6	8.1	2.6	3.1	2.8	0.1	-2.7	-0.5	-1.6	-5.1
Up Track Vibration Level	dB re 1 micro-in/sec			49.1	53.9	51.3	53.2	60.1	59.1	56.2	44.4	44.9	56.1	54.7	63.1	60.8	57.7	60.3	57.8	59.1	58.3	51.7	51.1	49.1	44.9	40.5
Westbond Calculation																										
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	2	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	10.0	10.0	10.0	10.0	10.0
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			8.0	6.1	2.2	-0.5	5.5	4.2	0.7	-4.2	-5.2	-0.1	1.3	6.5	9.2	7.7	6.2	1.2	1.2	0.9	-1.6	-3.9	-1.8	-3.0	-6.3
Down Track Vibration Lev	dB re 1 micro-in/sec			48.1	53.0	50.5	52.5	59.3	58.5	55.8	44.1	44.1	54.9	53.4	61.6	59.4	55.8	58.4	56.4	57.2	56.4	50.0	49.9	47.8	43.5	39.3
Total of Up and Down Tracks Calculation																										
Total Vibration Level Outside Building				51.6	56.4	53.9	55.9	62.8	61.9	59.0	47.3	47.5	58.6	57.1	65.4	63.2	59.8	62.5	60.1	61.3	60.5	54.0	53.6	51.5	47.3	43.0
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			61.6	66.4	63.9	66.9	74.8	74.9	73.0	62.3	63.5	74.6	73.1	81.4	79.0	75.4	77.9	75.3	76.3	74.5	67.0	65.6	62.8	58.0	53.0
Predicted Noise Level	Oct (Linear), dB				69.2			78.2			73.8			82.7			82.4			80.2			70.2			59.2
Predicted Noise Level	1/3 Oct (A-weighted), dB							**4.5**	**9.6**	**5.6**	**13.0**	**29.9**	**33.7**	**46.8**	**48.8**	**49.2**	**55.4**	**56.2**	**60.2**	**61.1**	**56.1**	**57.0**	**56.2**	**53.2**	**49.8**
Predicted Leq(Double PassBy)			dB(A)	**66.9**																						
Predicted Lmax,slow			dB(A)	**67.4**																						
Predicted Leq(30min)			dB(A)	**57.8**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 1 (mitigated)
NSR Usage: Residential Building
NSR Location: Luen Yee Building
No. of Basement Floors: 0
NSR Floor: 1

Train Speed: 60 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	*Horizontal Dist, m	*Track Depth, m	*Foundation Depth, m	*Slant Dist, m
Eastbound	7	28	2	26.9
Westbound	13	28	2	29.1

Piling Depth	Rockhead Depth
No Info	28
	31

Descriptions	Unit		1/3 Octave Band Center Frequency, Hz																							
			3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																										
FDL	dB re 1 lb/ft0.5		30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			9.0	7.0	3.0	0.2	6.3	4.8	1.1	-3.9	-4.4	1.1	2.6	8.0	10.6	9.6	8.1	2.6	3.1	2.8	0.1	-2.7	-0.5	-1.6	-5.1
Up Track Vibration Level	dB re 1 micro-in/sec			44.1	48.9	46.3	51.2	56.1	54.1	51.2	38.4	35.9	46.1	46.7	55.1	55.8	43.7	42.3	42.8	42.1	41.3	33.7	34.1	34.1	34.9	30.5
Westbond Calculation																										
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			8.0	6.1	2.2	-0.5	5.5	4.2	0.7	-4.2	-5.2	-0.1	1.3	6.5	9.2	7.7	6.2	1.2	1.2	0.9	-1.6	-3.9	-1.8	-3.0	-6.3
Down Track Vibration Lev	dB re 1 micro-in/sec			43.1	48.0	45.5	50.5	55.3	53.5	50.8	38.1	35.1	44.9	45.4	53.6	54.4	41.8	40.4	41.4	40.2	39.4	32.0	32.9	32.8	33.5	29.3
Total of Up and Down Tracks Calculation																										
Total Vibration Level Outside Building				46.6	51.4	48.9	53.9	58.8	56.9	54.0	41.3	38.5	48.6	49.1	57.4	58.2	45.8	44.5	45.1	44.3	43.5	36.0	36.6	36.5	37.3	33.0
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			56.6	61.4	58.9	64.9	70.8	69.9	68.0	56.3	54.5	64.6	65.1	73.4	74.0	61.4	59.9	60.3	59.3	57.5	49.0	48.6	47.8	48.0	43.0
Predicted Noise Level	Oct (Linear), dB				64.2			73.9			68.5			74.5			74.4			64.0			53.2			49.2
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-0.5**	**4.6**	**-0.4**	**4.0**	**19.9**	**25.7**	**38.8**	**43.8**	**35.2**	**37.4**	**41.2**	**43.2**	**44.1**	**38.1**	**40.0**	**41.2**	**43.2**	**39.8**
Predicted Leq(Double PassBy)			dB(A)	**52.0**																						
Predicted Lmax,slow			dB(A)	**52.5**																						
Predicted Leq(30min)			dB(A)	**42.9**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 2
NSR Usage: Residential Building
NSR Location: Hongway Garden
No. of Basement Floors: 1
NSR Floor: 2

