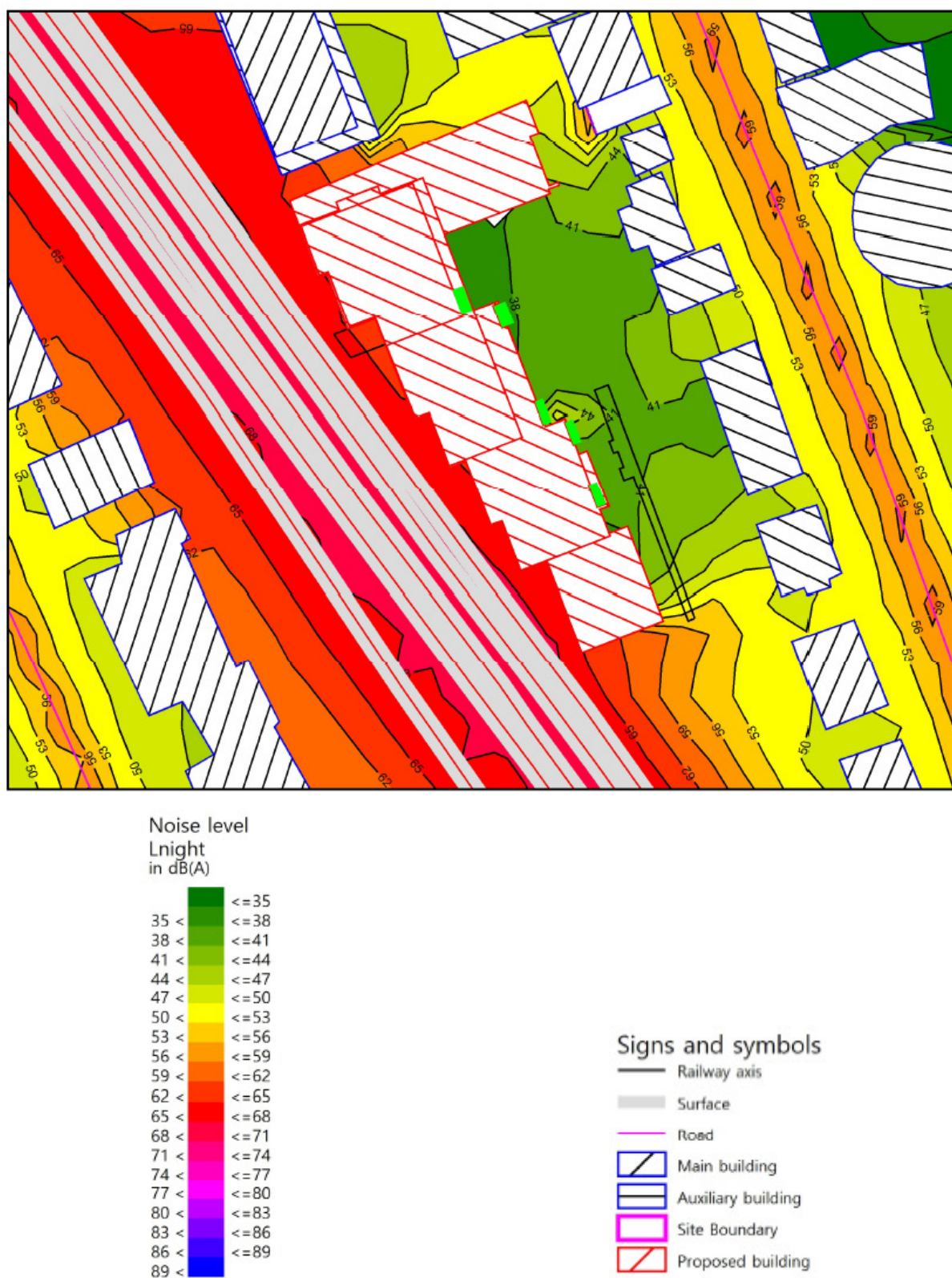
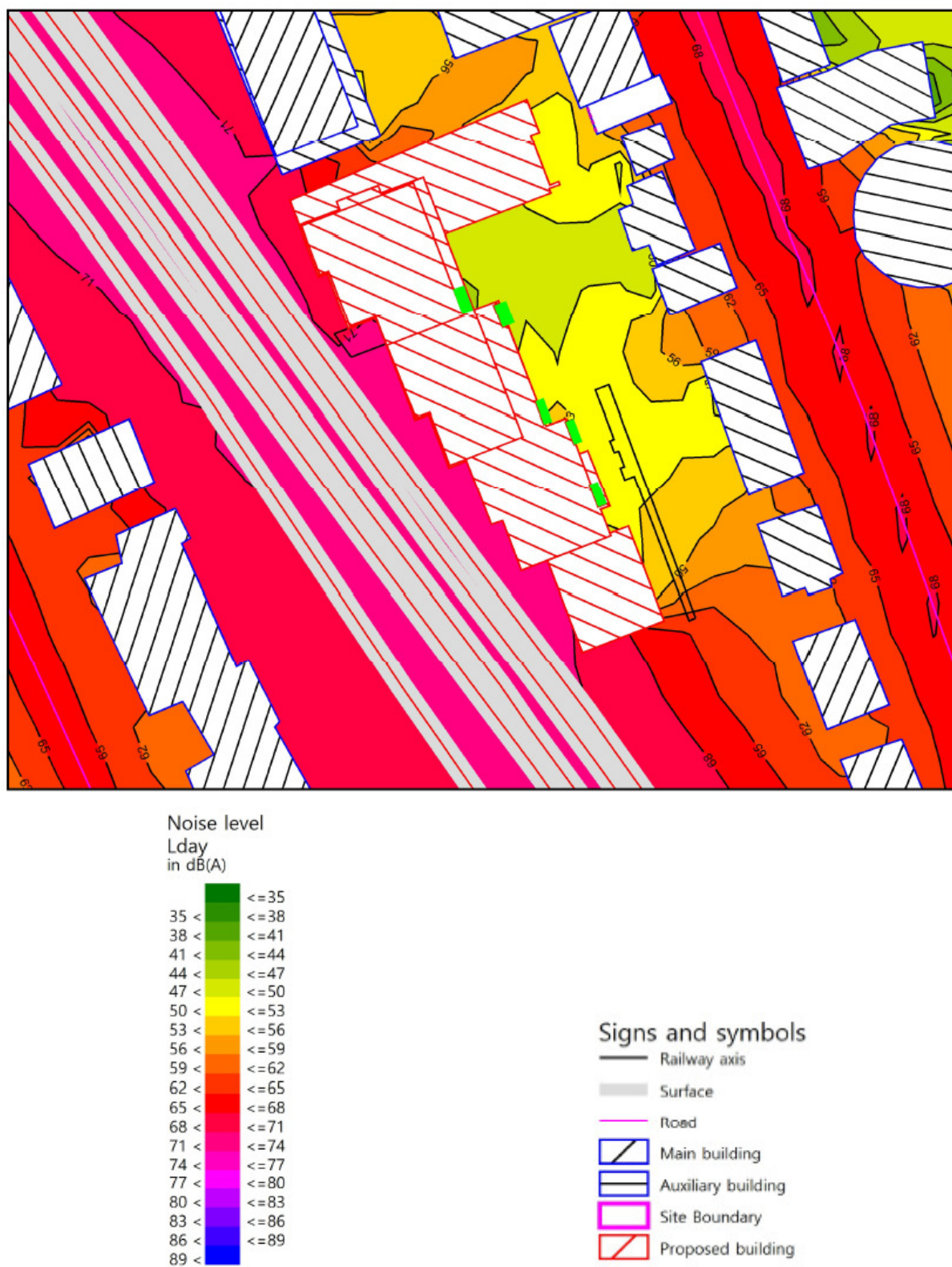


