9. Appendix

9.1. Summary Information

Required ISO Test Report Information (cross referenced where required)			
		Measurements carried out to:	Analysed to:
A	Standards	BS 7445-1: 2003 BS 7445-2: 1991	BS 8233:1999
B	Organisation performed the measurements	noise.co.uk Ltd, The Haybarn, Newnham Grounds, Kings Newnham Lane, Bretford, Coventry, CV23 0JU.	
C	Name of Client	Bovis Homes Central	
D	Full site address	Land off Steppingley Road and Froghall Road, Flitwick.	
E	Date of surveys	28th and 30th October 2014	
F	Description & identification of proposed development	It is proposed to develop the site for residential.	
G	Brief Description of details of Procedure & equipment	See section 5 of this report	

9.2. Technical appendix

9.2.1. Measurements were made using the following equipment:

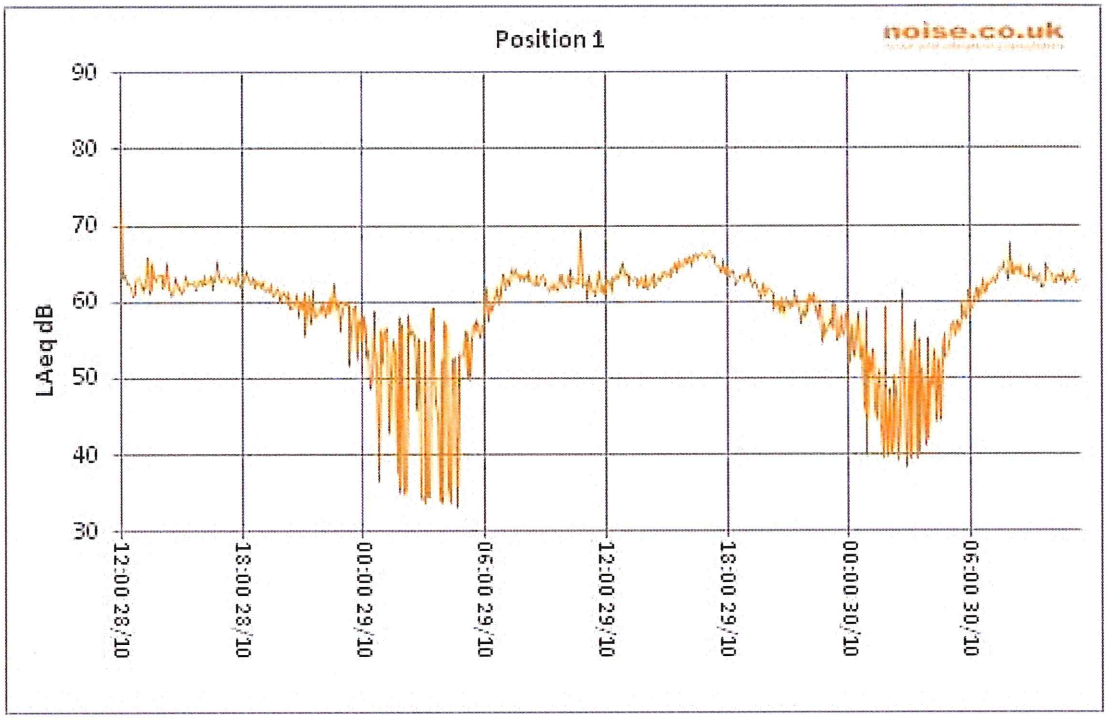
		Manufacturer and Type	Serial Number
Position 1	Sound Level Meter	Norsonic 140	1405557
	Calibrator	Norsonic 1251	33825
Position 2	Sound Level Meter	Norsonic 140	1405560
	Calibrator	Norsonic 1251	33824
Position 3	Sound Level Meter	Norsonic 140	1405559
	Calibrator	Norsonic 1251	33823

