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DEVELOPMENT APPROVAL

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Flagstone Development, Context Area 3 South, Stages 10 and 12

Road Traffic Noise Intrusion Assessment

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Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Peet Flagstone City Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) was commissioned by Peet Flagstone City Pty Ltd (PEET) to conduct a road traffic noise intrusion assessment for Stage 10 and Stage 12 of the Flagstone Context Area 3 (CA3) South Subdivision, referred hereto as 'The Project'.

North South Arterial Road (NSAR) is forecast to carry a large traffic volume in future; therefore, consideration for the reduction of road traffic noise is considered warranted.

The purpose of this assessment is to present a revised set of noise prediction results and applicable Queensland Development Code Mandatory Part 4.4 (QDC MP4.4) Noise Categories for the lots, following detailed noise modelling, based upon the latest plan of subdivision (reproduced in **Appendix A**) and the revised elevation model for Stage 10 and Stage 12 received by this office on 18 February 2026.

The noise predictions integrate the latest digital elevation model as per above, with the latest available road traffic volume forecasts as at date of issue of this report, for the period coinciding 10 years after the estimated project completion.

The objective of this report is to support the application for Reconfiguration of Lot (ROL) by advising on the effectiveness of the implementation of noise barriers and the QDC MP4.4 Noise Categories applicable to the construction of the dwellings after the implementation of noise barriers.

The following documents are relevant to this assessment:

- Department of Transport and Main Roads (TMR) Transport Management Code of Practice Volume 1: Road traffic noise (CoP Vol 1).
- UK Department of Transport Welsh Office Calculation of Road Traffic Noise 1988 (CoRTN).
- Previous PDA development conditions set out in the PDA Decision Notice (dated 10 Dec 2020) for Stages 2-5 located on the opposite side of NSAR, which was used to inform the noise assessment criteria applied in this report for CA3.

This assessment excludes the following:

- Assessment of road traffic noise onto other residential stages within CA3 South, which are subject to further design.
- Road traffic noise intrusion and environmental noise emission from non-residential uses within CA3 South as it is understood that these will be subject to a separate Development application (DA).
- Railway noise intrusion, as this is of no significance at CA3 South.

This report (report v2.0) addresses the road traffic noise intrusion onto Stage 10 and Stage 12 only, following changes to the design, and supersedes SLR report 620.10512-R15-v1.0-20240805.

A previous report was prepared for the road noise intrusion assessment for Stages 8-14, which included stages 10 and 12 (SLR report 620.10512-R11-v2.0-20240318). Stages 8, 9, 11 and 14 addressed in this report will undergo further design changes in future. Separate reports will also be required to be prepared in due course to address the road traffic noise intrusion onto these. Therefore, SLR report 620.10512-R11-v2.0-20240318 (report v2.0) is now superseded.

A glossary of terms used in this report are detailed in **Appendix E**.



2.0 Noise Assessment Criteria

Flagstone CA3 South will be part of the Greater Flagstone Urban Development Area (UDA); therefore, is to meet the requirements of the Flagstone Development Scheme (FDS). The FDS Community Safety and Community Constraints indicates that residents and other sensitive uses are to be protected from the impacts of noise from regional transport corridors. However, the FDS document does not provide a set of objective criteria for the assessment of these corridors.

The current acoustic requirements applied by Economic Development Queensland (EDQ) for a number of lots within the Flagstone UDA are contained in the EDQ PDA development Condition 35 of 11 October 2024, EDQ reference DEV2012/403/171.

Condition 35 of the abovementioned Decision Notice is relevant to Acoustic Compliance and is reproduced in **Table 1**. This report assumes that the same conditions are to be applied for consistency in the assessment of other CA3 South roads carrying relevant volumes of traffic, as CA3 South pertains the same PDA.

Table 1 PDA Development Condition 35

Condition	Timing
a) Except where identified in Condition 35A¹, submit to EDQ Development Assessment DSDI for compliance assessment a Noise Mitigation Report, certified by a RPEQ, for all lots within 100m from Flagstonian Drive Extension (excluding Lot 50021), the future North-South Arterial road and 200m from the railway corridor achieving a $\leq 35\text{dBA}$ for 1 hour max, over a 24 hour period for all habitable rooms. Where a $\leq 35\text{dBA}$ for 1 hour max, over a 24 hour period for all habitable rooms cannot be achieved, the Noise Mitigation Report is to provide the proposed noise mitigation measures generally in accordance with QDC MP4.4 – Buildings in a Noise Transport Corridor. If any noise barriers are proposed, the detailed design/construction plans certified by a RPEQ are to be provided including how passive surveillance of the streetscape can be maintained. Note: For lots fronting Flagstonian Drive (excluding Lot 50021), the acoustic fence must be no higher than that specified in the approved plan of development. Note: an acoustic report may address the acoustic needs of multiple stages/sub-stages in one report.	a) Prior to the commencement of site works for the relevant sub-stage.
b) Construct barrier(s) works generally in accordance with the certified plans submitted under part a) of this condition.	b) Prior to survey plan endorsement for each relevant sub-stage.
c) Submit to EDQ IS 'as constructed' plans, certified by a RPEQ, an asset register in a format acceptable to Council and 'Issued For Construction' plans for noise barriers within the relevant sub-stage.	c) Prior to survey plan endorsement for each relevant sub-stage.
Note 1: Condition 35A is in relation to the certification of noise walls specific to sub-stages 3G, 3Fi, 3H, 5Ai, 5Aii, 5Bi, 5Bii, 5C, 5D, 5Ei, 5Eii, 5Eiii, 5F, 5G, 5H, 5Ki, 5Kii, 5L, 5M, 5Qii, 5R and 5S. Therefore, it is not considered further.	



From **Table 1**, it is understood that EDQ considers the application of *QDC MP4.4* at residential lots to achieve the acoustic requirements of Condition 35. Under *QDC MP4.4*, when building in a Transport Noise Corridor, a residential building needs to achieve certain levels of noise reduction which can be achieved through incorporating appropriate building materials to the building envelope to achieve the required noise reduction in habitable rooms.

QDC MP4.4 applies to residential buildings that are constructed within designated Transport Noise Corridors. It is then assumed that, for the purpose of assessing transport noise, New Beith Road, North-South Arterial Road and Trunk Connector Road are to be treated as a "Transport Noise Corridor".

Whilst *QDC MP4.4* does not provide internal noise limits or targets, the minimum building constructions in *QDC MP4.4* would typically achieve an internal transport noise level of approximately 35 dBA within habitable rooms where the appropriate QDC Noise Category (NC) building façade treatments are incorporated.

Reproduced from *QDC MP4.4*, the Noise Categories and associated minimum noise reduction requirements and minimum Weighted Sound Reduction Index (R_w) for external building elements are shown in **Table 2**. The R_w is a measure of the sound insulation properties of a specific building material element.

As remedy, *QDC MP4.4* provides acceptable forms of construction for the external elements of the building to assist in achieving a building design and construction which meets the required noise reduction for each Noise Category. The acceptable forms of construction in *QDC MP4.4* are reproduced in **Appendix C**, noting that other forms of construction are acceptable where they are demonstrated to achieve the required R_w rating.

Table 2 QDC MP4.4 Noise Categories and Minimum Noise Reduction for Road Transport Noise

Noise Category	Transport Noise Level, Facade Corrected	Minimum Transport Noise Reduction for Habitable Rooms	Building External Envelope Component	Minimum R_w Required for Each Component	
4	Road traffic noise ≥ 73 dBA LA10(18hour)	40 dBA	Glazing	43	
			External Walls	52	
			Roof	45	
			Floors	51	
			Entry doors	35	
3	Road traffic noise 68 – 72 dBA LA10(18hour)	35 dBA	Glazing	38	where total area of glazing for a habitable room is greater than 1.8 m ²
				35	where total area of glazing for a habitable room is less than or equal to 1.8 m ²
			External walls	47	
			Roof	41	
			Floors	45	
			Entry doors	33	
2		30 dBA	Glazing	35	where total area of glazing for a habitable room is greater than 1.8 m ²



Noise Category	Transport Noise Level, Facade Corrected	Minimum Transport Noise Reduction for Habitable Rooms	Building External Envelope Component	Minimum Rw Required for Each Component	
	Road traffic noise 63 – 67 dBA LA10(18hour)			32	where total area of glazing for a habitable room is less than or equal to than 1.8 m ²
			External walls	41	
			Roof	38	
			Floors	45	
			Entry doors	33	
1	Road traffic noise 58 – 62 dBA LA10(18hour)	25 dBA	Glazing	27	where total area of glazing for a habitable room is greater than 1.8 m ²
				24	where total area of glazing for a habitable room is less than or equal to than 1.8 m ²
			External walls	35	
			Roof	35	
			Entry doors	28	
0	Road traffic noise ≤57 dBA LA10(18hour)	No additional acoustic treatment required – standard building assessment provisions apply.			



3.0 Noise Assessment Methodology

For this report assessment, a revised three-dimensional noise model for Flagstone was developed to incorporate the CA3 South Stage 10 and Stage 12 sites and surrounding roads, incorporating the latest terrain and Lot plan layouts. The model was developed within SoundPLAN v8.1 acoustic software to predict transportation noise intrusion.

The computer model was created as a representation of the future noise intrusion, which incorporates the following inputs:

- Calculation algorithms. SoundPLAN implementation of the following accepted standards and methodologies:
 - UK Department of Transport Welsh Office Calculation of Road Traffic Noise 1988 (CoRTN). CoRTN is widely accepted in Australia for the calculation of road traffic noise and its use is recommended in the CoP Vol 1.
- Site layout. As shown in the Appendix A drawings and digitised in the computer model from the following file:
 - 110056 - 639H CA3 SOUTH STAGES 8-14 OVERALL 16022026.DWG
- Terrain elevation. Digital Elevation Model (DEM) built from:
 - Earthworks model supplied by the Project civil consultant in files:
 - MGA 2020 Design 20260218.dwg
 - Other previous elevation models pertaining the adjoining roads and Flagstone stages.
 - 3D LiDAR file representing existing contours outside the study area.
- Noise barriers. Where implemented in Stages 10 & 12, these have been digitised at the top of a retaining wall.
- Road traffic volumes. Provided by the traffic consultant as the best estimate at the time of this assessment for the 10-year after construction traffic volumes (year 2041), assuming a Project completion date of 2031.
- Ground surface corrections – Areas of soft (absorptive) and hard (reflective) ground.
- Sensitive receptors – Locations where the transportation noise levels are to be assessed.

3.1 Road Traffic Noise Modelling

Road traffic noise was modelled following general guidance from the CoP Vol 1.

Road traffic volumes have been provided by the Project traffic consultant and are presented in **Table 3** and **Figure 1**. The traffic forecasts for the Year 2041 have been used, which are adopted as a 10-year after construction scenario.

The 18-hour traffic volume has further been estimated from the Annual Average Daily Traffic (AADT) traffic volume provided by the project consultant assuming 94% of traffic occurs between 6am-12am (midnight).

All road surfaces were assumed to be Dense Graded Asphalt (DGA). On this basis, a road surface correction factor of 0 dBA was applied for all road traffic noise predictions, in accordance with published corrections in *Table 4.3.4.1, Chapter 4 of TMR CoP Vol 1 (2013)*.

A -0.7 dBA (free field) or -1.7 dBA (1m from façade) road traffic calibration factor was applied, where applicable, in accordance with published corrections in *Table 4.3.2.1*,



Chapter 4 the TMR CoP Vol 1 (2013) with a further +2.5 dB facade correction factor in accordance with the CoRTN.

The QDC MP4.4 Noise Categories were determined from the noise contour maps calculated at 1.8 m and 4.6 m above ground level as per the DEM, for the ground floor and first floor of two storey dwellings assumed for the development, respectively. The highest Noise Category predicted onto the lot is reported.

Road traffic noise contours were generated from noise predictions using a grid spacing of 0.5 m.

Table 3 2041 Road Traffic Forecasts

Road	Segment	AADT	18hr traffic volume	% Heavy Vehicles	Posted Speed, Km/h
North-South Arterial Road	N of Trunk Collector	21,016	19,755	2.5	70
	N of Flagstonian Drive	18,793	17,665	2.6	70
	S of Flagstonian Drive	21,125	19,858	2.5	70
Flagstonian Drive	E of North-South Arterial Road	14,193	13,341	2.4	60
Trunk Connector	1	7,251	6,816	1.5	60
	2	2,828	2,658	1.4	60
	3	1,902	1,788	1.4	60
	4	1,573	1,479	1.4	60
	5	780	733	1.4	60
	6	444	417	1.4	60
	7	3,698	3,476	1.8	60



Legend

- Flagstaff Site Boundary
- CAS Application Boundary
- Super Stage Boundary
- Stage Boundary
- Lot Contours
- Shared Access Easement
- Possible Multiple Residential Allotment (if dwellings)
- Split Level Lots
- Environmental Constraints
- 2100
- Stormwater Management Node
- Stormwater Easement (2m Wide)
- Potential State High School Site (12.5ha)

Land Budget

Land Use	Area	%
Overall	239,671 ha	100.0%
Area of Application Boundary	77,961 ha	32.5%
State Primary School	7,000 ha	2.9%
Local Centre	8,015 ha	3.3%
Local Centre	1,940 ha	0.8%
Child Care	1,001 ha	0.4%
Antisocial	0,800 ha	0.3%
Local Community Centre	0,551 ha	0.2%
Medium Density	2,863 ha	1.2%
Total Area of Allotments	99,938 ha	41.7%
Road	12,605 ha	5.3%
North South Arterial (Dedicated incl. buffers)	9,117 ha	3.8%
Trunk Connector 2 Lanes (23.7m)	7,432 ha	3.1%
Neighbourhood Connector (20.3m)	24,575 ha	10.3%
Neighbourhood Access Street (16.5m)	0,476 ha	0.2%
Laneway (8.5m)	1,589 ha	0.7%
Provision Linkages	56,058 ha	23.4%
Total Area of New Road	3,069 ha	1.3%
Open Space	42,557 ha	17.7%
Corridor Park / Conservation	17,595 ha	7.3%
Regional Sports	12,624 ha	5.3%
District Sports	2,143 ha	0.9%
Stormwater Management	4,329 ha	1.8%
Neighbourhood Recreation Park	0,821 ha	0.4%
Local Recreation Park	0,807 ha	0.3%
Total Open Space	83,645 ha	34.9%

Yield Breakdown

Lot Type	Urban	Entry 1	Entry 2	Mid 1	Mid 2	Mid 3	Premium	Overall
30m Deep Terrace Product	—	0%	—	0%	—	0%	—	0%
Terrace 3.5m Allotment	32	48%	—	0%	—	0%	—	33
Subtotal	32	48%	—	0%	—	0%	—	33
30m Deep Product	4	6%	8	4%	7	3%	15	10%
Villa 10m Allotment	7	10%	21	10%	41	17%	14	9%
Premium Villa 12.5m Allotment	—	0%	28	14%	33	14%	14	9%
Courtyard 10m Allotment	—	0%	3	1%	8	2%	7	5%
Premium Courtyard 10m Allotment	—	0%	4	2%	4	2%	1	1%
Premium Traditional 20m Allotment	11	16%	64	31%	90	38%	81	33%
Subtotal	34	36%	12	6%	—	0%	7	2%
30m Deep Terrace Product	—	0%	9	4%	—	0%	5	2%
Terrace 3.5m Allotment	34	36%	4	2%	—	0%	7	1%
Subtotal	34	36%	13	6%	—	0%	12	5%
30m Deep Product	—	0%	23	11%	28	11%	9	3%
Villa 10m Allotment	—	0%	82	28%	68	28%	30	22%
Premium Villa 12.5m Allotment	—	0%	42	20%	44	18%	129	40%
Courtyard 10m Allotment	—	0%	6	3%	7	3%	14	9%
Premium Courtyard 10m Allotment	—	0%	—	0%	—	0%	3	2%
Traditional 10m Allotment	—	0%	5	2%	5	2%	11	4%
Premium Traditional 20m Allotment	—	0%	5	2%	5	2%	9	3%
Possible Multiple Residential Allotment	—	0%	2	1%	—	0%	1	0%
Subtotal	—	0%	130	62%	148	62%	102	67%
30m Deep Product	—	0%	—	0%	—	0%	—	0%
Courtyard 10m Allotment	—	0%	—	0%	—	0%	—	0%
Premium Courtyard 10m Allotment	—	0%	—	0%	—	0%	—	0%
Traditional 10m Allotment	—	0%	—	0%	—	0%	—	0%
Premium Traditional 20m Allotment	—	0%	—	0%	—	0%	—	0%
Neighbourhood Connector	—	0%	—	0%	—	0%	—	0%
Subtotal	—	0%	—	0%	—	0%	—	0%
Total Residential Allotments	67	100%	207	100%	238	100%	153	100%
Super Lots	—	—	—	—	—	—	—	—
Medium Density Allotment	—	—	—	—	—	—	—	—
Sub Total	—	—	—	—	—	—	—	—
Maximum Potential Residential Dwellings (includes Multiple Residential Allotments)	67	209	238					



3.2 Road Traffic Noise Model Verification

It is acknowledged that, according to the CoP Vol 1, a road traffic noise model is deemed to be verified if the average difference between the measured and calculated values of the noise descriptors is no more than ± 2.0 dBA.

