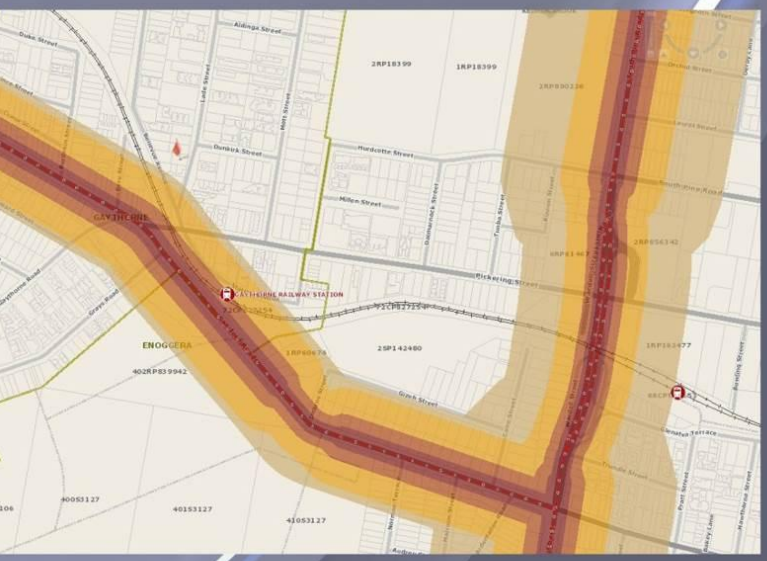
NOISE MEASUREMENT SERVICES

Noise Impact Assessment
Proposed Residential Subdivision
298 Albany Creek Road
Bridgeman Downs, QLD 4035
(Lot 1 on RP 230211)

Report No 6776_2 13th May 2026



Noise Measurement Services Pty Ltd
18 Lade Street, Gaythorne QLD 4051
PO Box 2127, Brookside Centre QLD 4053

Ph: (07) 3355 9707
Fax: (07) 3355 7210
Email: info@noisemeasurement.com.au

Document Control Page

NOISE MEASUREMENT SERVICES PTY LTD
18 Lade Street, Gaythorne QLD 4051
PO Box 2127
Brookside Centre, QLD 4053

Telephone: (07) 3355 9707
Facsimile: (07) 3355 7210
E-mail: info@noisemeasurement.com.au

Copy No_____

Revision No	Issue Date	Revision Description	Author	review
0	27/06/2023	Report	DY	MT
1	12/10/2023	Update to DTMR Information Request	JD	MT
2	13/05/2026	Updated site plan	JD	MT

Copy No(s)	Rev No	Destination
1 pdf	2	Steffan Harries *(formally Steffan Town Planning)*
2	2	Noise Measurement Services

REPORT FOR **Steffan Harries** *on behalf of Joe Mantellato & Donna Louise Moy*

CONTACT **Alex Steffan**

Signed

Max Thorne
(Director)

Contents

Executive Summary

This Report is in response to a request from Steffan Harries for a Noise Impact Assessment of a proposed residential subdivision at 298 Albany Creek Road, Bridgeman Downs (Lot 1 on RP 230211).

The site is within an Emerging Community Zone, and within 25m of state transport infrastructure and subject to the State Development Assessment Provisions.

The proposal is to subdivide the eastern part of the site into 14 residential Lots and the purpose of this Report is to assess road traffic noise impacts onto the proposed lots with regards to the following Standards and policy documents:

- State Development Assessment Provisions v3.6
- Queensland Development Code Mandatory Part 4.4
- Environmental Protection Act 1994
- Environmental Protection (Noise) Policy 2019
- Australian Standard AS1055:2018 *Acoustics - Description and measurement of environmental noise*
- Australian Standard AS2702:1984 *Acoustics - Methods for the measurement of road traffic noise*

Conclusions

It is concluded that-

- The development site is subject to moderate levels of road traffic noise from Albany Creek Road.
- Subject to the proposed subdivision acoustic barrier, the subdivision can meet the **PO38** of the State Development assessment provisions State Code 1.
- The forecast road traffic noise level on each Lot and assessment to the State Development Assessment Provisions criteria for ground floor level façade and private open space areas and first floor level are summarised in **Table ES2** and **ES3** following.
- Lot specific assessment to the QDC MP4.4 can be conducted at the Building Approval stage, once final architectural plans become available. This assessment would include screening from building envelopes, which has not been included in this subdivision assessment.
- Deemed to Satisfy' building solutions for the relevant QDC categories are presented in **Appendix C**.

Recommendations

It is recommended that-

- That the subdivision boundary acoustic barrier be constructed at the height and location as discussed in **Section 4.2** of this report, and summarised in **Plate ES1** and **Table ES1**following.
- The acoustic barrier be continuous and gap free. The Department of Transport and Main Roads has requested that any acoustic barrier/fence be meet the *Specification MRTS15 Noise Fences*.
- Lot specific assessment under the QDC MP4.4 be conducted at the Building Approval stage once final architectural plans become available.

Plate ES1: *Showing the proposed location of the subdivision boundary acoustic barrier on Lot 1 and 2.*

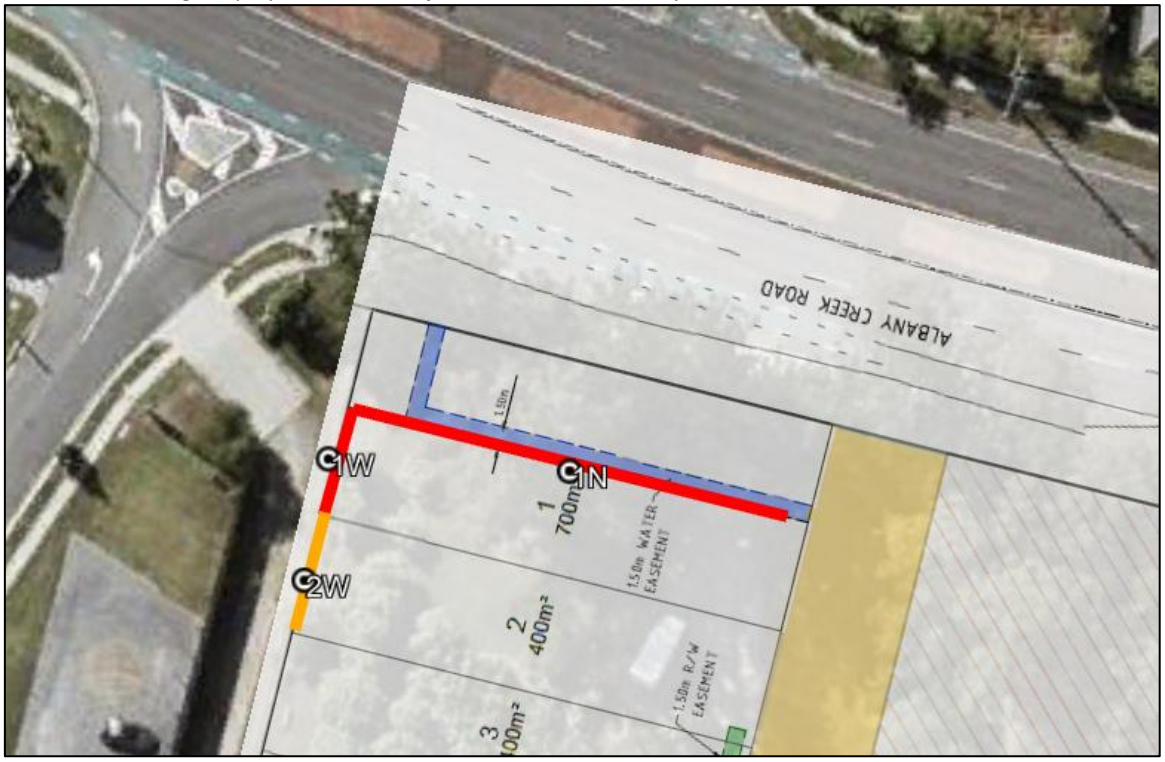


Table ES1*: Showing the proposed finished pad levels for all Lots, and suggested subdivision boundary acoustic barrier.*

Lot Number	Lot Building Pad Levels in metres AHD	Acoustic Fence Location	Top of Barrier Height in meters AHD	Height of Proposed Acoustic Barrier above Building Pad Level
1	33.28	1N	35.68	2.4
	33.28	1W	35.68	2.4
2	33.23	2W	35.63	2.4
3	33.13	-		
4	33.03	-		
5	33.03	-		
6	33.03	-		
7	33.03	-		
8	33.03	-		
9	33.03	-		
10	33.12	-		
11	33.05	-		
12	32.94	-		
13	32.87	-		

***Table ES2**: Road traffic noise, private open space at 1.5m above finished ground, year 2033, with subdivision boundary acoustic barrier, levels in $L_{10,\ 18hr}$, dB(A), free field.*

Receiver	Descriptor	Forecast	SDAP Criteria	Compliance
Private Open Space – No Acoustic Barrier Scenario				
Lot 1 POS	$L_{10,18hr}$ free-field	60	60	Yes
Lot 2 POS	$L_{10,18hr}$ free-field	60	60	Yes
Lot 3 POS	$L_{10,18hr}$ free-field	59	60	Yes
Lot 4 POS	$L_{10,18hr}$ free-field	58	60	Yes
Lot 5 POS	$L_{10,18hr}$ free-field	58	60	Yes
Lot 6 POS	$L_{10,18hr}$ free-field	57	60	Yes
Lot 7 POS	$L_{10,18hr}$ free-field	56	60	Yes
Lot 8 POS	$L_{10,18hr}$ free-field	56	60	Yes
Lot 9 POS	$L_{10,18hr}$ free-field	55	60	Yes
Lot 10 POS	$L_{10,18hr}$ free-field	54	60	Yes
Lot 11 POS	$L_{10,18hr}$ free-field	57	60	Yes
Lot 12 POS	$L_{10,18hr}$ free-field	59	60	Yes
Lot 13 POS	$L_{10,18hr}$ free-field	60	60	Yes

***Table ES3**: Road traffic noise, ground floor at 1.8m above finished ground, year 2033, with subdivision boundary acoustic barrier, levels in $L_{10,\ 18hr}$, dB(A), façade adjusted.*

Receiver	Descriptor	Forecast	QDC MP4.4 Noise Category
Ground Floor Level - With Acoustic Barrier Scenario			
Lot 1 Ground Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 2 Ground Floor	$L_{10,18hr}$ façade-affected	65	Category 2
Lot 3 Ground Floor	$L_{10,18hr}$ façade-affected	64	Category 2
Lot 4 Ground Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 5 Ground Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 6 Ground Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 7 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 8 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 9 Ground Floor	$L_{10,18hr}$ façade-affected	59	Category 1
Lot 10 Ground Floor	$L_{10,18hr}$ façade-affected	59	Category 1
Lot 11 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 12 Ground Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 13 Ground Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Upper Floor Level - With Acoustic Barrier Scenario			
Lot 1 Upper Floor	$L_{10,18hr}$ façade-affected	71	Category 3
Lot 2 Upper Floor	$L_{10,18hr}$ façade-affected	69	Category 3
Lot 3 Upper Floor	$L_{10,18hr}$ façade-affected	67	Category 2
Lot 4 Upper Floor	$L_{10,18hr}$ façade-affected	66	Category 2
Lot 5 Upper Floor	$L_{10,18hr}$ façade-affected	64	Category 2
Lot 6 Upper Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 7 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 8 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 9 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 10 Upper Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 11 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 12 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 13 Upper Floor	$L_{10,18hr}$ façade-affected	63	Category 2

Response to Request for Information (2023)

Steffan Harries (formally Steffan Town Planning) have requested the following information on behalf of the Department of Transport and Main Roads on the 14th of September 2023.

ISSUE:

The location of the noise contours, location of the private open space receivers for each lot and the proposed density for the noise barriers conflict with the Department of Transport and Main Roads' (TMR's) MRTS15 (Noise Fences - Transport and Main Roads Specifications, March 2019). As such, the height, location, extent and density of the 2m and 2.4m proposed acoustic barriers do not appear to achieve the free field acoustic levels prescribed in Reference Table 2, as referred to in PO38 of State Code 1.

ACTION:

Provide a revised Noise Impact Assessment to ensure an appropriate height, extent and sufficient density of acoustic barrier is provided, as required under TMR's MRTS15 technical specification, and complying with Reference Table 2: Maximum free field acoustic levels:

- ≤57 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight ≤45 dB(A))

OR

- ≤60 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight >45 dB(A)).

The revised Noise Impact Assessment must address the following (but not be limited to):

- Comparison of the free field noise measurement results against free field noise calculations/predictions to verify the noise modelling, given that the Queensland calibration factors are different for free field predictions and façade predictions.
- Confirm that the free-field noise contours (in Appendix B: Road Traffic Noise Calculations) are provided at 1.5m above finished surface.
- Refer to compliance with MRTS15 Specifications for density rather than the notated 12.5kg/m2 as it does not comply with the minimum prescribed in TMR's MRTS15 for minimum surface density for noise fencing.

- The noise model and noise contours are now presented as free field and at 1.5 metres in height, presented in **Section 4.1, 4.3** and **Appendix B** in this Report.

- The calibration factors are presented in **Appendix B**.

- References to acoustic barriers and fences that don't comply with MRTS15 have been removed.

1. Introduction

This Report is in response to a request from Steffan Harries for a Noise Impact Assessment of a proposed residential subdivision at 298 Albany Creek Road, Bridgeman Downs (Lot 1 on RP 230211). The site is within an Emerging Community Zone, and within 25m of state transport infrastructure and therefore subject to the State Development Assessment Provisions.

The proposal is to subdivide the eastern part of the site into 14 residential Lots and the purpose of this Report is to assess road traffic noise impacts onto the proposed lots with regards to the following Standards and policy documents:

- State Development Assessment Provisions v3.6 (originally v3.0 which is materially the same)
- Queensland Development Code Mandatory Part 4.4
- Environmental Protection Act 1994
- Environmental Protection (Noise) Policy 2019
- Australian Standard AS1055:2018 *Acoustics - Description and measurement of environmental noise*
- Australian Standard AS2702:1984 *Acoustics - Methods for the measurement of road traffic noise*

The locality and development design is presented in the following **Plates**. Development plans are presented in **Appendix A**, while terms and definitions used in this Report are provided in **Appendix D.**

Plate 1.1: *Showing the site and locality (source: Google, QLD Globe)*

Plate 1.2: *Showing the site within 25m of State transport infrastructure (source: DAMS interactive mapping)*

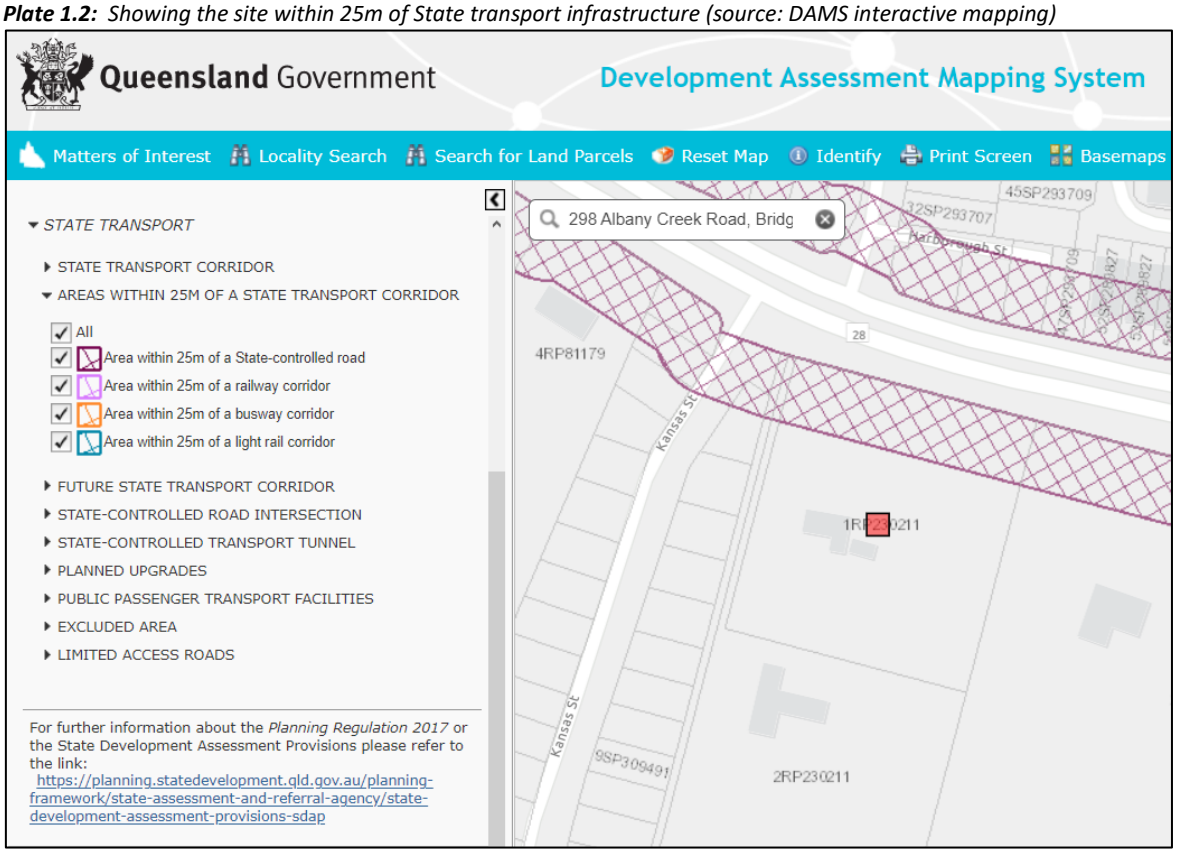


Plate 1.3: *Showing the site within an emerging community zone (Source: Brisbane City Council)..*