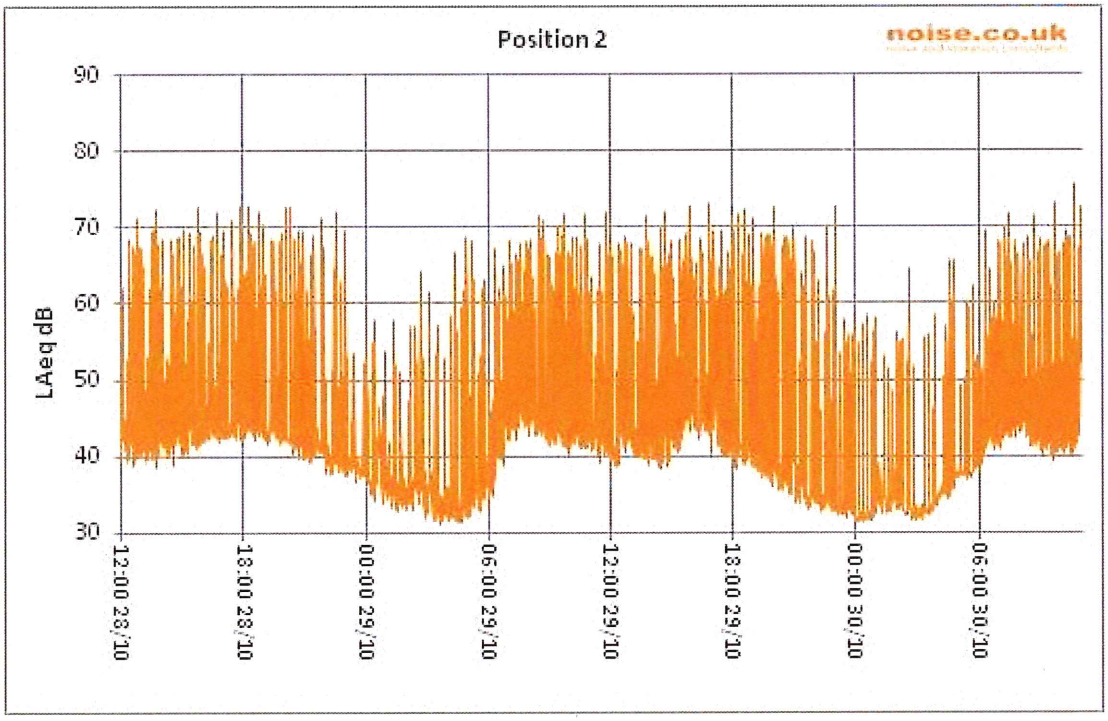
9.2.2. The equipment has traceable calibration.

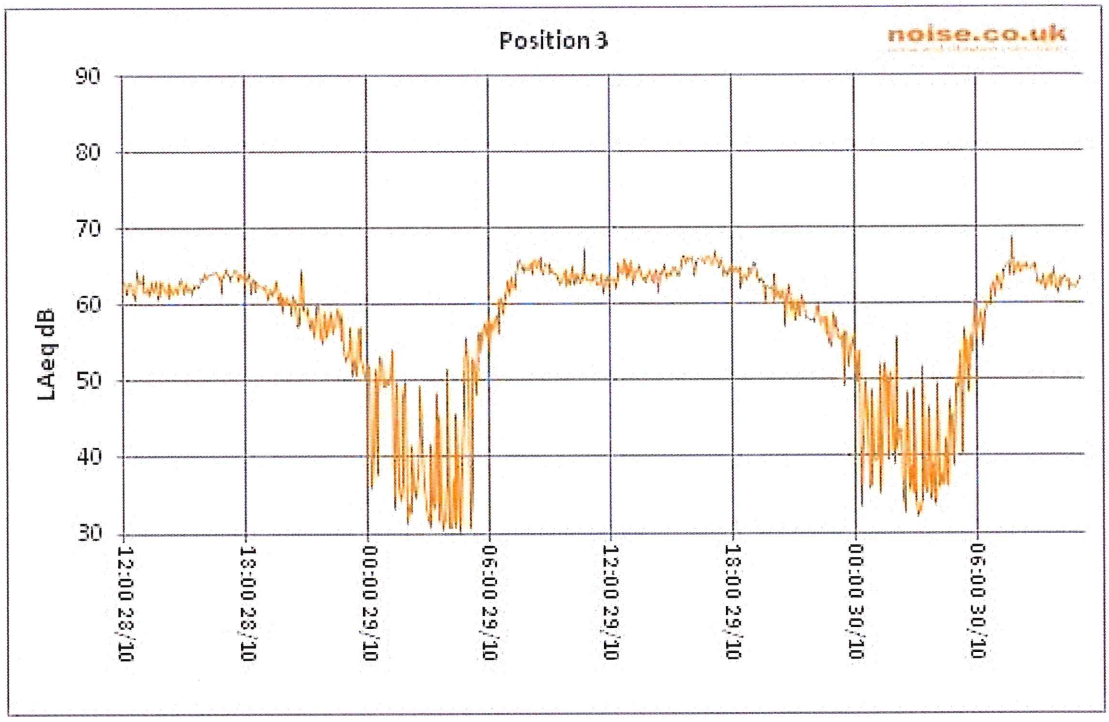
9.2.3. The sound level meter was calibrated immediately prior to and immediately after the measurements were carried out.