A road traffic model verification for new roads to be built as part of the project is not possible at this stage as the roads are non-existing. However, past experience has shown that noise predictions using CoRTN typically result in conservative predictions of levels at receptors.



4.0 Noise Assessment Results

4.1 QDC MP4.4 Noise Categories

Noise assessment results are provided in the form of noise contours, shown **Figure 2** to **Figure 9**, which depict the noise levels “with” and “without” the introduction of 2.0m high noise barriers. The contours show the predicted LA_{10,18hr} noise level descriptor and the applicable QDC MP4.4 Category(s) relevant to predicted noise level.

QDC MP4.4 Categories applicable to all lots of Stage 10 and Stage 12 of Precinct CA3 South, related to road traffic noise are presented in **Appendix C (Table C-1)**. The results present the lot number, stage, modelled ground elevation at the (approximate) centre of the lot and the QDC MP4.4 Noise Category for Ground Floor and First Floor noise levels, as determined from the resulting noise contour maps where shown as the highest Noise Category within developable areas within the lot, with and without noise mitigation.

The QDC MP4.4 noise category to be applied to the design of the dwelling for each of the lots is derived from the residual noise level after the implementation of the recommended noise barriers. Note, Lots predicted to achieve Noise Category “0” do not require further noise treatment to the dwelling facades.

Table 4 presents the QDC MP4.4 Categories applicable to first row lots of CA3 South Stage 10 and 12 where a noise barrier is recommended in front of the lot. The results present the lot number, and the QDC MP4.4 Noise Category for Ground Floor and First Floor noise levels with and without noise mitigation, i.e. noise barriers.

The modelled ground elevation at the approximate centre of the lot, as well as the mid span elevation of the barrier and the approximate elevation of the road section immediately in front are also presented for information.

Table 4 Road Traffic Noise Predictions on Lots with a Noise Barrier

Lot	Floor	QDC MP4.4 Noise Category		Approximate Ground Elevation at Centre of Lot, m			Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road in Front of Lot, m	Lot in Cut /Fill
		No Barrier	2.0m Barrier	Easting	Northing	Elevation			
3442	GF	3	2	494070.6	6925823.0	68.4	68.3	65.8	Fill
3442	FF	3	3	494070.6	6925823.0	68.4	-	-	Fill
3443	GF	3	2	494068.8	6925835.8	68.8	68.7	65.9	Fill
3443	FF	3	3	494068.8	6925835.8	68.8	-	-	Fill
3444	GF	3	1	494066.3	6925848.9	68.9	68.8	66.0	Fill
3444	FF	3	3	494066.3	6925848.9	68.9	-	-	Fill
3445	GF	3	1	494063.6	6925861.6	68.6	68.4	66.0	Fill
3445	FF	3	3	494063.6	6925861.6	68.6	-	-	Fill
3446	GF	3	1	494061.2	6925872.9	68.4	68.2	66.0	Fill
3446	FF	3	3	494061.2	6925872.9	68.4	-	-	Fill
3447	GF	3	1	494058.4	6925884.1	68.3	68.1	65.9	Fill
3447	FF	3	3	494058.4	6925884.1	68.3	-	-	Fill
3448	GF	3	1	494054.8	6925896.4	68.2	68.0	65.8	Fill



Lot	Floor	QDC MP4.4 Noise Category		Approximate Ground Elevation at Centre of Lot, m			Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road in Front of Lot, m	Lot in Cut /Fill
		No Barrier	2.0m Barrier	Easting	Northing	Elevation			
3448	FF	3	3	494054.8	6925896.4	68.2	-	-	Fill
3449	GF	3	1	494051.3	6925907.6	68.0	67.9	65.6	Fill
3449	FF	3	3	494051.3	6925907.6	68.0	-	-	Fill
3450	GF	3	1	494047.8	6925917.7	68.0	67.8	65.5	Fill
3450	FF	3	3	494047.8	6925917.7	68.0	-	-	Fill
3451	GF	3	1	494043.8	6925929.7	67.8	67.7	65.2	Fill
3451	FF	3	3	494043.8	6925929.7	67.8	-	-	Fill
3452	GF	3	1	494039.0	6925941.9	67.7	67.6	65.0	Fill
3452	FF	3	3	494039.0	6925941.9	67.7	-	-	Fill
3453	GF	3	1	494033.5	6925954.6	67.6	67.5	64.8	Fill
3453	FF	3	3	494033.5	6925954.6	67.6	-	-	Fill
3454	GF	3	1	494023.1	6925975.5	67.4	67.3	64.5	Fill
3454	FF	3	3	494023.1	6925975.5	67.4	-	-	Fill
3455	GF	3	1	494017.3	6925986.8	67.2	67.0	64.2	Fill
3455	FF	3	3	494017.3	6925986.8	67.2	-	-	Fill
3456	GF	3	1	494011.3	6925997.1	66.9	66.8	64.0	Fill
3456	FF	3	3	494011.3	6925997.1	66.9	-	-	Fill
3457	GF	3	1	494005.9	6926006.2	66.7	66.6	63.8	Fill
3457	FF	3	3	494005.9	6926006.2	66.7	-	-	Fill
3458	GF	3	1	493999.7	6926016.2	66.5	66.4	63.6	Fill
3458	FF	3	3	493999.7	6926016.2	66.5	-	-	Fill
3459	GF	3	1	493992.1	6926027.2	66.3	66.1	63.4	Fill
3459	FF	3	3	493992.1	6926027.2	66.3	-	-	Fill
3460	GF	3	1	493985.6	6926036.8	66.0	65.9	63.2	Fill
3460	FF	3	3	493985.6	6926036.8	66.0	-	-	Fill
3461	GF	3	1	493978.6	6926045.7	65.8	65.7	63.1	Fill
3461	FF	3	3	493978.6	6926045.7	65.8	-	-	Fill
3462	GF	3	1	493971.7	6926054.7	65.6	65.5	62.9	Fill
3462	FF	3	3	493971.7	6926054.7	65.6	-	-	Fill
3463	GF	3	1	493962.6	6926065.7	65.4	65.3	62.6	Fill
3463	FF	3	3	493962.6	6926065.7	65.4	-	-	Fill
3464	GF	3	1	493954.6	6926074.8	65.0	64.8	62.4	Fill
3464	FF	3	3	493954.6	6926074.8	65.0	-	-	Fill
3465	GF	3	1	493947.1	6926082.7	64.8	64.7	62.3	Fill
3465	FF	3	3	493947.1	6926082.7	64.8	-	-	Fill
3466	GF	3	1	493938.6	6926091.6	64.6	64.5	62.1	Fill



Lot	Floor	QDC MP4.4 Noise Category		Approximate Ground Elevation at Centre of Lot, m			Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road in Front of Lot, m	Lot in Cut /Fill
		No Barrier	2.0m Barrier	Easting	Northing	Elevation			
3466	FF	3	3	493938.6	6926091.6	64.6	-	-	Fill
3467	GF	3	1	493930.4	6926099.8	64.4	64.2	61.9	Fill
3467	FF	3	3	493930.4	6926099.8	64.4	-	-	Fill
3468	GF	3	1	493923.1	6926106.8	64.3	64.1	61.7	Fill
3468	FF	3	3	493923.1	6926106.8	64.3	-	-	Fill
3469	GF	3	1	493914.6	6926114.9	64.1	63.9	61.6	Fill
3469	FF	3	3	493914.6	6926114.9	64.1	-	-	Fill
3470	GF	3	1	493905.4	6926123.7	63.9	63.8	61.4	Fill
3470	FF	3	3	493905.4	6926123.7	63.9	-	-	Fill
3471	GF	3	1	493897.1	6926131.7	63.8	63.7	61.2	Fill
3471	FF	3	3	493897.1	6926131.7	63.8	-	-	Fill
3472	GF	3	1	493888.4	6926140.0	63.8	63.6	61.0	Fill
3472	FF	3	3	493888.4	6926140.0	63.8	-	-	Fill
3473	GF	3	1	493878.6	6926149.4	63.7	63.6	60.8	Fill
3473	FF	3	3	493878.6	6926149.4	63.7	-	-	Fill
3474	GF	3	1	493864.2	6926163.3	63.6	63.3	60.5	Fill
3474	FF	3	3	493864.2	6926163.3	63.6	-	-	Fill
3740	GF	0	0	493556.1	6926337.3	67.6	64.8	61.2	Fill
3740	FF	0	0	493556.1	6926337.3	67.6	-	-	Fill
3741	GF	0	0	493557.6	6926348.5	67.6	64.9	61.3	Fill
3741	FF	1	1	493557.6	6926348.5	67.6	-	-	Fill
3742	GF	0	0	493559.0	6926358.7	67.7	65.0	61.4	Fill
3742	FF	1	1	493559.0	6926358.7	67.7	-	-	Fill
3743	GF	0	0	493560.7	6926370.5	68.1	65.3	61.6	Fill
3743	FF	1	1	493560.7	6926370.5	68.1	-	-	Fill
3744	GF	1	1	493562.5	6926382.9	68.5	65.7	61.8	Fill
3744	FF	1	1	493562.5	6926382.9	68.5	-	-	Fill
3745	GF	1	1	493564.2	6926395.2	68.8	66.1	61.9	Fill
3745	FF	1	1	493564.2	6926395.2	68.8	-	-	Fill
3746	GF	1	1	493565.8	6926406.4	69.3	66.5	62.0	Fill
3746	FF	1	1	493565.8	6926406.4	69.3	-	-	Fill
3747	GF	1	1	493567.3	6926416.6	70.1	67.4	62.2	Fill
3747	FF	1	1	493567.3	6926416.6	70.1	-	-	Fill
3748	GF	1	1	493568.9	6926427.8	70.6	67.9	62.4	Fill
3748	FF	1	1	493568.9	6926427.8	70.6	-	-	Fill
3749	GF	1	1	493570.6	6926440.1	71.1	68.4	62.5	Fill



Lot	Floor	QDC MP4.4 Noise Category		Approximate Ground Elevation at Centre of Lot, m			Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road in Front of Lot, m	Lot in Cut /Fill
		No Barrier	2.0m Barrier	Easting	Northing	Elevation			
3749	FF	1	1	493570.6	6926440.1	71.1	-	-	Fill
3750	GF	1	1	493572.3	6926452.5	71.6	68.9	62.6	Fill
3750	FF	2	2	493572.3	6926452.5	71.6	-	-	Fill
3751	GF	1	1	493574.0	6926464.1	72.0	69.3	62.8	Fill
3751	FF	2	2	493574.0	6926464.1	72.0	-	-	Fill
3752	GF	1	1	493575.4	6926474.2	72.3	69.6	62.9	Fill
3752	FF	2	2	493575.4	6926474.2	72.3	-	-	Fill
3753	GF	2	1	493577.0	6926485.7	72.6	69.9	63.0	Fill
3753	FF	2	2	493577.0	6926485.7	72.6	-	-	Fill
3754	GF	2	1	493578.7	6926498.1	72.8	70.0	63.1	Fill
3754	FF	2	2	493578.7	6926498.1	72.8	-	-	Fill
3755	GF	2	1	493580.3	6926509.2	72.9	70.2	63.2	Fill
3755	FF	2	2	493580.3	6926509.2	72.9	-	-	Fill
3756	GF	2	1	493581.8	6926519.4	73.1	70.4	63.2	Fill
3756	FF	2	2	493581.8	6926519.4	73.1	-	-	Fill
3757	GF	2	1	493583.4	6926531.2	72.7	70.5	63.1	Fill
3757	FF	2	2	493583.4	6926531.2	72.7	-	-	Fill
3758	GF	2	1	493584.9	6926542.0	71.9	70.2	63.1	Fill
3758	FF	2	2	493584.9	6926542.0	71.9	-	-	Fill
3759	GF	2	1	493586.2	6926552.0	70.9	69.8	63.0	Fill
3759	FF	3	3	493586.2	6926552.0	70.9	-	-	Fill
3761	GF	2	1	493545.5	6926548.7	72.9	72.7	69.8	Fill
3761	FF	2	2	493545.5	6926548.7	72.9	-	-	Fill
3762	GF	2	1	493531.5	6926551.2	73.4	73.2	71.0	Fill
3762	FF	2	2	493531.5	6926551.2	73.3	-	-	Fill
3763	GF	2	1	493520.6	6926552.7	73.7	73.5	71.8	Fill
3763	FF	2	2	493520.6	6926552.7	73.7	-	-	Fill
3764	GF	2	1	493510.0	6926554.1	74.2	74.1	72.5	Fill
3764	FF	2	2	493510.0	6926554.1	74.2	-	-	Fill
3765	GF	2	1	493496.7	6926555.3	74.7	74.6	73.2	Fill
3765	FF	2	2	493496.7	6926555.3	74.7	-	-	Fill
3766	GF	2	1	493482.6	6926558.0	75.5	75.4	73.9	Fill
3766	FF	2	2	493482.6	6926558.0	75.5	-	-	Fill
3767	GF	2	1	493469.1	6926561.6	76.3	76.1	74.5	Fill
3767	FF	2	2	493469.1	6926561.6	76.3	-	-	Fill
3768	GF	2	1	493456.2	6926566.3	76.8	76.6	75.0	Fill