**Figure 7: Night time Noise Contours at 1.5m – Illustrative Layout**

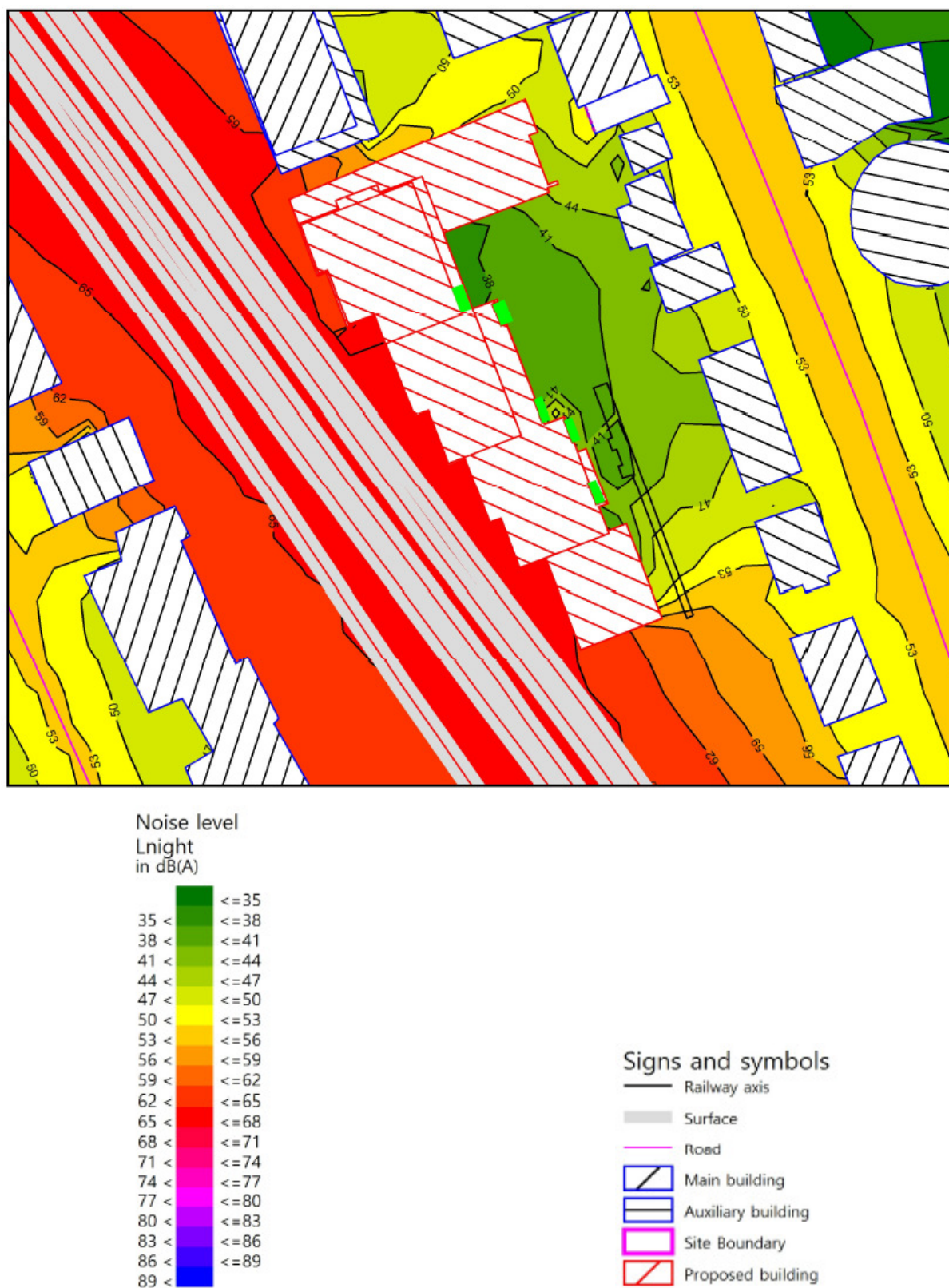


**Figure 8: Daytime Noise Contours at 4m – Illustrative Layout**

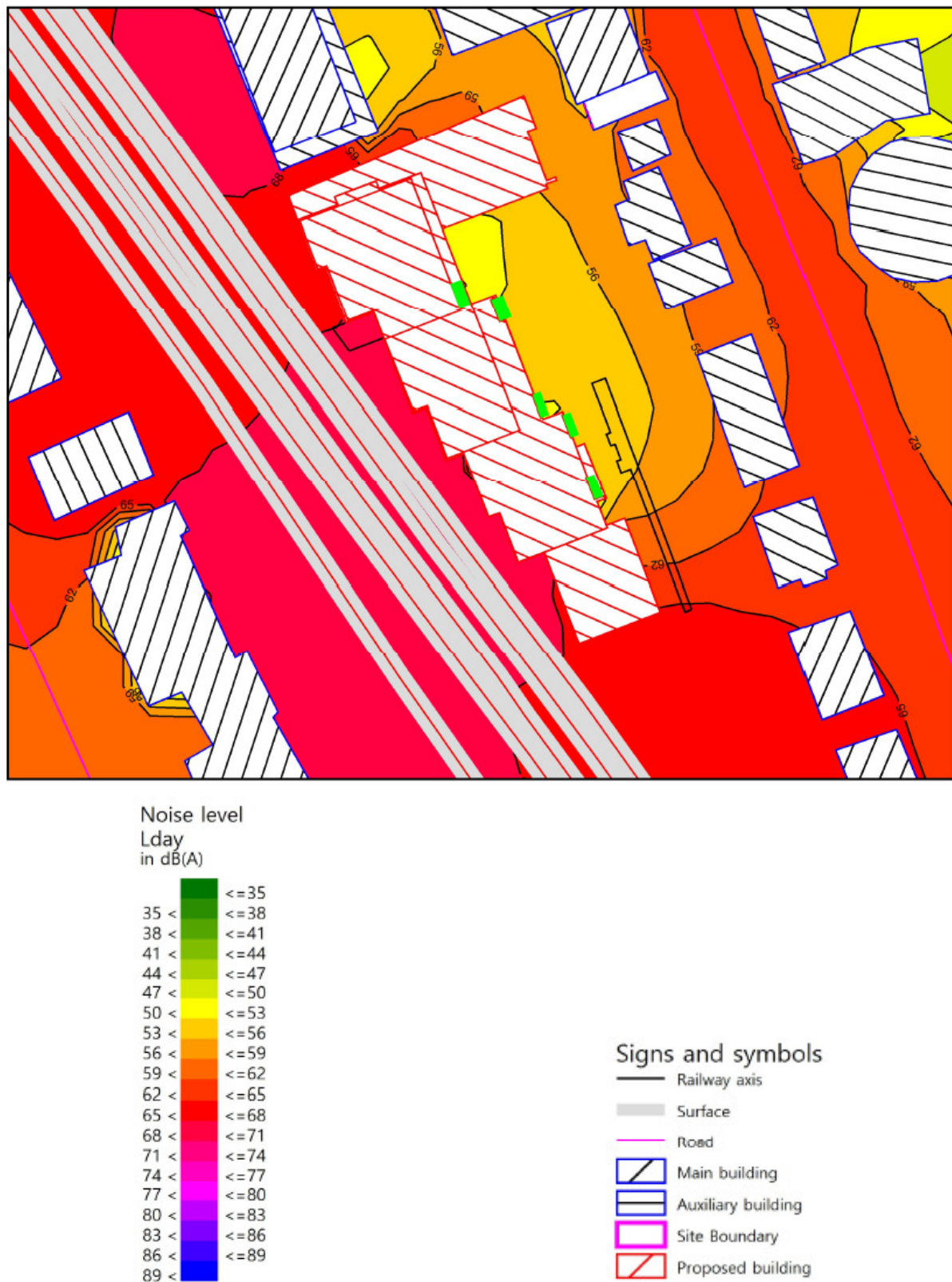




**Figure 9: Night time Noise Contours at 4m – Illustrative Layout**

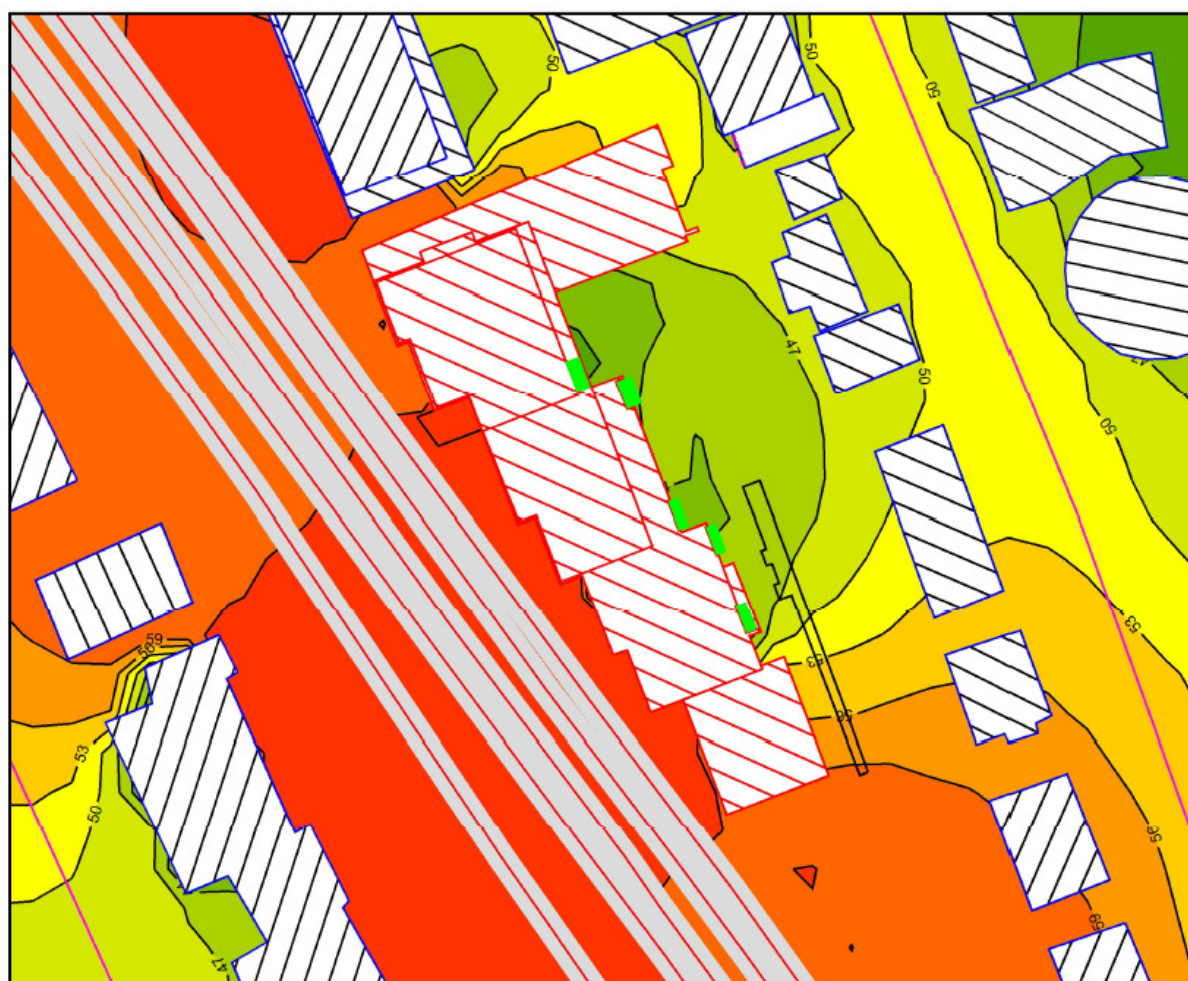


**Figure 10: Day time Noise Contours at 15m – Illustrative Layout**





**Figure 11: Night time Noise Contours at 15m – Illustrative Layout**



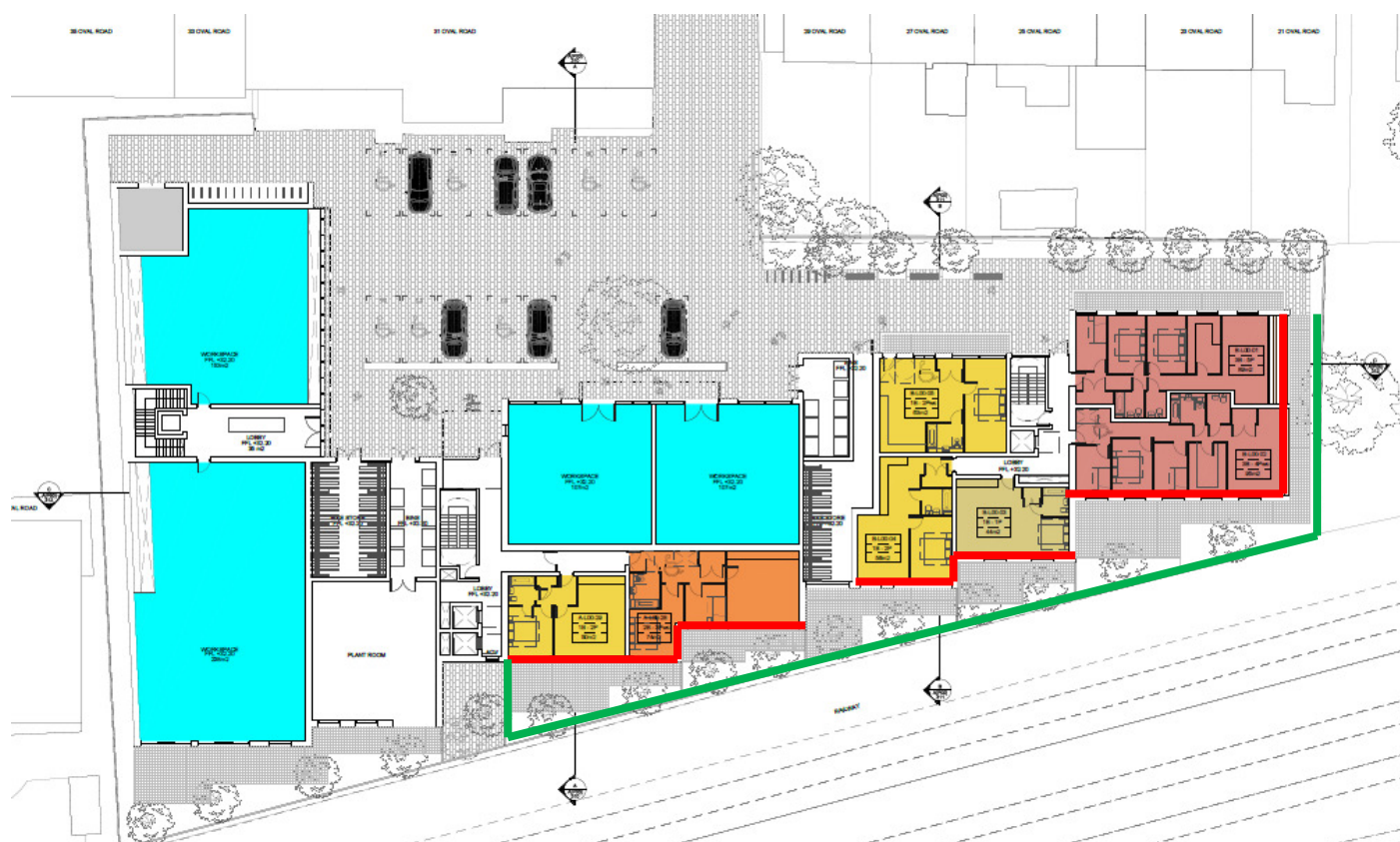
Noise level  
L<sub>night</sub>  
in dB(A)

<=35
35 < <=38
38 < <=41
41 < <=44
44 < <=47
47 < <=50
50 < <=53