Sound Level Meter	Before	After
Norsonic 140 (1405557)	114.0dB	114.0dB
Norsonic 140 (1405560)	114.0dB	114.0dB
Norsonic 140 (1405559)	114.0dB	114.0dB

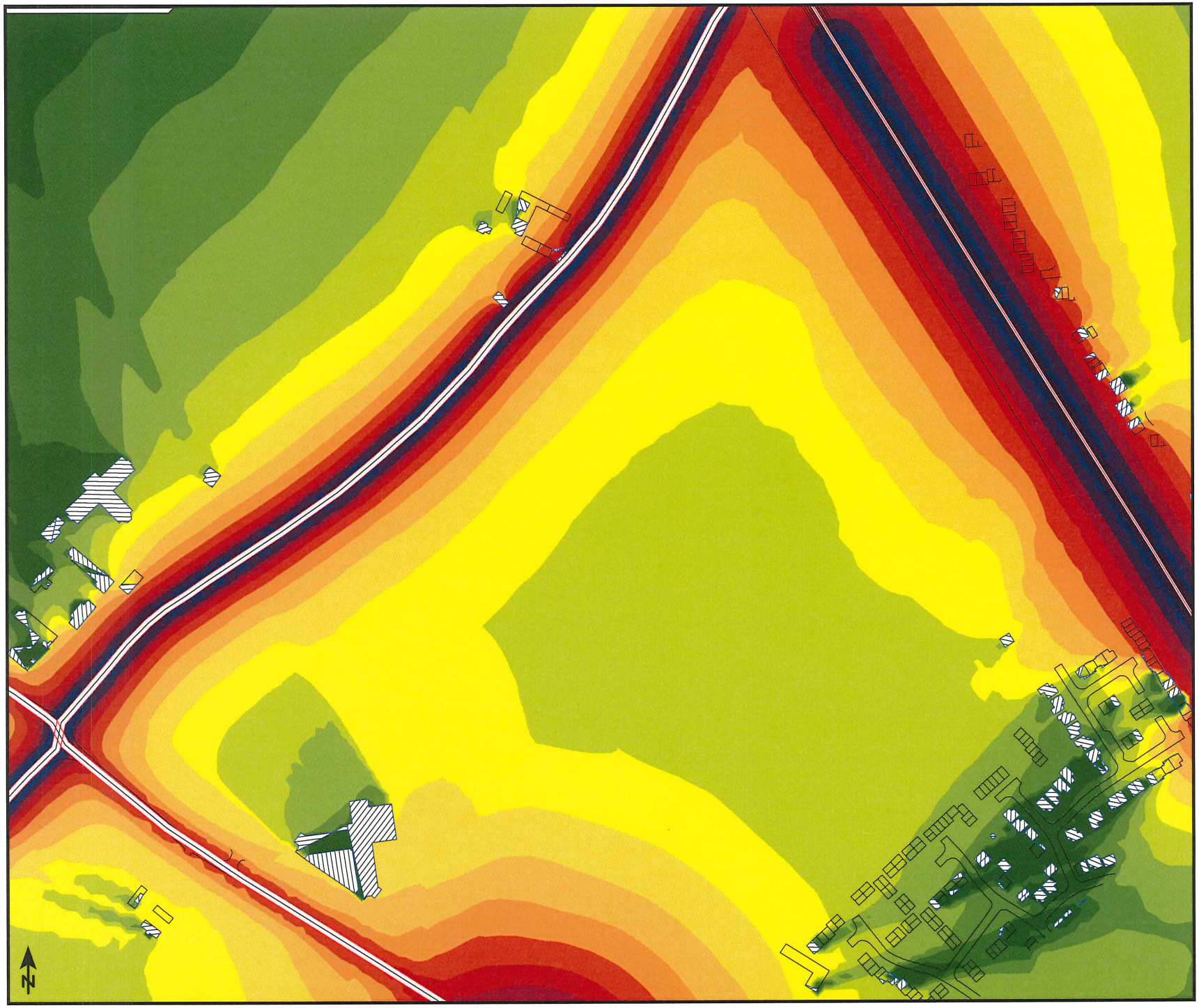
9.3. Average Levels-Figures:






Position 3
noise.co.uk
LAeq dB
90
80
70
60
50
40
30
12:00 28/10
18:00 28/10
00:00 29/10
06:00 29/10
12:00 29/10
18:00 29/10
00:00 30/10
06:00 30/10