Train Speed: 80 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Basement Floor, m	Slant Dist, m
Eastbound	0	28	5	23.0
Westbound	0	28	5	23.0

Piling Depth, m	Rockhead Depth, m
>30	28
	31

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	2	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	10.0	10.0	10.0	10.0	10.0
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			10.8	8.6	4.7	1.6	7.8	6.0	2.0	-3.3	-2.8	3.3	5.2	11.0	13.4	13.1	11.7	5.2	6.7	6.3	3.3	-0.5	2.2	1.0	-2.7
Up Track Vibration Level	dB re 1 micro-in/sec			53.4	58.0	55.5	57.1	64.1	62.8	59.6	47.5	49.0	60.8	59.8	68.6	66.1	63.7	66.4	62.9	65.2	64.3	57.4	55.8	54.3	50.0	45.4
Westbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	2	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	10.0	10.0	10.0	10.0	10.0
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			10.8	8.6	4.7	1.6	7.8	6.0	2.0	-3.3	-2.8	3.3	5.2	11.0	13.4	13.1	11.7	5.2	6.7	6.3	3.3	-0.5	2.2	1.0	-2.7
Down Track Vibration Lev	dB re 1 micro-in/sec			53.4	58.0	55.5	57.1	64.1	62.8	59.6	47.5	49.0	60.8	59.8	68.6	66.1	63.7	66.4	62.9	65.2	64.3	57.4	55.8	54.3	50.0	45.4
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				56.4	61.1	58.5	60.1	67.2	65.8	62.6	50.5	52.1	63.8	62.8	71.6	69.1	66.7	69.4	65.9	68.2	67.3	60.4	58.8	57.3	53.0	48.4
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	3	-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	-6.0	-6.0	-6.0	-6.0	-6.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			62.4	67.1	64.5	67.1	75.2	74.8	72.6	61.5	64.1	75.8	74.8	83.6	80.9	78.3	80.8	77.1	79.2	77.3	69.4	66.8	64.6	59.7	54.4
Predicted Noise Level	Oct (Linear), dB				69.9			78.3			73.5			84.7			84.9			82.7			72.2			60.8
Predicted Noise Level	1/3 Oct (A-weighted), dB								**4.4**	**9.2**	**4.8**	**13.6**	**31.1**	**35.4**	**49.0**	**50.7**	**52.1**	**58.3**	**58.0**	**63.1**	**63.9**	**58.5**	**58.2**	**58.0**	**54.9**	**51.2**
Predicted Leq(Double PassBy)			dB(A)	**69.4**																						
Predicted Lmax,slow			dB(A)	**69.9**																						
Predicted Leq(30min)			dB(A)	**59.0**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 2 (mitigated)
NSR Usage: Residential Building
NSR Location: Hongway Garden
No. of Basement Floors: 1
NSR Floor: 2

Train Speed: 80 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Basement Floor, m	Slant Dist, m
Eastbound	0	28	5	23
Westbound	0	28	5	23

Piling Depth, m	Rockhead Depth, m
>30	28
	31

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			10.8	8.6	4.7	1.6	7.8	6.0	2.0	-3.3	-2.8	3.3	5.2	11.0	13.4	13.1	11.7	5.2	6.7	6.3	3.3	-0.5	2.2	1.0	-2.7
Up Track Vibration Level	dB re 1 micro-in/sec			48.4	53.0	50.5	55.1	60.1	57.8	54.6	41.5	40.0	50.8	51.8	60.6	61.1	49.7	48.4	47.9	48.2	47.3	39.4	38.8	39.3	40.0	35.4
Westbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb			10.8	8.6	4.7	1.6	7.8	6.0	2.0	-3.3	-2.8	3.3	5.2	11.0	13.4	13.1	11.7	5.2	6.7	6.3	3.3	-0.5	2.2	1.0	-2.7
Down Track Vibration Lev	dB re 1 micro-in/sec			48.4	53.0	50.5	55.1	60.1	57.8	54.6	41.5	40.0	50.8	51.8	60.6	61.1	49.7	48.4	47.9	48.2	47.3	39.4	38.8	39.3	40.0	35.4
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				51.4	56.1	53.5	58.1	63.2	60.8	57.6	44.5	43.1	53.8	54.8	63.6	64.1	52.7	51.4	50.9	51.2	50.3	42.4	41.8	42.3	43.0	38.4
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	3	-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	-6.0	-6.0	-6.0	-6.0	-6.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			57.4	62.1	59.5	65.1	71.2	69.8	67.6	55.5	55.1	65.8	66.8	75.6	75.9	64.3	62.8	62.1	62.2	60.3	51.4	49.8	49.6	49.7	44.4
Predicted Noise Level	Oct (Linear), dB				64.9			74.1			68.1			76.5			76.4			66.4			55.1			50.8
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-0.6**	**4.2**	**-1.2**	**4.6**	**21.1**	**27.4**	**41.0**	**45.7**	**38.1**	**40.3**	**43.0**	**46.1**	**46.9**	**40.5**	**41.2**	**43.0**	**44.9**	**41.2**
Predicted Leq(Double PassBy)			dB(A)	**54.3**																						
Predicted Lmax,slow			dB(A)	**54.8**																						
Predicted Leq(30min)			dB(A)	**43.9**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment **Train Speed:** 80 kph
NSR No.: 3 **No. of PB in 30min Per Direction:** 10
NSR Usage: Residential Building **Head-Tail Effect:** 3 dB
NSR Location: Kian Nan Mansion, 81-85 Bonham Strand West
No. of Basement Floor: 0
NSR Floor: 1