53 < <=56
56 < <=59
59 < <=62
62 < <=65
65 < <=68
68 < <=71
71 < <=74
74 < <=77
77 < <=80
80 < <=83
83 < <=86
86 < <=89
89 <

#### Signs and symbols

—	Railway axis
—	Surface
—	Road
▨	Main building
▨	Auxiliary building
▨	Site Boundary
▨	Proposed building

**Figure 12: Proposed Mitigation – Residential Ground Floor**



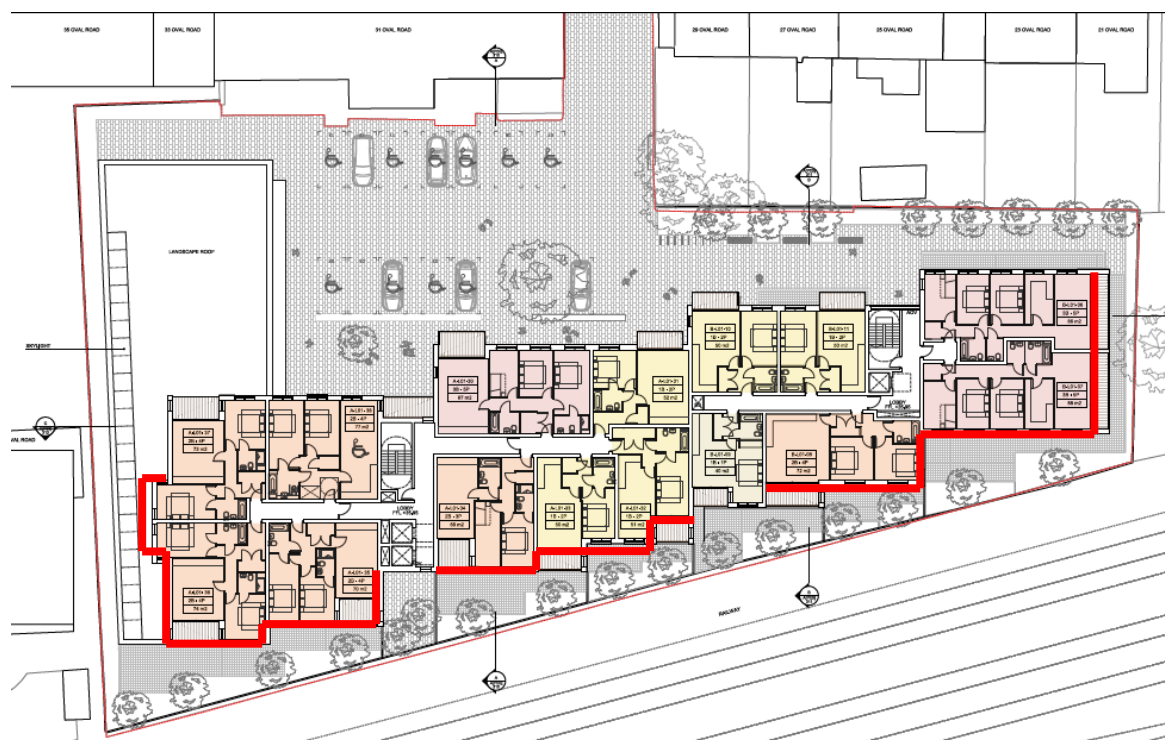
— All habitable rooms:  
Glazing: Type 2  
Ventilation: Type C (MVHR)

— All other habitable rooms not highlighted:  
Glazing: Type 1  
Ventilation: Type A

— 2m high amenity boundary barrier along railway

Please refer to the main report, Section 12 for Workspace mitigation.