9.4. SoundPLAN Models



Valley Farm / 15417

Baseline Grid Noise Map
LAeq,16hr
1.5m

dB(A)

	<= 45
45 <	<= 47
47 <	<= 49
49 <	<= 51
51 <	<= 53
53 <	<= 55
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	<= 67
67 <	<= 69
69 <	

Signs and symbols

- Road axis
- Emission line
- Surface
- Wall
- inside tunnels
- Railway axis
- Emission line
- Wall
- inside tunnels
- Main building
- Elevation point
- Noise calculation area
- Line

Scale 1:3591

0 20 40 80 120 16

noise.co.u

Valley Farm / 15417

Grid Noise Map
LAeq,8hr
4m

dB(A)

	<= 45
45 <	<= 47
47 <	<= 49
49 <	<= 51
51 <	<= 53
53 <	<= 55
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	<= 67
67 <	<= 69
69 <	

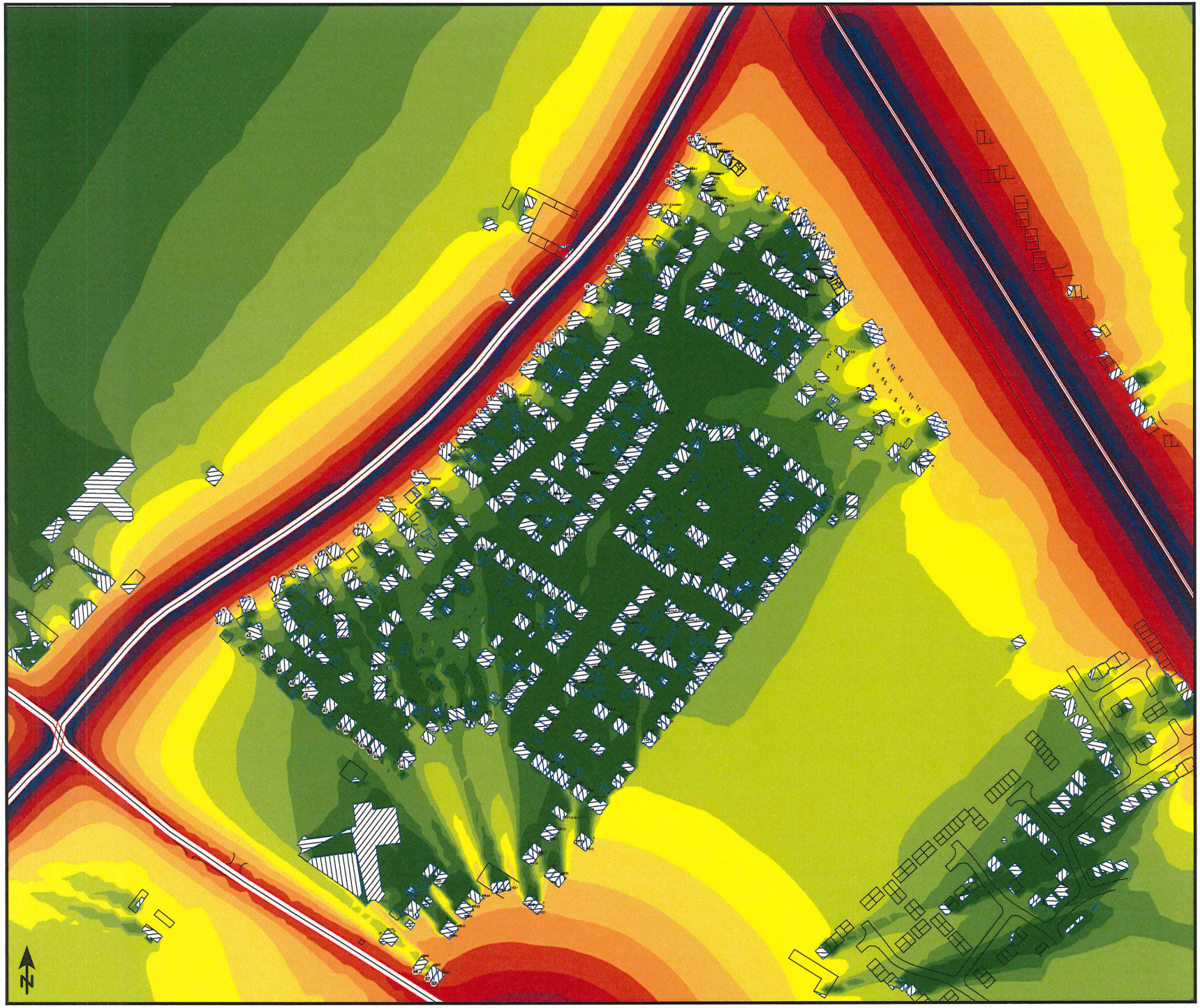
Signs and symbols

- Road axis
- Emission line
- Surface
- Wall
- inside tunnels
- Railway axis
- Emission line
- Wall
- inside tunnels
- Main building
- Elevation point
- Noise calculation area
- Line
- Area