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	0	30	2	28.0
Westbound	0	30	2	28.0

Piling Depth, m	Rockhead Depth, m
No Info	32
	32

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb			8.5	6.5	2.6	-0.2	5.9	4.5	0.8	-4.2	-4.8	0.5	2.0	7.2	9.9	8.6	7.1	1.9	2.2	1.9	-0.8	-3.3	-1.2	-2.3	-5.7
Up Track Vibration Level	dB re 1 micro-in/sec			41.1	45.9	43.4	45.3	52.2	51.3	48.4	36.6	37.0	48.0	46.6	54.8	52.6	49.2	51.8	49.6	50.7	49.9	43.3	43.0	40.9	36.7	32.4
Westbond Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb			8.5	6.5	2.6	-0.2	5.9	4.5	0.8	-4.2	-4.8	0.5	2.0	7.2	9.9	8.6	7.1	1.9	2.2	1.9	-0.8	-3.3	-1.2	-2.3	-5.7
Down Track Vibration Lev	dB re 1 micro-in/sec			41.1	45.9	43.4	45.3	52.2	51.3	48.4	36.6	37.0	48.0	46.6	54.8	52.6	49.2	51.8	49.6	50.7	49.9	43.3	43.0	40.9	36.7	32.4
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				44.1	48.9	46.4	48.4	55.2	54.3	51.4	39.6	40.0	51.0	49.6	57.9	55.6	52.2	54.9	52.6	53.7	52.9	46.4	46.0	44.0	39.7	35.4
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			54.1	58.9	56.4	59.4	67.2	67.3	65.4	54.6	56.0	67.0	65.6	73.9	71.4	67.8	70.3	67.8	68.7	66.9	59.4	58.0	55.3	50.4	45.4
Predicted Noise Level	Oct (Linear), dB				61.7			70.6			66.2			75.2			74.8			72.6			62.6			51.6
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-3.1**	**2.0**	**-2.1**	**5.5**	**22.3**	**26.2**	**39.3**	**41.2**	**41.6**	**47.8**	**48.7**	**52.6**	**53.5**	**48.5**	**49.4**	**48.7**	**45.6**	**42.2**
Predicted Leq(Double PassBy)			dB(A)	**59.3**																						
Predicted Lmax,slow			dB(A)	**59.8**																						
Predicted Leq(30min)			dB(A)	**49.0**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment **Train Speed:** 80 kph
NSR No.: 3 (mitigated) **No. of PB in 30min Per Direction:** 10
NSR Usage: Residential Building **Head-Tail Effect:** 3 dB
NSR Location: Kian Nan Mansion, 81-85 Bonham Strand West
No. of Basement Floor: 0
NSR Floor: 1

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	0	30	2	28.0
Westbound	0	30	2	28.0

Piling Depth, m	Rockhead Depth, m
No Info	32
	32

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb			8.5	6.5	2.6	-0.2	5.9	4.5	0.8	-4.2	-4.8	0.5	2.0	7.2	9.9	8.6	7.1	1.9	2.2	1.9	-0.8	-3.3	-1.2	-2.3	-5.7
Up Track Vibration Level	dB re 1 micro-in/sec			41.1	45.9	43.4	48.3	53.2	51.3	48.4	35.6	33.0	43.0	43.6	51.8	52.6	40.2	38.8	39.6	38.7	37.9	30.3	31.0	30.9	31.7	27.4
Westbond Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb			8.5	6.5	2.6	-0.2	5.9	4.5	0.8	-4.2	-4.8	0.5	2.0	7.2	9.9	8.6	7.1	1.9	2.2	1.9	-0.8	-3.3	-1.2	-2.3	-5.7
Down Track Vibration Lev	dB re 1 micro-in/sec			41.1	45.9	43.4	48.3	53.2	51.3	48.4	35.6	33.0	43.0	43.6	51.8	52.6	40.2	38.8	39.6	38.7	37.9	30.3	31.0	30.9	31.7	27.4
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				44.1	48.9	46.4	51.4	56.2	54.3	51.4	38.6	36.0	46.0	46.6	54.9	55.6	43.2	41.9	42.6	41.7	40.9	33.4	34.0	34.0	34.7	30.4
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			54.1	58.9	56.4	62.4	68.2	67.3	65.4	53.6	52.0	62.0	62.6	70.9	71.4	58.8	57.3	57.8	56.7	54.9	46.4	46.0	45.3	45.4	40.4
Predicted Noise Level	Oct (Linear), dB				61.7			71.4			65.9			71.9			71.8			61.4			50.7			46.6
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-3.1**	**2.0**	**-3.1**	**1.5**	**17.3**	**23.2**	**36.3**	**41.2**	**32.6**	**34.8**	**38.7**	**40.6**	**41.5**	**35.5**	**37.4**	**38.7**	**40.6**	**37.2**
Predicted Leq(Double PassBy)			dB(A)	**49.5**																						
Predicted Lmax,slow			dB(A)	**50.0**																						
Predicted Leq(30min)			dB(A)	**39.1**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 4
NSR Usage: Residential Building
NSR Location: No. 36 Eastern Street, West Point
No. of Basement Floor: 0
NSR Floor: 1