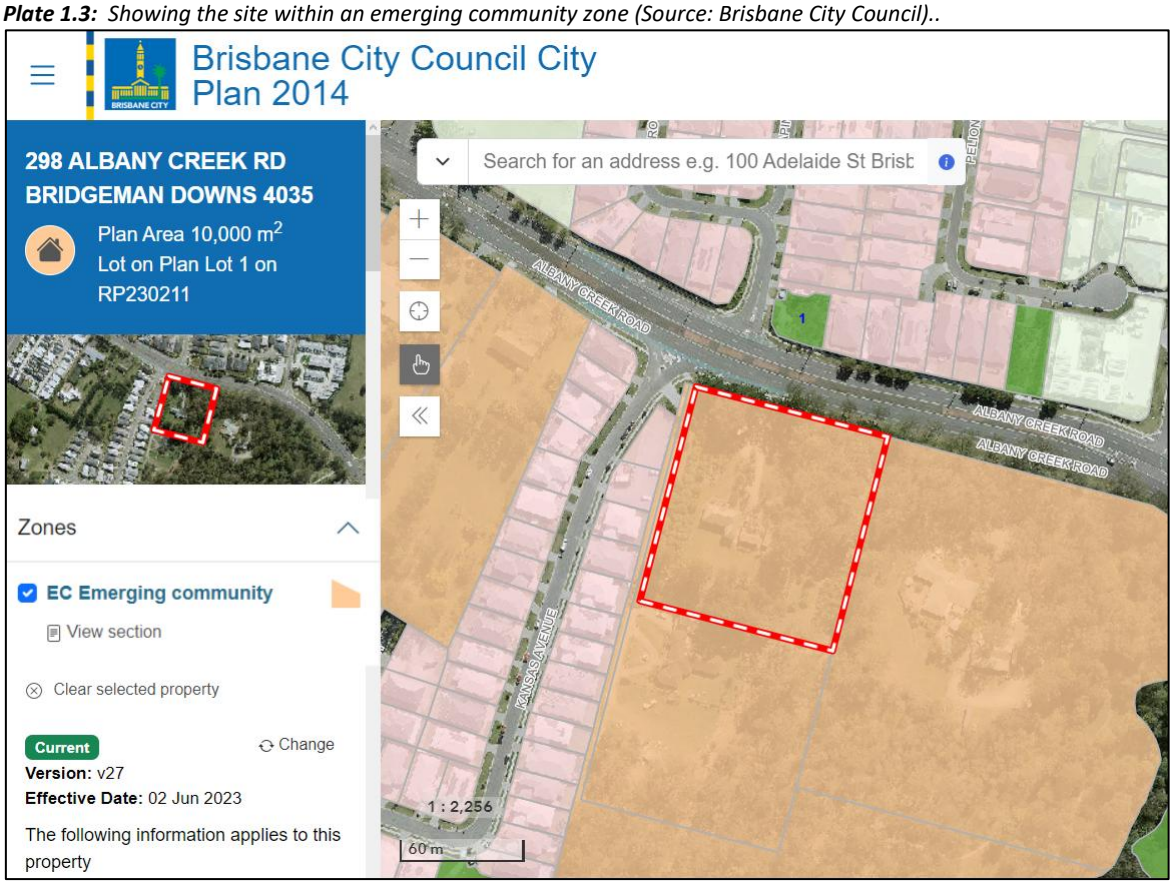


***Plate 1.4**: Showing subdivision site plan on the lot (source: Google; client)*

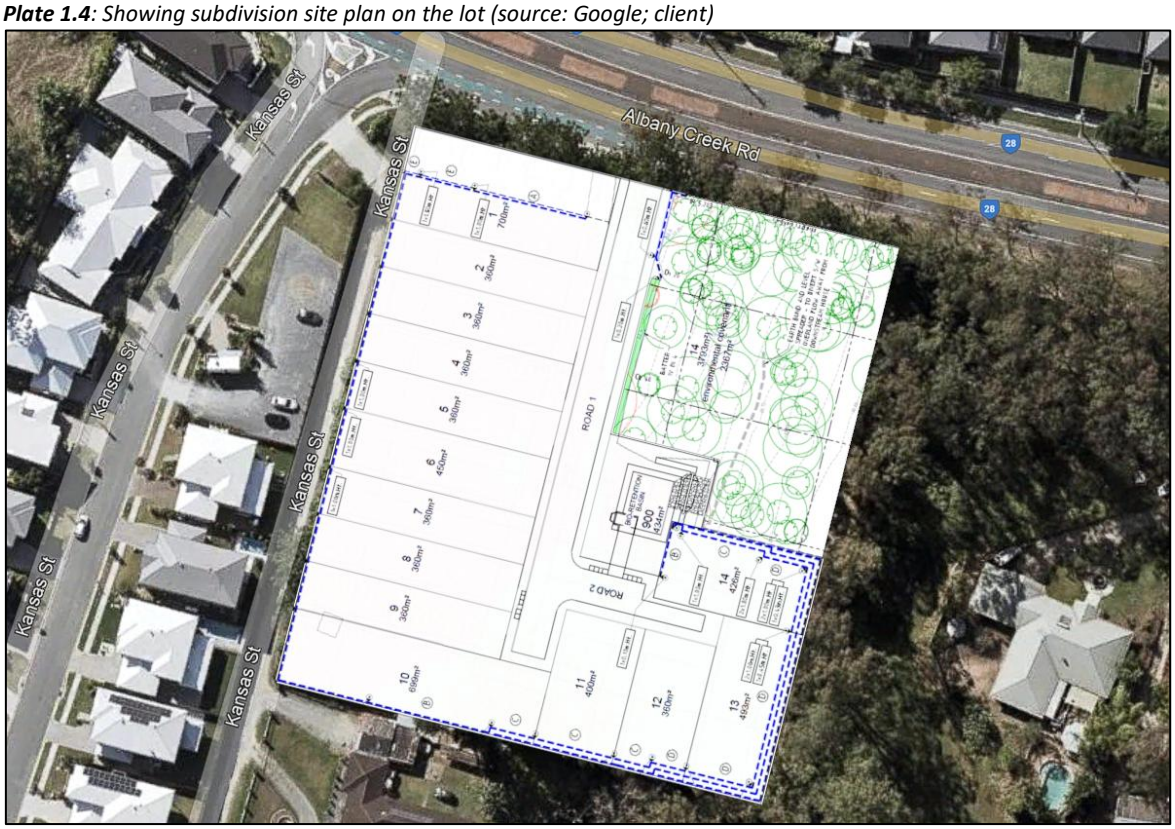
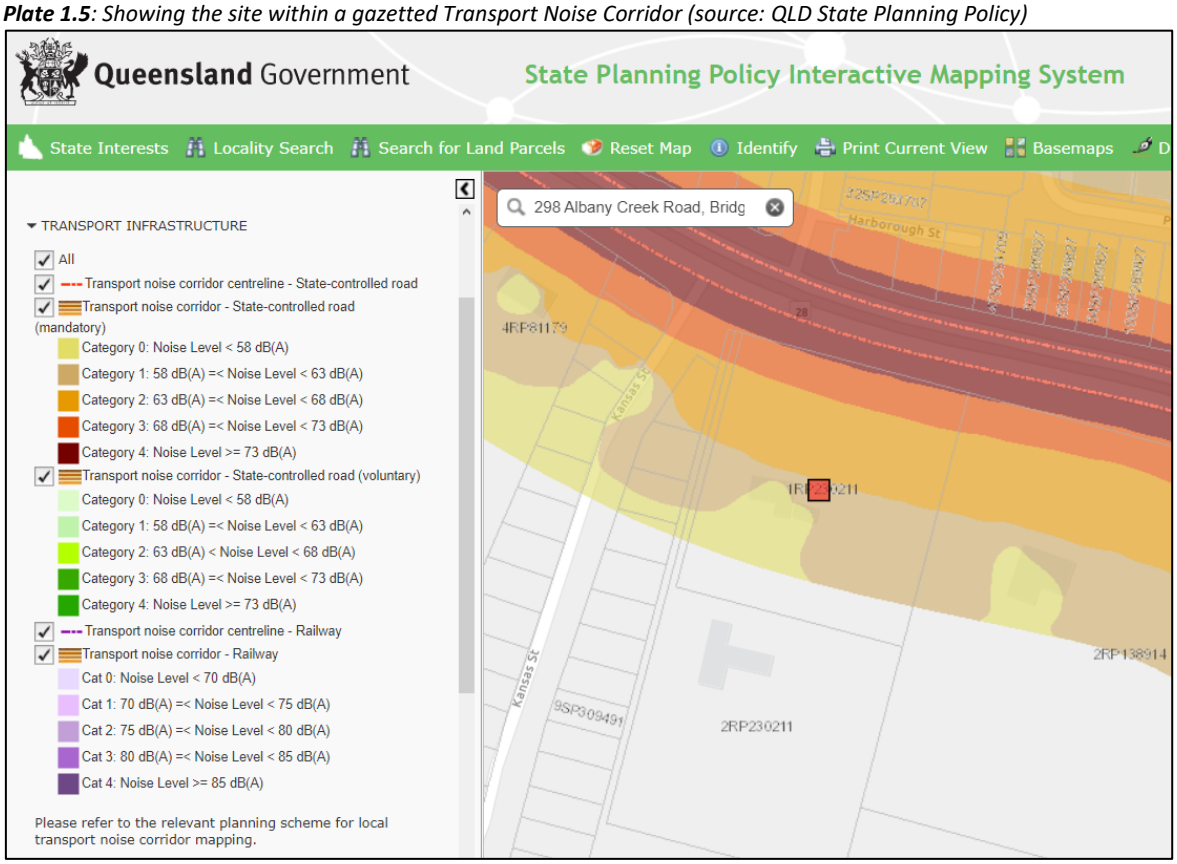


***Plate 1.5**: Showing the site within a gazetted Transport Noise Corridor (source: QLD State Planning Policy)*



2. Measurement of Ambient Noise Levels

2.1 Measurement Procedures

In order to assess the existing acoustic environment in the locality, and ambient noise survey was undertaken on site in May 2023. An environmental noise logger was installed 12 metres from the northern boundary, 30 metres from the east boundary and 4.9 meters above ground in a free field location. The measurement location is referred to as ML1 in this Report and is presented in **Plate 2.16** and **Photo 2.1** below.

Plate 2.1: *The measurement location ML1 is shown*

The noise logger was field calibrated before and after the measurement session and was found to be within 0.1 dB of the reference signal. All instrumentation used in this assessment holds a current calibration certificate from a certified NATA calibration laboratory. The following instruments were used to measure the ambient noise levels:

- 1 x Larson Davis LxT Class 2 environmental noise loggers
- 1 x Larson Davis CAL200 Class 1 acoustic calibrator

Ambient sound pressure levels were measured generally in accordance with Australian Standard *AS1055:2018 – Description and measurement of environmental noise* and Australian Standard *AS2702:1984 Acoustics-Methods for the measurement of road traffic noise*. Noise levels were measured at ML1 between the 18th to 24th May 2023.

2.2 Measurement Results

Results from the ambient noise survey are presented graphically in **Figure 2.1** below. Noise levels from Tuesday the 23rd of May 2023 (representing a 'typical' day of road traffic noise) are presented in tabular format in **Table 2.1** following. Levels represent noise measured from all sources in the locality, including road traffic, meteorology and wildlife. Road traffic noise was observed to be the dominant source of noise in the locality, and as a conservative methodology, the measured $L_{10,18hr}$ from all sources is assumed to be representative of road traffic noise intrusion.

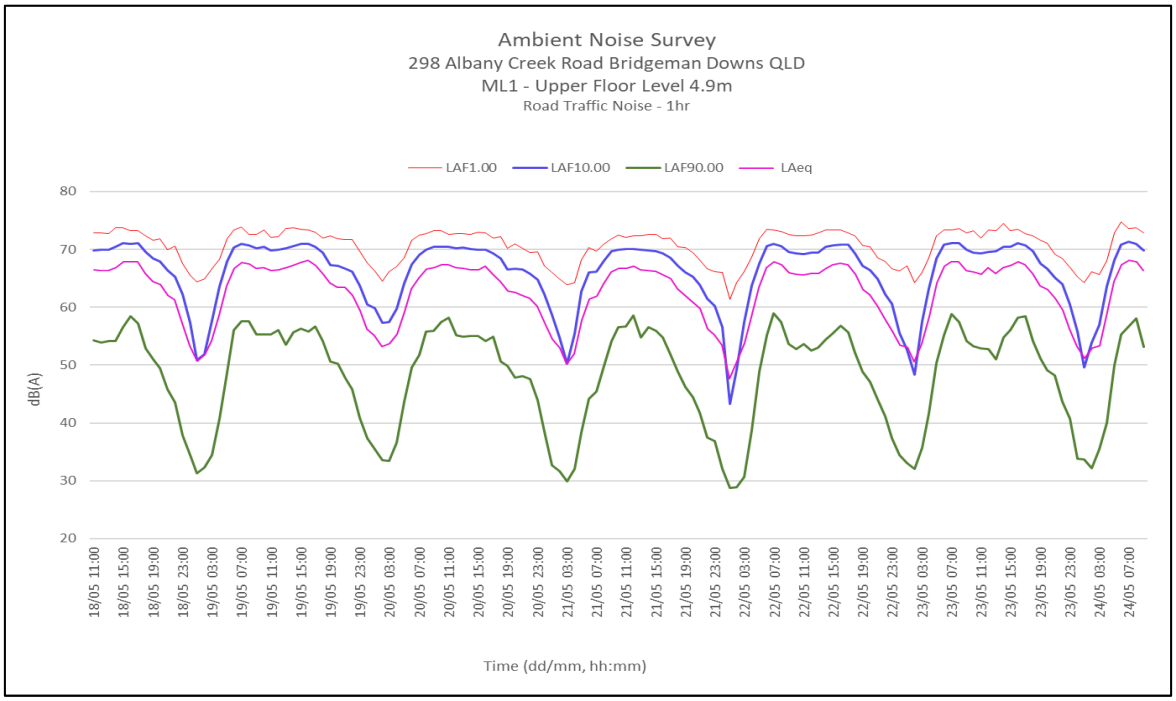


***Figure 2.1**: Ambient noise levels at ML1, 18th to 24th May 2023. Levels are in dB(A) free-field*

Table 2.1: Average ambient levels measured at ML1, Tuesday 23rd May 2023. Levels are in dB(A), free-field.

Time	LA(01)	LA(10)	LA(90)	LAeq
Day 6am to 6pm	73.6	70.2	55.3	67.0
Evening 6pm to 10pm	72.2	67.3	50.7	63.8
Night 10pm to 7am	72.6	59.9	40.1	60.6
Day max 1-hr				67.9
Night max 1-hr (night to 6am)				67.1
CoRTN 6am to 12pm		68.7	52.8	
24 hour	73.4			64.9

The measured $L_{10,18hr}$ at ML1 on the 23rd May 2023 was 68.7 dB(A) free field. This value has been used to validate the road traffic noise model presented in **Appendix B**.

3. Noise Criteria and Limits

3.1 State Development Assessment Provisions

The development site is located within 25m of State-controlled transport infrastructure and is therefore subject to the State Development Assessment Provisions (current version v3.6). The relevant Performance Outcomes and Acceptable Outcomes are presented in **Table 3.1** and **Table 3.2** below.

***Table 3.1**: State Development Assessment Provisions (State Code 1, in part).*

Performance Outcomes	Acceptable Outcomes
Involving the creation of 6 or more new residential lots adjacent to a state-controlled road or type 1 multi-modal corridor	
PO38 Reconfiguring a lot minimises free field noise intrusion from a **state-controlled road.**	**AO38.1** Development provides a noise barrier or earth mound which is designed, sited and constructed: 1. to achieve the maximum free-field acoustic levels in reference table 2 (item 2.1) for **private open space** at the ground floor level; 2. in accordance with: a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Speciication-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR **AO38.2** Development achieves the maximum free-field acoustic levels in reference table 2 (item 2.1) by **alternative noise attenuation measures** where it is not practical to provide a noise barrier or earth mound.

***Table 3.2**: State Code 1 reference tables (in part) – Maximum free field acoustic levels.*

Applicable use	Acoustic levels
2.1 Private open space for **residential lots**	a. ≤57 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6am and 12 midnight ≤45 dB(A)) OR b. ≤60 dB(A) (18 hour) free field (measured L_{90} (18 hour) free field between 6am and 12 midnight >45 dB(A))

As presented in **Section 2**, the measured $L_{90,18hr}$ at ML1 was 53 dB(A), and the 60 dB(A) $L_{10,18hr}$ free field criteria is therefore applied.