Lot	Floor	QDC MP4.4 Noise Category		Approximate Ground Elevation at Centre of Lot, m			Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road in Front of Lot, m	Lot in Cut /Fill
				Easting	Northing	Elevation			
		No Barrier	2.0m Barrier						
3768	FF	2	2	493456.2	6926566.3	76.8	-	-	Fill
3769	GF	2	1	493446.1	6926571.0	77.1	76.9	75.3	Fill
3769	FF	2	2	493446.1	6926571.0	77.1	-	-	Fill
3770	GF	2	0	493435.5	6926577.3	77.5	77.3	75.7	Fill
3770	FF	2	2	493435.5	6926577.3	77.5	-	-	Fill
3771	GF	2	0	493424.0	6926584.9	77.7	77.6	76.0	Fill
3771	FF	2	2	493424.0	6926584.9	77.7	-	-	Fill
3772	GF	2	0	493414.3	6926591.7	78.0	77.8	76.2	Fill
3772	FF	2	2	493414.3	6926591.7	78.0	-	-	Fill
3773	GF	2	0	493405.6	6926597.5	78.2	78.1	76.4	Fill
3773	FF	2	2	493405.6	6926597.5	78.2	-	-	Fill
3774	GF	2	0	493396.2	6926603.7	78.4	78.3	76.5	Fill
3774	FF	2	2	493396.2	6926603.7	78.4	-	-	Fill
3775	GF	2	0	493385.8	6926610.6	78.8	78.7	76.5	Fill
3775	FF	2	2	493385.8	6926610.6	78.8	-	-	Fill
3776	GF	2	0	493374.5	6926620.5	79.0	78.8	76.6	Fill
3776	FF	2	2	493374.5	6926620.5	79.0	-	-	Fill
3894	GF	2	1	493187.0	6926745.9	78.9	78.9	77.7	Fill
3894	FF	2	2	493187.0	6926745.9	78.9	-	-	Fill
3895	GF	2	1	493212.8	6926727.0	78.8	78.7	77.6	Fill
3895	FF	2	2	493212.8	6926727.0	78.8	-	-	Fill
3966	GF	2	0	493349.2	6926636.1	79.2	79.0	76.8	Fill
3966	FF	2	2	493349.2	6926636.1	79.2	-	-	Fill
3967	GF	2	0	493338.4	6926643.6	79.2	79.0	76.8	Fill
3967	FF	2	2	493338.4	6926643.6	79.2	-	-	Fill
3968	GF	2	0	493329.6	6926649.4	79.2	79.0	76.9	Fill
3968	FF	2	2	493329.6	6926649.4	79.2	-	-	Fill
3969	GF	2	0	493320.3	6926655.6	79.2	79.1	76.9	Fill
3969	FF	2	2	493320.3	6926655.6	79.2	-	-	Fill
3970	GF	2	0	493310.9	6926661.8	79.2	79.0	77.0	Fill
3970	FF	2	2	493310.9	6926661.8	79.2	-	-	Fill
3971	GF	2	0	493301.7	6926667.9	79.1	79.0	77.0	Fill
3971	FF	2	2	493301.7	6926667.9	79.1	-	-	Fill
3972	GF	2	0	493292.4	6926674.2	79.1	78.9	77.1	Fill
3972	FF	2	2	493292.4	6926674.2	79.1	-	-	Fill
3973	GF	2	0	493282.0	6926681.1	79.0	78.8	77.2	Fill



Lot	Floor	QDC MP4.4 Noise Category		Approximate Ground Elevation at Centre of Lot, m			Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road in Front of Lot, m	Lot in Cut /Fill
				Easting	Northing	Elevation			
		No Barrier	2.0m Barrier						
3973	FF	2	2	493282.0	6926681.1	79.0	-	-	Fill
3974	GF	2	0	493272.2	6926687.6	78.9	78.8	77.2	Fill
3974	FF	2	2	493272.2	6926687.6	78.9	-	-	Fill
3975	GF	2	0	493263.5	6926693.4	78.9	78.7	77.3	Fill
3975	FF	2	2	493263.5	6926693.4	78.9	-	-	Fill
3976	GF	2	0	493254.1	6926699.6	78.8	78.6	77.3	Fill
3976	FF	2	2	493254.1	6926699.6	78.8	-	-	Fill
3977	GF	2	0	493242.6	6926708.8	78.6	78.5	77.4	Fill
3977	FF	2	2	493242.6	6926708.8	78.6	-	-	Fill

1 The QDC MP4.4 Noise Category applicable to the ground floor of these lots is considered to be Category 1, as it is unlikely that any future buildings will be built in the portion of the lot affected by noise equivalent to Category 2.



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Figure 2 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
Ground floor noise prediction at 1.8m above
the ground without noise barriers

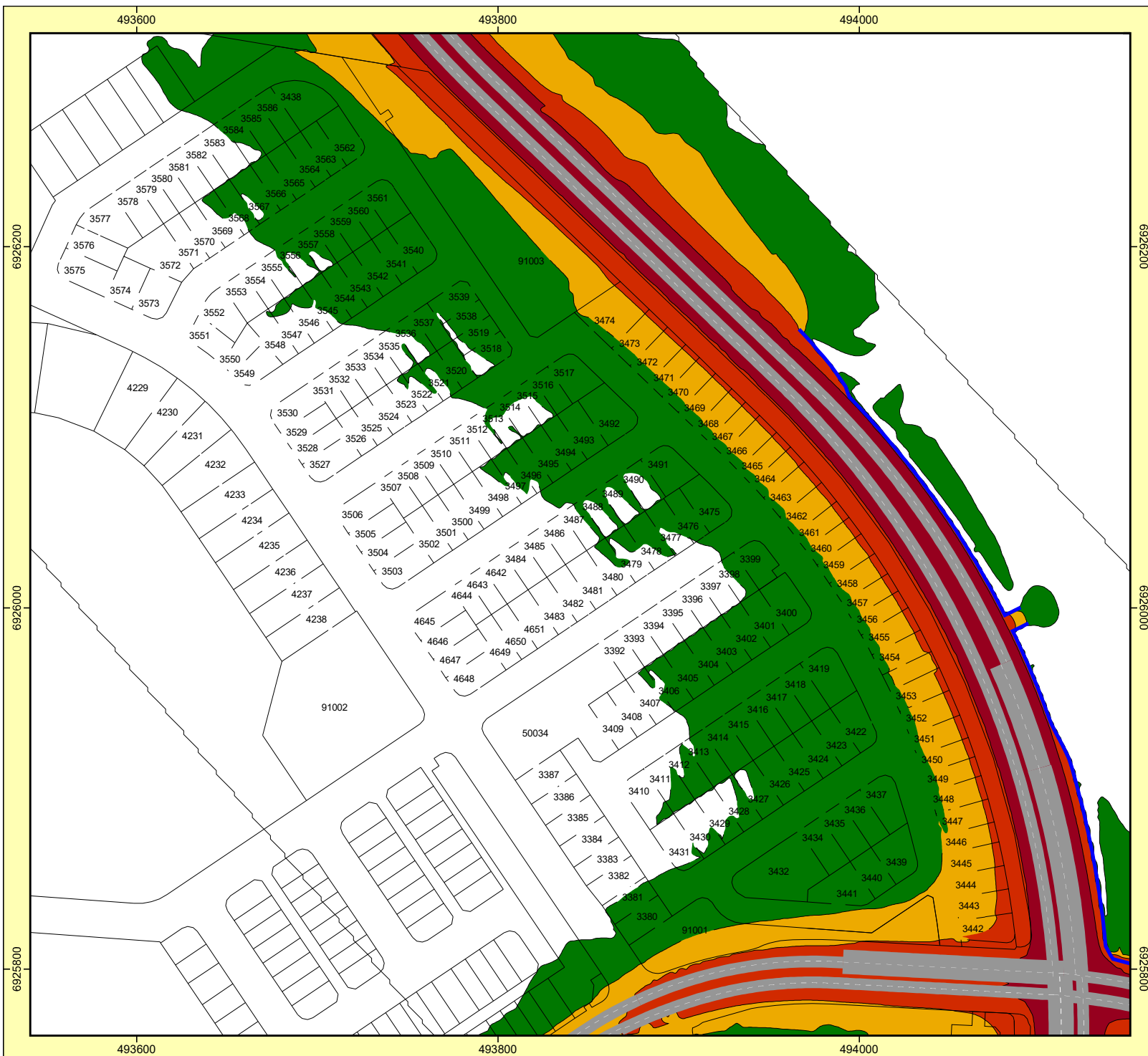
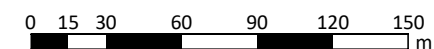
Project engineer: RO
Created: 11/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 < \leq 77.4$	Noise Category 4

Signs and symbols

 Noise barriers,
other sites

Scale 1:3000



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**Figure 3 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
Ground floor noise prediction at 1.8m above
the ground with 2.0m high noise barriers**

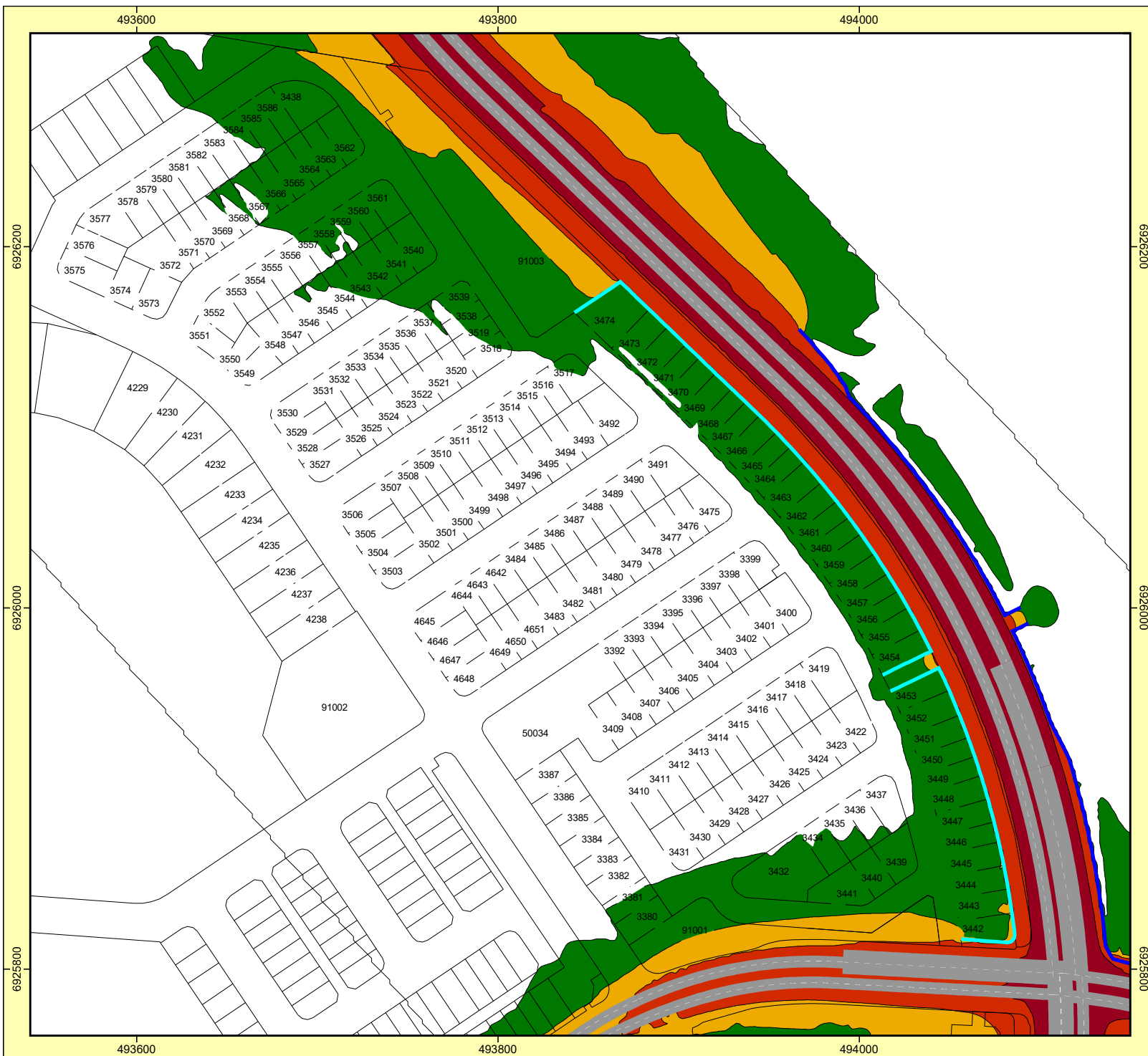
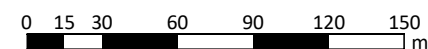
Project engineer: RO
Created: 10/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 < \leq 77.4$	Noise Category 4

Signs and symbols

- CA3 South, Stage 10
- 2.0m high noise barriers
- Noise barriers other sites

Scale 1:3000



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Stage 10 Road Traffic Noise Impact Assessment
SLR Project No. 620.10512



Figure 4 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
First floor noise prediction at 4.6m above
the ground without noise barriers