Scale 1:3605

0 20 40 80 120 16

noise.co.uk



Valley Farm / 15417

Grid Noise Map
LAeq,16hr
1.5m

dB(A)

	<= 45
45 <	<= 47
47 <	<= 49
49 <	<= 51
51 <	<= 53
53 <	<= 55
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	<= 67
67 <	<= 69
69 <	

Signs and symbols

- Road axis
- Emission line
- Surface
- Wall
- inside tunnels
- Railway axis
- Emission line
- Wall
- inside tunnels
- Main building
- Elevation point
- Noise calculation area
- Line
- Area

Scale 1:3557

0 20 40 80 120 16

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Valley Farm / 15417

Grid Noise Map
LAeq,16hr
1.5m

dB(A)

<= 55
> 55

Signs and symbols

- Road axis
- Emission line
- Surface
- Wall
- inside tunnels
- Railway axis
- Emission line
- Wall
- inside tunnels
- Main building
- Elevation point
- Noise calculation area
- Line
- Area

Scale 1:3123

0 15 30 60 90 120 m

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9.5. Glazing Calculation

Steppingley Road - Daytime

Receiver	Usage	Fl	Lday dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
Stepp Rd 1	GR	GF	59.3	35	24.3	4/(6-16)/4	25	34.3
Stepp Rd 2	GR	GF	50.3	35	15.3	4/(6-16)/4	25	25.3
Stepp Rd 3	GR	GF	50	35	15	4/(6-16)/4	25	25
Stepp Rd 4	GR	GF	46.9	35	11.9	4/(6-16)/4	25	21.9
Stepp Rd 5	GR	GF	46.3	35	11.3	4/(6-16)/4	25	21.3
Stepp Rd 5	GR	GF	42.8	35	7.8	4/(6-16)/4	25	17.8
Stepp Rd 6	GR	GF	43.8	35	8.8	4/(6-16)/4	25	18.8
Stepp Rd 7	GR	GF	47.5	35	12.5	4/(6-16)/4	25	22.5
Stepp Rd 8	GR	GF	48.8	35	13.8	4/(6-16)/4	25	23.8
Stepp Rd 9	GR	GF	49.4	35	14.4	4/(6-16)/4	25	24.4
Stepp Rd 10	GR	GF	49.7	35	14.7	4/(6-16)/4	25	24.7
Stepp Rd 12	GR	GF	50.3	35	15.3	4/(6-16)/4	25	25.3
Stepp Rd 13	GR	GF	50.3	35	15.3	4/(6-16)/4	25	25.3
Stepp Rd 14	GR	GF	49.3	35	14.3	4/(6-16)/4	25	24.3
Stepp Rd 16	GR	GF	64	35	29	4(6)8	30	34
Stepp Rd 17	GR	GF	64.8	35	29.8	4(6)8	30	34.8
Stepp Rd 18	GR	GF	64.4	35	29.4	4(6)8	30	34.4

Steppingley Road - Night time

Receiver	Usage	Fl	Lnight dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
Stepp Rd 1	GR	F 1	53.1	30	23.1	4/(6-16)/4	25	28.1
Stepp Rd 2	GR	F 1	47.4	30	17.4	4/(6-16)/4	25	22.4
Stepp Rd 3	GR	F 1	47.1	30	17.1	4/(6-16)/4	25	22.1
Stepp Rd 4	GR	F 1	38.8	30	8.8	4/(6-16)/4	25	13.8
Stepp Rd 5	GR	F 1	38.6	30	8.6	4/(6-16)/4	25	13.6
Stepp Rd 5	GR	F 1	35.9	30	5.9	4/(6-16)/4	25	10.9
Stepp Rd 6	GR	F 1	37.3	30	7.3	4/(6-16)/4	25	12.3
Stepp Rd 7	GR	F 1	43.8	30	13.8	4/(6-16)/4	25	18.8
Stepp Rd 8	GR	F 1	45.4	30	15.4	4/(6-16)/4	25	20.4
Stepp Rd 9	GR	F 1	45.9	30	15.9	4/(6-16)/4	25	20.9
Stepp Rd 10	GR	F 1	46	30	16	4/(6-16)/4	25	21
Stepp Rd 12	GR	F 1	43.1	30	13.1	4/(6-16)/4	25	18.1
Stepp Rd 13	GR	F 1	43.3	30	13.3	4/(6-16)/4	25	18.3
Stepp Rd 14	GR	F 1	42.1	30	12.1	4/(6-16)/4	25	17.1
Stepp Rd 16	GR	F 1	58.4	30	28.4	4(6)8	30	28.4
Stepp Rd 17	GR	F 1	59.1	30	29.1	4(6)8	30	29.1
Stepp Rd 18	GR	F 1	59.2	30	29.2	4(6)8	30	29.2
Stepp Rd 1	GR	F 2	53.8	30	23.8	4/(6-16)/4	25	28.8