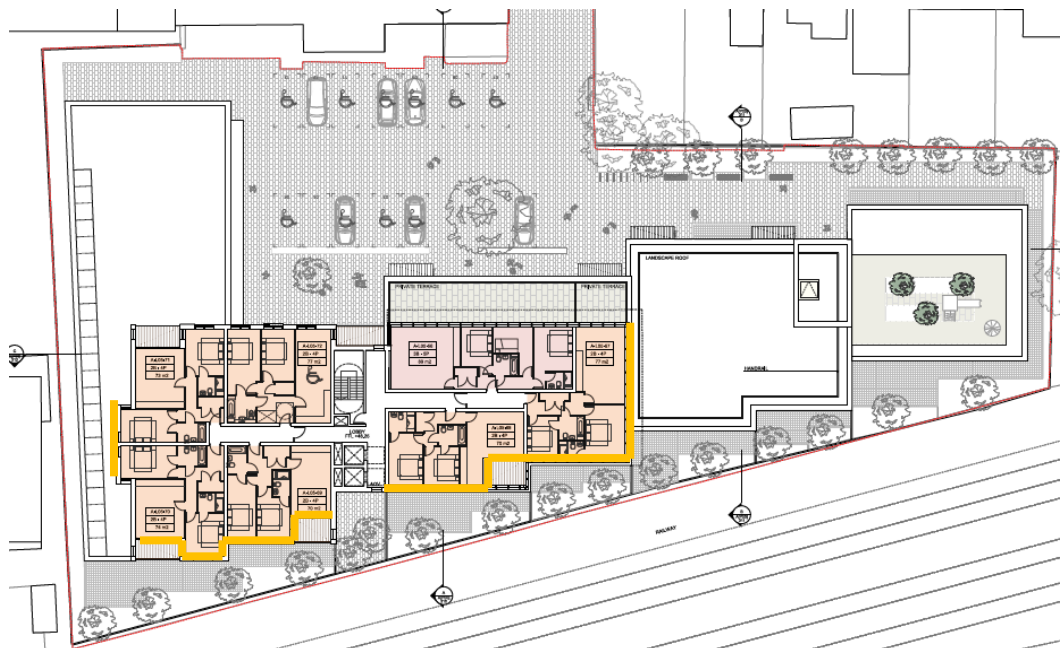
**Figure 13: Proposed Mitigation 1<sup>st</sup> to 4<sup>th</sup> Floor (inc)**



All habitable rooms:  
Glazing: Type 2  
Ventilation: Type C (MVHR)

All other habitable rooms not highlighted:  
Glazing: Type 1  
Ventilation: Type A

**Figure 14: Proposed Mitigation – Fifth Floor and Above (inc)**



All Daytime Habitable Rooms:

Glazing: Type 2

Ventilation: Type B

All Bedrooms:

Glazing: Type 2

Ventilation: Type C (MVHR)

All other habitable rooms not highlighted:

Glazing: Type 1

Ventilation: Type A



## Appendix 1: Continuous Noise Survey Results

MP1 Noise Survey Results Adjacent to Railway Line

Date / Time Period	LAeq	LAmx	LA10	LA90
<b>Friday</b>				
21/10/2016 11:12	71.4	91.4	74.3	44.2
21/10/2016 11:30	70.5	91.4	69	44
21/10/2016 12:00	70.7	89.2	74.9	43.7
21/10/2016 12:30	70.9	91.7	70.6	43.8
21/10/2016 13:00	72.7	90.5	76.9	44.2
21/10/2016 13:30	70.9	92.2	71.5	44
21/10/2016 14:00	71.2	91.2	73.6	43.8
21/10/2016 14:30	71	91.2	71.4	44.4
21/10/2016 15:00	70.3	89	72.5	43.2
21/10/2016 15:30	72.4	90.3	75.9	44.9
21/10/2016 16:00	71.3	87.6	75.9	44.7
21/10/2016 16:30	73.7	92.8	77.3	44.2
21/10/2016 17:00	72.8	90.9	76.7	44
21/10/2016 17:30	73.8	90.7	76.7	43.2
21/10/2016 18:00	73.2	90.7	77.9	44.1
21/10/2016 18:30	74.3	92.4	77.5	43.3
21/10/2016 19:00	72.8	91.2	76.1	43.3
21/10/2016 19:30	71.6	90.3	73.5	42.8
21/10/2016 20:00	71.2	90.8	74.1	42.7
21/10/2016 20:30	71.3	88.1	74.1	43.2
21/10/2016 21:00	71.7	91.3	74.3	42.6
21/10/2016 21:30	70.5	90.9	65.5	41.7
21/10/2016 22:00	69.3	90.5	62.8	42.5
21/10/2016 22:30	70.5	91.4	69.8	41.9
21/10/2016 23:00	69.2	90.6	59.2	40.9
21/10/2016 23:30	69.2	90.1	67.6	40.3
<b>Saturday</b>				
22/10/2016 00:00	66.5	89.6	53.3	40
22/10/2016 00:30	64.4	92.1	47	40.2
22/10/2016 01:00	64.8	86.7	44.8	39.6
22/10/2016 01:30	58.3	87.2	44.3	39.7
22/10/2016 02:00	40.2	54.1	41.5	38.4
22/10/2016 02:30	62.3	86.5	42.8	39
22/10/2016 03:00	42.6	60.4	43	39.1
22/10/2016 03:30	62.9	86.1	44.5	38.7
22/10/2016 04:00	40.5	61	42	38.3
22/10/2016 04:30	58.1	85.8	40.7	37.1
22/10/2016 05:00	65.2	87.2	43	37
22/10/2016 05:30	68.7	92.8	55.3	38.8
22/10/2016 06:00	71.1	93.6	63.4	39.5
22/10/2016 06:30	67.7	90.2	60.7	40.7
22/10/2016 07:00	70.7	95.7	69.9	41.9
22/10/2016 07:30	72.3	91.8	75.5	42.6
22/10/2016 08:00	71.8	93.3	75	42.9
22/10/2016 08:30	71.6	93.6	73.3	42.3
22/10/2016 09:00	70.8	90.1	74.3	42.2
22/10/2016 09:30	70.5	90.5	72.2	43.5
22/10/2016 10:00	71.3	89.8	75.3	43.4
22/10/2016 10:30	71.1	90.5	73.4	43.5
22/10/2016 11:00	71.2	90.9	74.6	43.7
22/10/2016 11:30	72.1	91.8	75.8	43.7
22/10/2016 12:00	71.3	90.1	74.5	43.3
22/10/2016 12:30	71.9	90	74.2	43.4

Date / Time Period	LAeq	LAmix	LA10	LA90
<i>Saturday cont...</i>				
22/10/2016 13:00	70.6	89.9	71.9	43.2
22/10/2016 13:30	71.4	91.4	72	43.5
22/10/2016 14:00	71.3	90.1	74.7	43.4
22/10/2016 14:30	70.1	90	72.6	43.5
22/10/2016 15:00	71.7	91.6	73.5	42.5
22/10/2016 15:30	70.6	90.8	67.5	43
22/10/2016 16:00	71.2	90.2	74.9	43.7
22/10/2016 16:30	71.1	90.3	73.2	43.9
22/10/2016 17:00	72.1	90.7	75.6	44.2
22/10/2016 17:30	72.4	90.5	76.6	44.3
22/10/2016 18:00	70.9	90.5	72.7	44.1
22/10/2016 18:30	70.8	89.2	72.7	44.7
22/10/2016 19:00	71.7	91	74.8	43.3
22/10/2016 19:30	69.3	90.3	67.6	43.1
22/10/2016 20:00	70.6	88.1	74.4	43.4
22/10/2016 20:30	68.4	87.7	67.7	43.3
22/10/2016 21:00	69.7	91.2	65.8	44.3
22/10/2016 21:30	68.6	91.1	65.2	43.1
22/10/2016 22:00	67.9	90	56.1	43
22/10/2016 22:30	67.9	87.5	62.4	43.5
22/10/2016 23:00	67.9	89.3	53.4	42.5
22/10/2016 23:30	65	88.8	46.4	41.9
<b>Sunday</b>				
23/10/2016 00:00	62.3	86	45.1	41.3
23/10/2016 00:30	55.8	80.9	45.6	41.2
23/10/2016 01:00	61.6	85.5	45.7	40.9
23/10/2016 01:30	44.5	68.6	45.1	40.6
23/10/2016 02:00	60.5	89.5	44.9	40.4
23/10/2016 02:30	54.4	70.6	50.3	45.8
23/10/2016 03:00	51.8	68.5	48.5	46.4
23/10/2016 03:30	49.6	73.8	47.8	46.4
23/10/2016 04:00	46.9	55.8	47.5	46.1
23/10/2016 04:30	54	72.6	58.2	38.4
23/10/2016 05:00	42	66.4	43.4	38.3
23/10/2016 05:30	40.5	49.7	42.1	38.8
23/10/2016 06:00	42	58.6	42.6	39.8
23/10/2016 06:30	51.7	74.7	44.3	40.3
23/10/2016 07:00	56.3	79.1	46.4	40.3
23/10/2016 07:30	56.7	78.1	49.8	41.2
23/10/2016 08:00	64.9	84.4	56.7	42.1
23/10/2016 08:30	64.1	85.2	51	43
23/10/2016 09:00	66.4	85.3	57.1	43.1
23/10/2016 09:30	65.7	94	53.1	43.7
23/10/2016 10:00	68.1	95.2	58.9	43.7
23/10/2016 10:30	66.4	84.9	53.9	43.2
23/10/2016 11:00	67.4	90.6	53.4	43.6
23/10/2016 11:30	66.6	88.2	55.1	44.5
23/10/2016 12:00	68.4	87.2	63.2	44.9
23/10/2016 12:30	70.9	90.8	67.1	44.6
23/10/2016 13:00	71.1	91.2	74.7	45
23/10/2016 13:30	71.5	90.7	71.7	45
23/10/2016 14:00	69.4	90.3	64	45
23/10/2016 14:30	71.3	91.5	66.7	45.4
23/10/2016 15:00	70.3	90.5	68.8	43.7
23/10/2016 15:30	72.2	91.3	75.1	44.7