3.2 Queensland Development Code Mandatory Part 4.4

The *Queensland Development Code Mandatory Part 4.4* (QDC MP4.4) is intended to ensure that habitable rooms of residential buildings located in a transport noise corridor are designed and constructed to reduce transport noise. Noise reduction requirements fall into categories, based on $L_{10,18hr}$ or L_{Amax} noise levels along the façades of the proposed development (see **Table 3.3** below). Construction of the dwelling is then to "acceptable" solutions (see **Table 3.4** below).

The proposed subdivision does not include detailed design for future dwellings, and the QDC MP4.4 will apply at the Building Approval stage. The provisions of the QDC MP4.4 are presented here for reference purposes, and detailed assessment under the QDC MP4.4 can be conducted at the Building Approval stage once residential design has been determined.

Table 3.3: *Noise levels associated with QDC MP4.4 Noise Categories.*

Noise Category	Level of Transport Noise $L_{A10,18hr}$ for State Controlled Roads	Level of Transport Noise $L_{A10,18hr}$ for Designated Local Government Roads	Single event maximum noise L_{Amax} for railway
Category 4	≥ 73 dB(A)	≥ 73 dB(A)	≥ 85 dB(A)
Category 3	68 - 72 dB(A)	68 - 72 dB(A)	80 - 84 dB(A)
Category 2	63 - 67 dB(A)	63 - 67 dB(A)	75 - 79 dB(A)
Category 1	58 - 62 dB(A)	58 - 62 dB(A)	70 - 74 dB(A)
Category 0	≤ 57 dB(A)	≤ 57 dB(A)	≤ 69 dB(A)

Note* the sound levels are measured at 1 metre from the façade.

Table 3.4: *Performance requirements of QDC MP4.4*

Performance Requirements	**Acceptable Solutions**
Residential Buildings	
P1 *Habitable rooms* in a *relevant residential building* are adequately protected from *transport noise* to safeguard occupants' health and amenity.	**A1** The *external envelope* of each habitable room in a *relevant residential building* must comply with the minimum R_w for each building component specified in Schedule 1 to achieve a minimum *transport noise reduction* level for the relevant *noise category* by: a) Using materials specified in Schedule 2; **OR** b) Using materials with *manufacturer's specifications* that, in combination, achieve the minimum R_w value for the relevant building component and acceptable *noise category*.

3.3 Environmental Protection (Noise) Policy 2019

The *Environmental Protection (Noise) Policy 2019* (EPP Noise 2019) establishes acoustic quality objectives to protect or enhance stated environmental values. The environmental values to be enhanced or protected under the policy are the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and the qualities of the acoustic environment that are conducive to human health and well-being, including ensuring a suitable acoustic environment for individual's to sleep, study and learn, to be involved in recreation including relaxation and conversation; and the qualities of the acoustic environment that are conducive to protecting the amenity of the community.

It is noted that the Objectives specifically do not apply to noise from ordinary use of a public road or State transport infrastructure, and are not intended to override Council noise policies, where in force. It is therefore concluded that the intent of EPP Noise 2019 is met through application of Council policy through the Development Approval Package, and of State transport policy through the Concurrency Agency Conditions.

3.4 Environmental Protection Act 1994 (Informative)

Future residential dwellings may include air conditioning, although the specific design is yet to be determined. State plant noise requirements are set out under the *Environmental Protection Act 1994*; in that Act noise from air conditioning must not exceed the following noise levels when measured as the LA_{90} dB(A) level over a period of 15 minutes at an affected building:

- Between 10pm and 7am: 3 dB(A) above the background level
- From 7am to 10pm: 5 dB(A) above the background level

Detailed plant noise assessment can be conducted – if required – at the Building Approval stage for future dwellings, once plant specifications and residential building design has been determined.

4. Noise Impact Assessment

4.1 State Development Assessment Provisions – SARA – No Acoustic Barrier Scenario

The building design for future residential dwellings is yet to be determined, and calculations have therefore been conducted to nominal receiver locations at the minimum setback distance as per the *Brisbane City Plan 2014* Dwelling house (small lot) code, amounting to a 3 metre setback from rear boundary in a location approximating the midpoint of the private open space. Ground contours and lot building pad level in metres AHD have been provided by Wilkinson Shaw & Associates and are presented in **Appendix A**. Details of the road traffic noise model and provided in **Appendix B**.

The calculated road traffic noise levels are presented in in **Table 4.1** for private open space and **Table 4.2** for proposed dwelling.

***Table 4.1**: Road traffic noise, private open space at 1.5m above finished ground, year 2033, no subdivision boundary acoustic barrier, levels in $L_{10,\ 18hr}$, dB(A), free field.*

Receiver	Descriptor	Forecast	SDAP Criteria	Compliance
Private Open Space – No Acoustic Barrier Scenario				
Lot 1 POS	$L_{10,18hr}$ free-field	65	60	**+5**
Lot 2 POS	$L_{10,18hr}$ free-field	63	60	**+3**
Lot 3 POS	$L_{10,18hr}$ free-field	61	60	**+1**
Lot 4 POS	$L_{10,18hr}$ free-field	59	60	**Yes**
Lot 5 POS	$L_{10,18hr}$ free-field	58	60	**Yes**
Lot 6 POS	$L_{10,18hr}$ free-field	57	60	**Yes**
Lot 7 POS	$L_{10,18hr}$ free-field	57	60	**Yes**
Lot 8 POS	$L_{10,18hr}$ free-field	56	60	**Yes**
Lot 9 POS	$L_{10,18hr}$ free-field	55	60	**Yes**
Lot 10 POS	$L_{10,18hr}$ free-field	55	60	**Yes**
Lot 11 POS	$L_{10,18hr}$ free-field	58	60	**Yes**
Lot 12 POS	$L_{10,18hr}$ free-field	59	60	**Yes**
Lot 13 POS	$L_{10,18hr}$ free-field	60	60	**Yes**

It is concluded from the above that an acoustic barrier along part of the subdivision boundary is required for the private open space criteria to be met.

***Table 4.2**: Road traffic noise, ground floor at 1.8m above finished ground, year 2033, no subdivision boundary acoustic barrier, levels in $L_{10,\ 18hr}$, dB(A), façade adjusted.*

Receiver	Descriptor	Forecast	QDC MP4.4 Noise Category
Ground Floor Level - No Acoustic Barrier Scenario			
Lot 1 Ground Floor	$L_{10,18hr}$ façade-affected	69	Category 3
Lot 2 Ground Floor	$L_{10,18hr}$ façade-affected	67	Category 2
Lot 3 Ground Floor	$L_{10,18hr}$ façade-affected	65	Category 2
Lot 4 Ground Floor	$L_{10,18hr}$ façade-affected	64	Category 2
Lot 5 Ground Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 6 Ground Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 7 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 8 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 9 Ground Floor	$L_{10,18hr}$ façade-affected	59	Category 1
Lot 10 Ground Floor	$L_{10,18hr}$ façade-affected	59	Category 1
Lot 11 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 12 Ground Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 13 Ground Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Upper Floor Level - No Acoustic Barrier Scenario			
Lot 1 Upper Floor	$L_{10,18hr}$ façade-affected	71	Category 3
Lot 2 Upper Floor	$L_{10,18hr}$ façade-affected	69	Category 3
Lot 3 Upper Floor	$L_{10,18hr}$ façade-affected	67	Category 2
Lot 4 Upper Floor	$L_{10,18hr}$ façade-affected	66	Category 2
Lot 5 Upper Floor	$L_{10,18hr}$ façade-affected	65	Category 2
Lot 6 Upper Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 7 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 8 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 9 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 10 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 11 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 12 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 13 Upper Floor	$L_{10,18hr}$ façade-affected	63	Category 2

4.2 Proposed Acoustic Attenuation (Acoustic Barrier/Fence)

To reduce the sound level within the private open space area of the proposed Lots, a subdivision boundary acoustic barrier is proposed.

The proposed location of the acoustic barrier is along the west boundary of Lot 2 and Lot 1, continuing along the northern boundary of Lot 1 at a height of 2.4 metres above the finished ground level The proposed location of the acoustic barriers are presented in **Plate 4.1** and absolute and relative barrier heights in **Table 4.3** below.

The Department of Transport and Main Roads has requested that any acoustic barrier/fence be meet the *Specification MRTS15 Noise Fences*.

Plate 4.1: *Showing the proposed location of the subdivision boundary acoustic barrier on Lot 1 and 2.*

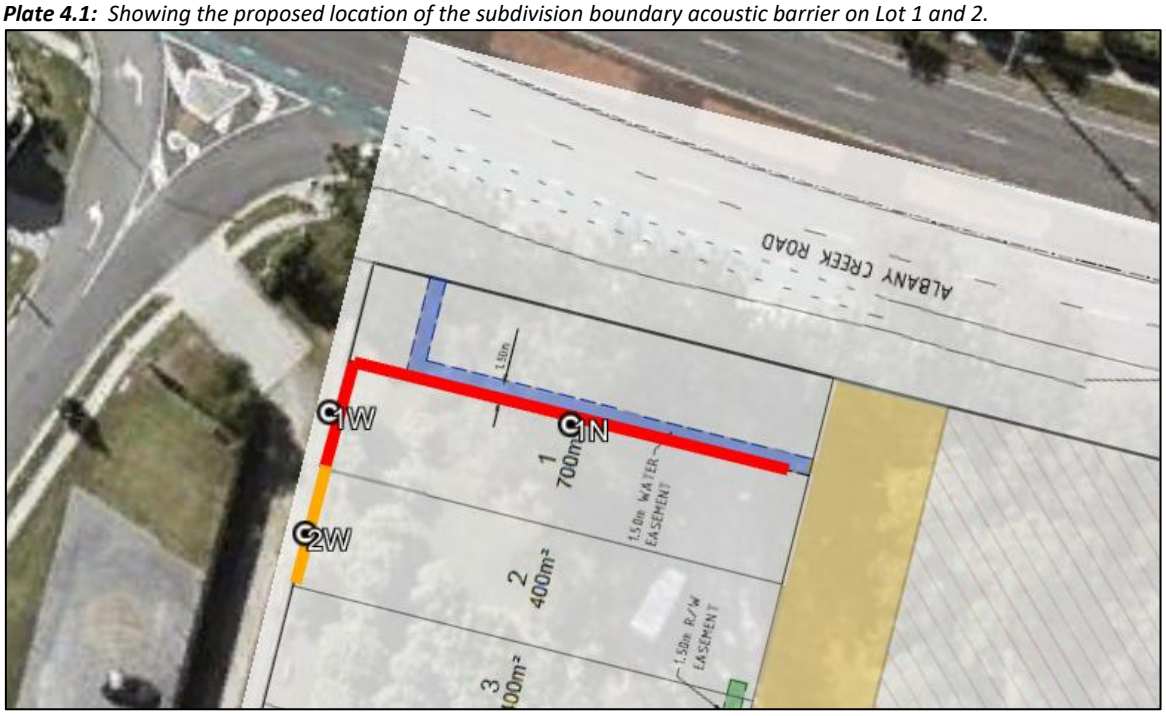


Table 4.3*: Showing the proposed finished pad levels for all Lots, and suggested subdivision boundary acoustic barrier.*

Lot Number	Lot Building Pad Levels in metres AHD	Acoustic Fence Location	Top of Barrier Height in meters AHD	Height of Proposed Acoustic Barrier above Building Pad Level
1	33.28	1N	35.68	2.4
	33.28	1W	35.68	2.4
2	33.23	2W	35.63	2.4
3	33.13	-		
4	33.03	-		
5	33.03	-		
6	33.03	-		
7	33.03	-		
8	33.03	-		
9	33.03	-		
10	33.12	-		
11	33.05	-		
12	32.94	-		
13	32.87	-		

4.3 State Development Assessment Provisions – SARA –Acoustic Barrier Scenario

In this scenario, the subdivision boundary acoustic barrier, presented in **Section 4.2**, has been included in the assessment.

The building design for future residential dwellings is yet to be determined, and calculations have therefore been conducted to nominal receiver locations at the minimum setback distance as per the *Brisbane City Plan 2014* Dwelling house (small lot) code, amounting to a 3m setback from rear boundary in a location approximating the middle of the private open space. Ground contours and lot building pad level in metres AHD have been provided by Wilkinson Shaw & Associates and are presented in **Appendix A**. Details of the road traffic noise model and provided in **Appendix B**.

The calculated road traffic noise levels are presented in in **Table 4.4** for private open space and **Table 4.5** for proposed dwelling.

***Table 4.4**: Road traffic noise, private open space at 1.5m above finished ground, year 2033, with subdivision boundary acoustic barrier, levels in $L_{10,\ 18hr}$, dB(A), free field.*

Receiver	Descriptor	Forecast	SDAP Criteria	Compliance
Private Open Space – No Acoustic Barrier Scenario				
Lot 1 POS	$L_{10,18hr}$ free-field	60	60	Yes
Lot 2 POS	$L_{10,18hr}$ free-field	60	60	Yes
Lot 3 POS	$L_{10,18hr}$ free-field	59	60	Yes
Lot 4 POS	$L_{10,18hr}$ free-field	58	60	Yes
Lot 5 POS	$L_{10,18hr}$ free-field	58	60	Yes
Lot 6 POS	$L_{10,18hr}$ free-field	57	60	Yes
Lot 7 POS	$L_{10,18hr}$ free-field	56	60	Yes
Lot 8 POS	$L_{10,18hr}$ free-field	56	60	Yes
Lot 9 POS	$L_{10,18hr}$ free-field	55	60	Yes
Lot 10 POS	$L_{10,18hr}$ free-field	54	60	Yes
Lot 11 POS	$L_{10,18hr}$ free-field	57	60	Yes
Lot 12 POS	$L_{10,18hr}$ free-field	59	60	Yes
Lot 13 POS	$L_{10,18hr}$ free-field	60	60	Yes

***Table 4.5**: Road traffic noise, ground floor at 1.8m above finished ground, year 2033, with subdivision boundary acoustic barrier, levels in $L_{10,\ 18hr}$, dB(A), façade adjusted.*

Receiver	Descriptor	Forecast	QDC MP4.4 Noise Category
Ground Floor Level - With Acoustic Barrier Scenario			
Lot 1 Ground Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 2 Ground Floor	$L_{10,18hr}$ façade-affected	65	Category 2
Lot 3 Ground Floor	$L_{10,18hr}$ façade-affected	64	Category 2
Lot 4 Ground Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 5 Ground Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 6 Ground Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 7 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 8 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 9 Ground Floor	$L_{10,18hr}$ façade-affected	59	Category 1
Lot 10 Ground Floor	$L_{10,18hr}$ façade-affected	59	Category 1
Lot 11 Ground Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 12 Ground Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 13 Ground Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Upper Floor Level - With Acoustic Barrier Scenario			
Lot 1 Upper Floor	$L_{10,18hr}$ façade-affected	71	Category 3
Lot 2 Upper Floor	$L_{10,18hr}$ façade-affected	69	Category 3
Lot 3 Upper Floor	$L_{10,18hr}$ façade-affected	67	Category 2
Lot 4 Upper Floor	$L_{10,18hr}$ façade-affected	66	Category 2
Lot 5 Upper Floor	$L_{10,18hr}$ façade-affected	64	Category 2
Lot 6 Upper Floor	$L_{10,18hr}$ façade-affected	63	Category 2
Lot 7 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 8 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 9 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 10 Upper Floor	$L_{10,18hr}$ façade-affected	60	Category 1
Lot 11 Upper Floor	$L_{10,18hr}$ façade-affected	61	Category 1
Lot 12 Upper Floor	$L_{10,18hr}$ façade-affected	62	Category 1
Lot 13 Upper Floor	$L_{10,18hr}$ façade-affected	63	Category 2