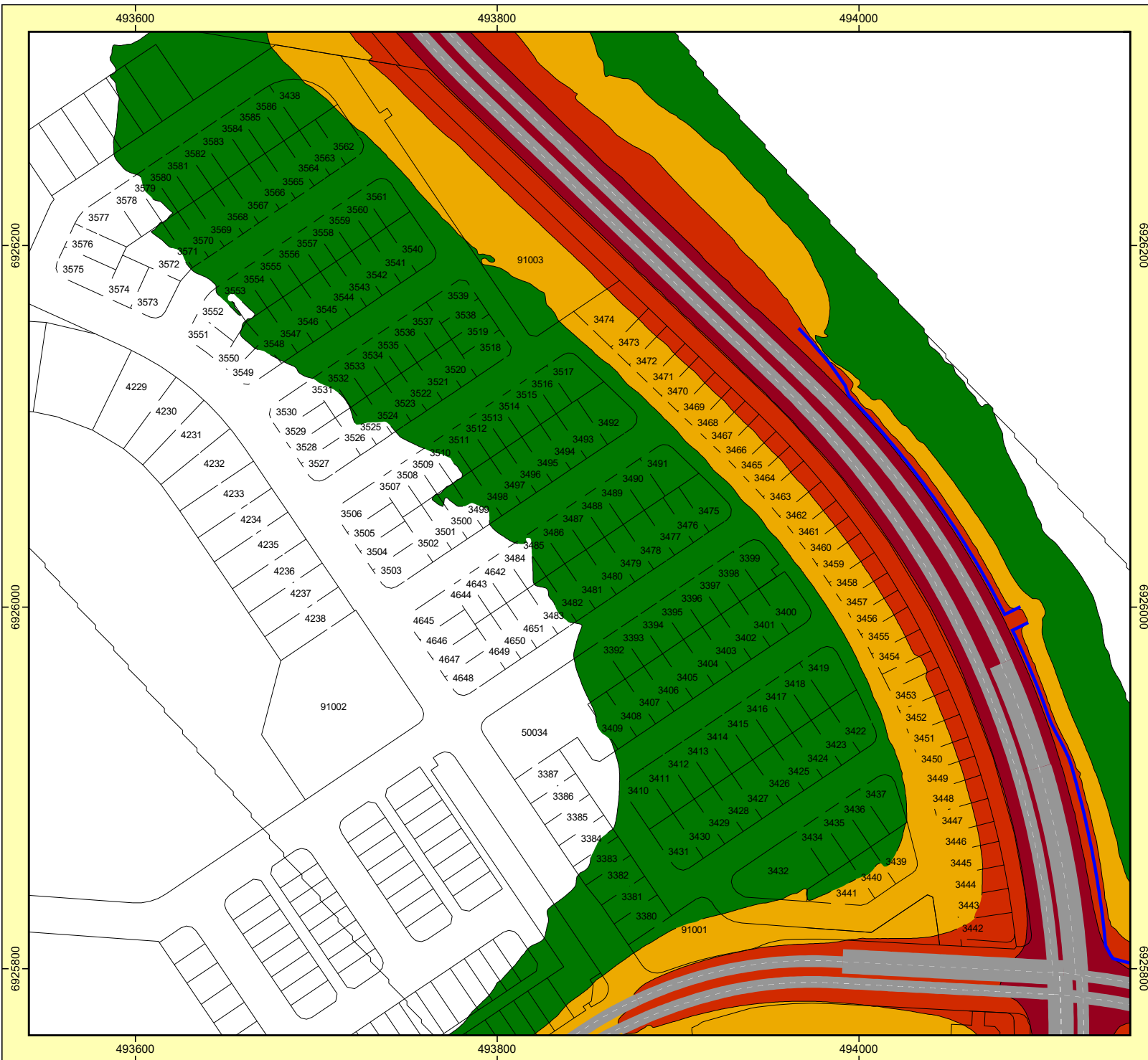
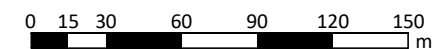
Project engineer: RO
Created: 10/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 < \leq 77.4$	Noise Category 4

Signs and symbols

 Noise barriers
 other sites

Scale 1:3000



Flagstone City Development
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Figure 5 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
First floor noise prediction at 4.6m above
the ground with 2.0m high noise barriers

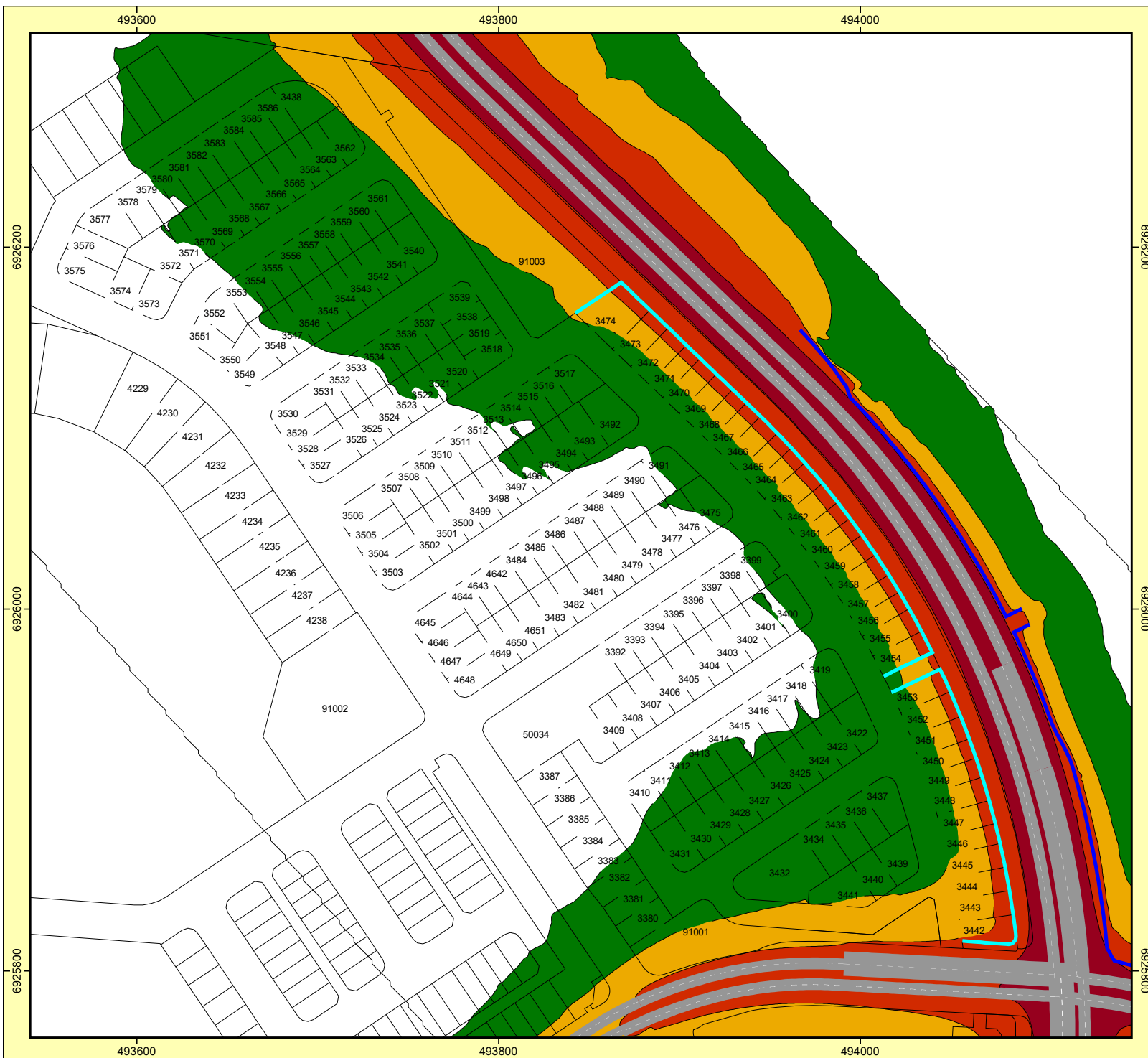
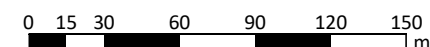
Project engineer: RO
Created: 10/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 <$	Noise Category 4

Signs and symbols

- CA3 South, Stage 10
- 2.0m high noise barriers
- Noise barriers other sites

Scale 1:3000



Flagstone City Development
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Stage 12 Road Traffic Noise Impact Assessment
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Figure 6 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
Ground floor noise prediction at 1.8m above
the ground without noise barriers

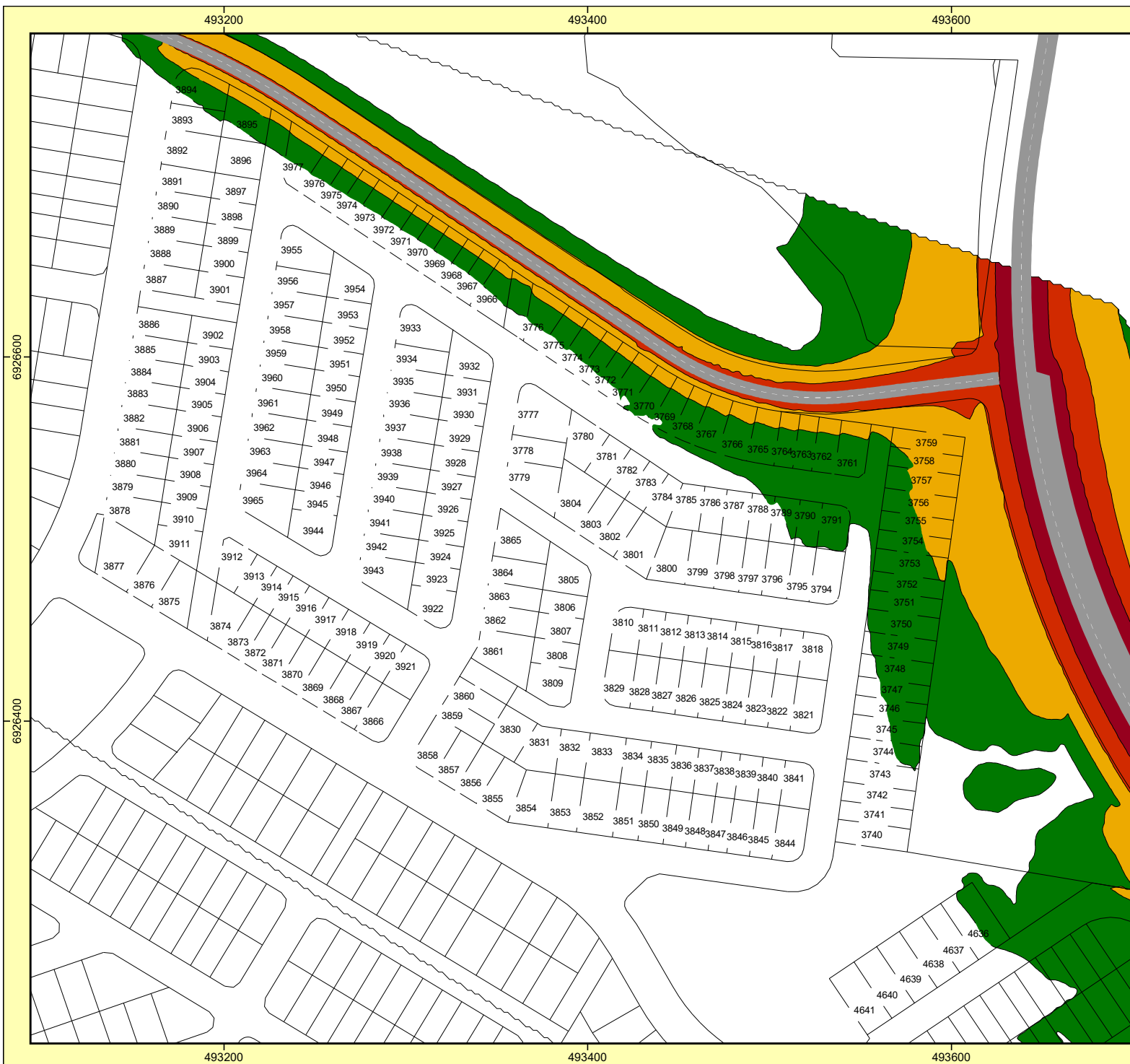
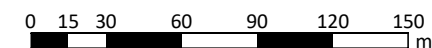
Project engineer: RO
Created: 10/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 <$	Noise Category 4

Signs and symbols

 Noise barriers,
other sites

Scale 1:3000



Flagstone City Development
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Figure 7 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
Ground floor noise prediction at 1.8m above
the ground with 2.0m high noise barriers

Project engineer: RO
Created: 11/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 < \leq 77.4$	Noise Category 4

Signs and symbols

- CA3 South, Stage 12
- 2.0m high noise barriers
- Noise barriers other sites

Scale 1:3000

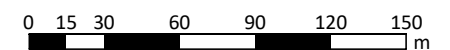




Figure 8 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
First floor noise prediction at 4.6m above
the ground without noise barriers

Project engineer: RO
Created: 11/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 <$	Noise Category 4

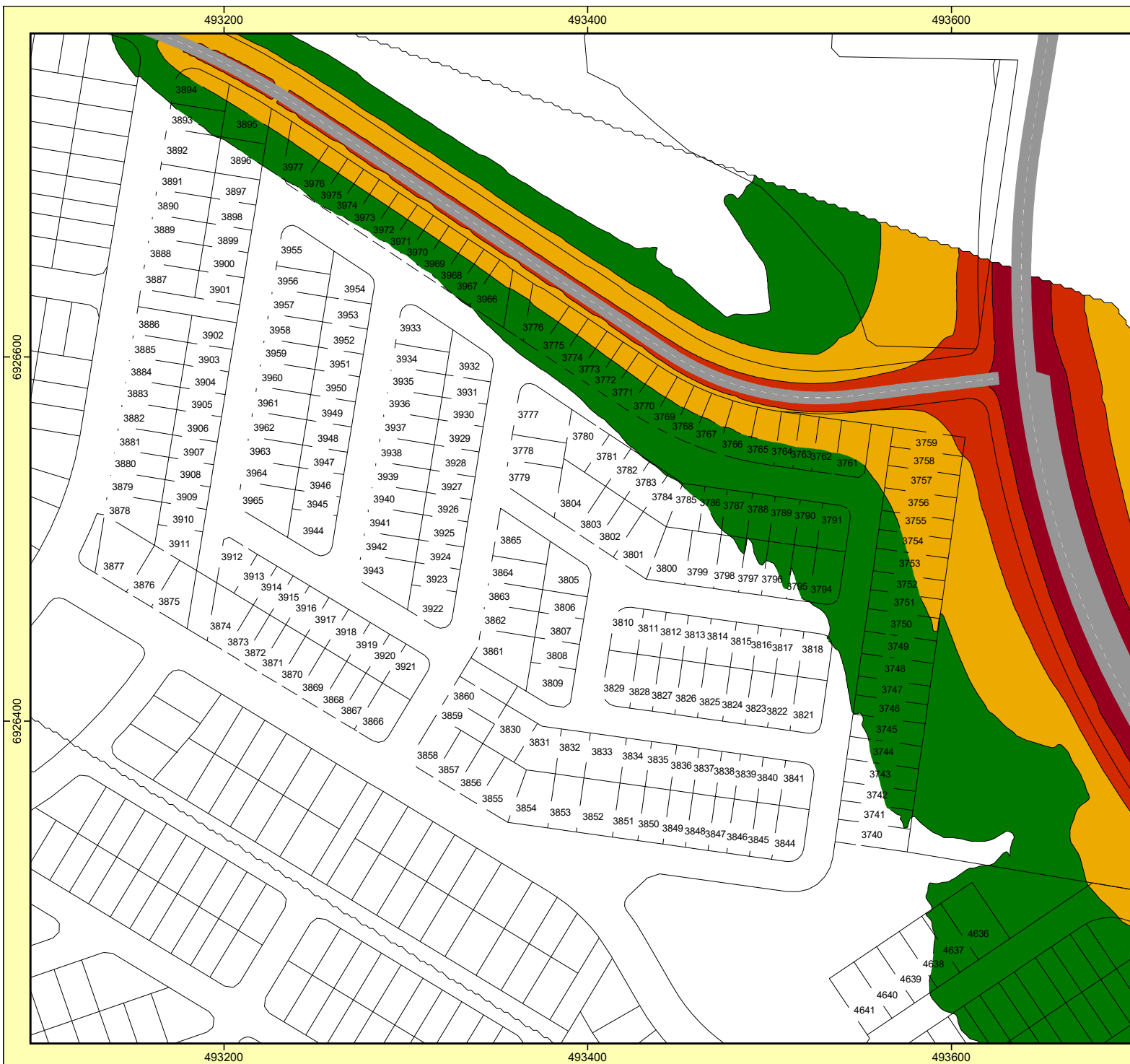
Signs and symbols

 Noise barriers,
other sites

Scale 1:3000



0 15 30 60 90 120 150
m



Flagstone City Development
Context Area 3 (CA3) South
Stage 12 Road Traffic Noise Impact Assessment
SLR Project No. 620.10512