Train Speed: 80 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	0	42	2	40.0
Westbound	2	42	2	40.0

Piling Depth, m	Rockhead Depth, m
No Info	32
	32

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb			3.4	1.9	-1.9	-3.8	1.9	1.5	-1.5	-5.8	-9.1	-5.5	-5.1	-1.2	2.1	-1.5	-3.1	-5.4	-8.0	-8.2	-9.8	-9.3	-8.5	-9.5	-12.2
Up Track Vibration Level	dB re 1 micro-in/sec			36.0	41.3	38.9	41.7	48.2	48.3	46.1	35.0	32.7	42.0	39.5	46.4	44.8	39.1	41.6	42.3	40.5	39.8	34.3	37.0	33.6	29.5	25.9
Westbond Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb			3.4	1.9	-1.9	-3.8	1.9	1.5	-1.5	-5.9	-9.2	-5.5	-5.1	-1.2	2.1	-1.6	-3.1	-5.4	-8.1	-8.2	-9.9	-9.4	-8.5	-9.5	-12.2
Down Track Vibration Lev	dB re 1 micro-in/sec			36.0	41.3	38.9	41.7	48.2	48.3	46.1	34.9	32.6	42.0	39.5	46.4	44.8	39.0	41.6	42.3	40.4	39.8	34.2	36.9	33.6	29.5	25.9
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				39.0	44.4	41.9	44.7	51.2	51.3	49.1	38.0	35.7	45.0	42.5	49.4	47.8	42.1	44.6	45.3	43.4	42.8	37.2	40.0	36.6	32.5	28.9
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			49.0	54.4	51.9	55.7	63.2	64.3	63.1	53.0	51.7	61.0	58.5	65.4	63.6	57.7	60.0	60.5	58.4	56.8	50.2	52.0	47.9	43.2	38.9
Predicted Noise Level	Oct (Linear), dB				57.0			67.1			63.8			67.4			65.9			63.6			55.1			44.6
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-6.1**	**-0.3**	**-3.7**	**1.2**	**16.3**	**19.1**	**30.8**	**33.4**	**31.5**	**37.5**	**41.4**	**42.3**	**43.4**	**39.3**	**43.4**	**41.3**	**38.4**	**35.7**
Predicted Leq(Double PassBy)			dB(A)	**50.7**																						
Predicted Lmax,slow			dB(A)	**51.2**																						
Predicted Leq(30min)			dB(A)	**40.3**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 5
NSR Usage: Residential Building
NSR Location: Po Shu Lau, Tse, 35-43 Sands Street
No. of Basement Floor: 0
NSR Floor: 1

Train Speed: 80 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	0	42	2	40.0
Westbound	0	42	2	40.0

Piling Depth, m	Rockhead Depth, m
No Info	10
	10

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								7.9	7.3	5.5	7.2	9.3	7.1	9.5	6.3	9.6	9.5	8.9	10.9	5.2	5.3	5.6	-0.4	-3.4	-2.9
Up Track Vibration Level	dB re 1 micro-in/sec			32.6	39.4	40.8	45.5	46.3	54.7	54.9	46.3	49.0	56.8	51.7	57.1	49.0	50.2	54.2	56.6	59.4	53.2	49.4	51.9	41.7	35.6	35.2
Westbond Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								7.9	7.3	5.5	7.2	9.3	7.1	9.5	6.3	9.6	9.5	8.9	10.9	5.2	5.3	5.6	-0.4	-3.4	-2.9
Down Track Vibration Lev	dB re 1 micro-in/sec			32.6	39.4	40.8	45.5	46.3	54.7	54.9	46.3	49.0	56.8	51.7	57.1	49.0	50.2	54.2	56.6	59.4	53.2	49.4	51.9	41.7	35.6	35.2
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				35.6	42.4	43.8	48.5	49.3	57.7	57.9	49.3	52.0	59.8	54.7	60.1	52.0	53.2	57.2	59.6	62.4	56.2	52.4	54.9	44.7	38.6	38.2
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			45.6	52.4	53.8	59.5	61.3	70.7	71.9	64.3	68.0	75.8	70.7	76.1	67.8	68.8	72.6	74.8	77.4	70.2	65.4	66.9	56.0	49.3	48.2
Predicted Noise Level	Oct (Linear), dB				56.5			71.5			73.9			79.6			75.0			79.8			69.4			51.8
Predicted Noise Level	1/3 Oct (A-weighted), dB								**0.3**	**8.5**	**7.6**	**17.5**	**31.1**	**31.3**	**41.5**	**37.6**	**42.6**	**50.1**	**55.7**	**61.3**	**56.8**	**54.5**	**58.3**	**49.4**	**44.5**	**45.0**
Predicted Leq(Double PassBy)			dB(A)	**65.4**																						
Predicted Lmax,slow			dB(A)	**65.9**																						
Predicted Leq(30min)			dB(A)	**55.0**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 5 (mitigated)
NSR Usage: Residential Building
NSR Location: Po Shu Lau, Tse, 35-43 Sands Street
No. of Basement Floor: 0
NSR Floor: 1

Train Speed: 80 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	0	42	2	40.0
Westbound	0	42	2	40.0