4.4 Conclusions and Recommendations

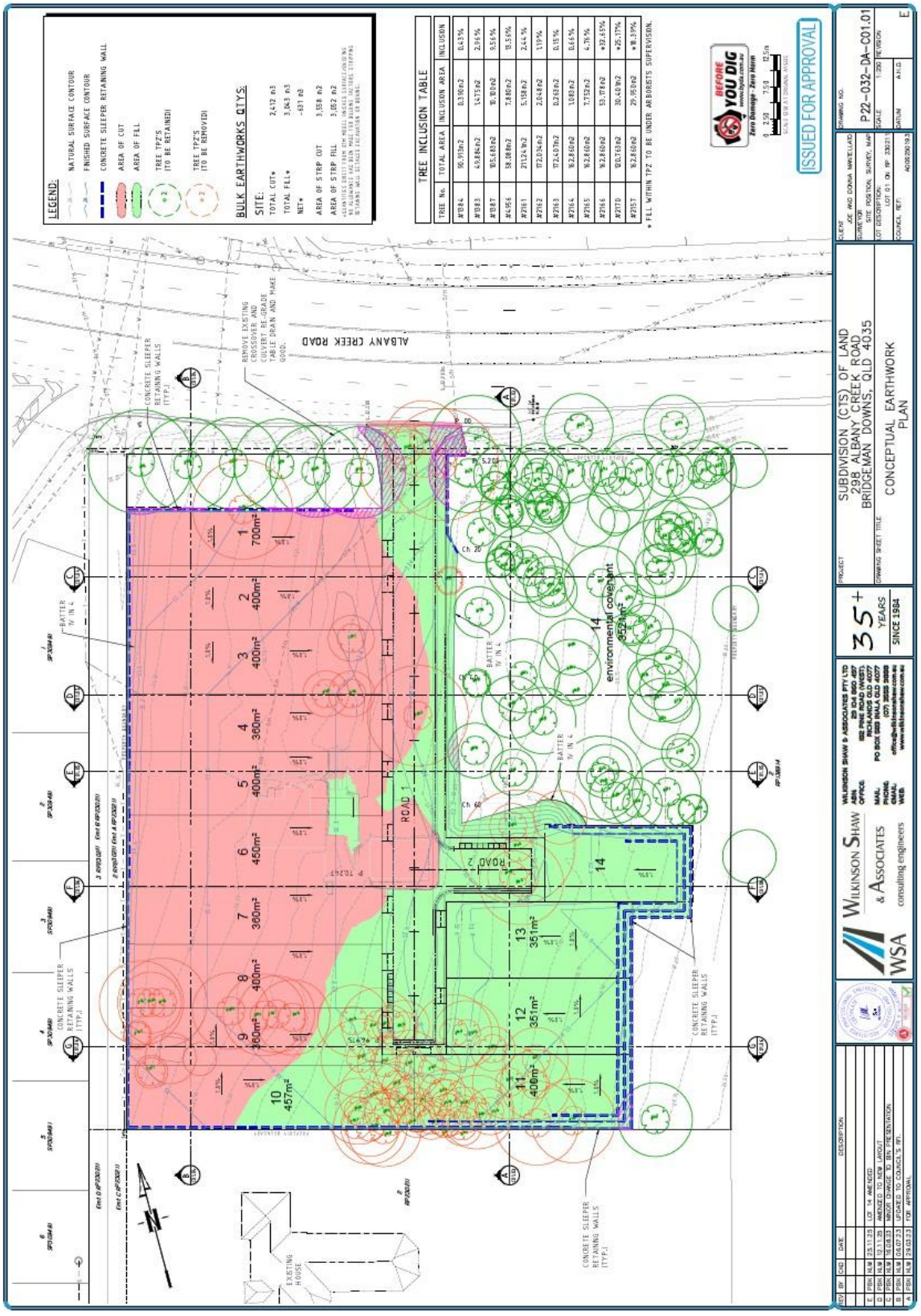
It is concluded that-

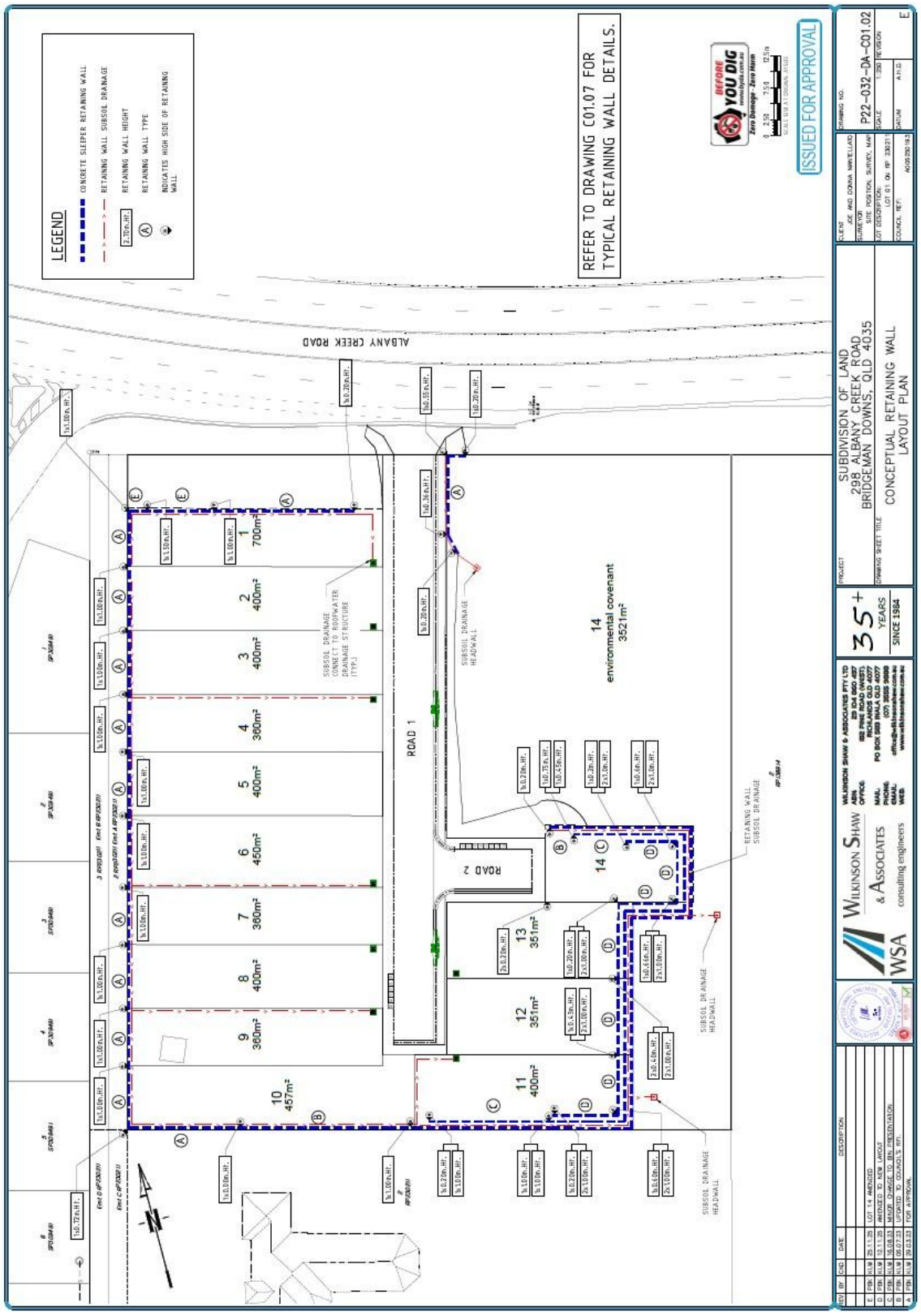
- The development site is subject to moderate levels of road traffic noise from Albany Creek Road.
- Subject to the proposed subdivision acoustic barrier, the subdivision can meet the **PO38** of the State Development assessment provisions State Code 1.
- The forecast road traffic noise level on each Lot and assessment to the State Development Assessment Provisions criteria for ground floor level façade and private open space areas and first floor level are presented in **Section 4.3** of this **Report**.
- Lot specific assessment to the QDC MP4.4 can be conducted at the Building Approval stage, once final architectural plans become available. This assessment would include screening from building envelopes, which has not been included in this subdivision assessment.
- Deemed to Satisfy' building solutions for the relevant QDC categories are presented in **Appendix C**.

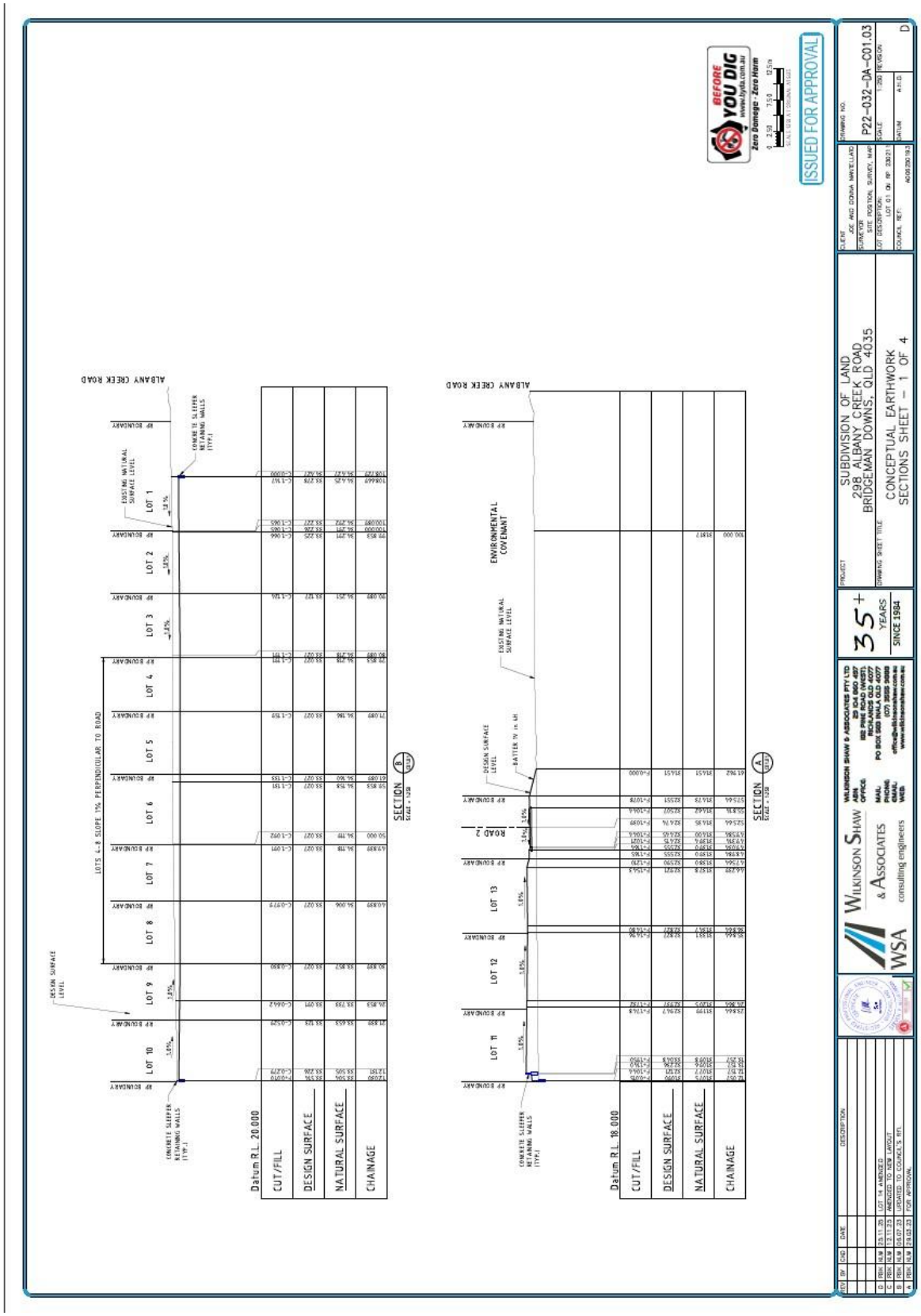
It is recommended that-

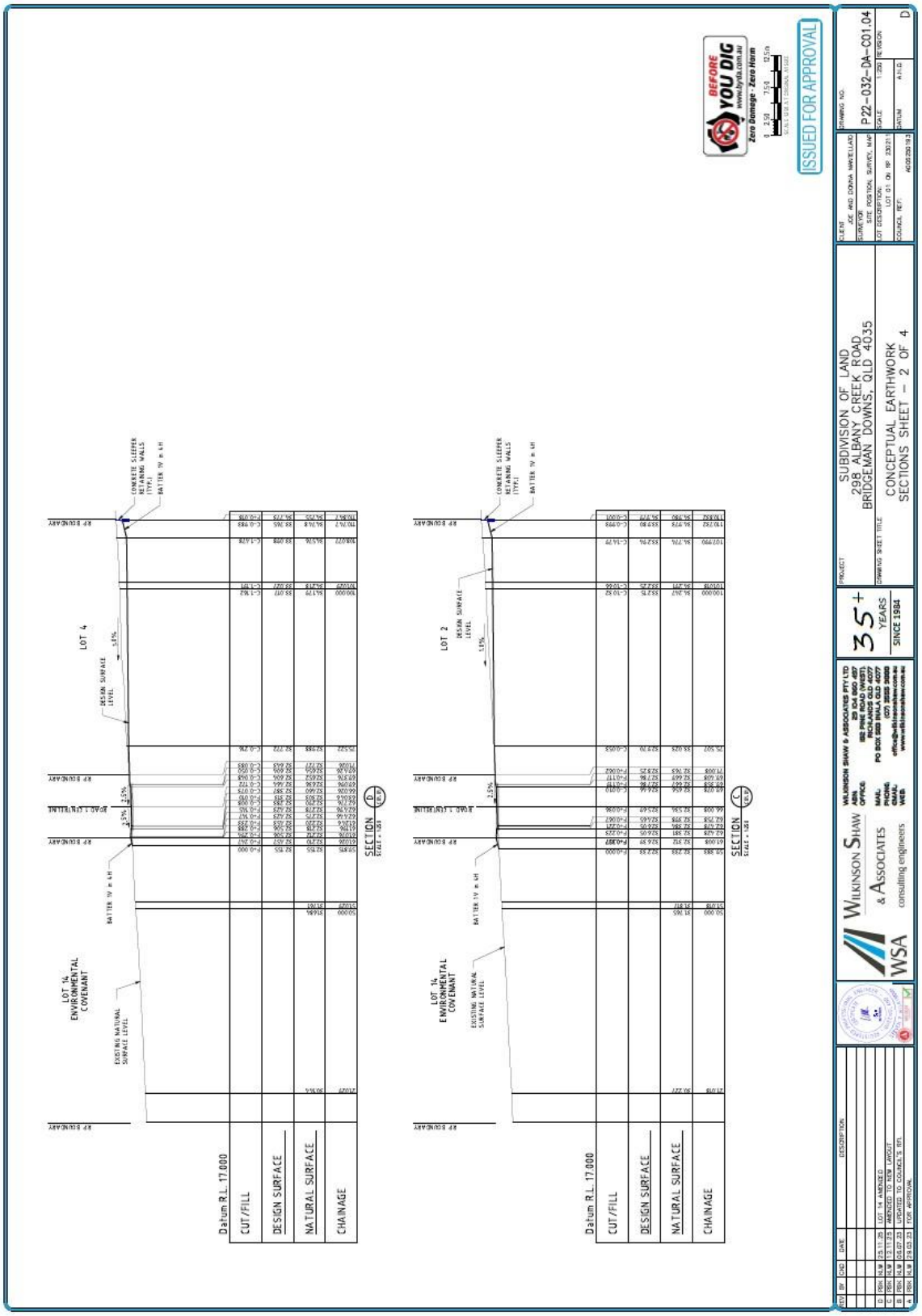
- That the subdivision boundary acoustic barrier be constructed at the height and location as discussed in **Section 4.2** of this report.
- The acoustic barrier be continuous and gap free. The Department of Transport and Main Roads has requested that any acoustic barrier/fence be meet the *Specification MRTS15 Noise Fences*.
- Lot specific assessment under the QDC MP4.4 be conducted at the Building Approval stage once final architectural plans become available.