Stepp Rd 2	GR	F 2	48.4	30	18.4	4/(6-16)/4	25	23.4
Stepp Rd 3	GR	F 2	48	30	18	4/(6-16)/4	25	23
Stepp Rd 4	GR	F 2	40.6	30	10.6	4/(6-16)/4	25	15.6
Stepp Rd 5	GR	F 2	40.6	30	10.6	4/(6-16)/4	25	15.6
Stepp Rd 5	GR	F 2	38.3	30	8.3	4/(6-16)/4	25	13.3
Stepp Rd 6	GR	F 2	39.5	30	9.5	4/(6-16)/4	25	14.5
Stepp Rd 7	GR	F 2	45.1	30	15.1	4/(6-16)/4	25	20.1
Stepp Rd 8	GR	F 2	46.4	30	16.4	4/(6-16)/4	25	21.4
Stepp Rd 9	GR	F 2	46.8	30	16.8	4/(6-16)/4	25	21.8
Stepp Rd 10	GR	F 2	43.4	30	13.4	4/(6-16)/4	25	18.4
Stepp Rd 12	GR	F 2	44.1	30	14.1	4/(6-16)/4	25	19.1
Stepp Rd 13	GR	F 2	44.4	30	14.4	4/(6-16)/4	25	19.4
Stepp Rd 14	GR	F 2	43.3	30	13.3	4/(6-16)/4	25	18.3
Stepp Rd 16	GR	F 2	59	30	29	4(6)8	30	29
Stepp Rd 17	GR	F 2	59.7	30	29.7	4(6)8	30	29.7
Stepp Rd 18	GR	F 2	59.9	30	29.9	4(6)8	30	29.9

Railway - Day time

Receiver	Usage	Fl	Lday dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
Railway 1	GR	GF	61.5	35	26.5	4/(6-16)/4	28	33.5
Railway 2	GR	GF	59.5	35	24.5	4/(6-16)/4	28	31.5
Railway 3	GR	GF	59.5	35	24.5	4/(6-16)/4	28	31.5
Railway 4	GR	GF	59.1	35	24.1	4/(6-16)/4	28	31.1
Railway 5	GR	GF	59.5	35	24.5	4/(6-16)/4	28	31.5
Railway 6	GR	GF	60	35	25	4/(6-16)/4	28	32
Railway 8	GR	GF	60	35	25	4/(6-16)/4	28	32
Railway 9	GR	GF	60.1	35	25.1	4/(6-16)/4	28	32.1
Railway 10	GR	GF	59.8	35	24.8	4/(6-16)/4	28	31.8
Railway 11	GR	GF	59.9	35	24.9	4/(6-16)/4	28	31.9
Railway 12	GR	GF	60.2	35	25.2	4/(6-16)/4	28	32.2
Railway 13	GR	GF	60.1	35	25.1	4/(6-16)/4	28	32.1
Railway 7	GR	GF	59.8	35	24.8	4/(6-16)/4	28	31.8

Railway - Night time

Receiver	Usage	Fl	Lnight dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
Railway 1	GR	F 1	54.7	30	24.7	4/(6-16)/4	28	26.7
Railway 2	GR	F 1	53.4	30	23.4	4/(6-16)/4	28	25.4
Railway 3	GR	F 1	53.1	30	23.1	4/(6-16)/4	28	25.1
Railway 4	GR	F 1	52.6	30	22.6	4/(6-16)/4	28	24.6
Railway 5	GR	F 1	52.8	30	22.8	4/(6-16)/4	28	24.8
Railway 6	GR	F 1	53.1	30	23.1	4/(6-16)/4	28	25.1
Railway 8	GR	F 1	52.5	30	22.5	4/(6-16)/4	28	24.5