Date / Time Period	LAeq	LAmx	LA10	LA90
<i>Sunday cont...</i>				
23/10/2016 16:00	69.1	90.4	67.9	44.4
23/10/2016 16:30	70.1	90.3	70.9	44.3
23/10/2016 17:00	69.1	90.2	68.5	44.6
23/10/2016 17:30	71.6	90.6	73.8	44.7
23/10/2016 18:00	66.8	89.1	68.6	44.3
23/10/2016 18:30	71.8	90.1	75.3	44.5
23/10/2016 19:00	69.6	91	72.8	45
23/10/2016 19:30	69.6	90.8	71.5	44.7
23/10/2016 20:00	69.4	91.1	73.5	43.3
23/10/2016 20:30	69.8	90.2	72.2	43.2
23/10/2016 21:00	69.9	89.6	65.1	42.9
23/10/2016 21:30	68.2	87.6	57.3	42.6
23/10/2016 22:00	66.6	86.8	56.2	42.9
23/10/2016 22:30	66.6	89.3	56.3	42.6
23/10/2016 23:00	63.2	84	55	41.8
23/10/2016 23:30	65.7	86	59.6	41.3
<b>Monday</b>				
24/10/2016 00:00	67.4	89.3	50.1	41.2
24/10/2016 00:30	63.3	89.4	45.1	40.9
24/10/2016 01:00	57.8	81.9	43.4	40.6
24/10/2016 01:30	64.9	89.8	43.8	40
24/10/2016 02:00	54.2	79.6	43.8	39.7
24/10/2016 02:30	40.8	65.1	41.4	38.5
24/10/2016 03:00	60	78.9	54.6	38.2
24/10/2016 03:30	59.3	86.5	44.9	38.6
24/10/2016 04:00	59.9	84.2	43.9	38.7
24/10/2016 04:30	64.2	87	44.4	39.6
24/10/2016 05:00	65.1	87.2	46.5	40.8
24/10/2016 05:30	68.8	92	58	41.8
24/10/2016 06:00	71	90.9	69	42.5
24/10/2016 06:30	70	91.4	70.3	44.1
24/10/2016 07:00	72.6	91.9	75.6	44.3
24/10/2016 07:30	73.6	91.8	76.7	45.3
24/10/2016 08:00	73.1	91.3	78.2	47
24/10/2016 08:30	72.8	91.2	76	47.2
24/10/2016 09:00	73	90.5	77	47
24/10/2016 09:30	72.7	91.2	76.6	47.1
24/10/2016 10:00	71.7	90.8	74.1	46.7
24/10/2016 10:30	71.1	90.9	71.1	45.9

**Weekday:**

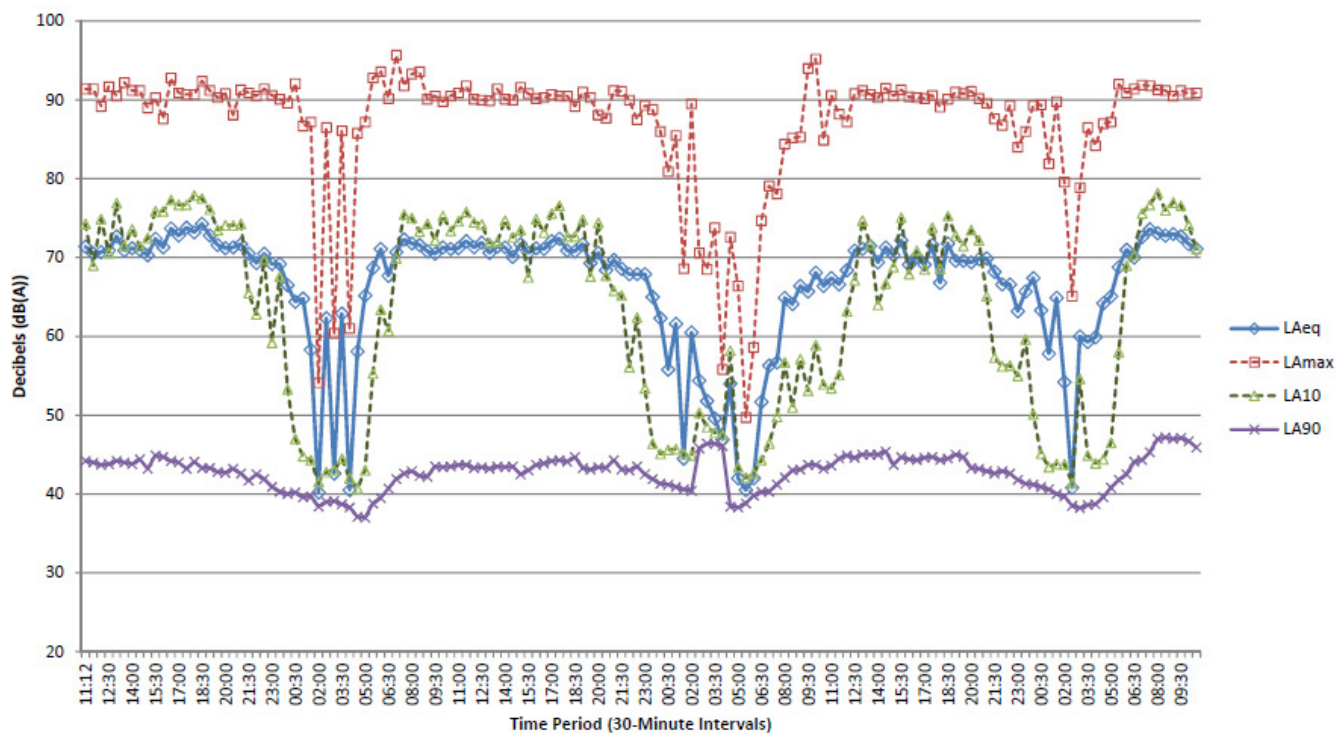
Day	72.3	91.1	74.9	44.8
			Range:	43-47
Evening	71.2	90.7	71.3	42.6
			Range:	42-43
Night	65.8	89.0	49.6	39.2
	Range:	54-94	Range:	37-41

**Weekend:**

Day	70.3	90.7	68.3	43.6
			Range:	40-45
Evening	69.2	89.8	66.2	43.4
			Range:	43-45
Night	63.5	86.1	48.9	41.2
	Range:	50-91	Range:	38-46



# **MP1 Noise Survey Results Adjacent to Railway Line. Centric Close, Oval Road, Camden, London. Friday 21st to Monday 24th October 2016.**