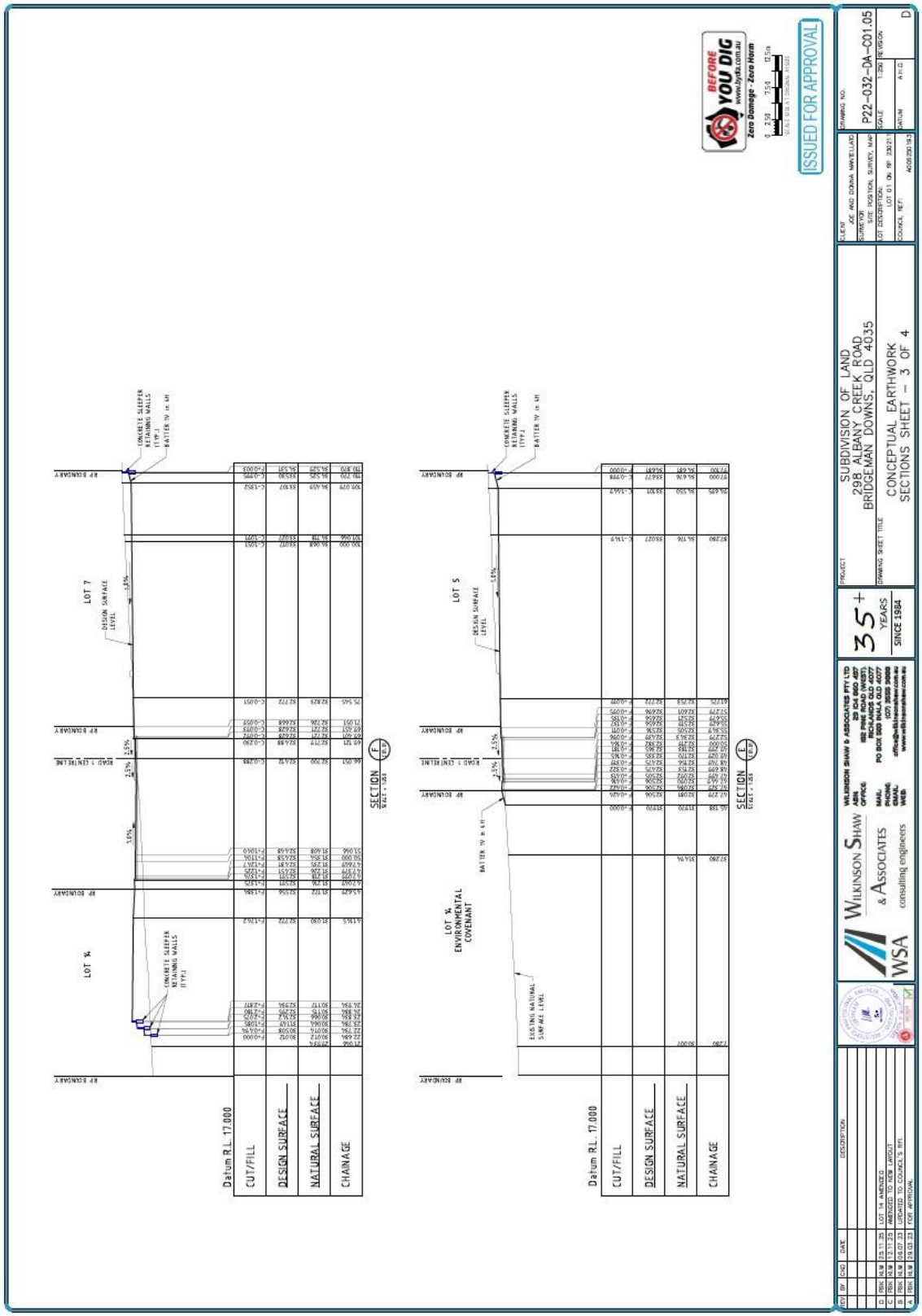
Appendix A: Plans

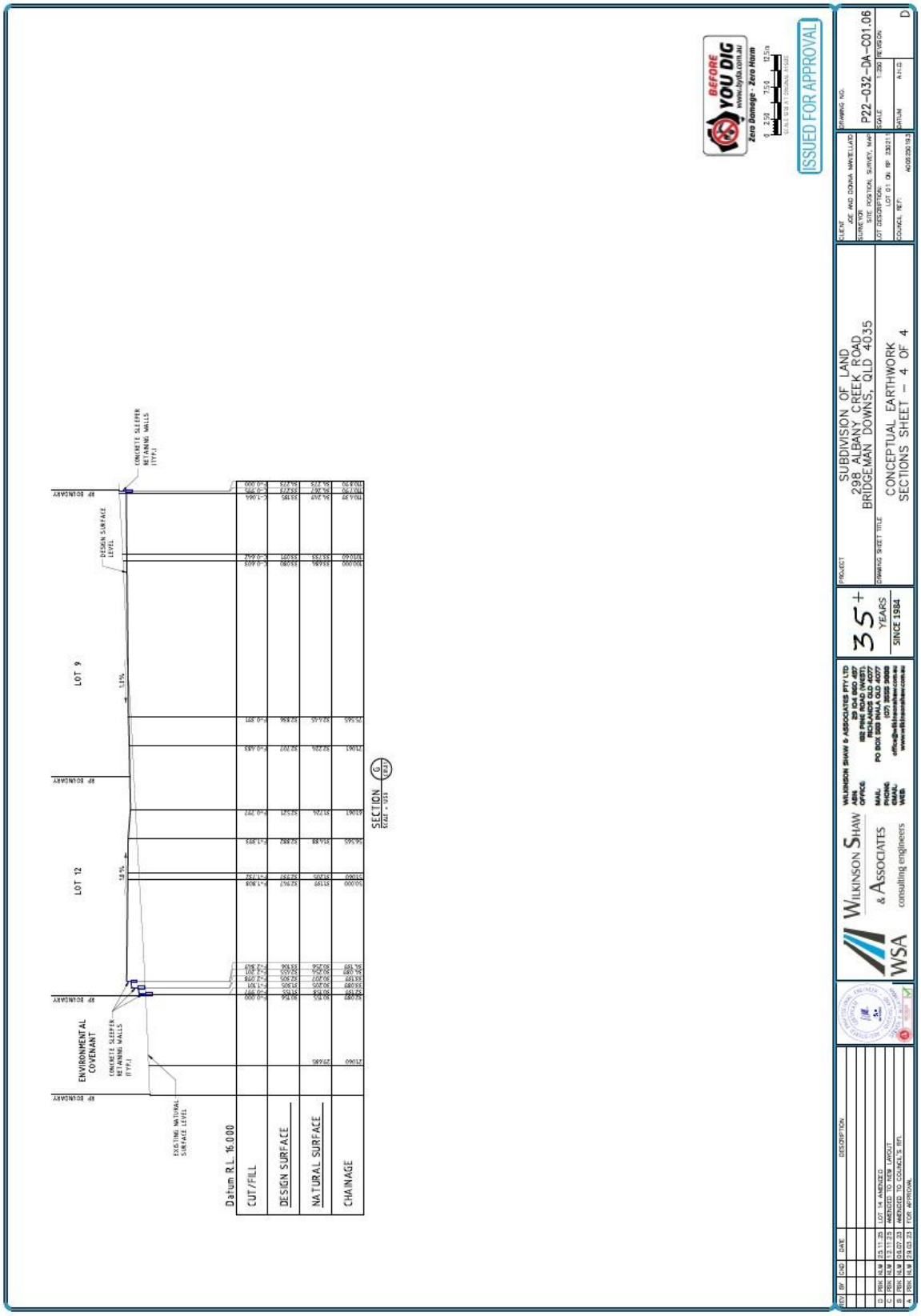

LEGEND:
NATURAL SURFACE CONTOUR
FINISHED SURFACE CONTOUR
CONCRETE SLEEPER RETAINING WALL
AREA OF CUT
AREA OF FILL
TREE TPZ'S ITO BE RETAINED
TREE TPZ'S ITO BE REMOVED
BULK EARTHWORKS QTYS:
SITE:
TOTAL CUT*
TOTAL FILL*
NET*
AREA OF STRIP CUT
AREA OF STRIP FILL
TREE INCLUSION TABLE
TREE No.
TOTAL AREA
INCLUSION AREA
INCLUSION
* FILL WITHIN TPZ TO BE UNDER ARBORISTS SUPERVISION.
BEFORE YOU DIG
ISSUED FOR APPROVAL
ALBANY CREEK ROAD
ROAD 1
ROAD 2
environmental covenant
CONCRETE SLEEPER RETAINING WALLS (TYP.)
EXISTING HOUSE
SUBDIVISION (CTS) OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL EARTHWORK PLAN
WILKINSON SHAW & ASSOCIATES
consulting engineers
35+ YEARS
SINCE 1984
P22-032-DA-C01.01

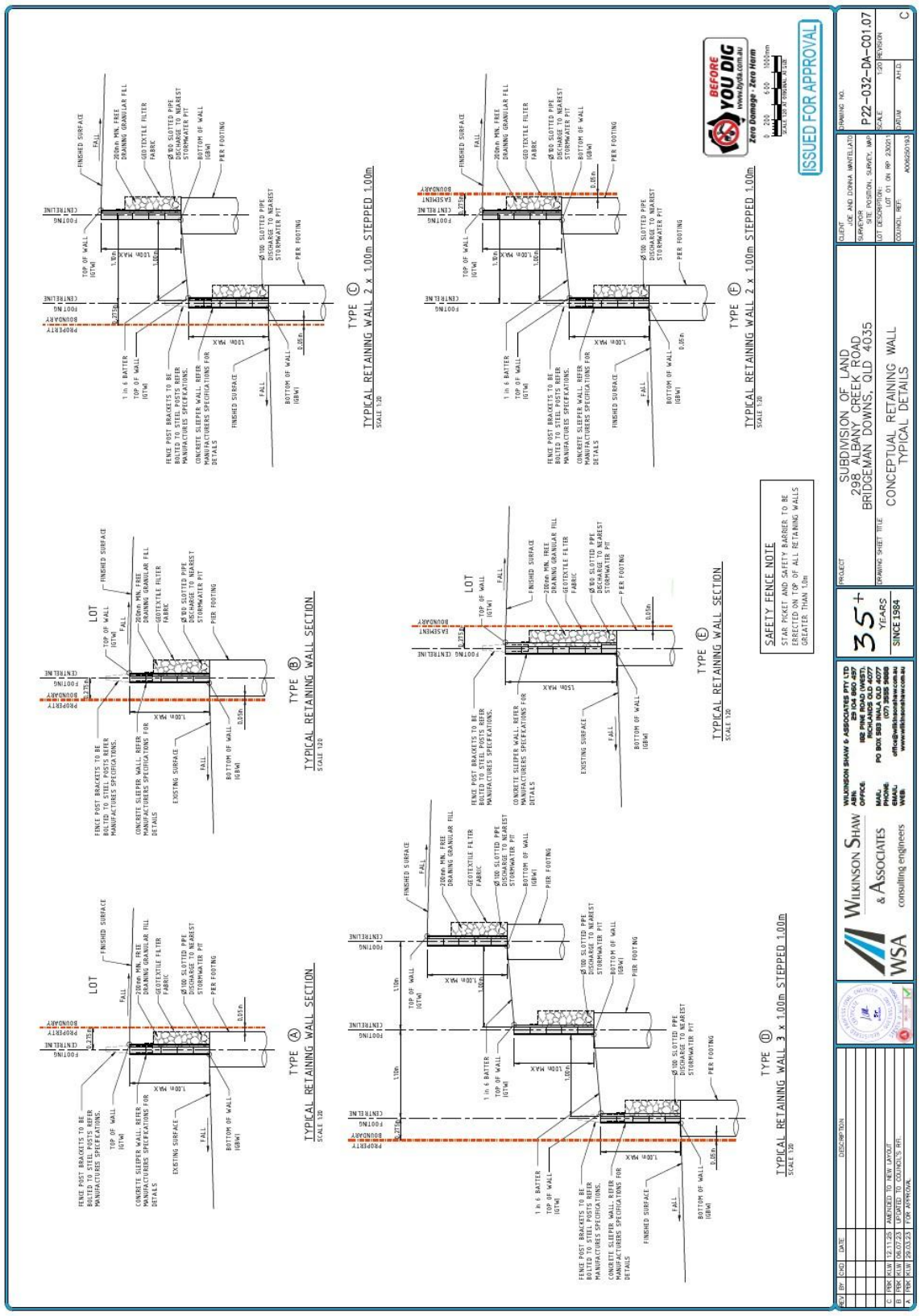

LEGEND
CONCRETE SLEEPER RETAINING WALL
RETAINING WALL SUBSOIL DRAINAGE
RETAINING WALL HEIGHT
RETAINING WALL TYPE
INDICATES HIGH SIDE OF RETAINING WALL
REFER TO DRAWING C01.07 FOR TYPICAL RETAINING WALL DETAILS.
ISSUED FOR APPROVAL
ALBANY CREEK ROAD
ROAD 1
ROAD 2
14 environmental covenant 3521m²
SUBDIVISION OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL RETAINING WALL LAYOUT PLAN
P22-032-DA-C01.02
WILKINSON SHAW & ASSOCIATES
consulting engineers
35+ YEARS
SINCE 1984


ISSUED FOR APPROVAL
SUBDIVISION OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL EARTHWORK
SECTIONS SHEET – 1 OF 4
P22-032-DA-C01.03
WILKINSON SHAW & ASSOCIATES
consulting engineers
35+ YEARS
SINCE 1984
ALBANY CREEK ROAD
ENVIRONMENTAL COVENANT
EXISTING NATURAL SURFACE LEVEL
DESIGN SURFACE LEVEL
BATTER IV in 4H
ROAD 2
LOT 11
LOT 12
LOT 13
BOUNDARY
CONCRETE SLEEPER RETAINING WALLS (TYP.)
Datum R.L. 18.000
CUT/FILL
DESIGN SURFACE
NATURAL SURFACE
CHAINAGE
SECTION A
SCALE 1:250
LOTS 4–8 SLOPE 1% PERPENDICULAR TO ROAD
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
Datum R.L. 20.000
SECTION B
SCALE 1:250


ISSUED FOR APPROVAL
SUBDIVISION OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL EARTHWORK
SECTIONS SHEET – 2 OF 4
P22-032-DA-C01.04
WILKINSON SHAW & ASSOCIATES
consulting engineers
35+ YEARS
SINCE 1984
LOT 4
LOT 2
LOT 14 ENVIRONMENTAL COVENANT
DESIGN SURFACE LEVEL
EXISTING NATURAL SURFACE LEVEL
BATTER 1V in 4H
CONCRETE SLEEPER RETAINING WALLS (TYP.)
ROAD 1 CENTRELINE
SECTION
Datum R.L. 17.000
CUT/FILL
DESIGN SURFACE
NATURAL SURFACE
CHAINAGE
DESCRIPTION
LOT 14 AMENDED
AMENDED TO NEW LAYOUT
UPDATED TO COUNCIL'S RFI
FOR APPROVAL


ISSUED FOR APPROVAL
SUBDIVISION OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL EARTHWORK
SECTIONS SHEET – 3 OF 4
P22-032-DA-C01.05
WILKINSON SHAW & ASSOCIATES
consulting engineers
35+ YEARS
SINCE 1984
LOT 7
LOT 5
LOT 4
LOT 4 ENVIRONMENTAL COVENANT
DESIGN SURFACE LEVEL
EXISTING NATURAL SURFACE LEVEL
CONCRETE SLEEPER RETAINING WALLS (TYP.)
BATTER 1V in 4H
ROAD 1 (CENTRELINE)
SECTION
Datum R.L. 17.000
CUT/FILL
DESIGN SURFACE
NATURAL SURFACE
CHAINAGE


ISSUED FOR APPROVAL
BEFORE YOU DIG
www.byda.com.au
Zero Damage - Zero Harm
SUBDIVISION OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL EARTHWORK
SECTIONS SHEET - 4 OF 4
P22-032-DA-C01.06
WILKINSON SHAW & ASSOCIATES
consulting engineers
35+ YEARS
SINCE 1984
LOT 9
LOT 12
ENVIRONMENTAL COVENANT
CONCRETE SLEEPER RETAINING WALLS (TYP.)
DESIGN SURFACE LEVEL
EXISTING NATURAL SURFACE LEVEL
SECTION G
Datum R.L. 16.000
CUT/FILL
DESIGN SURFACE
NATURAL SURFACE
CHAINAGE


TYPICAL RETAINING WALL 2 x 1.00m STEPPED 1.00m
TYPE C
TYPICAL RETAINING WALL 2 x 1.00m STEPPED 1.00m
TYPE F
TYPICAL RETAINING WALL SECTION
TYPE B
TYPICAL RETAINING WALL SECTION
TYPE E
TYPICAL RETAINING WALL SECTION
TYPE A
TYPICAL RETAINING WALL 3 x 1.00m STEPPED 1.00m
TYPE D
SAFETY FENCE NOTE
STAR PICKET AND SAFETY BARRIER TO BE ERRECTED ON TOP OF ALL RETAINING WALLS GREATER THAN 1.0m
ISSUED FOR APPROVAL
SUBDIVISION OF LAND
298 ALBANY CREEK ROAD
BRIDGEMAN DOWNS, QLD 4035
CONCEPTUAL RETAINING WALL
TYPICAL DETAILS
P22-032-DA-C01.07
WILKINSON SHAW & ASSOCIATES
WSA
consulting engineers
35+ YEARS SINCE 1984

Queensland Government

Traffic Analysis and Reporting System
Report Notes for AADT Segment Report

TARS

25-Aug-2020 16:29

AADT Segment Annual Volume Report
Provides summary data for the selected AADT Segment of a Road Section. Summary data is presented as both directional information and a combined bi-directional figure. The data is then broken down by Traffic Class, when available. The report also includes maps displaying the location of both the AADT Segment and the traffic count site.

Annual Average Daily Traffic (AADT)
Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT Segments
The State declared road network is broken into Road Sections and then further broken down into AADT Segments. An AADT Segment is a sub-section of the declared road network where traffic volume is similar along the entire AADT Segment.

Area
For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

District Name	District
Central West District	401
Darling Downs District	402
Far North District	403
Fitzroy District	404
Mackay/Whitsunday District	405
Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

AADT Values
AADT values are displayed by direction of travel as:

G Traffic flow in gazettal direction
A Traffic flow against gazettal direction
B Traffic flow in both directions

Data Collection Year
Is the most recent year that data was collected at the data collection site.

Please Note:
Due to location and/or departmental policy, some sites are not counted every year.

Gazettal Direction
Is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

Maps
Display the selected location from a range of viewing levels, the start and end position details for the AADT Segment and the location of the traffic count site.

Road Section
Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Segment Site
Is the unique identifier for the traffic count site representing the traffic flow within the AADT Segment.

Site
The physical location of a traffic counting device. Sites are located at a specified Through Distance along a Road Section.

Site Description
The description of the physical location of the traffic counting device.

Start and End Point
The unique identifier for the Through Distance along a Road Section.