Piling Depth, m	Rockhead Depth, m
No Info	10
	10

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								7.9	7.3	5.5	7.2	9.3	7.1	9.5	6.3	9.6	9.5	8.9	10.9	5.2	5.3	5.6	-0.4	-3.4	-2.9
Up Track Vibration Level	dB re 1 micro-in/sec			32.6	39.4	40.8	48.5	47.3	54.7	54.9	45.3	45.0	51.8	48.7	54.1	49.0	41.2	41.2	46.6	47.4	41.2	36.4	39.9	31.7	30.6	30.2
Westbound Calculation																											
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																								
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								7.9	7.3	5.5	7.2	9.3	7.1	9.5	6.3	9.6	9.5	8.9	10.9	5.2	5.3	5.6	-0.4	-3.4	-2.9
Down Track Vibration Lev	dB re 1 micro-in/sec			32.6	39.4	40.8	48.5	47.3	54.7	54.9	45.3	45.0	51.8	48.7	54.1	49.0	41.2	41.2	46.6	47.4	41.2	36.4	39.9	31.7	30.6	30.2
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				35.6	42.4	43.8	51.5	50.3	57.7	57.9	48.3	48.0	54.8	51.7	57.1	52.0	44.2	44.2	49.6	50.4	44.2	39.4	42.9	34.7	33.6	33.2
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			45.6	52.4	53.8	62.5	62.3	70.7	71.9	63.3	64.0	70.8	67.7	73.1	67.8	59.8	59.6	64.8	65.4	58.2	52.4	54.9	46.0	44.3	43.2
Predicted Noise Level	Oct (Linear), dB				56.5			71.8			73.0			75.9			69.0			68.5			57.2			46.8
Predicted Noise Level	1/3 Oct (A-weighted), dB								**0.3**	**8.5**	**6.6**	**13.5**	**26.1**	**28.3**	**38.5**	**37.6**	**33.6**	**37.1**	**45.7**	**49.3**	**44.8**	**41.5**	**46.3**	**39.4**	**39.5**	**40.0**
Predicted Leq(Double PassBy)			dB(A)	**54.1**																						
Predicted Lmax,slow			dB(A)	**54.6**																						
Predicted Leq(30min)			dB(A)	**43.7**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 6
NSR Usage: Residential Building
NSR Location: Tower 1, University Heights
No. of Basement Floor: 0
NSR Floor: 3

Train Speed: 70 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	0	57	2	55.0
Westbound	0	57	2	55.0

Piling Depth, m	Rockhead Depth, m
No Info	20
	20

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			31.4	38.2	39.6	44.3	45.1	45.6	46.4	39.6	40.6	46.3	43.4	46.4	41.5	39.4	43.5	46.5	47.3	46.8	42.9	45.1	40.9	37.8	36.9
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF*	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								-0.9	1.4	-0.7	1.9	3.3	2.6	3.3	1.1	2.5	2.7	1.8	0.7	-1.6	-3.3	-3.9	-8.3	-11.5	-11.8
Up Track Vibration Level	dB re 1 micro-in/sec			31.4	38.2	39.6	44.3	45.1	44.7	47.8	38.9	42.6	49.6	46.0	49.8	42.7	41.9	46.2	48.3	48.0	45.3	39.6	41.3	32.7	26.3	25.2
Westbound Calculation																											
FDL	dB re 1 lb/ft0.5			31.4	38.2	39.6	44.3	45.1	45.6	46.4	39.6	40.6	46.3	43.4	46.4	41.5	39.4	43.5	46.5	47.3	46.8	42.9	45.1	40.9	37.8	36.9
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF*	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								-0.9	1.4	-0.7	1.9	3.3	2.6	3.3	1.1	2.5	2.7	1.8	0.7	-1.6	-3.3	-3.9	-8.3	-11.5	-11.8
Down Track Vibration Lev	dB re 1 micro-in/sec			31.4	38.2	39.6	44.3	45.1	44.7	47.8	38.9	42.6	49.6	46.0	49.8	42.7	41.9	46.2	48.3	48.0	45.3	39.6	41.3	32.7	26.3	25.2
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				34.5	41.3	42.7	47.4	48.2	47.7	50.8	41.9	45.6	52.6	49.0	52.8	45.7	44.9	49.2	51.3	51.0	48.3	42.6	44.3	35.7	29.3	28.2
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	3	-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	-6.0	-6.0	-6.0	-6.0	-6.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			40.5	47.3	48.7	54.4	56.2	56.7	60.8	52.9	57.6	64.6	61.0	64.8	57.5	56.5	60.6	62.5	62.0	58.3	51.6	52.3	43.0	36.0	34.2
Predicted Noise Level	Oct (Linear), dB				51.4			60.6			63.0			68.6			63.3			66.1			55.3			38.2
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-13.7**	**-2.6**	**-3.8**	**7.1**	**19.9**	**21.6**	**30.2**	**27.3**	**30.3**	**38.1**	**43.4**	**45.9**	**44.9**	**40.7**	**43.7**	**36.4**	**31.2**	**31.0**
Predicted Leq(Double PassBy)			dB(A)	**51.6**																						
Predicted Lmax,slow			dB(A)	**52.1**																						
Predicted Leq(30min)			dB(A)	**41.8**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment — **Train Speed:** 50 kph
NSR No.: 7 — **No. of PB in 30min Per Direction:** 10
NSR Usage: Residential Building — **Head-Tail Effect:** 3 dB
NSR Location: Block D, Kwun Lung Lau
No. of Basement Floor: 0
NSR Floor: 1