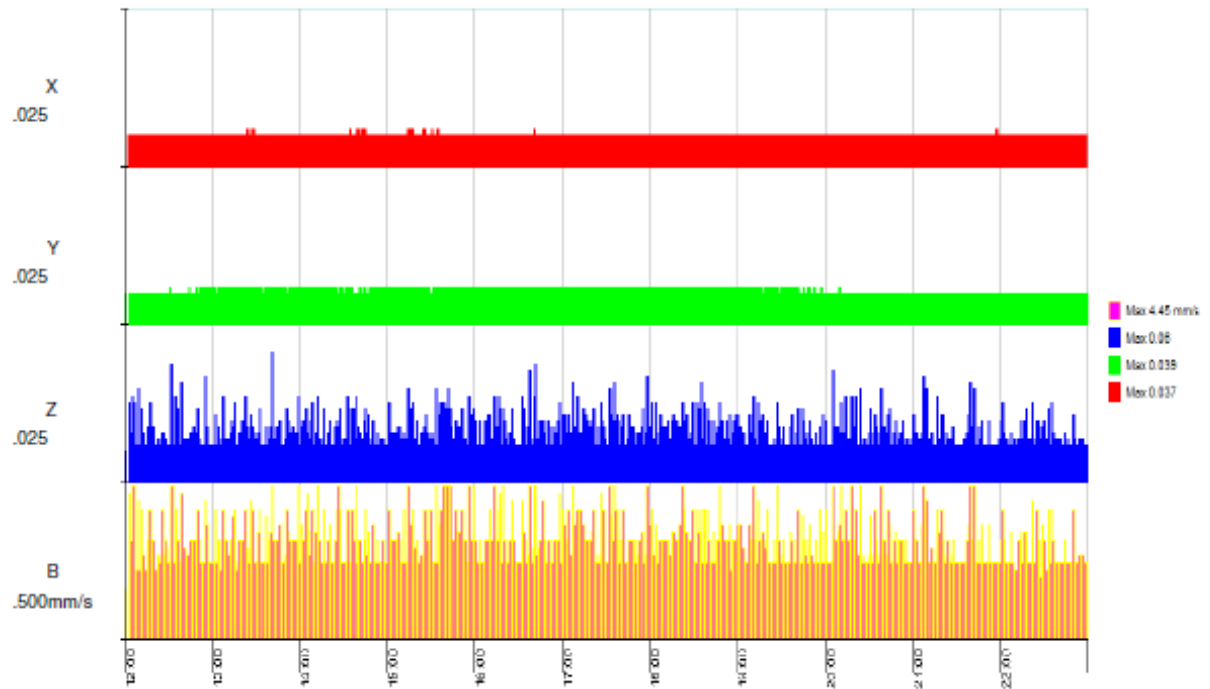
## Appendix 2: Sample Noise Survey Results

Sample Noise Measurements

Date / Time Period	Duration	Location	LAeq	LAmx	LA10	LA90	Comments
<b>Friday 21st Oct</b>							
21/10/2016 12:11	00:02:51	a	52.8	56.4	53.6	51.9	Measurement of plant under existing apartments.
21/10/2016 12:16	00:03:05	b	54.9	71.6	59.2	45.2	Line of sight to road. Can hear trains - max @ <60dB(A).
21/10/2016 12:20	00:05:00	b	56.4	69.3	59.4	44.6	Maxima due to road traffic. Trains are less than road traffic.
<b>Monday 24th Oct</b>							
24/10/2016 11:14	00:15:02	b	57.7	73.6	61.3	46.8	Line of sight to road. Some work being done on nearby house.
24/10/2016 11:30	00:30:00	b	58.3	78	61.6	47.3	Max due to road traffic. Can hear trains.
24/10/2016 12:00	00:13:07	b	56.9	72.3	61.1	46.7	Max due to road traffic. Can hear trains.

## Appendix 3: Vibration Survey Results

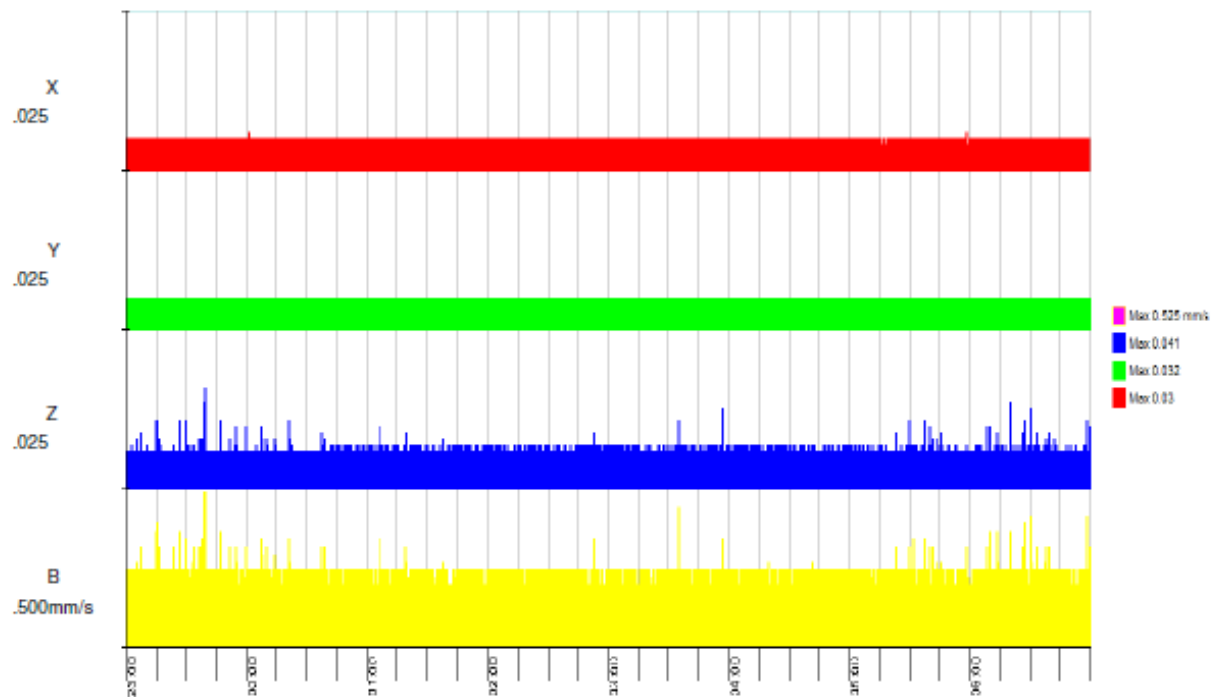
### Friday Day



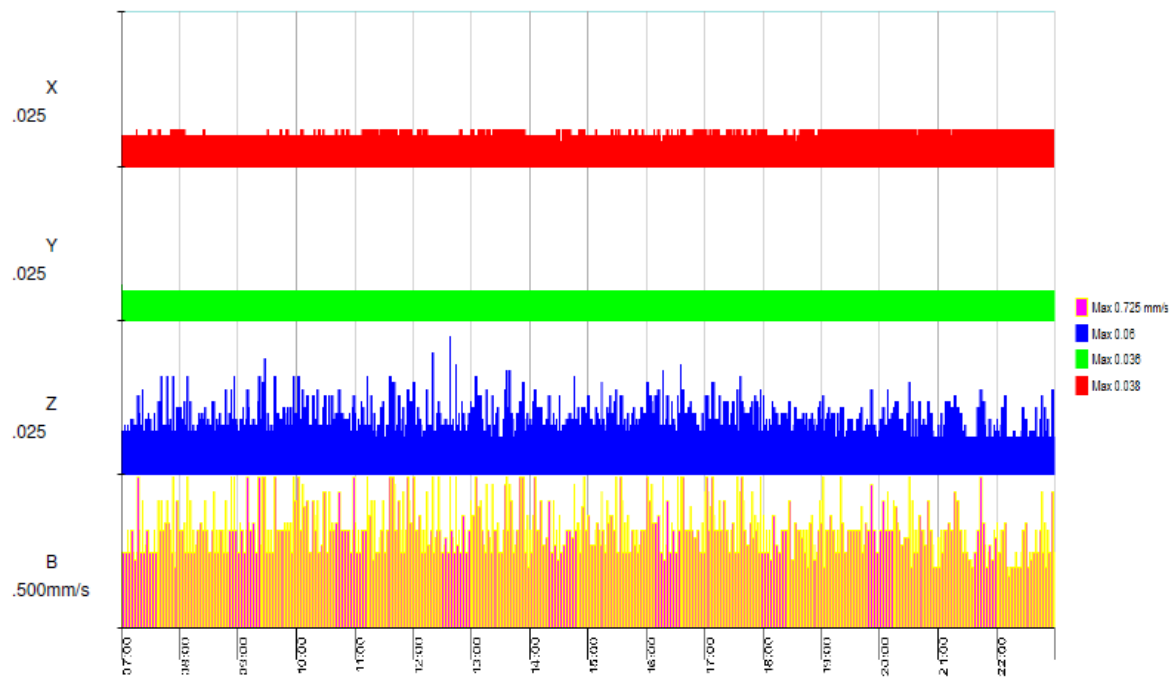
Ev 001	X	Y	Z	X	Y	Z
VDV						
		16 Hour				
	.037	.039	.060			
		1 Hour			Total	
Hour 1	.019	.019	.031	.019	.019	.031
Hour 2	.019	.020	.030	.022	.023	.036
Hour 3	.019	.019	.029	.025	.026	.040
Hour 4	.019	.020	.031	.027	.028	.043
Hour 5	.019	.020	.032	.028	.029	.046
Hour 6	.019	.020	.031	.030	.031	.048
Hour 7	.019	.020	.030	.031	.032	.050
Hour 8	.018	.019	.028	.032	.033	.051
Hour 9	.018	.019	.030	.033	.034	.053
Hour 10	.018	.019	.029	.033	.035	.054
Hour 11	.018	.018	.027	.034	.036	.055