Vehicle Class
Traffic is categorised as per the Austroads Vehicle Classification scheme. Traffic classes are in the following hierarchical format:

Volume or All Vehicles
00 = 0A + 0B

Light Vehicles
0A = 1A
1A = 2A + 2B

Heavy Vehicles
0B = 1B + 1C + 1D
1B = 2C + 2D + 2E
1C = 2F + 2G + 2H + 2I
1D = 2J + 2K + 2L

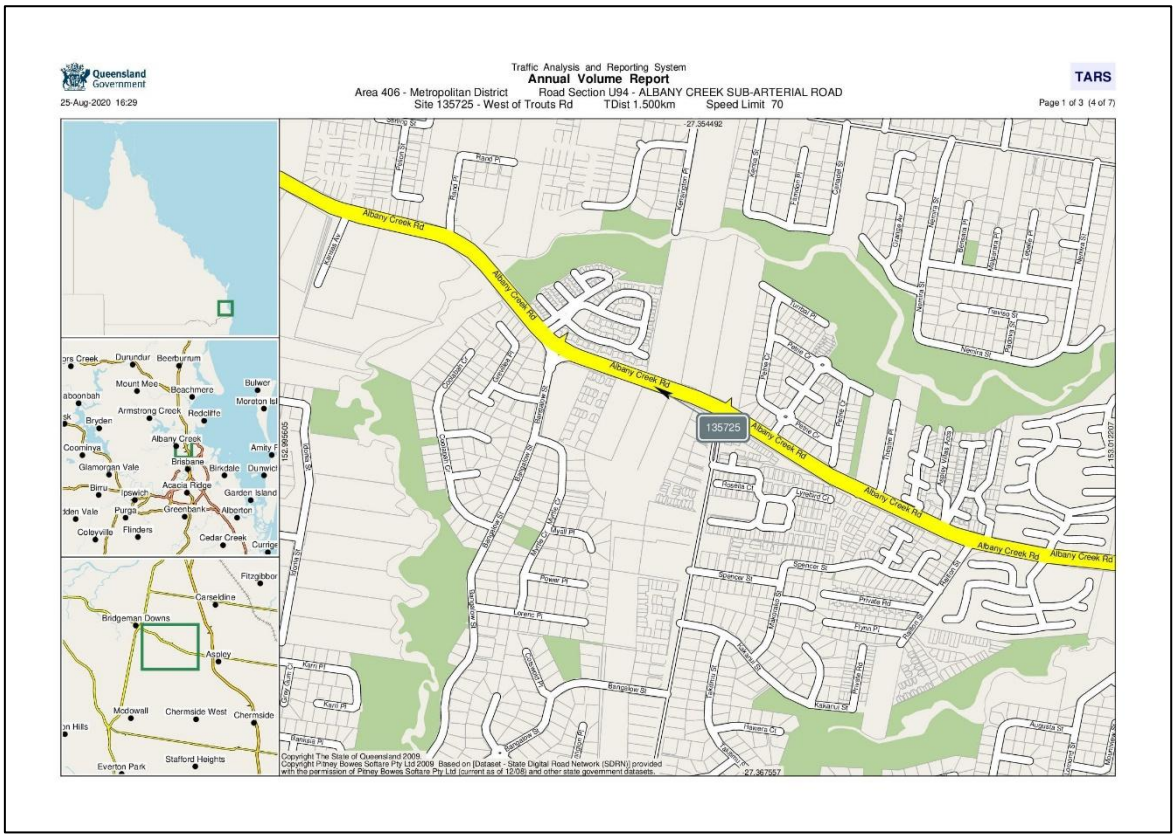
The following classes are the categories for which data can be captured:

Volume
00 All vehicles

2-Bin
0A Light vehicles
0B Heavy vehicles

4-Bin
1A Short vehicles
1B Truck or bus
1C Articulated vehicles
1D Road train

12-Bin
2A Short 2 axle vehicles
2B Short vehicles towing
2C 2 axle truck or bus
2D 3 axle truck or bus
2E 4 axle truck
2F 3 axle articulated vehicle
2G 4 axle articulated vehicle
2H 5 axle articulated vehicle
2I 6 axle articulated vehicle
2J B double
2K Double road train
2L Triple road train


Queensland Government
25-Aug-2020 16:29
Traffic Analysis and Reporting System
Annual Volume Report
Area 406 - Metropolitan District
Road Section U94 - ALBANY CREEK SUB-ARTERIAL ROAD
Site 135725 - West of Trouts Rd
TDist 1.500km
Speed Limit 70
TARS
Page 1 of 3 (4 of 7)
Albany Creek Rd
135725
Durundur
Beerburrum
Mount Mee
Beachmere
Bulwer
Moreton Isl
Armstrong Creek
Redcliffe
Bryden
Albany Creek
Coominya
Amity P
Brisbane
Birkdale
Dunwich
Glamorgan Vale
Acacia Ridge
Garden Island
Ipswich
Purga
Greenbank
Alberton
Colleyville
Flinders
Cedar Creek
Currie
Fitzgibbon
Carseldine
Bridgeman Downs
Aspley
Modowall
Chermside West
Chermside
Everton Park
Stafford Heights
Copyright The State of Queensland 2009.
Copyright Pitney Bowes Software Pty Ltd 2009. Based on [Dataset - State Digital Road Network (SDRN)] provided with the permission of Pitney Bowes Software Pty Ltd (current as of 12/06) and other state government datasets.

Queensland Government

Traffic Analysis and Reporting System
Annual Volume Report

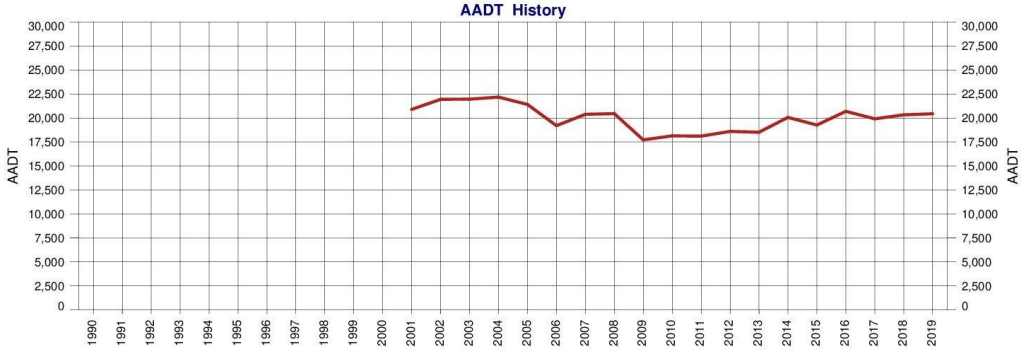
TARS

25-Aug-2020 16:29

Area	406 - Metropolitan District
Road Section	U94 - ALBANY CREEK SUB-ARTERIAL ROAD
Site	135725 - West of Trouts Rd
Thru Dist	1.5
Type	C - Coverage
Stream	TB - Bi-directional traffic flow

Year	2019	Growth last Year	0.55%
AADT	20,438	Growth last 5 Yrs	0.64%
Avg Week Day	22,277	Growth last 10 Yrs	1.33%
Avg Weekend Day	18,394		

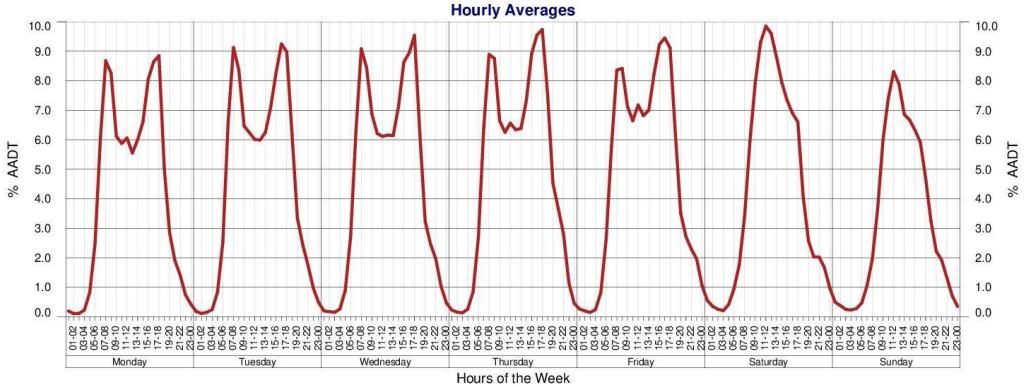
AADT History



Year	AADT	1-Year Growth	5-Year Growth	10-Year Growth
2019	20,438	0.55%	0.64%	1.33%
2018	20,326	2.08%	1.22%	1.07%
2017	19,912	-3.76%	1.17%	0.61%
2016	20,691	7.42%	2.88%	1.15%
2015	19,262	-3.97%	1.27%	-0.18%
2014	20,058	8.33%	2.88%	0.02%
2013	18,515	-0.45%	-0.40%	-1.43%
2012	18,599	2.72%	-1.11%	-1.63%
2011	18,106	-0.15%	-1.96%	-2.11%
2010	18,134	2.34%	-2.91%	
2009	17,720	-13.35%	-4.52%	
2008	20,451	0.34%	-1.24%	
2007	20,382	6.16%	-1.73%	
2006	19,199	-10.34%	-3.15%	
2005	21,412	-3.43%		

Year	AADT	1-Year Growth	5-Year Growth	10-Year Growth
2004	22,173	0.97%		
2003	21,960	0.08%		
2002	21,943	5.01%		
2001	20,896			
2000				
1999				
1998				
1997				
1996				
1995				
1994				
1993				
1992				
1991				
1990				

Hourly Averages



Queensland Government

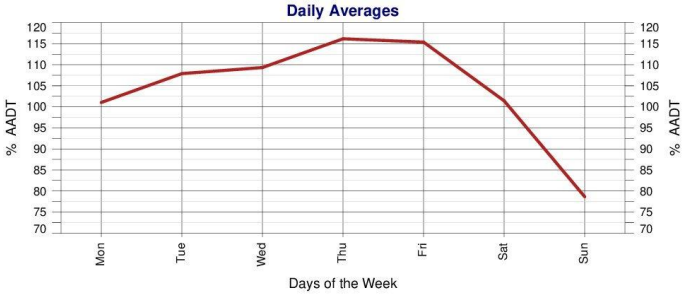
25-Aug-2020 16:29

Traffic Analysis and Reporting System
Annual Volume Report

TARS

Page 3 of 3 (6 of 7)

Daily Averages



Weekly Averages

2019 Calendar

January

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

March

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

June

M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September

M	T	W	T	F	S	S
30						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

October

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

November

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

December

M	T	W	T	F	S	S
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Days on which traffic data was collected.

Queensland Government

Traffic Analysis and Reporting System
Report Notes for Annual Volume Report

TARS

25-Aug-2020 16:29

Annual Volume Report
Displays AADT history with hourly, daily and weekly patterns by Stream in addition to annual data for AADT figures with 1 year, 5 year and 10 year growth rates.

Annual Average Daily Traffic (AADT)
Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT History
Displays the years when traffic data was collected at this count site.

Area
For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

District Name	District
Central West District	401
Darling Downs District	402
Far North District	403
Fitzroy District	404
Mackay/Whitsunday District	405
Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

Avg Week Day
Average daily traffic volume during the week days, Monday to Friday.

Avg Weekend Day
Average daily traffic volume during the weekend, Saturday and Sunday.

Calendar
Days on which traffic data was collected are highlighted in green.

Gazettal Direction
The Gazettal Direction is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

- G Traffic flowing in Gazettal Direction
- A Traffic flowing against Gazettal Direction
- B The combined traffic flow in both Directions

Growth Percentage
Represents the increase or decrease in AADT, using a exponential fit over the previous 1, 5 or 10 year period.

Hour, Day & Week Averages
The amount of traffic on the road network will vary depending on the time of day, the day of the week and the week of the year. The ebb and flow of traffic travelling through a site over a period of time forms a pattern. The Hour, Day and Week Averages are then used in the calculation of AADT.

Road Section
Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Site
The unique identifier and description of the physical location of a traffic counting device. Sites are located at a Through Distance along a Road Section.

Stream
The lane in which the traffic is travelling in. This report provides data for the combined flow of traffic in both directions.

Thru Dist or TDist
The distance from the beginning of the Road Section, in kilometres.

Type
There are two types of traffic counting sites, Permanent and Coverage. Permanent means the traffic counting device is in place 24/7. Coverage means the traffic counting device is in place for a specified period of time.

Year
Is the current year for the report. Where an AADT Year record is missing a traffic count has not been conducted, for that year.

Appendix B: Road Traffic Noise Calculations

The 10-year design levels for traffic noise are calculated for the proposed development. Calculations are performed in accordance with Australian Standard AS2702-1984 *Acoustics-Methods for the measurement of road traffic noise* and 'Calculation of Road Traffic Noise', 1975-1988.

Predicted levels for this report have been calculated using CRTN prediction models PEN3D2000 and are façade-adjusted. Existing and future traffic volumes have been calculated from data provided by the DSDIP SPP Interactive Mapping Service and the Department of Transport and Main Roads traffic data. Topographic data was obtained from Geoscience Australia (0.5m contours). The assumptions that were made for the calculations included:

Table B1: *Traffic data for noise model.*

Road	Vehicles per 24hr (18hr volume is 94% of 24hr)			Growth (%p.a.)	HV %	Speed (km/hr)	Source Height (m)	Surface
	2015	2019	2030					
Albany Creek Rd East	10,299	10,717	11,838	1.00%	6.14%	100	0.5	DGA
Albany Creek Rd West	10,139	10,551	11,655	1.00%	8.80%	70	0.5	DGA

- Source height 0.5m;
- Noise model correction from façade adjusted to free field -2.5 dB(A) applied for free field model;
- DTMR Road surface correction -0 dB(A) applied;
- DTMR CoRTN free field calibration -0.7 dB(A) applied for free field model;
- DTMR CoRTN façade adjusted calibration -1.7 dB(A) applied for façade adjusted model;
- Measured noise level year 2023 for ML1, 68.7 dB(A) L10, 18hr free field (including all sources);
- Calculated noise level year 2023 for ML1, 68.9 dB(A) L10, 18hr free field (this is within 0.2 dB of the measured sound level);
- Predicted design level year 2033 for ML1, 69.4 dB(A) L10, 18hr free field;
- Predicted increase in road traffic noise over the ten year design horizon is +0.5 dB(A);
- Subdivision ground contours and finished ground level for each Lot provided by Wilkinson Shaw & Associates (**Appendix A**);
- Calculation points at 1.5m above finished ground for private open space, forecast noise level is in free field;
- Ground and first floor 1.8m and 4.6m above finished ground level at nominal most affected part of the Lot and setback 3.5 metres from proposed subdivision acoustic barrier, sound levels include +2.5 dB(A) façade adjustment;
- Proposed 2.4 and 2.0 metre acoustic barrier along subdivision boundary as described in **Section 4.2** of this report and shown in **Plan B1** following;
- The receiver point locations for each Lot are presented in **Plan B2** following.

Plan B1: *Showing the proposed location of the subdivision acoustic barriers on Lot 1, 2.*

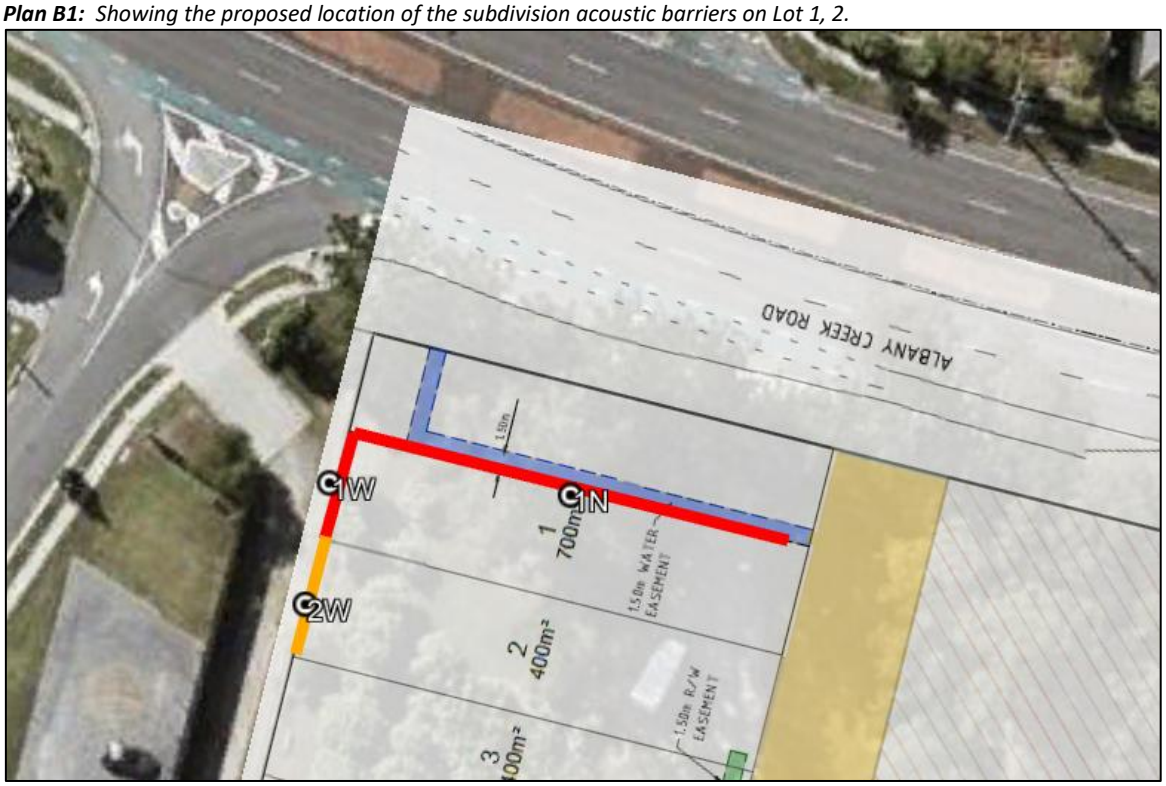


Table B2*: Showing the proposed finished pad levels for all Lots, and suggested subdivision boundary acoustic barrier.*