Figure 9 - QDC MP4.4 Noise Categories
2041 Road Traffic Noise Levels
First floor noise prediction at 4.6m above
the ground with 2.0m high noise barriers

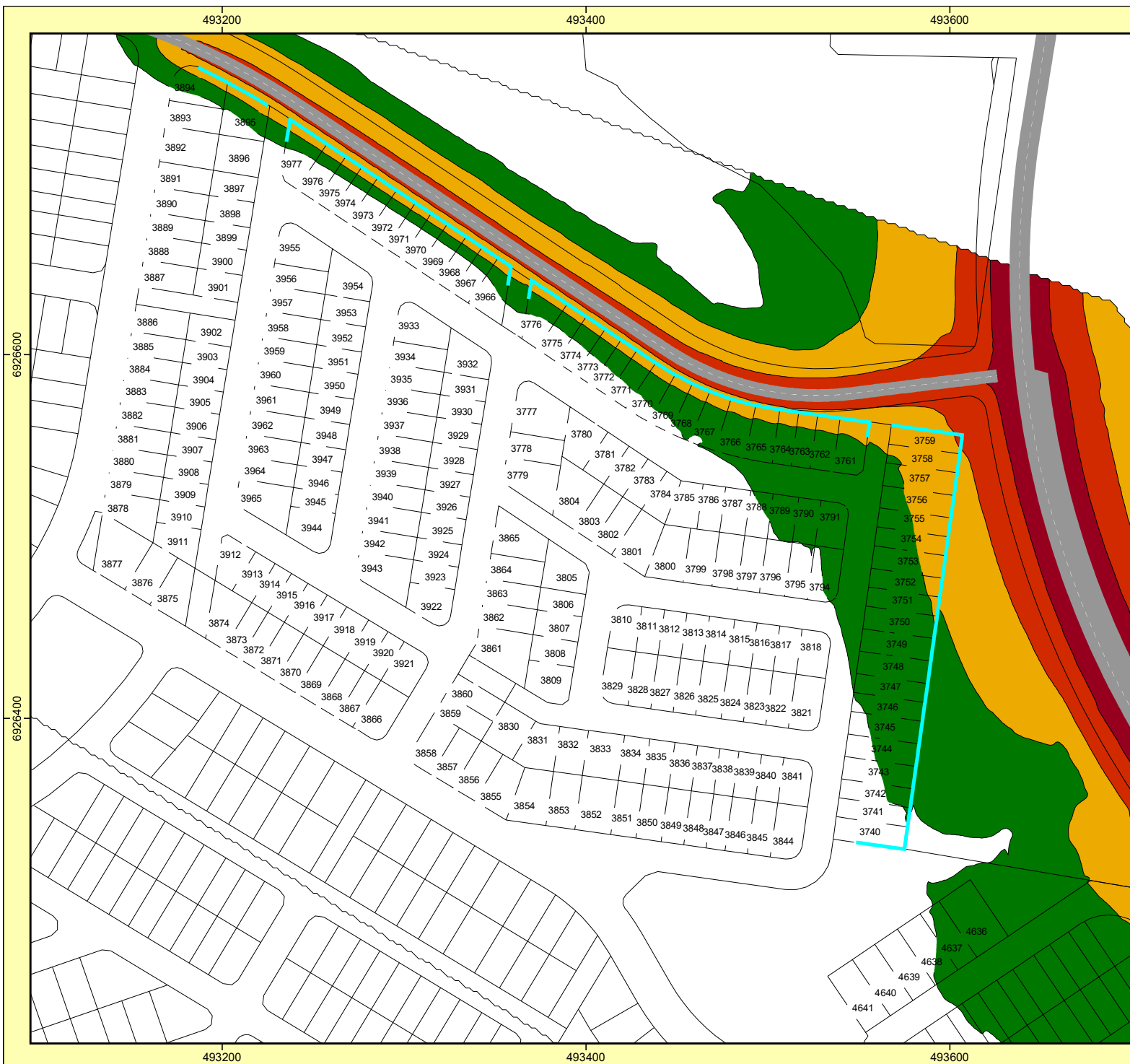
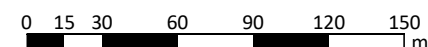
Project engineer: RO
Created: 11/03/2026
SoundPLAN 8.1, Update 27/04/2020

$L_{A10,18hr}$ dBA	QDC MP4.4
≤ 57.4	Noise Category 0
$57.4 < \leq 62.4$	Noise Category 1
$62.4 < \leq 67.4$	Noise Category 2
$67.4 < \leq 72.4$	Noise Category 3
$72.4 < \leq 77.4$	Noise Category 4

Signs and symbols

- CA3 South, Stage 12
- 2.0m high noise barriers
- Noise barriers other sites

Scale 1:3000



5.0 Recommendations

5.1 Noise Barriers

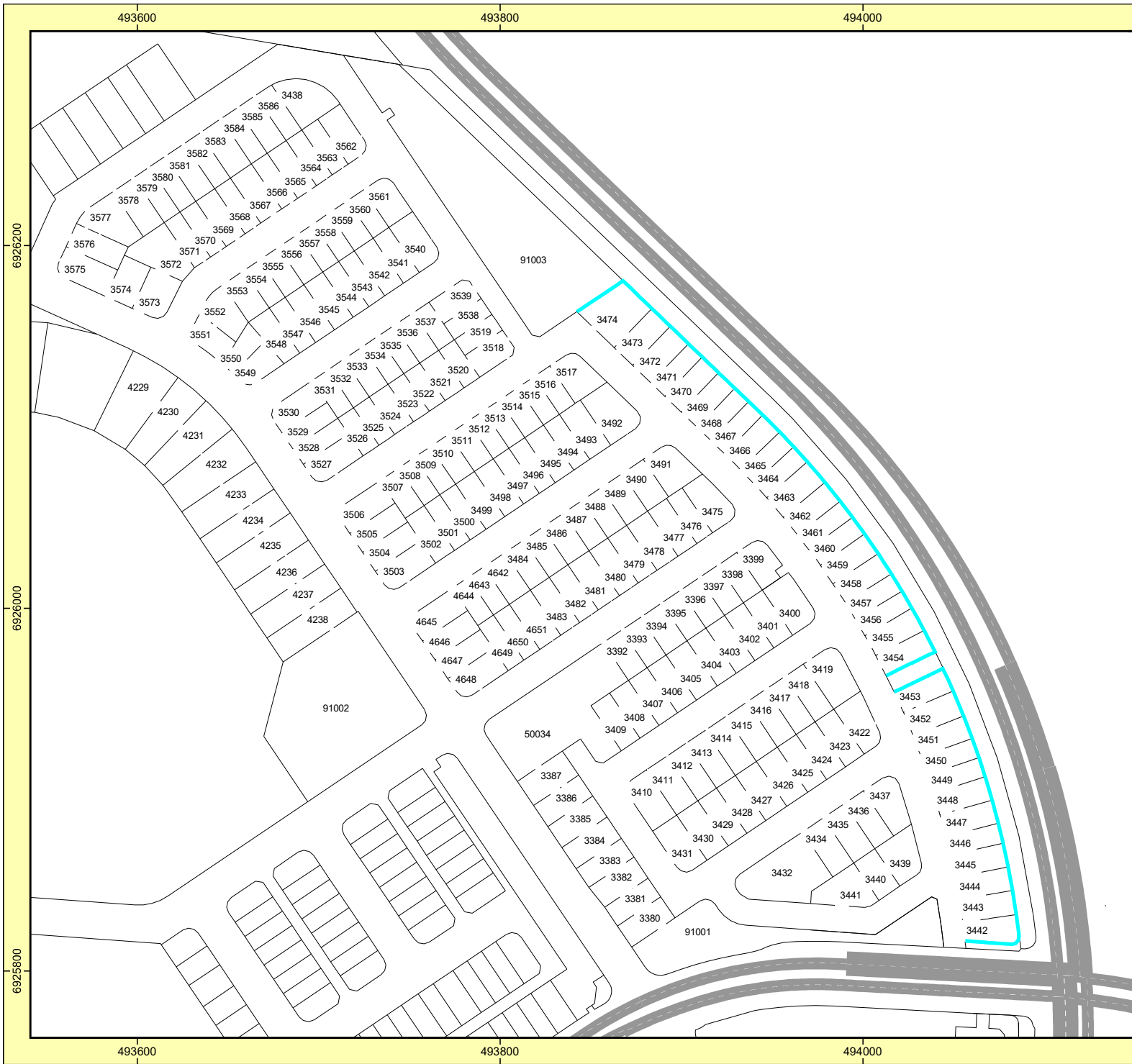
For the external noise levels to meet the predicted *QDC MP4.4* noise categories detailed in **Section 4.0**, noise barriers are recommended to be built as follows:

- The location of the modelled 2.0 m high noise barriers is shown in **Figure 10** and **Figure 11**.
- The noise barriers must be built on top of any retaining walls. This applies regardless of whether the lot is in a cut or in fill (i.e. lot a at a lower elevation than the assessed road immediately adjoining, and vice versa).

Table 4 shows the approximate ground elevation at the base of the barrier at mid span of the respective lot, the ground elevation at the approximate centre of the lot and the approximate elevation of the closest road lane.

- The barriers must be installed without gaps between panels and posts.
- Small gaps between the bottom of the noise fences are permissible if required for drainage. However, these must be minimised.
- The noise barriers must have a minimum surface density of 12.5 kg/m² (excluding structural components):
 - Overlapped timber barriers are suitable. Brisbane City Council drawing [BSD-7021](#) and Moreton Bay Regional Council drawing [SF-1520](#) are provided for reference (also reproduced in **Appendix D**). Note the noise barriers must be built to the minimum height indicated in **Figure 10** and **Figure 11**.
 - Other construction materials are also suitable where the panels meet the minimum surface density.
- The design life of the noise barriers is to be 40 years unless otherwise agreed upon in writing with MEDQ.





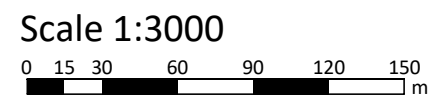
**Flagstone City Development
Context Area 3 (CA3) South
Stage 10 Road Traffic Noise Impact Assessment
SLR Project No. 620.10512**



**Figure 10
CA3 South, Stage 10
Recommended 2.0m High Noise Barriers**

Project engineer: RO
Created: 11/03/2026
SoundPLAN 8.1, Update 27/04/2020

Signs and symbols
CA3 South, Stage 10
2.0m high noise barriers



493200

493400

493600

**Flagstone City Development
Context Area 3 (CA3) South
Stage 12 Road Traffic Noise Impact Assessment
SLR Project No. 620.10512**



**Figure 11
CA3 South, Stage 12
Recommended 2.0m High Noise Barriers**

Project engineer: RO
Created: 10/03/2026
SoundPLAN 8.1, Update 27/04/2020

Signs and symbols

CA3 South, Stage 12
2.0m high noise barriers



Scale 1:3000

0 15 30 60 90 120 150 m

493200

493400

493600

6926600

6926600

6926400

6926400

5.2 QDC MP4.4 Noise Category Requirements

QDC MP4.4 Categories applicable to the relevant lots pertaining the assessed CA3 South Stages 10 and Stage 12 after the implementation of 2.0 m high noise barriers as specified in **Section 5.1** were presented in **Section 4.1**.

A full list of **QDC MP4.4** Noise Categories applicable to all lots within CA3 South Stage 10 and Stage 12 is provided in **Table C-1 (Appendix C)**.

The Rw rating applicable to the dwelling facade elements for each of the **QDC MP4.4** Categories are presented in **Table 2**. Acceptable forms of construction are reproduced from Schedule 2 of **QDC MP4.4** in **Appendix B**, noting that other forms of construction are acceptable where they meet the required Rw rating.

The noise attenuation provided by the dwelling facade will be largely controlled by the window elements; therefore, it is recommended that facade glazing systems (window + frame + seals) required to achieve a minimum Rw performance are supplied with an acoustic test report conducted in Australia by a qualified consultant who is a member of the Australian Acoustical Society (AAS), or an acoustic consultant who works for a member firm of the Association of Australasian Acoustical Consultants (AAAC).

The acoustic test report should address the requirements in the following standards:

- AS 1191-2002 *Acoustics – Method for laboratory measurement of airborne sound transmission insulation of building elements*
- ISO 717-1:2013 *Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation*

It should be noted that as stated in **QDC MP4.4**:

- “the part applies to building work for the construction or renovation of a residential building in a designated transport noise corridor”;

Therefore, it is only relevant at the Building Application stage of the individual lots being the building owner responsible for obtaining certification.

A lower Noise Category should be acceptable at specific facades of the future dwellings depending on the layout of these within the lots, pending demonstration of the road traffic noise levels onto specific habitable spaces within a dwelling via a lot specific noise assessment based on architectural drawings, presented by the lot owner.



6.0 Conclusion

SLR Consulting Pty Ltd (SLR) have completed a revised road traffic noise assessment of the proposed Flagstone Context Area 3 (CA3) South Subdivision.

This report addresses the road traffic noise intrusion onto Stages 10 and 12.

The assessment was conducted following guidance from the Queensland Department of Transport and Main Roads (DTMR) – Transport Noise Management: Code of Practice Volume 1 - Road Traffic Noise, dated November 2013 (CoP Vol 1).

A computational noise model was used to predict the noise levels from North South Arterial Road, which is to be built as part of the Flagstone development.

For the external noise levels to meet the predicted noise categories detailed in this report, noise barriers are recommended to be built as follows:

- 2.0 m high noise barriers at the locations shown in **Figure 10** and **Figure 11**.
- The noise barriers must be built on top of any retailing walls.
- This applies regardless of whether the lot is in a cut or in fill (i.e. lot a at a lower elevation than the assessed road immediately adjoining, and vice versa).

Table 4 shows the approximate ground elevation at the base of the barrier at mid span of the respective lot, the ground elevation at the approximate centre of the lot and the approximate elevation of the closest road lane.

- The barriers must be installed without gaps between panels and posts.
- Small gaps between the bottom of the noise fences are permissible if required for drainage. However, these must be minimised.
- The noise barriers must have a minimum surface density of 12.5 kg/m² (excluding structural components):
 - Overlapped timber barriers are suitable. Brisbane City Council drawings [BSD-7021](#) and Moreton Bay Regional Council drawings [SF-1520](#) are provided for reference (also reproduced in **Appendix D**). Note the noise barriers must be built to the minimum height indicated in **Figure 10** and **Figure 11**.
 - Other construction materials are also suitable where the panels meet the minimum surface density.

The residual noise levels after the implementation of 2.0 m high noise barriers were assessed against noise criteria derived from the Queensland Development Code Mandatory Part 4.4 (QDC MP4.4).