# Friday Night

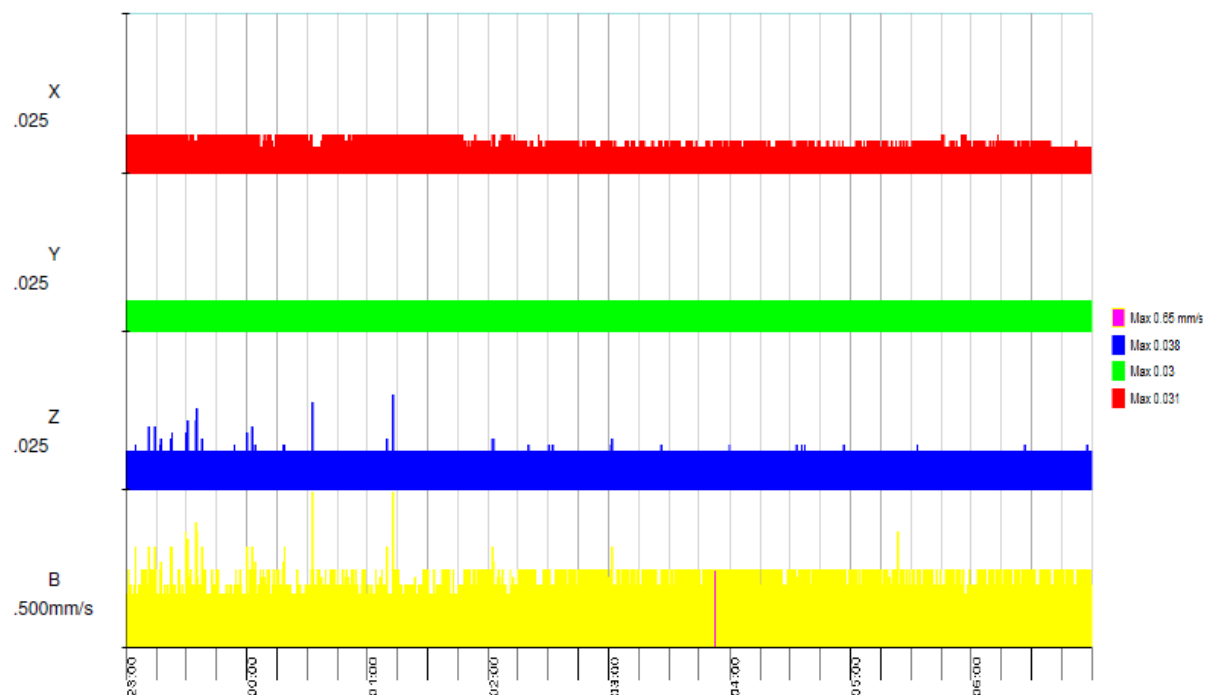


Ev 002 VDV	X	Y	Z	X	Y	Z
		8 Hour				
	.030	.032	.041			
		1 Hour			Total	
Hour 1	.018	.019	.026	.018	.019	.026
Hour 2	.018	.019	.023	.021	.022	.030
Hour 3	.017	.019	.023	.024	.025	.032
Hour 4	.017	.019	.023	.025	.027	.034
Hour 5	.017	.019	.024	.027	.028	.036
Hour 6	.017	.019	.023	.028	.029	.037
Hour 7	.017	.018	.023	.029	.031	.039
Hour 8	.017	.018	.025	.030	.032	.041

Saturday Day

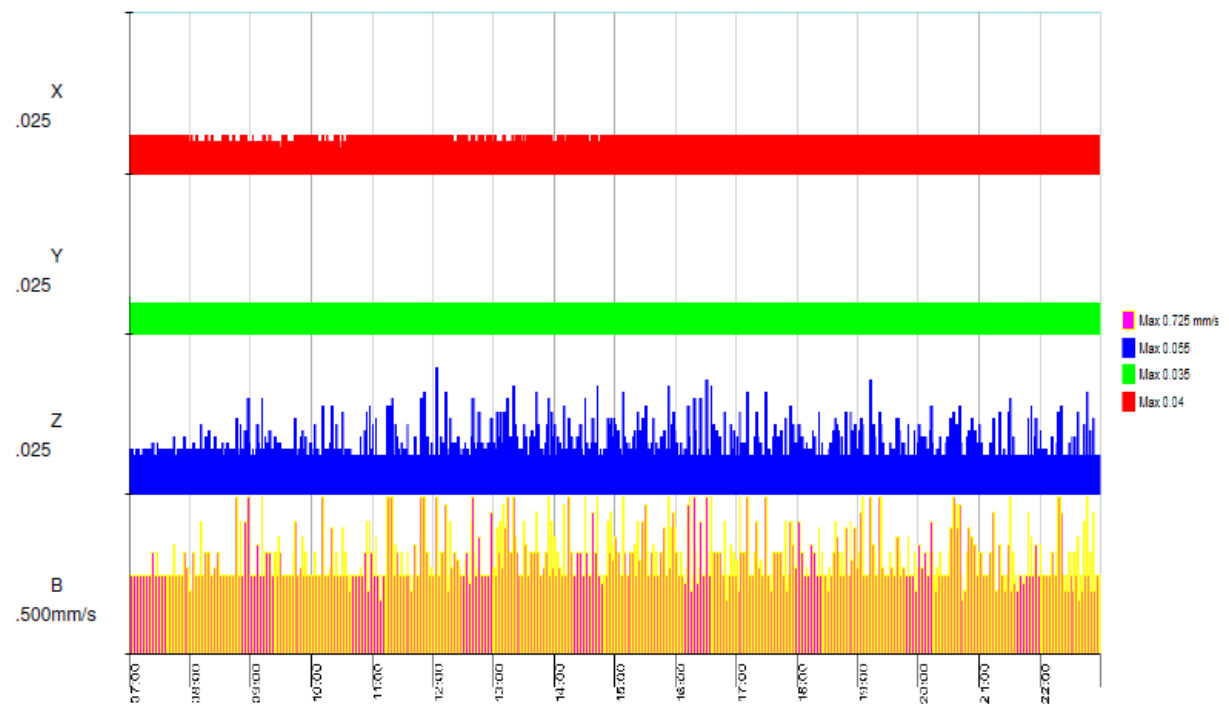
Ev 003	X	Y	Z	X	Y	Z
VDV						
		16 Hour				
	.038	.036	.060			
		1 Hour			Total	
Hour 1	.017	.018	.030	.017	.018	.030
Hour 2	.017	.018	.030	.021	.022	.036
Hour 3	.017	.018	.032	.023	.024	.041
Hour 4	.018	.018	.031	.025	.026	.044
Hour 5	.019	.018	.030	.027	.027	.046
Hour 6	.017	.018	.033	.028	.029	.049
Hour 7	.020	.018	.031	.030	.030	.051
Hour 8	.017	.018	.029	.030	.031	.052
Hour 9	.017	.018	.030	.031	.032	.054
Hour 10	.018	.018	.032	.032	.033	.055
Hour 11	.018	.018	.032	.033	.033	.057
Hour 12	.018	.018	.028	.034	.034	.058
Hour 13	.021	.017	.027	.035	.035	.058
Hour 14	.021	.017	.028	.036	.035	.059
Hour 15	.020	.017	.026	.037	.036	.060
Hour 16	.020	.017	.025	.038	.036	.060

# Saturday Night



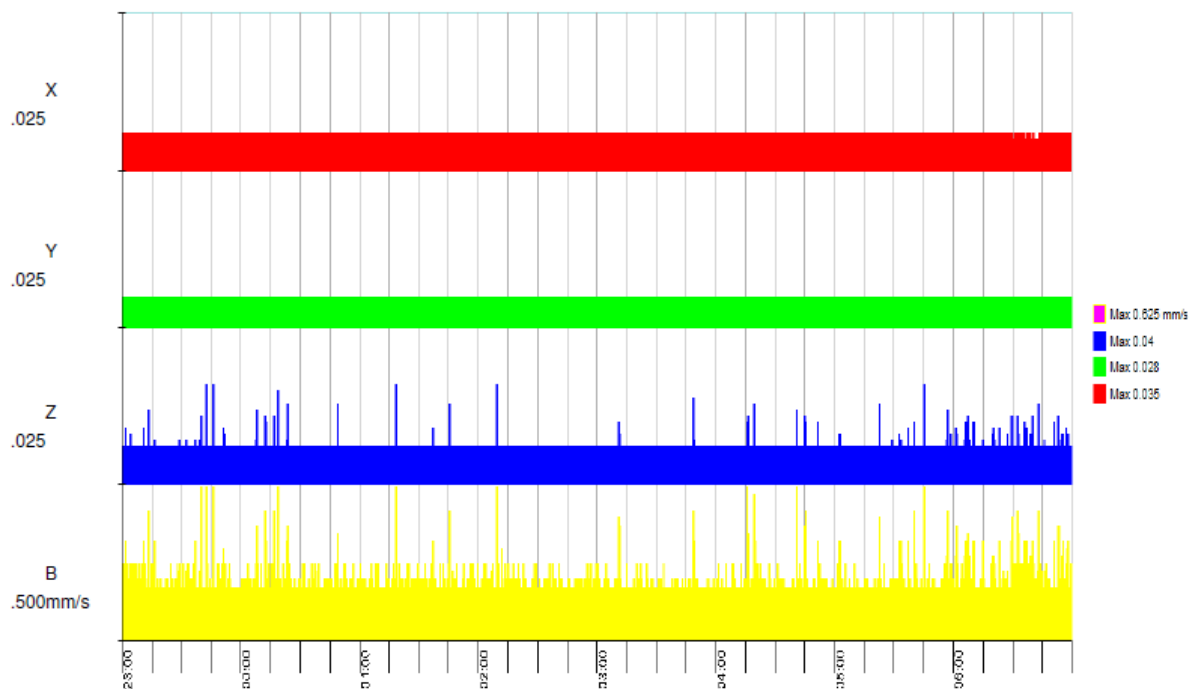
Ev 004	X	Y	Z	X	Y	Z
VDV						
	.031	8 Hour .030	.038		Total	
Hour 1	.020	.017	.023	.020	.017	.023
Hour 2	.020	.017	.022	.024	.020	.027
Hour 3	.020	.017	.022	.027	.022	.030
Hour 4	.017	.018	.022	.028	.024	.032
Hour 5	.016	.018	.022	.028	.026	.034
Hour 6	.016	.018	.022	.029	.028	.035
Hour 7	.017	.018	.022	.030	.029	.037
Hour 8	.016	.018	.022	.031	.030	.038