Lot Number	Lot Building Pad Levels in metres AHD	Acoustic Fence Location	Top of Barrier Height in meters AHD	Height of Proposed Acoustic Barrier above Building Pad Level
1	33.28	1N	35.68	2.4
	33.28	1W	35.68	2.4
2	33.23	2W	35.63	2.4
3	33.13	-		
4	33.03	-		
5	33.03	-		
6	33.03	-		
7	33.03	-		
8	33.03	-		
9	33.03	-		
10	33.12	-		
11	33.05	-		
12	32.94	-		
13	32.87	-		

***Plate B1**: Road traffic noise contours at 1.5m for private open space year 2033. Levels are in $L_{10,18h}$, dB(A), free-field.*

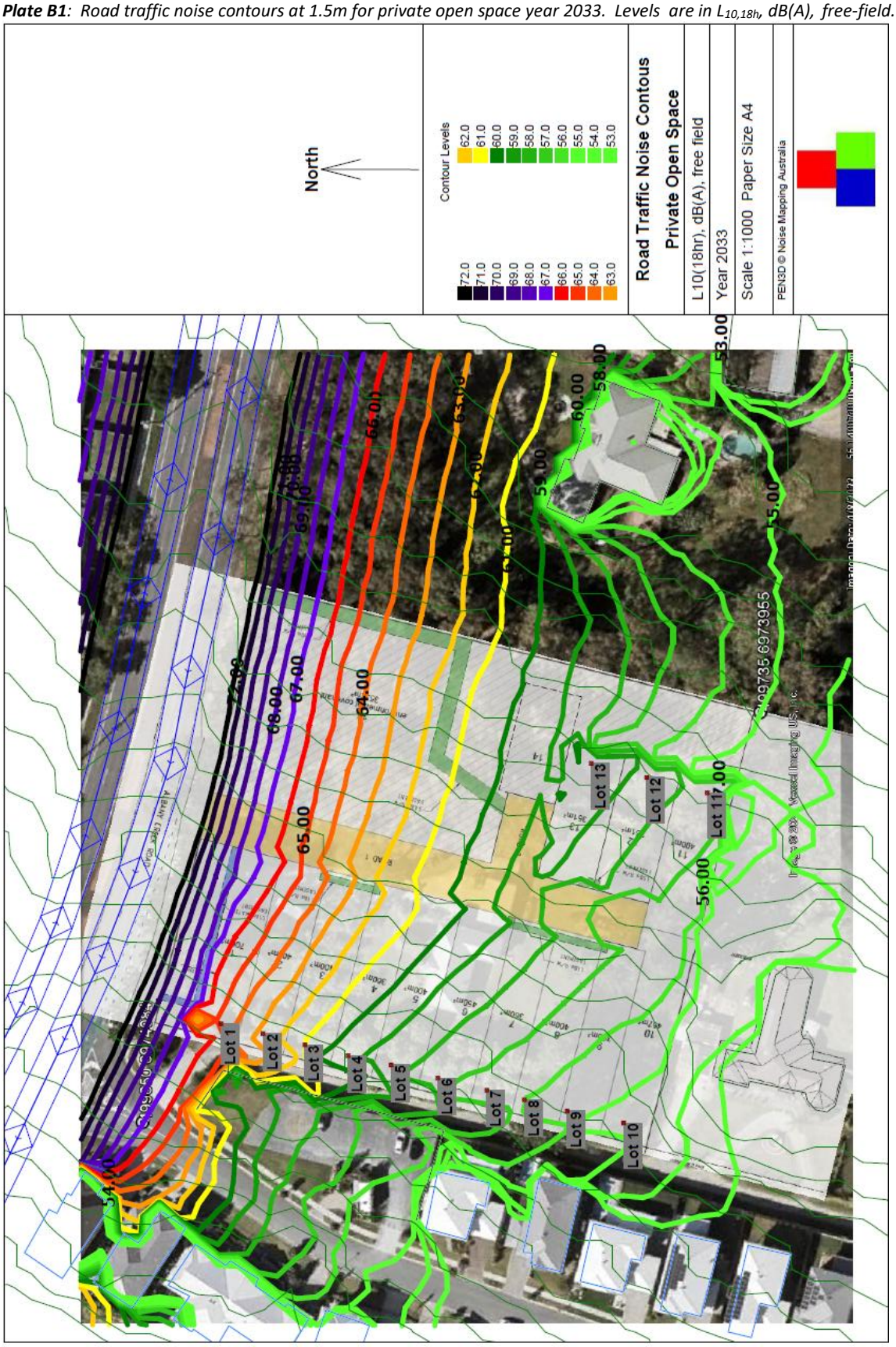


***Plate B2**: Road traffic noise contours at 1.5 metres for private open space year 2033, with subdivision acoustic barrier. Levels are in $L_{10,18h}$, dB(A), free-field.*

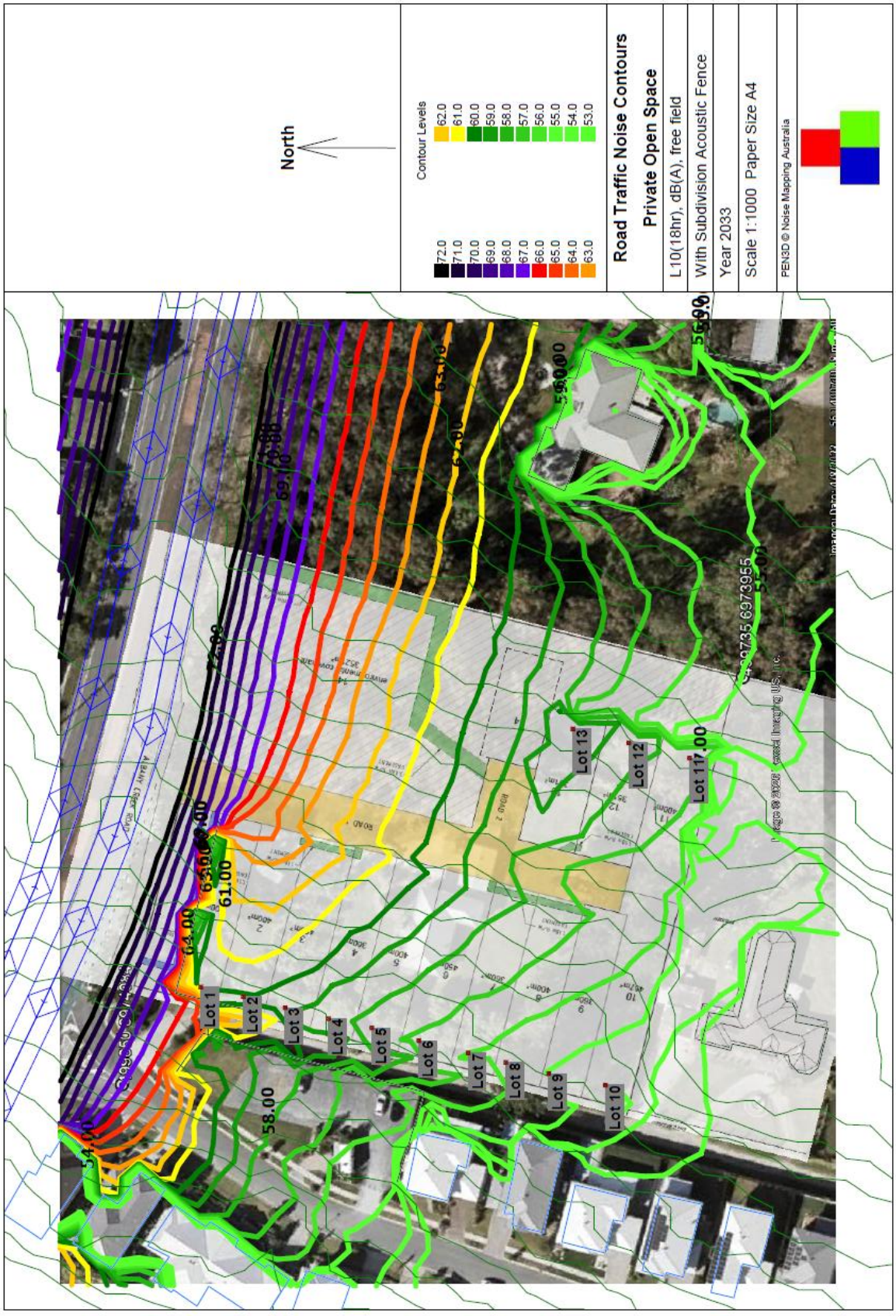


***Plate B3**: Road traffic noise contours year 2023 at 1.8 metres year 2033. Levels are in $L_{10,18h}$, dB(A), façade adjusted.*

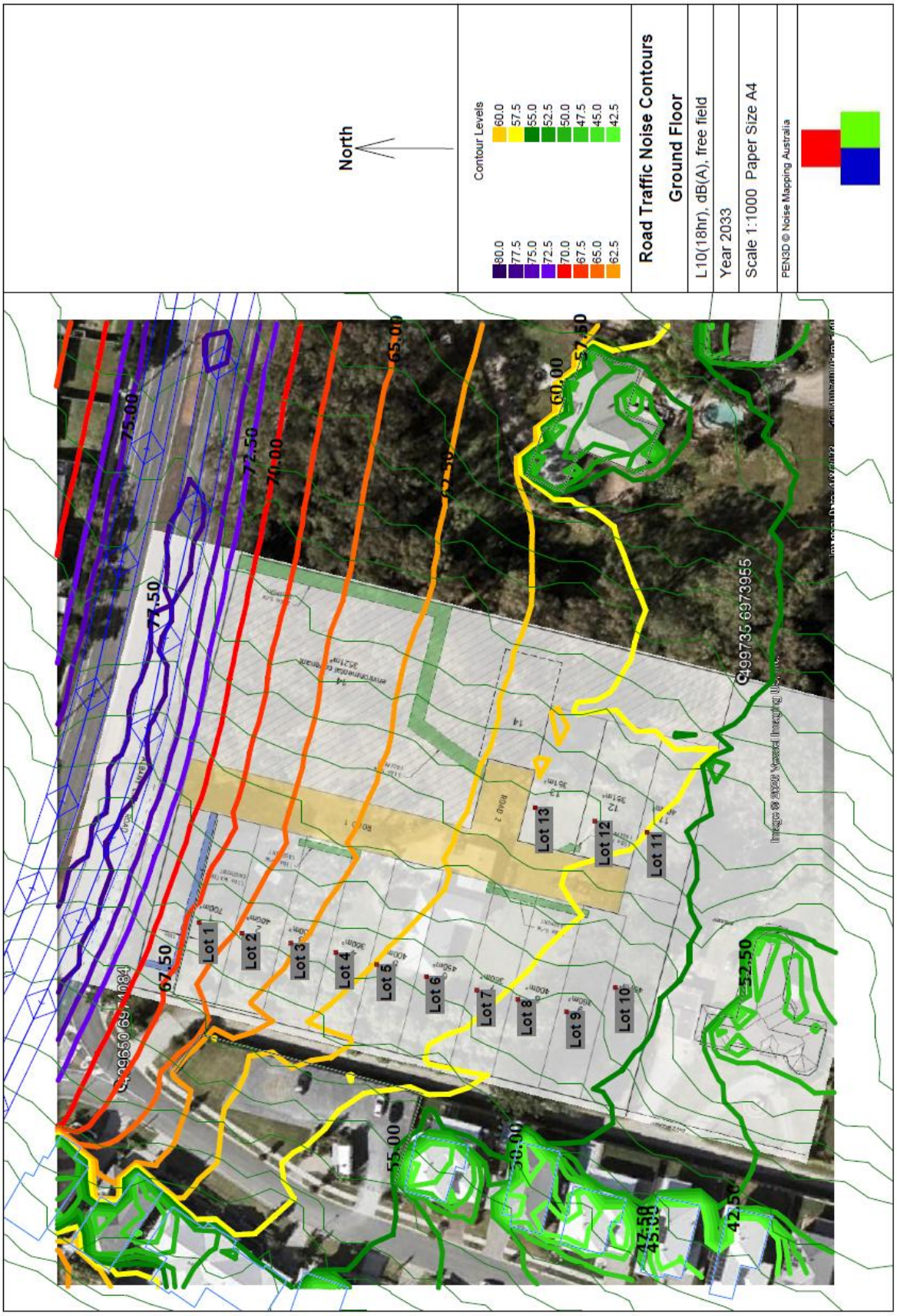


***Plate B4**: Road traffic noise contours year 2023 at 1.8 metres year 2033, with subdivision acoustic barrier. Levels are in $L_{10,18h}$, dB(A), façade adjusted.*

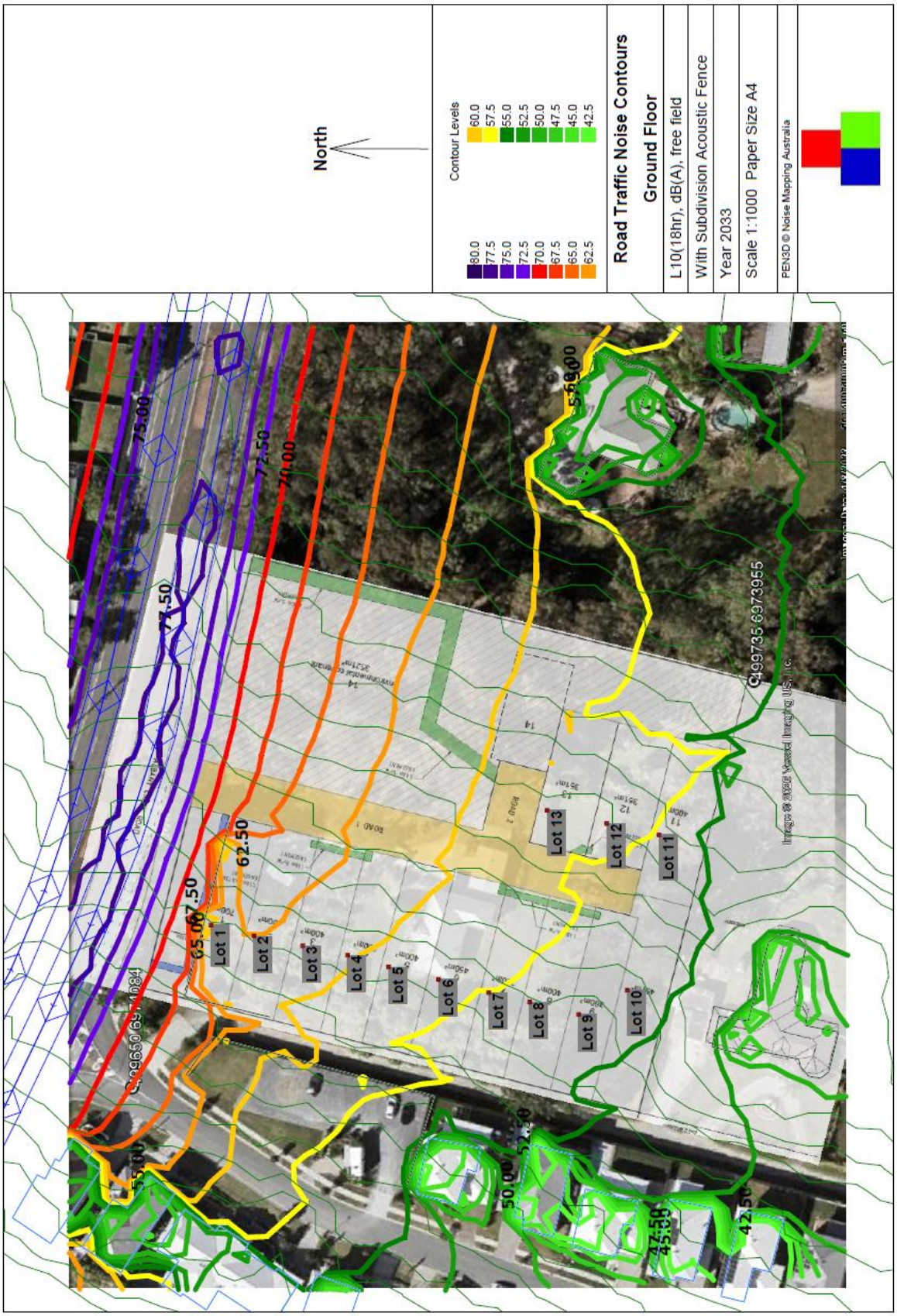


***Plate B5**: Road traffic noise contours year 2023 at 4.6 metres year 2033. Levels are in $L_{10,18h}$, dB(A), façade adjusted.*