QDC MP4.4 Categories applicable to all the lots pertaining to the assessed Context Area 3 South Stage 10 and Stage 12 are presented in **Appendix C**.

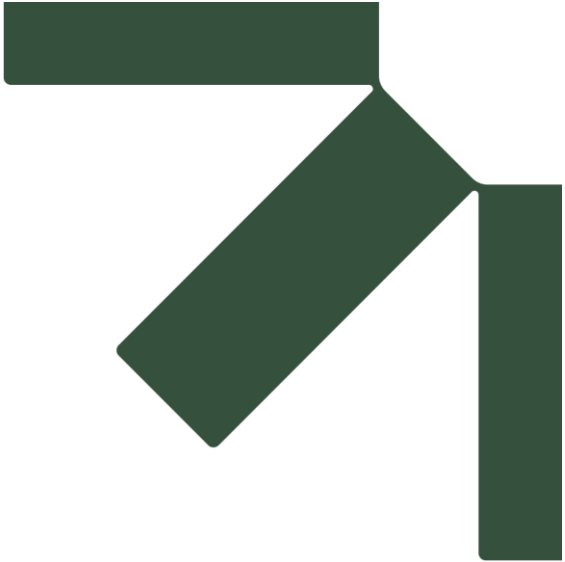
The R_w rating applicable to the dwelling facade elements are presented in **Table 2**. Acceptable forms of construction are reproduced from *Schedule 2* of *QDC MP4.4* in **Appendix B**, noting that other forms of construction are acceptable where they meet the required R_w rating.

The predicted *QDC MP4.4* Noise Categories presented in this report represent the highest Noise Category for any part of the Lot (rather than on the building envelope). A lower Noise Category may be applicable depending on the position and layout of the building on the Lot. The constructed dwellings and other lot fences will also screen road noise. For these reasons, the Noise Categories are considered a conservative assessment of transport noise.



A lower Noise Category should be acceptable at specific facades of the future dwellings depending on the layout of these within the lots, pending demonstration of the road traffic noise levels onto specific habitable spaces within a dwelling via a lot-specific noise assessment based on architectural drawings, presented by the lot owner.





Appendix A CA3 South Stage 10 & 12 Layout Plans

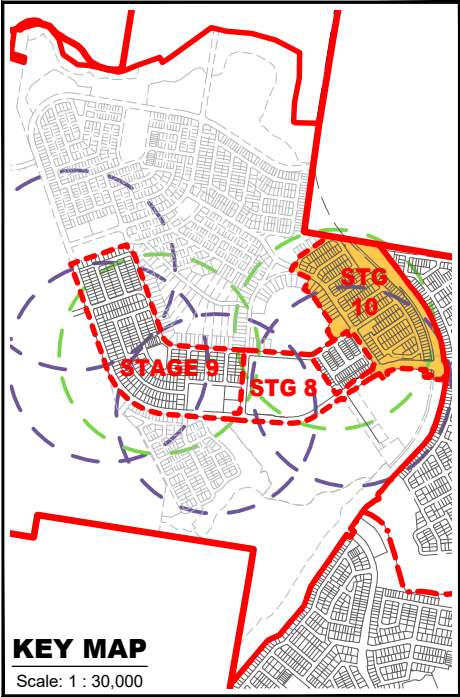
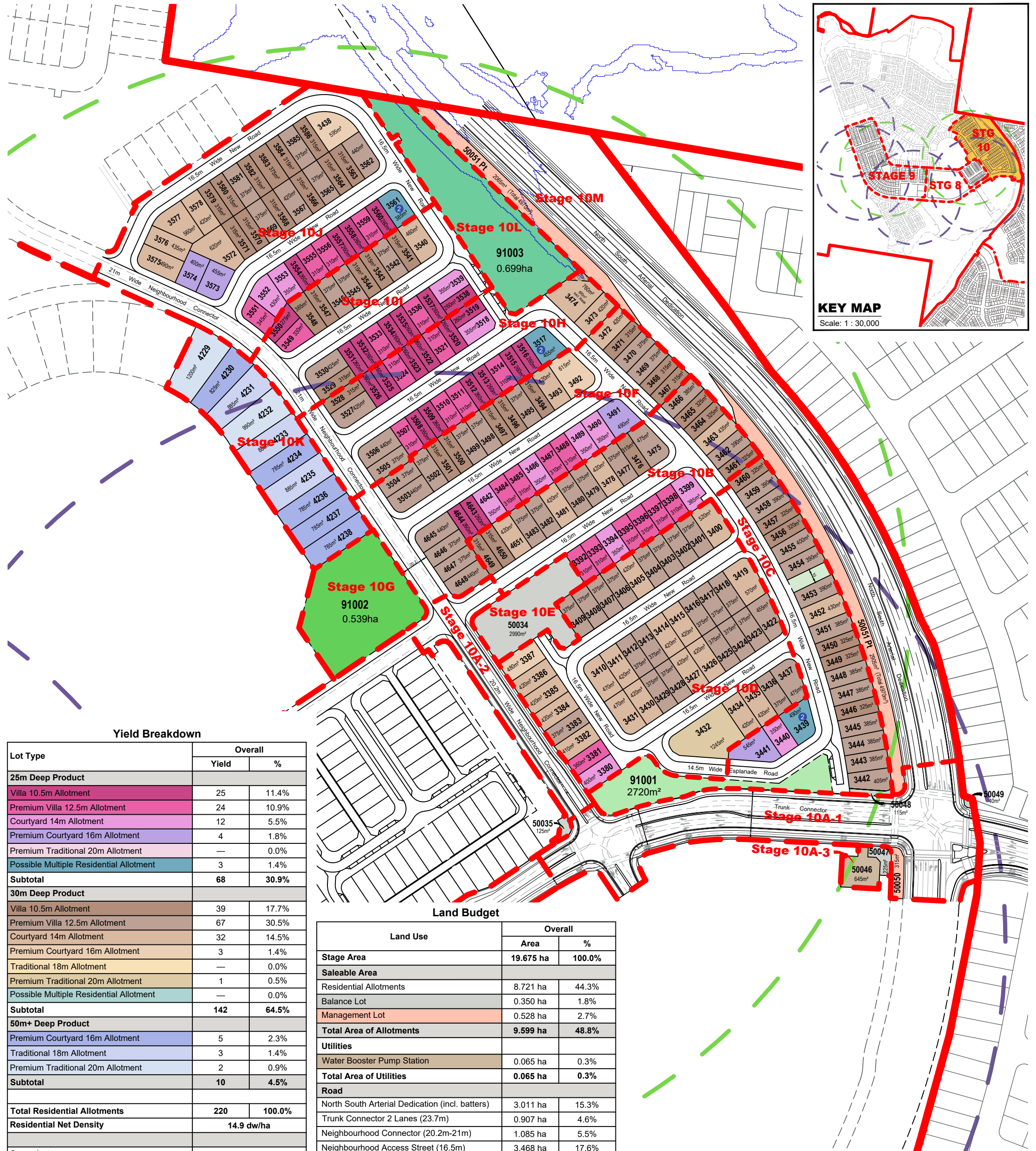
Flagstone Development, Context Area 3 South, Stages 10 and 12

Road Traffic Noise Intrusion Assessment

Peet Flagstone City Pty Ltd

SLR Project No.: 620.v10512.02011

8 May 2026



Yield Breakdown

Lot Type	Overall	
	Yield	%
25m Deep Product		
Villa 10.5m Allotment	25	11.4%
Premium Villa 12.5m Allotment	24	10.9%
Courtyard 14m Allotment	12	5.5%
Premium Courtyard 16m Allotment	4	1.8%
Premium Traditional 20m Allotment	—	0.0%
Possible Multiple Residential Allotment	3	1.4%
Subtotal	68	30.9%
30m Deep Product		
Villa 10.5m Allotment	39	17.7%
Premium Villa 12.5m Allotment	67	30.5%
Courtyard 14m Allotment	32	14.5%
Premium Courtyard 16m Allotment	3	1.4%
Traditional 18m Allotment	—	0.0%
Premium Traditional 20m Allotment	1	0.5%
Possible Multiple Residential Allotment	—	0.0%
Subtotal	142	64.5%
50m+ Deep Product		
Premium Courtyard 16m Allotment	5	2.3%
Traditional 18m Allotment	3	1.4%
Premium Traditional 20m Allotment	2	0.9%
Subtotal	10	4.5%
Total Residential Allotments	220	100.0%
Residential Net Density	14.9 dw/ha	
Super Lots		
Balance Lot	5	
Management Lot	2	
Sub Total	7	
Utilities		
Water Booster Pump Station	1	
Sub Total	1	
Total Allotments	228	
Maximum Potential Residential Dwellings (Includes Multiple Residential Allotments)	223	

Land Budget

Land Use	Overall	
	Area	%
Stage Area	19.675 ha	100.0%
Saleable Area		
Residential Allotments	8.721 ha	44.3%
Balance Lot	0.350 ha	1.8%
Management Lot	0.528 ha	2.7%
Total Area of Allotments	9.599 ha	48.8%
Utilities		
Water Booster Pump Station	0.065 ha	0.3%
Total Area of Utilities	0.065 ha	0.3%
Road		
North South Arterial Dedication (incl. batters)	3.011 ha	15.3%
Trunk Connector 2 Lanes (23.7m)	0.907 ha	4.6%
Neighbourhood Connector (20.2m-21m)	1.085 ha	5.5%
Neighbourhood Access Street (16.5m)	3.468 ha	17.6%
Pedestrian Linkages	0.030 ha	0.2%
Total Area of New Road	8.501 ha	43.2%
Open Space		
Conservation Buffer	—	0.0%
Corridor Park / Conservation	—	0.0%
Stormwater Management	0.699 ha	3.6%
Regional Sports	—	0.0%
District Sports	—	0.0%
Neighbourhood Recreation Park	0.539 ha	2.7%
Local Recreation Park	—	0.0%
Local Linear Recreation Park	0.272 ha	1.4%
Total Open Space	1.510 ha	7.7%

Legend

General

- Application Boundary
- Stage Boundary
- Sub Stage Boundary
- Possible Multiple Residential Allotment (Max. no. of dwellings)
- Entry Statements - Lease
- Existing Q100

- Bus Stop Catchment (400m)
- Indicative Indented Bus Stop Location
- Neighbourhood Park Catchment (400m)

Note:

All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval. Dimensions have been rounded to the nearest 0.1 metres. Areas have been rounded down to the nearest 5m². The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:

Site boundaries: Veris.
Adjoining information: Veris.
Design Contours: Colliers (29-08-2024).
Environment constraints: Saunders Havill Group.
Q100: Engeny.
North South Arterial Alignment: Colliers.

TO BE READ IN CONJUNCTION WITH 110056-574H STAGE 10 OVERALL STATISTICS

PLAN REF: 110056 – 573

Rev No: H

DATE: 17 FEBRUARY 2026

CLIENT: PEET

DRAWN BY: JC / MM

CHECKED BY: CK

1 : 2,500 @ A3

FLAGSTONE CA3 SOUTH
STAGE 10 OVERALL
PLAN OF SUBDIVISION



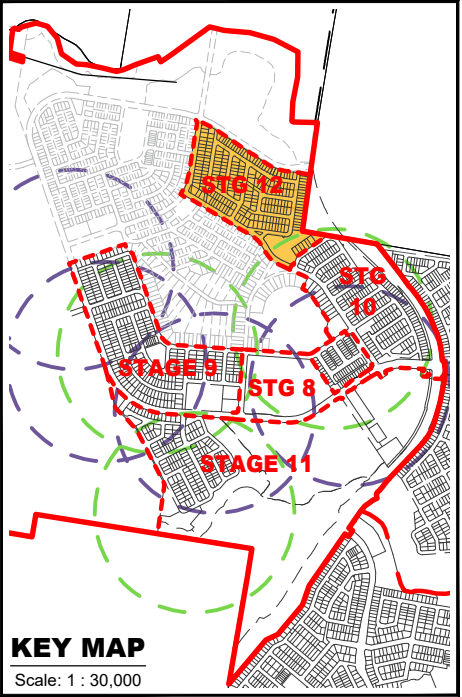
URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com



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TO BE READ IN CONJUNCTION WITH 110056-597H STAGE 12 OVERALL STATISTICS



Land Budget

Land Use	Overall	
	Area	%
Area of Application Boundary	16.262 ha	100.0%
Saleable Area		
Residential Allotments	9.663 ha	59.4%
Total Area of Allotments	9.663 ha	59.4%
Road		
North South Arterial Dedication (incl. batters)	—	0.0%
Trunk Connector 2 Lanes (23.7m)	—	0.0%
Neighbourhood Connector (20.2m-21m)	1.715 ha	10.5%
Neighbourhood Access Street (16.5m)	3.181 ha	19.6%
Laneway (6.5m)	—	0.0%
Pedestrian Linkages	0.254 ha	1.6%
Total Area of New Road	5.150 ha	31.7%
Open Space		
Conservation Buffer	—	0.0%
Corridor Park / Conservation	—	0.0%
Stormwater Management	1.449 ha	8.9%
Regional Sports	—	0.0%
District Sports	—	0.0%
Neighbourhood Recreation Park	—	0.0%
Local Recreation Park	—	0.0%
Local Linear Recreation Park	—	0.0%
Total Open Space	1.449 ha	8.9%

Yield Breakdown

Lot Type	Overall	
25m Deep Product		
Villa 10.5m Allotment	8	3%
Premium Villa 12.5m Allotment	38	16%
Courtyard 14m Allotment	30	13%
Premium Courtyard 16m Allotment	5	2%
Premium Traditional 20m Allotment	4	2%
Premium Traditional 20m Allotment	2	1%
Subtotal	87	36%
30m Deep Product		
Villa 10.5m Allotment	26	11%
Premium Villa 12.5m Allotment	64	27%
Courtyard 14m Allotment	43	18%
Premium Courtyard 16m Allotment	10	4%
Traditional 18m Allotment	—	0%
Premium Traditional 20m Allotment	4	2%
Possible Multiple Residential Allotment	3	1%
Subtotal	150	63%
Total Residential Allotments	237	99%
Residential Net Density	16.0 dw/ha	
Maximum Potential Residential Dwellings (Includes Multiple Residential Allotments)	245	
Maximum Potential Net Residential Density	16.5 dw/ha	

Legend

General

- Application Boundary
- Stage Boundary
- Sub Stage Boundary
- Environmental Constraints
- Existing Q100
- Neighbourhood Park Catchment (400m)
- Possible Multiple Residential Allotment (Max. no. of dwellings)

FLAGSTONE CA3 SOUTH
STAGE 12 OVERALL
PLAN OF SUBDIVISION

PEET

URBAN DESIGN
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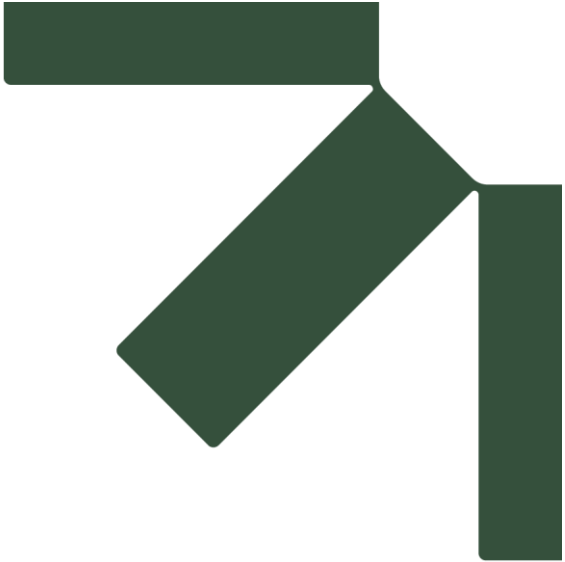
Note:
All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.
Dimensions have been rounded to the nearest 0.1 metres.
Areas have been rounded down to the nearest 5m².
The boundaries shown on this plan should not be used for final detailed engineers design.
Source Information:
Site boundaries: Veris.
Adjoining information: Veris.
Environment constraints: Saunders Havill Group.
Existing Q100: Engeny.
North South Arterial Alignment: Colliers.