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	26	44	2	49.4
Westbound	22	44	2	47.4

Piling Depth, m	Rockhead Depth, m
To Rock Lvl	8
	16

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			28.5	35.3	36.7	41.4	42.2	42.7	43.5	36.7	37.7	43.4	40.5	43.5	38.6	36.5	40.6	43.6	44.4	43.9	40.0	42.2	38.0	34.9	34.0
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	5	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
LSR	dB re micro-in/s * ft0.5/lb								2.3	3.5	1.5	3.8	5.5	4.2	5.6	3.0	5.1	5.1	4.3	4.4	0.9	-0.2	-0.4	-5.4	-8.6	-8.5
Up Track Vibration Level	dB re 1 micro-in/sec			23.5	30.3	31.7	36.4	37.2	40.0	42.0	33.3	36.6	43.9	39.7	44.1	36.6	36.6	40.8	43.0	43.8	39.8	34.9	36.8	27.6	21.4	20.5
Westbond Calculation																											
FDL	dB re 1 lb/ft0.5			28.5	35.3	36.7	41.4	42.2	42.7	43.5	36.7	37.7	43.4	40.5	43.5	38.6	36.5	40.6	43.6	44.4	43.9	40.0	42.2	38.0	34.9	34.0
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	5	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
LSR	dB re micro-in/s * ft0.5/lb								3.4	4.3	2.4	4.5	6.3	4.8	6.4	3.7	6.0	6.0	5.3	5.8	1.8	1.0	0.9	-4.4	-7.5	-7.4
Down Track Vibration Lev	dB re 1 micro-in/sec			23.5	30.3	31.7	36.4	37.2	41.2	42.8	34.1	37.3	44.7	40.3	44.9	37.3	37.5	41.7	43.9	45.2	40.7	36.0	38.1	28.7	22.4	21.7
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				26.5	33.3	34.7	39.4	40.2	43.6	45.4	36.7	39.9	47.3	43.0	47.5	40.0	40.1	44.2	46.5	47.6	43.3	38.5	40.5	31.2	24.9	24.1
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Passby Noise Level	1/3 Oct (Linear), dB			36.5	43.3	44.7	50.4	52.2	56.6	59.4	51.7	55.9	63.3	59.0	63.5	55.8	55.7	59.6	61.7	62.6	57.3	51.5	52.5	42.5	35.6	34.1
Passby Noise Level	Oct (Linear), dB				47.5			58.7			61.5			67.2			62.2			65.8			55.3			38.0
Passby Noise Level	1/3 Oct (A-weighted), dB								**-13.8**	**-4.0**	**-5.0**	**5.4**	**18.6**	**19.6**	**28.9**	**25.6**	**29.5**	**37.1**	**42.6**	**46.5**	**43.9**	**40.6**	**43.9**	**35.9**	**30.8**	**30.9**
Predicted Leq(Double PassBy)			dB(A)	**51.4**																						
Predicted Lmax,slow			dB(A)	**51.9**																						
Predicted Leq(30min)			dB(A)	**43.0**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment — **Train Speed:** 60 kph
NSR No.: 8 — **No. of PB in 30min Per Direction:** 10
NSR Usage: Residential Building — **Head-Tail Effect:** 3 dB
NSR Location: Kwun Lung Lau New Development Site
No. of Basement Floor: 0
NSR Floor: 5

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	36	34	0	49.5
Westbound	40	34	0	52.5

Piling Depth, m	Rockhead Depth, m
To Rock Lvl	8
	16

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	**4**	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								2.2	3.4	1.5	3.8	5.4	4.2	5.5	3.0	5.0	5.1	4.3	4.3	0.8	-0.2	-0.5	-5.5	-8.6	-8.6
Up Track Vibration Level	dB re 1 micro-in/sec			30.1	36.9	38.3	43.0	43.8	46.5	48.5	39.8	43.1	50.4	46.3	50.6	43.2	43.1	47.3	49.5	50.3	46.3	41.4	43.3	34.1	27.9	27.0
Westbond Calculation																											
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	N																								
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																								
LSR	dB re micro-in/s * ft0.5/lb								0.5	2.3	0.3	2.8	4.2	3.3	4.3	2.0	3.6	3.8	2.9	2.3	-0.5	-1.9	-2.3	-7.0	-10.2	-10.3
Down Track Vibration Lev	dB re 1 micro-in/sec			30.1	36.9	38.3	43.0	43.8	44.8	47.4	38.6	42.1	49.2	45.4	49.4	42.2	41.7	46.0	48.1	48.3	45.0	39.7	41.5	32.6	26.3	25.3
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				33.1	39.9	41.3	46.0	46.8	48.7	51.0	42.2	45.6	52.9	48.9	53.1	45.7	45.5	49.7	51.9	52.5	48.7	43.6	45.5	36.4	30.2	29.2
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	5	-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	-10.0	-10.0	-10.0	-10.0	-10.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Passby Noise Level	1/3 Oct (Linear), dB			35.1	41.9	43.3	49.0	50.8	53.7	57.0	49.2	53.6	60.9	56.9	61.1	53.5	53.1	57.1	59.1	59.5	54.7	48.6	49.5	39.7	32.9	31.2
Passby Noise Level	Oct (Linear), dB				46.0			56.4			59.1			64.8			59.7			63.0			52.4			35.1
Passby Noise Level	1/3 Oct (A-weighted), dB								**-16.7**	**-6.4**	**-7.5**	**3.1**	**16.2**	**17.5**	**26.5**	**23.3**	**26.9**	**34.6**	**40.0**	**43.4**	**41.3**	**37.7**	**40.9**	**33.1**	**28.1**	**28.0**
Predicted Leq(Double PassBy)			dB(A)	**48.5**																						
Predicted Lmax,slow			dB(A)	**49.0**																						
Predicted Leq(30min)			dB(A)	**39.4**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 9
NSR Usage: Residential Building
NSR Location: East Terrace, Sai Wan Estate
No. of Basement Floor: 0
NSR Floor: 1