Sunday Day

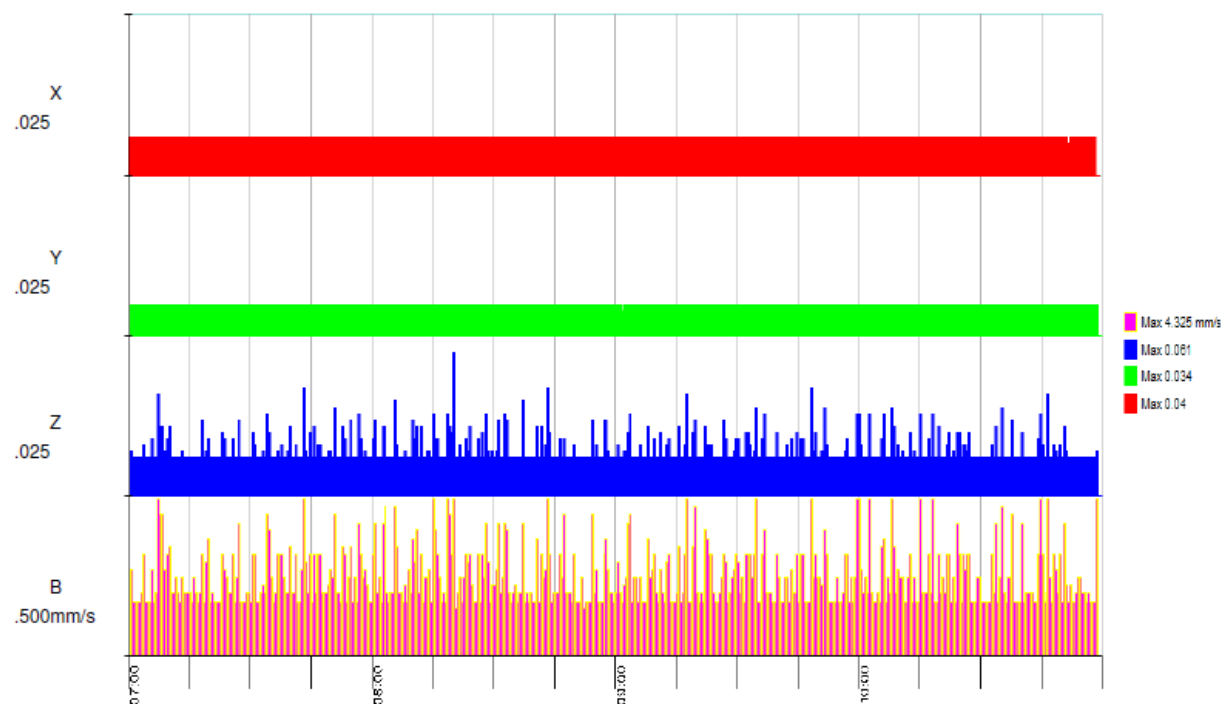
	Ev 005	X	Y	Z	X	Y	Z
	VDV						
		.040	16 Hour	.055			
			.035				
			1 Hour			Total	
Hour 1		.020	.018	.023	.020	.018	.023
Hour 2		.017	.018	.025	.022	.021	.029
Hour 3		.018	.018	.026	.024	.024	.033
Hour 4		.019	.018	.027	.027	.025	.036
Hour 5		.021	.017	.027	.029	.027	.039
Hour 6		.019	.018	.029	.030	.028	.042
Hour 7		.019	.018	.031	.031	.029	.045
Hour 8		.020	.018	.028	.033	.030	.046
Hour 9		.020	.018	.029	.034	.031	.048
Hour 10		.021	.017	.029	.035	.032	.050
Hour 11		.021	.017	.028	.036	.032	.051
Hour 12		.021	.017	.026	.037	.033	.052
Hour 13		.021	.017	.027	.038	.034	.053
Hour 14		.021	.017	.027	.039	.034	.054
Hour 15		.020	.017	.026	.040	.035	.054
Hour 16		.020	.017	.026	.040	.035	.055

# Sunday Night



	Ev 006	X	Y	Z	X	Y	Z
	VDV						
		.035	.028	.040			
			8 Hour			Total	
			1 Hour				
Hour 1		.021	.017	.025	.021	.017	.025
Hour 2		.021	.017	.024	.025	.020	.029
Hour 3		.021	.017	.023	.027	.022	.032
Hour 4		.020	.017	.022	.029	.024	.034
Hour 5		.020	.017	.022	.031	.025	.035
Hour 6		.020	.017	.023	.032	.026	.037
Hour 7		.020	.017	.024	.034	.027	.038
Hour 8		.020	.017	.025	.035	.028	.040

# Monday Day



Ev 007	X	Y	Z	X	Y	Z
VDV						
		16 Hour				
	.040	.034	.061			
		1 Hour			Total	
Hour 1	.020	.017	.029	.020	.017	.029
Hour 2	.020	.017	.033	.024	.020	.037
Hour 3	.020	.017	.029	.026	.022	.040
Hour 4	.020	.017	.029	.028	.024	.043





## Appendix 4: Technical Summary for Mitigation – Centric Close

Please refer to Figures 12 to 14 of the noise report when reading this technical note.

### **Glazing Requirements:**

<b>SRI - Octave Band Centre Frequency (Hz)</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1k</b>	<b>2k</b>	<b>4k</b>
Standard glazing: Type 1*	21	17	25	35	36	31
Enhanced Glazing: Type 2	27	36	43	52	55	59

A summary of requirements for glazing is shown below. Where an 'x' is placed, this denotes that the option is suitable for that specific façade or plot.

<b>Façade / Plot (See Figures 12 to 14)</b>	<b>Standard Glazing Type 1</b>	<b>Enhanced Glazing Type 2</b>
All habitable rooms not highlighted: All floors facing road	x	-
  All habitable rooms: Facing / side to railway line	-	x

\*Fairview's standard glazing specification is shown in the Table below:

<b>SRI - Octave Band Centre Frequency (Hz)</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1k</b>	<b>2k</b>	<b>4k</b>
Standard glazing: 4/16/4mm	21	17	25	35	37	31




Other glazing configurations can be used as long as the octave band noise reduction above is achieved. The octave band frequency specification above must be provided to the supplier to enable an appropriate product to be selected.

### **Ventilation Requirements:**

Some habitable rooms will require MVHR / MEV acoustic ventilation to reduce noise from rail traffic. The following octave band reductions for vents are therefore required. Acoustic trickle vents or acoustic air bricks should be selected to meet the frequency reduction shown.

<b>SRI - Octave Band Centre Frequency (Hz)</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1k</b>	<b>2k</b>	<b>4k</b>
<b>Type A</b> Standard Trickle vents / Airbrick	34	34	35	31	29	32
<b>Type B</b> Acoustic Ventilation – Airbricks	40	35	35	52	58	64

The following table gives the requirements of ventilation required for each façade of the development. Where an 'x' is placed, this denotes that the option is suitable for that specific façade or plot.

<b>Façade / Plot</b>	<b>Type A</b>	<b>Type B</b>	<b>Type C</b>
	<b>Trickle- vents / Airbricks</b>	<b>Acoustic Vent – MEV + 1 Vent</b>	<b>MVHR</b>
All habitable rooms not highlighted: Facing road	x	-	-
 All habitable rooms: Facing Railway line	-	-	x
 All Daytime habitable rooms	-	X	x
 All bedrooms	-	-	x

Manufacturers / suppliers should be given the ventilation octave band specifications above to enable an appropriate product to be selected. Where MVHR is required for bedrooms only, it may be relevant to install MVHR for the whole plot rather than MEV in the Living room.

The above ventilation options are adequate to allow sufficient background ventilation.