PLAN REF: 110056 – 596

Rev No: H
DATE: 17 FEBRUARY 2026
CLIENT: PEET
DRAWN BY: JC
CHECKED BY: MD



0 20 40 60 80 100 120 140 1:2,500 @ A3



Appendix B Schedule 2 of QDC MP4.4

**Flagstone Development, Context Area 3 South, Stages 10
and 12**

Road Traffic Noise Intrusion Assessment

Peet Flagstone City Pty Ltd

SLR Project No.: 620.v10512.02011

8 May 2026

Table B-1 Schedule 2 of QDC MP4.4

Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
Glazing	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter <i>acoustically rated seals</i> .
	38	Minimum 14.38mm thick laminated glass, with full perimeter <i>acoustically rated seals</i> ; or Double glazing consisting of one pane of minimum 5mm thick glass and one pane of minimum 6mm thick glass with at least 44mm air gap, and full perimeter <i>acoustically rated seals</i>
	35	Minimum 10.38mm thick laminated glass, with full perimeter <i>acoustically rated seals</i> .
	32	Minimum 6.38mm thick laminated glass with full perimeter <i>acoustically rated seals</i> .
	27	Minimum 4mm thick glass with full perimeter <i>acoustically rated seals</i>
	24	Minimum 4mm thick glass with standard weather seals
External Walls	52	Two leaves of clay brick masonry, at least 270mm in total, with subfloor vents fitted with noise attenuators.
	47	Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m ³ or 50mm thick polyester insulation with a density of 20kg/m ³ in the cavity. or Two leaves of clay brick masonry at last 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) at least 13mm thick cement render on each face or Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m ³ positioned between studs; and (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs. or Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging.
	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves



Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
		or Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m³ positioned between studs; and (iii) One layer of plasterboard at least 10mm thick fixed to outside face of studs or Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face or Concrete brickwork at least 110mm thick or In-situ concrete at least 100mm thick or Precast concrete at least 100mm thick and without joints.
	35	Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs or Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.
Roof	45	Concrete or terracotta tile or sheet metal roof with sarking, <i>acoustically rated plasterboard</i> ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m³ in the cavity. or Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of <i>acoustically rated plasterboard</i> at least 16mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity.
	41	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity. or Concrete suspended slab at least 100mm thick.

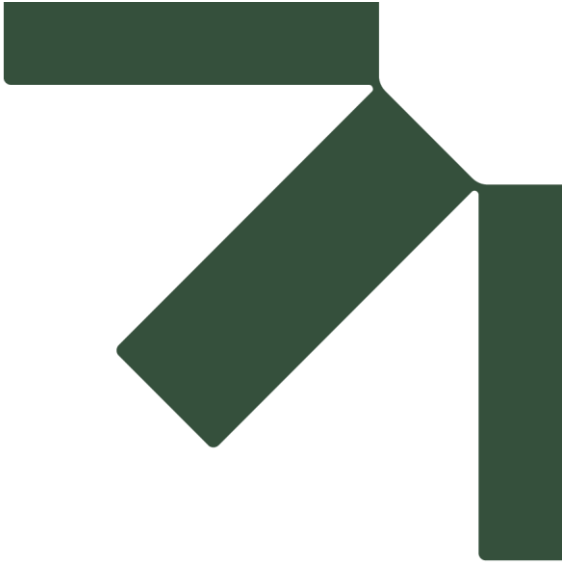


Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
	38	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m ³ .
	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity.
Floors	51	Concrete slab at least 150mm thick.
	45	Concrete slab at least 100mm thick or Tongued and grooved boards at least 19mm thick with: (i) timber joists not less than 175mm x 50mm; and (ii) mineral insulation or glass wool insulation at least 75mm thick with a density of at least 11kg/m ³ positioned between joists and laid on plasterboard at least 10mm thick fixed to underside of joists; and (iii) mineral insulation or glass wool insulation at least 25mm thick with a density of at least 11kg/m ³ laid over entire floor, including tops of joists before flooring is laid; and (iv) secured to battens at least 75mm x 50mm; and (v) the assembled flooring laid over the joists, but not fixed to them, with battens lying between the joists.



Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
Entry Doors	35	Solid core timber not less than 45mm thick, fixed so as to overlap the frame or rebate of the frame by not less than 10mm, with full perimeter acoustically rated seals.
	33	Fixed so as to overlap the frame or rebate of the frame by not less than 10mm, fitted with full perimeter acoustically rated seals and constructed of - (i) solid core, wood, particleboard or blockboard not less than 45mm thick; and/or (ii) acoustically laminated glass not less than 10.38mm thick.
	28	Fixed so as to overlap the frame or rebate of the frame, constructed of - (i) Wood, particleboard or blockboard not less than 33mm thick; or (ii) Compressed fibre reinforced sheeting not less than 9mm thick; or (iii) Other suitable material with a mass per unit area not less than 24.4kg/m ² ; or (iv) Solid core timber door not less than 35mm thick fitted with full perimeter <i>acoustically rated seals</i> .





Appendix C QDC MP4.4 Noise Predictions

**Flagstone Development, Context Area 3 South, Stages 10
and 12**

Road Traffic Noise Intrusion Assessment

Peet Flagstone City Pty Ltd

SLR Project No.: 620.v10512.02011

8 May 2026



Appendix D Reference Noise Barrier Designs

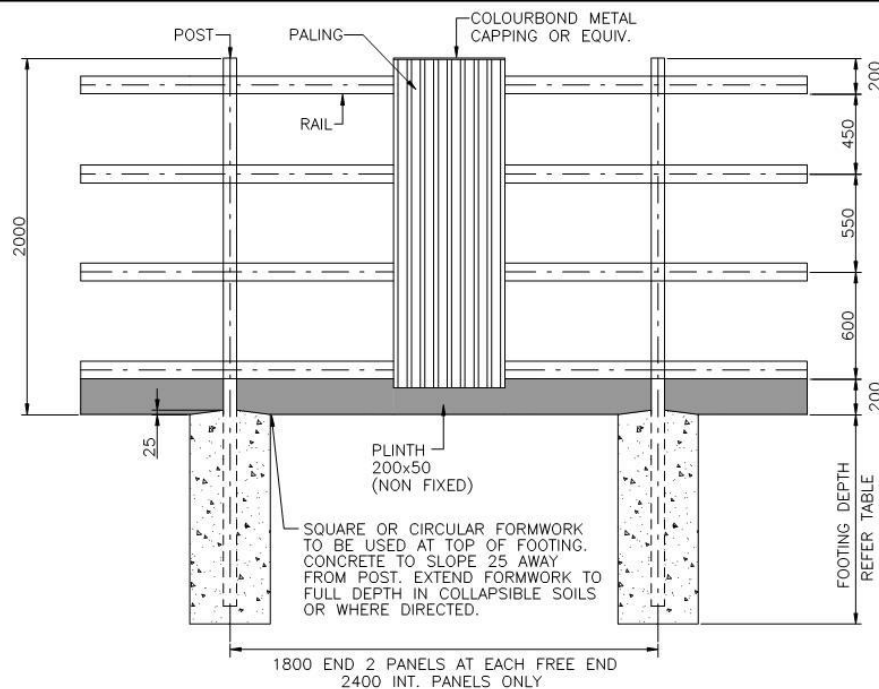
**Flagstone Development, Context Area 3 South, Stages 10
and 12**

Road Traffic Noise Intrusion Assessment

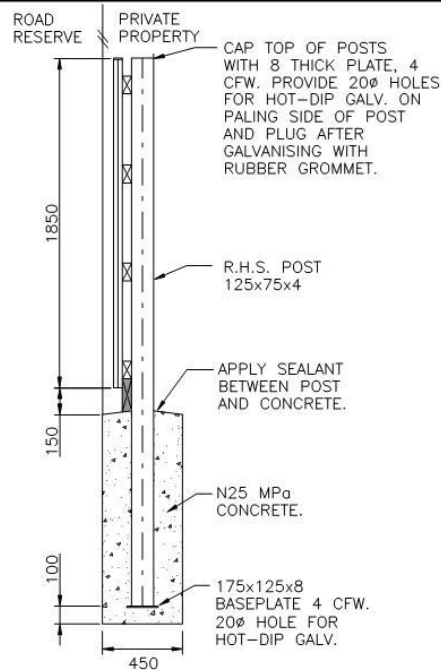
Peet Flagstone City Pty Ltd

SLR Project No.: 620.v10512.02011

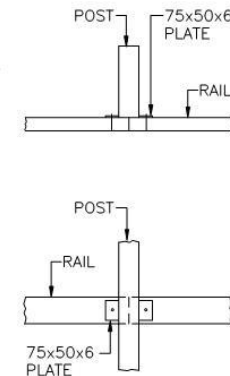
8 May 2026



ELEVATION



SECTION

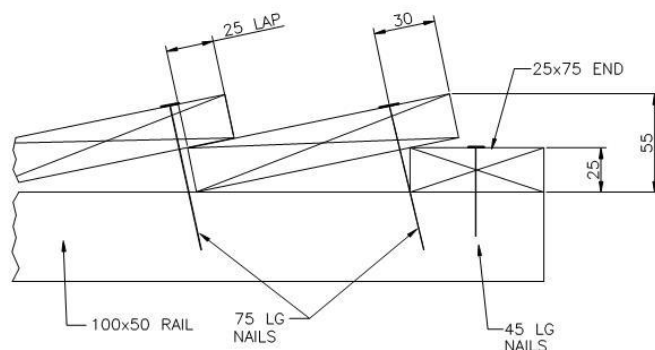


POST & RAIL
CONNECTION

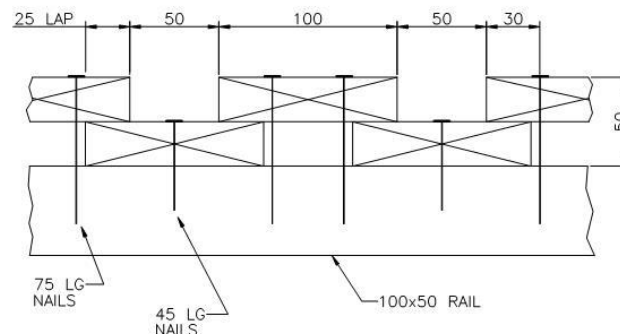
FOOTING DEPTH	
SOIL TYPE	FOOTING DEPTH
SOFT CLAY ($C_u = 25 \text{ kPa}$)	1600
FIRM CLAY ($C_u = 50 \text{ kPa}$)	1300
STIFF CLAY ($C_u = 100 \text{ kPa}$)	1100
MEDIUM DENSE NON-COHESSIVE SOIL	1200

NOTES:

- THIS DRAWING DEPICTS A TYPICAL 2000 HIGH ACOUSTIC BARRIER AND DOES NOT NECESSARILY REPRESENT A NOISE ATTENUATION SOLUTION FOR ALL DEVELOPMENTS. NOISE ATTENUATION SOLUTION FOR EACH DEVELOPMENT IS SITE SPECIFIC AND SHALL BE ADDRESSED IN ACCORDANCE WITH THE "NOISE IMPACT ASSESSMENT PLANNING SCHEME POLICY" OF THE BRISBANE CITY PLAN.
- MAXIMUM PERMISSIBLE STRESS DESIGN WIND VELOCITY IS 33m/s (W33) WHICH CORRESPONDS TO A SUBURBAN ENVIRONMENT WITH NO EXPOSURE TO OPEN AREAS AND NOT LOCATED IN CLOSE PROXIMITY TO HILLS, RIDGES OR ESCARPMENTS, AS THE NATURAL SURFACE 2m EITHER SIDE OF THE FENCE IS ASSUMED FLAT FOR DESIGN OF FOOTING. IF THESE CONDITIONS ARE NOT MET AN ALTERNATIVE CERTIFIED ENGINEERING DESIGN MUST BE SUBMITTED FOR APPROVAL.
- FOR NEW SUBDIVISIONS/DEVELOPMENTS, THE ENTIRE FENCE SHALL BE CONTAINED WITHIN THE PRIVATE PROPERTY AND MAINTAINED BY THE PROPERTY OWNER.
- ALL PALINGS, RAILS AND PLINTH SHALL BE C.C.A TREATED PINE TO H5 LEVEL IN ACCORDANCE WITH AS 1604.
- ALL FIXINGS SHALL BE HOT-DIP GALVANISED OR EQUIVALENT.
- CAPPING: COLOURBOND METAL, 30 DEEP WITH OVERFOLDED EDGES. FIX WITH No.10 x 12 LONG GALV. TYPE 17 SCREWS AT 300 CRS AND STAGGERED EACH SIDE. CAPPING TO FIT SNUGLY OVER PALINGS.
- PALINGS: F5 TREATED PINE. REFER PALING DETAILS FOR SIZES. NAILS SHALL BE 2.8Ø HOT-DIP GALVANISED FLAT HEAD CLOUTS (OR SIMILAR GUN-DRIVEN NAILS). STAGGER NAIL PATTERN ALONG LENGTH OF PALING TO AVOID SPLITTING AND DRIVE NAILS SQUARE TO FACE OF BOARD. RING SHANK NAILS TO BE USED.
- RAILS: 100 x 50 F5 TREATED PINE. FIX WITH No.14-10 x 50 GALVANISED HEX HD TYPE 17 SCREW.
- POSTS: 125 x 75 x 4 R.H.S. HOT-DIP GALVANISED AFTER FABRICATION.
- PLINTH: 200 x 50 F5 TREATED PINE (NON FIXED).
- DIMENSIONS IN MILLIMETRES (UNO).