Train Speed: 60 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	17	46	0	49.0
Westbound	17	46	0	49.0

Piling Depth, m	Rockhead Depth, m
To Rock Lvl	23
	23

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	2	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	10.0	10.0	10.0	10.0	10.0
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb								2.5	3.6	1.7	4.0	5.6	4.3	5.7	3.1	5.3	5.3	4.5	4.7	1.1	0.1	-0.2	-5.2	-8.4	-8.3
Up Track Vibration Level	dB re 1 micro-in/sec			40.1	46.9	48.3	53.0	53.8	56.8	58.7	50.0	53.3	60.6	56.4	60.8	53.3	53.4	57.5	59.7	60.7	56.6	51.7	53.6	44.4	38.1	37.3
Westbound Calculation																											
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	2	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	10.0	10.0	10.0	10.0	10.0
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb								2.5	3.6	1.7	4.0	5.6	4.3	5.7	3.1	5.3	5.3	4.5	4.7	1.1	0.1	-0.2	-5.2	-8.4	-8.3
Down Track Vibration Lev	dB re 1 micro-in/sec			40.1	46.9	48.3	53.0	53.8	56.8	58.7	50.0	53.3	60.6	56.4	60.8	53.3	53.4	57.5	59.7	60.7	56.6	51.7	53.6	44.4	38.1	37.3
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				43.1	49.9	51.3	56.0	56.8	59.8	61.7	53.0	56.3	63.6	59.4	63.8	56.3	56.4	60.5	62.7	63.7	59.6	54.7	56.6	47.4	41.1	40.3
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Passby Noise Level	1/3 Oct (Linear), dB			53.1	59.9	61.3	67.0	68.8	72.8	75.7	68.0	72.3	79.6	75.4	79.8	72.1	72.0	75.9	77.9	78.7	73.6	67.7	68.6	58.7	51.8	50.3
Passby Noise Level	Oct (Linear), dB				64.0			75.0			77.8			83.5			78.5			82.0			71.4			54.1
Passby Noise Level	1/3 Oct (A-weighted), dB								**2.4**	**12.3**	**11.3**	**21.8**	**34.9**	**36.0**	**45.2**	**41.9**	**45.8**	**53.4**	**58.8**	**62.6**	**60.2**	**56.8**	**60.0**	**52.1**	**47.0**	**47.1**
Predicted Leq(Double PassBy)			dB(A)	**67.5**																						
Predicted Lmax,slow			dB(A)	**68.0**																						
Predicted Leq(30min)			dB(A)	**58.4**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project: West Island Line Operational GBN Assessment
NSR No.: 9 (mitigated)
NSR Usage: Residential Building
NSR Location: East Terrace, Sai Wan Estate
No. of Basement Floor: 0
NSR Floor: 1

Train Speed: 60 kph
No. of PB in 30min Per Direction: 10
Head-Tail Effect: 3 dB

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	17	46	0	49.0
Westbound	17	46	0	49.0

Piling Depth, m	Rockhead Depth, m
To Rock Lvl	23
	23

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																							
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																											
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb								2.5	3.6	1.7	4.0	5.6	4.3	5.7	3.1	5.3	5.3	4.5	4.7	1.1	0.1	-0.2	-5.2	-8.4	-8.3
Up Track Vibration Level	dB re 1 micro-in/sec			35.1	41.9	43.3	51.0	49.8	51.8	53.7	44.0	44.3	50.6	48.4	52.8	48.3	39.4	39.5	44.7	43.7	39.6	33.7	36.6	29.4	28.1	27.3
Westbound Calculation																											
FDL	dB re 1 lb/ft0.5			30.1	36.9	38.3	43.0	43.8	44.3	45.1	38.3	39.3	45.0	42.1	45.1	40.2	38.1	42.2	45.2	46.0	45.5	41.6	43.8	39.6	36.5	35.6
TOC	dB	N/1/2	1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TIL	dB	Type	1a	0.0	0.0	0.0	3.0	1.0	0.0	0.0	-1.0	-4.0	-5.0	-3.0	-3.0	0.0	-9.0	-13.0	-10.0	-12.0	-12.0	-13.0	-12.0	-10.0	-5.0	-5.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb								2.5	3.6	1.7	4.0	5.6	4.3	5.7	3.1	5.3	5.3	4.5	4.7	1.1	0.1	-0.2	-5.2	-8.4	-8.3
Down Track Vibration Lev	dB re 1 micro-in/sec			35.1	41.9	43.3	51.0	49.8	51.8	53.7	44.0	44.3	50.6	48.4	52.8	48.3	39.4	39.5	44.7	43.7	39.6	33.7	36.6	29.4	28.1	27.3
Total of Up and Down Tracks Calculation																											
Total Vibration Level Outside Building				38.1	44.9	46.3	54.0	52.8	54.8	56.7	47.0	47.3	53.6	51.4	55.8	51.3	42.4	42.5	47.7	46.7	42.6	36.7	39.6	32.4	31.1	30.3
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Passby Noise Level	1/3 Oct (Linear), dB			48.1	54.9	56.3	65.0	64.8	67.8	70.7	62.0	63.3	69.6	67.4	71.8	67.1	58.0	57.9	62.9	61.7	56.6	49.7	51.6	43.7	41.8	40.3
Passby Noise Level	Oct (Linear), dB				59.0			70.9			71.9			74.8			68.1			65.9			54.2			44.1
Passby Noise Level	1/3 Oct (A-weighted), dB								**-2.6**	**7.3**	**5.3**	**12.8**	**24.9**	**28.0**	**37.2**	**36.9**	**31.8**	**35.4**	**43.8**	**45.6**	**43.2**	**38.8**	**43.0**	**37.1**	**37.0**	**37.1**
Predicted Leq(Double PassBy)			dB(A)	**51.5**																						
Predicted Lmax,slow			dB(A)	**52.0**																						
Predicted Leq(30min)			dB(A)	**42.3**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						