Railway 9	GR	F 1	52.5	30	22.5	4/(6-16)/4	28	24.5
Railway 10	GR	F 1	52.1	30	22.1	4/(6-16)/4	28	24.1
Railway 11	GR	F 1	52.2	30	22.2	4/(6-16)/4	28	24.2
Railway 12	GR	F 1	52.5	30	22.5	4/(6-16)/4	28	24.5
Railway 13	GR	F 1	52.7	30	22.7	4/(6-16)/4	28	24.7
Railway 7	GR	F 1	52.8	30	22.8	4/(6-16)/4	28	24.8
Railway 1	GR	F 2	55.4	30	25.4	4/(6-16)/4	28	27.4
Railway 2	GR	F 2	54.1	30	24.1	4/(6-16)/4	28	26.1
Railway 3	GR	F 2	53.7	30	23.7	4/(6-16)/4	28	25.7
Railway 4	GR	F 2	53.1	30	23.1	4/(6-16)/4	28	25.1
Railway 5	GR	F 2	53.3	30	23.3	4/(6-16)/4	28	25.3
Railway 6	GR	F 2	53.6	30	23.6	4/(6-16)/4	28	25.6
Railway 8	GR	F 2	53	30	23	4/(6-16)/4	28	25
Railway 9	GR	F 2	52.9	30	22.9	4/(6-16)/4	28	24.9
Railway 10	GR	F 2	52.6	30	22.6	4/(6-16)/4	28	24.6
Railway 11	GR	F 2	52.7	30	22.7	4/(6-16)/4	28	24.7
Railway 12	GR	F 2	52.9	30	22.9	4/(6-16)/4	28	24.9
Railway 13	GR	F 2	53.2	30	23.2	4/(6-16)/4	28	25.2
Railway 7	GR	F 2	53.2	30	23.2	4/(6-16)/4	28	25.2

A507 - Day time

Receiver	Usage	Fl	Lday dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
A507 1	GR	GF	63.3	35	28.3	4(6)8	30	33.3
A507 2	GR	GF	62.1	35	27.1	4(6)8	30	32.1
A507 3	GR	GF	63.2	35	28.2	4(6)8	30	33.2
A507 4	GR	GF	62.2	35	27.2	4(6)8	30	32.2
A507 5	GR	GF	61.4	35	26.4	4(6)8	30	31.4
A507 7	GR	GF	62.4	35	27.4	4(6)8	30	32.4
A507 8	GR	GF	63.6	35	28.6	4(6)8	30	33.6
A507 9	GR	GF	63.6	35	28.6	4(6)8	30	33.6
A507 10	GR	GF	64	35	29	4(6)8	30	34
A507 11	GR	GF	63.6	35	28.6	4(6)8	30	33.6
A507 12	GR	GF	63.6	35	28.6	4(6)8	30	33.6
A507 13	GR	GF	63.8	35	28.8	4(6)8	30	33.8
A507 14	GR	GF	63.8	35	28.8	4(6)8	30	33.8
A507 15	GR	GF	62.8	35	27.8	4(6)8	30	32.8
A507 16	GR	GF	63.4	35	28.4	4(6)8	30	33.4
A507 17	GR	GF	61.8	35	26.8	4(6)8	30	31.8
A507 18	GR	GF	62.5	35	27.5	4(6)8	30	32.5
A507 19	GR	GF	64.4	35	29.4	4(6)8	30	34.4
A507 20	GR	GF	63.4	35	28.4	4(6)8	30	33.4
A507 21	GR	GF	63.6	35	28.6	4(6)8	30	33.6

A507 22	GR	GF	63.8	35	28.8	4(6)8	30	33.8
A507 23	GR	GF	64.2	35	29.2	4(6)8	30	34.2
A507 24	GR	GF	64	35	29	4(6)8	30	34
A507 25	GR	GF	64	35	29	4(6)8	30	34
A507 26	GR	GF	63.9	35	28.9	4(6)8	30	33.9
A507 27	GR	GF	64.1	35	29.1	4(6)8	30	34.1