SYSTEM 1 (150x25)



SYSTEM 2 (100x25)

TREATED PINE PALING

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB '16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION B.HALL SIGNATURE ON ORIGINAL DATED 29/06/01 R.P.E.O 3852
ASSET ENGINEERING MANAGER STRATEGIC ASSET MANAGEMENT
DESIGN APPROVED B.HANSEN SIGNATURE ON ORIGINAL DATED 27/06/01
PRINCIPAL ASSET OFFICER ROADS & DRAINAGE

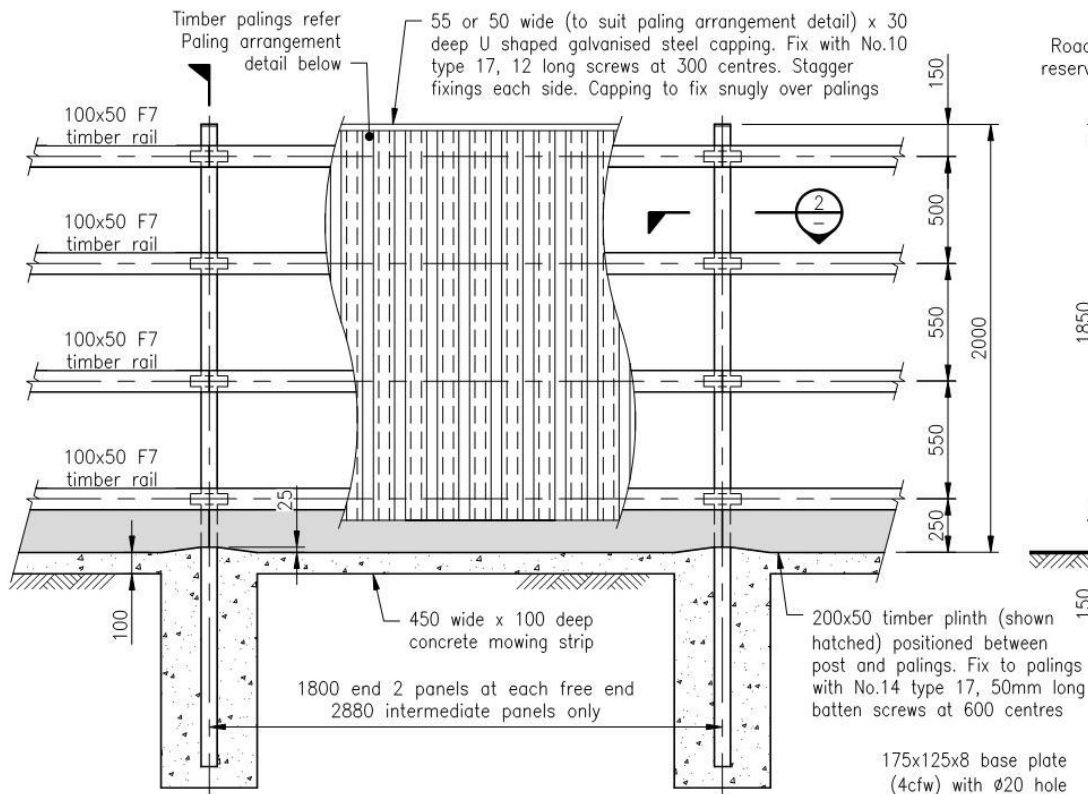
DESIGN	Std Dwg's Group	DATE	APRIL '01
DRAWN	CITY DESIGN	DATE	APRIL '01
CHECKED	M. STEER	DATE	MAY '01
DRAWING FILENAME	BSD-7021 (B) Noise barrier fence 2.0m high - Post and paling dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-245		



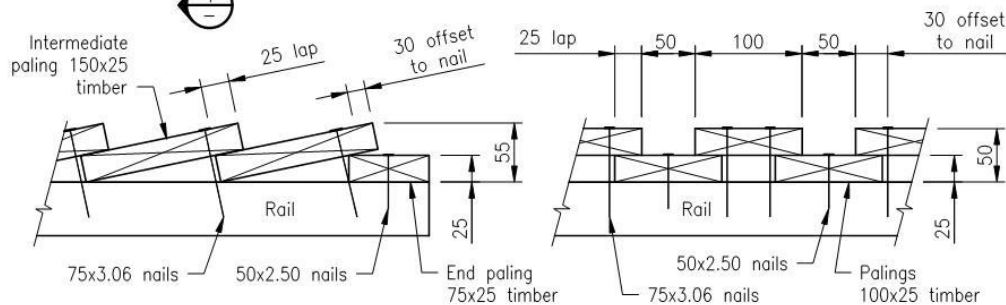
BRISBANE CITY COUNCIL STANDARD DRAWING

NOISE BARRIER FENCE 2.0m HIGH POST AND PALING

SCALE	NOT TO SCALE
DWG No.	BSD-7021
ORIGINAL SIZE	A3
REVISION	B

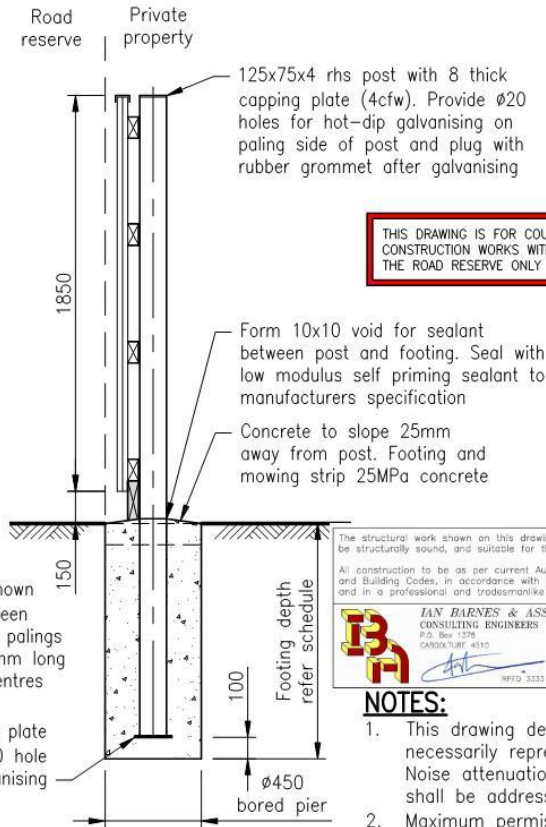


ELEVATION
Scale A



PALING ARRANGEMENT DETAILS

Scale C



THIS DRAWING IS FOR COUNCIL CONSTRUCTION WORKS WITHIN THE ROAD RESERVE ONLY

The structural work shown on this drawing is considered to be structurally sound, and suitable for the design loads.

All construction to be as per current Australian Standards and Building Codes, in accordance with MBRC requirements, and in a professional and tradesmanlike manner

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RPF0 3333 Date : 13/09/2017

NOTES:

- This drawing depicts a typical 2000 high acoustic barrier and does not necessarily represent a noise attenuation solution for all developments. Noise attenuation solution for each development is site specific and shall be addressed by a qualified acoustic engineer.
- Maximum permissible stress design wind velocity is 33m/s (w33) which corresponds to a suburban environment with no exposure to open areas and not located in close proximity to hills, ridges or escarpments, as the natural surface 2m either side of the fence is assumed flat for design of footing. If these conditions are not met an alternative certified engineering design must be submitted for approval.
- For new subdivisions/developments, the entire fence shall be contained within the private property and maintained by the property owner.
- All palings, rails and plinths shall be ACQ or CCA treated pine to H5 level in accordance with AS 1604. Rails min. F7 Stress Grade.
- All fixings (apart from nails) shall be 'Zenith-Tufcote' or 'Buildex-Climacoat' or approved equivalent (unless noted otherwise).
- All nails shall be ring shank type and hot dipped galvanised.
- Stagger nail pattern along length of paling to avoid splitting and drive nails square to face of board.
- Posts shall be hot-dip galvanised after fabrication.
- Noise barrier fence shall be screened with vegetation.
- Dimensions are in millimetres unless stated otherwise.

FOOTING DEPTH SCHEDULE

SOIL TYPE	FOOTING DEPTH
Soft clay ($C_u = 25\text{kPa}$)	1600
Firm clay ($C_u = 50\text{kPa}$)	1300
Stiff clay ($C_u = 100\text{kPa}$)	1100
Medium dense non-cohesive soil medium	1200

REVISIONS	INT	DATE	SCALES	Drawn	BW	Date	07/16
E			A 0mm 100 200 300 400 500 1:25	Coordinator	PP	Date	07/16
D			B 0mm 50 100 150 200 1:10	AUTHORISED SYD JERRAM 07/07/16 Manager Integrated Transport Planning & Design RPE0 6872			
C Approved by Structural Engineer	TC	7/17	C 0mm 25 50 75 100 1:5				
B Structural Design Note Changed	RH	12/16					
A Add note - For council construction works only, change landscape note	BW	08/16					
ORIGINAL ISSUE	BW	07/16					

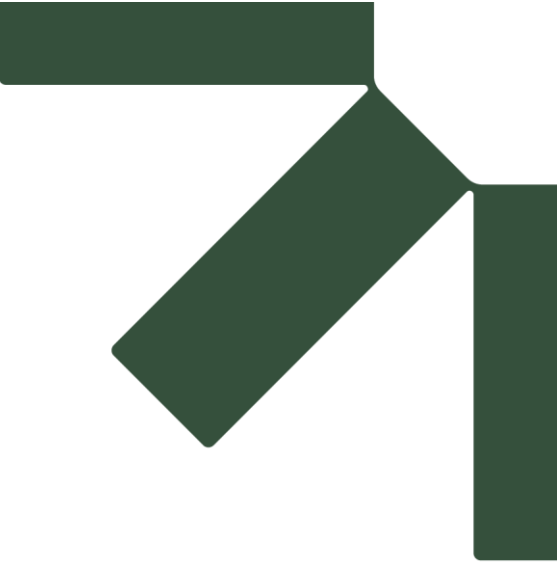
**NOISE BARRIER FENCE
2.0m HIGH POST AND PALING**



DRG No. **SF-1520**

ORIGINAL SIZE **A3**

REVISION **C**



Appendix E Glossary of Terms

Flagstone Development, Context Area 3 South, Stages 10 and 12

Road Traffic Noise Intrusion Assessment

Peet Flagstone City Pty Ltd

SLR Project No.: 620.v10512.02011

8 May 2026

Sound Level (or Noise Level)

The terms sound and noise are almost interchangeable, except that in common usage noise is often used to refer to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. The human ear (and those of other species) responds to changes in sound pressure over a very wide range. The loudest sound pressure to which the human ear responds is ten million times greater than the softest. The decibel (dB or dBL) scale reduces this ratio to a more manageable size by the use of logarithms.

A-weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to human hearing.

Change in Sound Pressure Levels

For human perception, a change of 1 dBA or 2 dBA in the level of a sound is considered to be indiscernible, while a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness. As noted in Section 2.4 of the TMR CoP Vol 1, while the above noted changes in sound pressure level are *not precisely verifiable for road traffic noise, it is useful in understanding the significance of change in environmental noise exposure*.

Additional facts about road traffic noise as stated in Section 2.4 of the TMR CoP Vol 1:

- A 3 dBA change in noise level is equivalent to halving or doubling the traffic volumes.
- A 10 dBA change in noise level is equivalent to halving or doubling the subjective or perceived loudness or a tenfold increase or decrease in traffic volume.
- A 10 km/h increase in speed will increase the noise level by approximately 1 dBA.
- A 3.5% compound annual growth rate in traffic will increase the noise level by approximately 1.5 dBA over a 10-year horizon.
- An 8% compound annual growth rate in traffic will increase the noise level by approximately 3.0 dBA over a 10-year horizon.

Typical Sound Pressure Levels

The table below lists examples of typical sound pressure levels.

Table D-1 Examples of Perceived Sound Pressure Levels

Sound pressure level (dBA)	Typical Example
130	Threshold of pain
120	Metal hammering
110	Grinding on steel
100	Loud car horn at 3 metres (m)
90	Dog bark at 1 m
80	Cicadas at 1 m
70	Noise level directly adjacent to a busy main road
60	Ambient noise level in urban area close to main roads



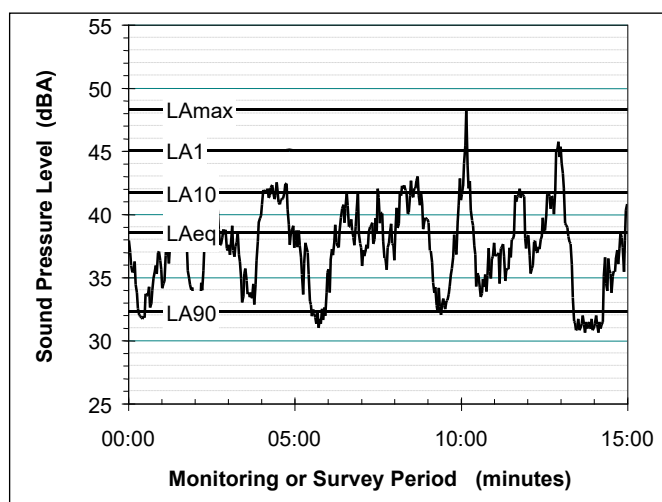
Sound pressure level (dBA)	Typical Example
50	Day time in a quiet suburban environment with background or distant road traffic noise
40	Night-time in a quiet suburban environment with background or distant road traffic noise Ambient noise level in rural to semi-rural environments with light breezes and some noise from insects, birds and distant traffic
30	Ambient noise level in a typical rural noise environment in the absence of insect noise and wind. Inside bedroom
20	Ambient noise level in remote rural environment away from main roads with no wind and no insect noise

Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels (LAN), where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time and LA10 the noise exceeded for 10% of the time.

Figure D-1 below presents a hypothetical 15-minute noise measurement, illustrating various common statistical indices of interest.

Figure D-1 Hypothetical 15-minute Noise Measurement



Of particular relevance to this study, are:

- LA10: The A-weighted noise level exceeded for 10% during any given measurement period. This is commonly referred to as the average maximum noise level.

Additionally;

- LA10(18hour) Road Traffic Noise Level: the level exceeded for 10% of any measurement period; the usual period of measurement is 1 hour. The hourly LA10 level, therefore, is the traffic noise level exceeded for 6 minutes in the hour. The 18-hour LA10 level



(LA_{10(18hour)}) is the arithmetic average of 18, hourly LA₁₀ traffic noise levels measured in consecutive hours between 6:00 am and 12:00 midnight.

- LA_{10(12hour)} Road Traffic Noise Level – is the arithmetic average of 12 hourly LA₁₀ traffic noise levels measured in consecutive hours between 6:00 am and 6:00 pm.
- LA_{1(1hour)} Road Traffic Noise Level – the level exceeded for n% of a 1-hour period.

Noise Propagation

Provided the receptor is in the far-field of the noise source, noise levels will reduce as a receptor moves further away from the source. This is due to spreading of the noise source energy over distance. For a simple point source (for example, a motor) the theoretical reduction in noise levels is 6 dBA per doubling of distance. For a line source (for example, a busy road) the theoretical reduction is 3 dBA per doubling of distance. In reality however other factors affect noise propagation. These include ground absorption, air absorption, acoustic screening, and meteorological effects.

Facade Corrected versus Free field

A 'facade corrected' measurement/monitoring location is a location which is influenced by facade reflections. Measurements at facades are typically taken at a distance of 1 m away and the measured noise level generally regarded as being +2.5 dB higher than in the 'free field'.

A 'free field' measurement/monitoring location is a location where the microphone is positioned sufficiently far from nearby surfaces for the measured data to not be influenced by reflected noise. This is typically regarded as a position 3.5 m or greater from a reflective surface.