Project:	West Island Line Operational GBN Assessment	**Train Speed:**	80 kph
NSR No.:	10	**No. of PB in 30min Per Direction:**	10
NSR Usage:	Residential Building	**Head-Tail Effect:**	3 dB
NSR Location:	Tower 3, Academic Terrace		
No. of Basement Floor:	0		
NSR Floor:	1		

	Horizontal Dist, m	Track Depth, m	Foundation Depth, m	Slant Dist, m
Eastbound	20	72.9	2	73.7
Westbound	0	72.9	2	70.9

Piling Depth, m	Rockhead Depth, m
No Info	above track
	above track

Descriptions	Unit			1/3 Octave Band Center Frequency, Hz																						
				3.15	4	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Eastbound Calculation																										
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																							
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb								-11.3	-5.4	-7.9	-4.0	-3.7	-2.6	-3.7	-4.7	-5.8	-5.2	-6.5	-11.4	-9.4	-13.4	-15.0	-17.5	-20.9	-22.2
Up Track Vibration Level	dB re 1 micro-in/sec			32.6	39.4	40.8	45.5	46.3	35.5	42.2	32.9	37.8	43.8	42.0	43.9	38.0	34.8	39.5	41.2	37.1	38.6	30.7	31.3	24.6	18.1	15.9
Westbond Calculation																										
FDL	dB re 1 lb/ft0.5			32.6	39.4	40.8	45.5	46.3	46.8	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
TOC	dB	N/1/2	N																							
TIL	dB	Type	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	0.0	0.0	0.0	0.0	0.0	0.0
TCF	dB	Type	1																							
LSR	dB re micro-in/s * ft0.5/lb								-9.8	-4.4	-6.8	-3.2	-2.7	-1.8	-2.7	-3.9	-4.6	-4.1	-5.3	-9.7	-8.2	-12.0	-13.4	-16.2	-19.6	-20.7
Down Track Vibration Lev	dB re 1 micro-in/sec			32.6	39.4	40.8	45.5	46.3	37.0	43.2	34.0	38.6	44.8	42.8	44.9	38.8	36.0	40.6	42.4	38.8	39.8	32.1	32.9	25.9	19.4	17.4
Total of Up and Down Tracks Calculation																										
Total Vibration Level Outside Building				35.6	42.4	43.8	48.5	49.3	39.3	45.7	36.5	41.2	47.3	45.4	47.4	41.5	38.4	43.1	44.9	41.1	42.2	34.5	35.2	28.3	21.8	19.7
BCF	dB	Type	N	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	0.0	0.0	0.0	0.0	0.0
BVR - Floor to Floor	dB	Floor	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
BVR - Resonance	dB			0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	6.0	6.0	6.0	5.8	5.6	5.4	5.2	5.0	4.0	3.0	2.0	1.3	0.7	0.0
CNT	dB			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SAF	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	10.0	10.0	10.0	10.0	10.0
Predicted Noise Level	1/3 Oct (Linear), dB			45.6	52.4	53.8	59.5	61.3	52.3	59.7	51.5	57.2	63.3	61.4	63.4	57.3	54.0	58.5	60.1	56.1	56.2	47.5	47.2	39.6	32.5	29.7
Predicted Noise Level	Oct (Linear), dB				56.5			63.8			62.1			67.6			61.7			62.6			50.7			34.3
Predicted Noise Level	1/3 Oct (A-weighted), dB								**-18.1**	**-3.7**	**-5.2**	**6.7**	**18.6**	**22.0**	**28.8**	**27.1**	**27.8**	**36.0**	**41.0**	**40.0**	**42.8**	**36.6**	**38.6**	**33.0**	**27.7**	**26.5**
Predicted Leq(Double PassBy)	dB(A)			**48.0**																						
Predicted Lmax,slow	dB(A)			**48.5**																						
Predicted Leq(30min)	dB(A)			**37.6**																						
Nighttime Groundborne Noise Criteria, dB(A)				**45.0**																						