A507 - Night time

Receiver	Usage	Fl	Lnight dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
A507 1	GR	F 1	55.2	30	25.2	6/(6-16)/4	28	27.2
A507 2	GR	F 1	54.6	30	24.6	6/(6-16)/4	28	26.6
A507 3	GR	F 1	55.2	30	25.2	6/(6-16)/4	28	27.2
A507 4	GR	F 1	54.7	30	24.7	6/(6-16)/4	28	26.7
A507 5	GR	F 1	54.2	30	24.2	6/(6-16)/4	28	26.2
A507 7	GR	F 1	54.7	30	24.7	6/(6-16)/4	28	26.7
A507 8	GR	F 1	55.1	30	25.1	6/(6-16)/4	28	27.1
A507 9	GR	F 1	55.2	30	25.2	6/(6-16)/4	28	27.2
A507 10	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 11	GR	F 1	55.3	30	25.3	6/(6-16)/4	28	27.3
A507 12	GR	F 1	55.3	30	25.3	6/(6-16)/4	28	27.3
A507 13	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 14	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 15	GR	F 1	54.9	30	24.9	6/(6-16)/4	28	26.9
A507 16	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 17	GR	F 1	54.4	30	24.4	6/(6-16)/4	28	26.4
A507 18	GR	F 1	54.9	30	24.9	6/(6-16)/4	28	26.9
A507 19	GR	F 1	55.7	30	25.7	6/(6-16)/4	28	27.7
A507 20	GR	F 1	55.3	30	25.3	6/(6-16)/4	28	27.3
A507 21	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 22	GR	F 1	55.5	30	25.5	6/(6-16)/4	28	27.5
A507 23	GR	F 1	55.5	30	25.5	6/(6-16)/4	28	27.5
A507 24	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 25	GR	F 1	55.3	30	25.3	6/(6-16)/4	28	27.3
A507 26	GR	F 1	55.3	30	25.3	6/(6-16)/4	28	27.3
A507 27	GR	F 1	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 1	GR	F 2	55.7	30	25.7	6/(6-16)/4	28	27.7
A507 2	GR	F 2	55.2	30	25.2	6/(6-16)/4	28	27.2
A507 3	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8
A507 4	GR	F 2	55.3	30	25.3	6/(6-16)/4	28	27.3
A507 5	GR	F 2	54.9	30	24.9	6/(6-16)/4	28	26.9
A507 7	GR	F 2	55.4	30	25.4	6/(6-16)/4	28	27.4
A507 8	GR	F 2	55.6	30	25.6	6/(6-16)/4	28	27.6

A507 9	GR	F 2	55.7	30	25.7	6/(6-16)/4	28	27.7
A507 10	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8
A507 11	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8
A507 12	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8
A507 13	GR	F 2	55.9	30	25.9	6/(6-16)/4	28	27.9
A507 14	GR	F 2	55.9	30	25.9	6/(6-16)/4	28	27.9
A507 15	GR	F 2	55.5	30	25.5	6/(6-16)/4	28	27.5
A507 16	GR	F 2	55.9	30	25.9	6/(6-16)/4	28	27.9
A507 17	GR	F 2	55.1	30	25.1	6/(6-16)/4	28	27.1
A507 18	GR	F 2	55.5	30	25.5	6/(6-16)/4	28	27.5
A507 19	GR	F 2	56.1	30	26.1	6/(6-16)/4	28	28.1
A507 20	GR	F 2	55.9	30	25.9	6/(6-16)/4	28	27.9
A507 21	GR	F 2	56	30	26	6/(6-16)/4	28	28
A507 22	GR	F 2	56	30	26	6/(6-16)/4	28	28
A507 23	GR	F 2	55.9	30	25.9	6/(6-16)/4	28	27.9
A507 24	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8
A507 25	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8
A507 26	GR	F 2	55.7	30	25.7	6/(6-16)/4	28	27.7
A507 27	GR	F 2	55.8	30	25.8	6/(6-16)/4	28	27.8

9.6. Glazing Calculation – LAmax Values

Receiver	LAmax dB(A)	Criteria	Required Reduction	Required Glazing	Glazing Performance	Predicted Internal Level
Stepplingley Rd	81.2	45	36.2	6/100/4	37	44.2
Railway	75.9	45	30.9	6/(6-16)/4	31	44.9
A507	77.5	45	32.5	4(6)10	33	44.5

9.7. Glazing Mark-up

Steppingley Road Boundary	Glazing Configuration Required	Glazing Performance
Living Rooms	4(6)8	30dB R_{TRA}
Bedrooms	6/100/4	37dB R_{TRA}
Railway Boundary	**Glazing Configuration Required**	**Glazing Performance**
Living Rooms	4/(6-16)/4	28dB R_{RAIL}
Bedrooms	6/(6-16)/4	31dB R_{RAIL}
Froghall Road Boundary	**Glazing Configuration Required**	**Glazing Performance**
Living Rooms	4(6)8	30dB R_{TRA}
Bedrooms	4(6)10	33dB R_{TRA}

All other glazing on site can be standard 4/(6-16)/4.