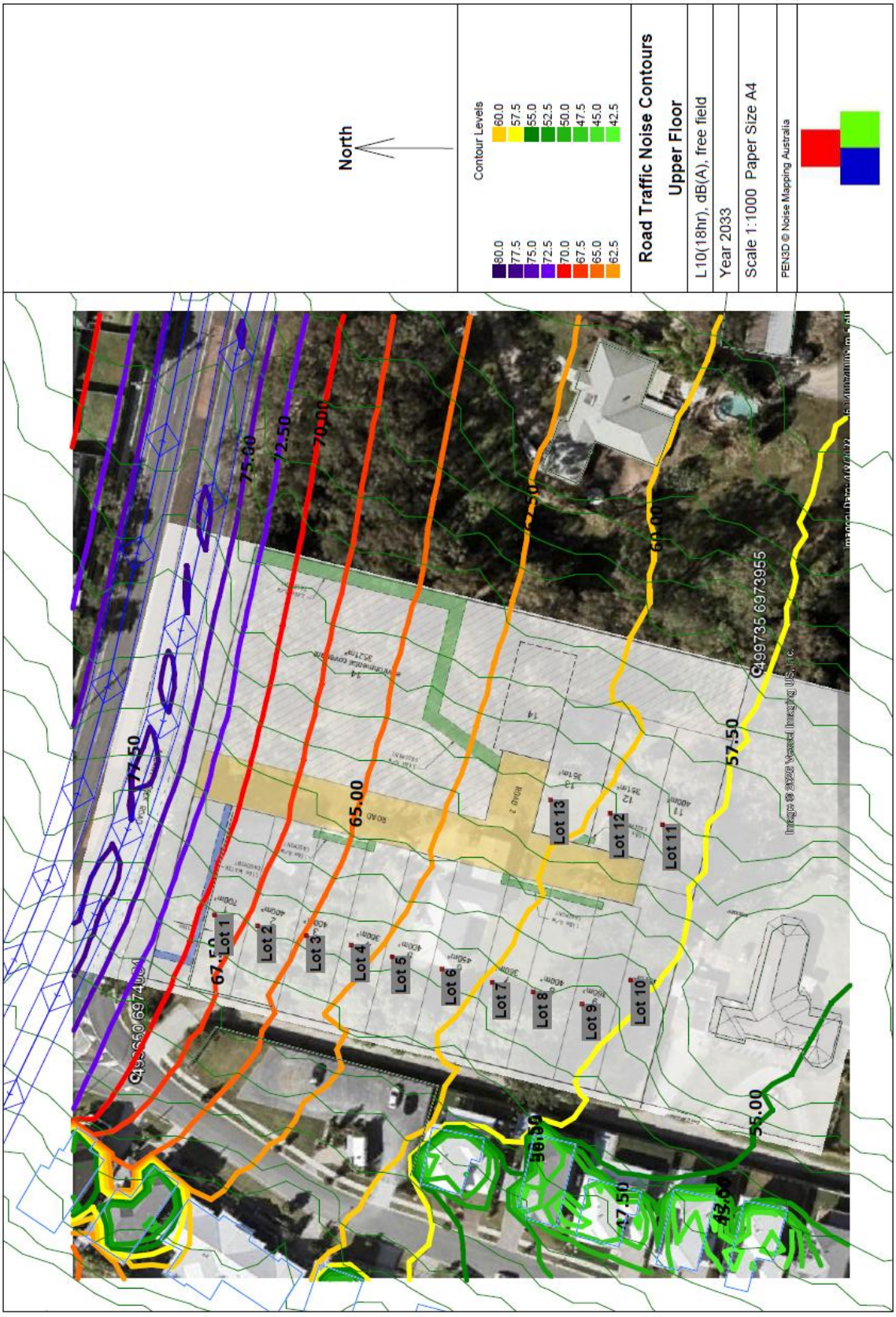


***Plate B6**: Road traffic noise contours year 2023 at 4.6 metres year 2033, with subdivision acoustic barrier. Levels are in $L_{10,18h}$, dB(A), façade adjusted.*

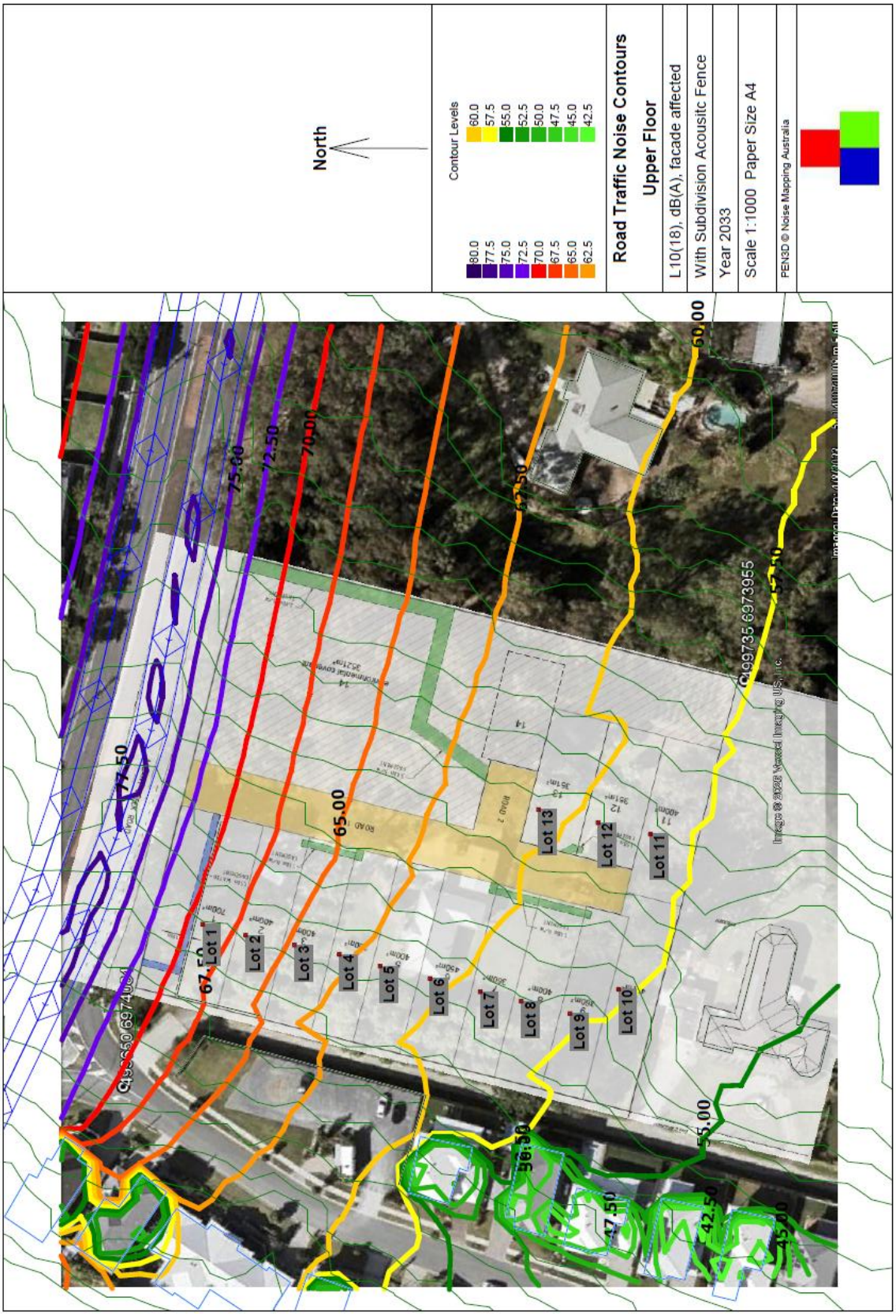


***Table B3**: Road traffic noise contours at 1.5m for private open space year 2033 without and with the subdivision acoustic fence. Levels are in $L_{10,18h}$, dB(A), free-field.*

POINT CALCULATIONS								
Pen3D2000 V 1.9.32								
Project Code:6776								
Project Description:								
File:Z:\Projects 6750 - 6799\6776 298 Albany Creek Road, Bridgeman Downs - subdivision\Model\6776-2 POS.PEN								
File Description:6776-2 POS Year 2033 Free Field								
Tuesday 12 May, 2026 at 16:53:50								
CoRTN Calculations								
ed. Segmentation angle: 10degrees. Road elevations apply.						Noise Limit		
	Receptor	X Posn	Y Posn	Height	L10(18hour)	L10(18hour)		
		(m)	(m)	(m)	(dB(A))	(dB(A))		
	Lot 1	499670.2	6974067.8	1.5	65	60	5	
	Lot 2	499668.2	6974059	1.5	63	60	3	
	Lot 3	499665.9	6974050.2	1.5	61	60	1	
	Lot 4	499663.6	6974041.2	1.5	59	60	-1	
	Lot 5	499661.7	6974032.2	1.5	58	60	-2	
	Lot 6	499659.1	6974022.4	1.5	57	60	-3	
	Lot 7	499656.6	6974012.1	1.5	57	60	-3	
	Lot 8	499654.6	6974004.3	1.5	56	60	-4	
	Lot 9	499652.3	6973995.4	1.5	55	60	-5	
	Lot 10	499649.9	6973983.5	1.5	55	60	-5	
	Lot 11	499718.1	6973966.2	1.5	58	60	-2	
	Lot 12	499721.2	6973978.9	1.5	59	60	-1	
	Lot 13	499724.1	6973990.5	1.5	60	60	0	
POINT CALCULATIONS								
Pen3D2000 V 1.9.32								
Project Code:6776								
Project Description:								
File:Z:\Projects 6750 - 6799\6776 298 Albany Creek Road, Bridgeman Downs - subdivision\Model\6776-2 POS With Barrier Y2033 Free Field.PEN								
File Description:6776-2 POS With Barrier Y2033 Free Field								
Tuesday 12 May, 2026 at 16:58:58								
CoRTN Calculations								
ed. Segmentation angle: 10degrees. Road elevations apply.						Noise Limit		
	Receptor	X Posn	Y Posn	Height	L10(18hour)	L10(18hour)		
		(m)	(m)	(m)	(dB(A))	(dB(A))		
	Lot 1	499670.2	6974067.8	1.5	60	60	0	
	Lot 2	499668.2	6974059	1.5	60	60	0	
	Lot 3	499665.9	6974050.2	1.5	59	60	-1	
	Lot 4	499663.6	6974041.2	1.5	58	60	-2	
	Lot 5	499661.7	6974032.2	1.5	58	60	-2	
	Lot 6	499659.1	6974022.4	1.5	57	60	-3	
	Lot 7	499656.6	6974012.1	1.5	56	60	-4	
	Lot 8	499654.6	6974004.3	1.5	56	60	-4	
	Lot 9	499652.3	6973995.4	1.5	55	60	-5	
	Lot 10	499649.9	6973983.5	1.5	54	60	-6	
	Lot 11	499718.1	6973966.2	1.5	57	60	-3	
	Lot 12	499721.2	6973978.9	1.5	59	60	-2	
	Lot 13	499724.1	6973990.5	1.5	60	60	0	

***Table B4**: Road traffic noise contours at 1.8m for ground floor level year 2033 without and with the subdivision acoustic fence. Levels are in $L_{10,18h}$, dB(A), free-field.*

POINT CALCULATIONS
Pen3D2000 V 1.9.32
Project Code:6776
Project Description:
File:Z:\Projects 6750 - 6799\6776 298 Albany Creek Road, Bridgeman Downs - subdivision\Model\6776-2 Ground Y2033 Free Field.PEN
File Description:6776-2 Ground Y2033 Free Field

Wednesday 13 May, 2026 at 08:42:00
CoRTN Calculations
ed. Segmentation angle: 10degrees. Road elevations apply.

Receptor	X Posn (m)	Y Posn (m)	Height (m)	Free Field L10(18hour) (dB(A))	çade Adjusted L10(18hour) (dB(A))
Lot 1	499683.8	6974067.7	1.8	66	69
Lot 2	499681.6	6974058.8	1.8	65	67
Lot 3	499679.5	6974048.6	1.8	63	65
Lot 4	499677.6	6974039.3	1.8	61	64
Lot 5	499675.2	6974030.8	1.8	60	62
Lot 6	499672.6	6974020.4	1.8	59	61
Lot 7	499669.9	6974009.9	1.8	58	60
Lot 8	499668	6974001.4	1.8	57	60
Lot 9	499665.4	6973991.3	1.8	56	59
Lot 10	499670.5	6973981.2	1.8	56	59
Lot 11	499702.8	6973974.6	1.8	58	60
Lot 12	499705.1	6973985.5	1.8	58	61
Lot 13	499707.9	6973997.9	1.8	60	62

POINT CALCULATIONS
Pen3D2000 V 1.9.32
Project Code:6776
Project Description:
File:Z:\Projects 6750 - 6799\6776 298 Albany Creek Road, Bridgeman Downs - subdivision\Model\6776-2 Ground With Barrier Y2033 Free Field.PE
File Description:6776-2 Ground With Barrier Free Field

Wednesday 13 May, 2026 at 08:33:30
CoRTN Calculations
ed. Segmentation angle: 10degrees. Road elevations apply.

Receptor	X Posn (m)	Y Posn (m)	Height (m)	Façade Adjusted L10(18hour) (dB(A))	L10(18hour) (dB(A))
Lot 1	499683.8	6974067.7	1.8	61	63
Lot 2	499681.6	6974058.8	1.8	63	65
Lot 3	499679.5	6974048.6	1.8	61	64
Lot 4	499677.6	6974039.3	1.8	60	63
Lot 5	499675.2	6974030.8	1.8	59	62
Lot 6	499672.6	6974020.4	1.8	58	61
Lot 7	499669.9	6974009.9	1.8	58	60
Lot 8	499668	6974001.4	1.8	57	60
Lot 9	499665.4	6973991.3	1.8	56	59
Lot 10	499670.5	6973981.2	1.8	56	59
Lot 11	499702.8	6973974.6	1.8	57	60
Lot 12	499705.1	6973985.5	1.8	58	61
Lot 13	499707.9	6973997.9	1.8	59	62

***Table B5**: Road traffic noise contours at 4.6m for upper floor level year 2033 without and with the subdivision acoustic fence. Levels are in $L_{10,18h}$, dB(A), free-field.*

POINT CALCULATIONS
Pen3D2000 V 1.9.32
Project Code:6776
Project Description:
File:Z:\Projects 6750 - 6799\6776 298 Albany Creek Road, Bridgeman Downs - subdivision\Model\6776-2 Upper Y2033 Free Field.PEN
File Description:6776-2 Upper Y2033 Free Field

Wednesday 13 May, 2026 at 08:47:38
CoRTN Calculations
ed. Segmentation angle: 10degrees. Road elevations apply.

Receptor	X Posn (m)	Y Posn (m)	Height (m)	Façade Adjusted L10(18hour) (dB(A))	Façade Adjusted L10(18hour) (dB(A))
Lot 1	499683.8	6974067.7	4.6	69	71
Lot 2	499681.6	6974058.8	4.6	67	69
Lot 3	499679.5	6974048.6	4.6	65	67
Lot 4	499677.6	6974039.3	4.6	63	66
Lot 5	499675.2	6974030.8	4.6	62	65
Lot 6	499672.6	6974020.4	4.6	61	63
Lot 7	499669.9	6974009.9	4.6	60	62
Lot 8	499668	6974001.4	4.6	59	62
Lot 9	499665.4	6973991.3	4.6	58	61
Lot 10	499670.5	6973981.2	4.6	58	61
Lot 11	499702.8	6973974.6	4.6	59	61
Lot 12	499705.1	6973985.5	4.6	60	62
Lot 13	499707.9	6973997.9	4.6	61	63

POINT CALCULATIONS
Pen3D2000 V 1.9.32
Project Code:6776
Project Description:
File:Z:\Projects 6750 - 6799\6776 298 Albany Creek Road, Bridgeman Downs - subdivision\Model\6776-2 Upper With Barrier Y2033 Free Field.PEN
File Description:6776-2 Upper With Barrier Y2033 Free Field

Wednesday 13 May, 2026 at 08:39:09
CoRTN Calculations
ed. Segmentation angle: 10degrees. Road elevations apply.

Receptor	X Posn (m)	Y Posn (m)	Height (m)	Façade Adjusted L10(18hour) (dB(A))	Façade Adjusted L10(18hour) (dB(A))
Lot 1	499683.8	6974067.7	4.6	69	71
Lot 2	499681.6	6974058.8	4.6	67	69
Lot 3	499679.5	6974048.6	4.6	65	67
Lot 4	499677.6	6974039.3	4.6	63	66
Lot 5	499675.2	6974030.8	4.6	62	64
Lot 6	499672.6	6974020.4	4.6	60	63
Lot 7	499669.9	6974009.9	4.6	60	62
Lot 8	499668	6974001.4	4.6	59	61
Lot 9	499665.4	6973991.3	4.6	58	61
Lot 10	499670.5	6973981.2	4.6	58	60
Lot 11	499702.8	6973974.6	4.6	59	61
Lot 12	499705.1	6973985.5	4.6	60	62
Lot 13	499707.9	6973997.9	4.6	61	63

Appendix C: Building Construction – QDC MP4.4

This Annex is based on the building construction guidelines of 'Queensland Development Code Mandatory Part 4.4 – Buildings in Transport Noise Corridors'. The Code provides information for new houses, townhouses, units, hotel and motels (Class 1-4 buildings) to achieve certain levels of noise mitigation through the use of appropriate materials for floors, walls, roofs, windows and doors for the relevant noise category presented in **Section 4** of this Report.

Under the QDC MP4.4 criteria, the site is considered to be in the following Categories based on the measured or calculated $L_{10,\ 18hr}$ or $L_{Amax,\ 24hr}$ value or distance from the road/rail, depending on the property definition given by QDC. The relationships are set out in **Table C1**:

Table C1: Noise Categories, related to noise levels

Noise Category	Level of Transport Noise $L_{A10,18hr}$ for State Controlled Roads	Level of Transport Noise $L_{A10,18hr}$ for Designated Local Government Roads	Single event maximum noise L_{Amax} for railway
Category 4	≥ 73 dB(A)	≥ 73 dB(A)	≥ 85 dB(A)
Category 3	68 - 72 dB(A)	68 - 72 dB(A)	80 - 84 dB(A)
Category 2	63 - 67 dB(A)	63 - 67 dB(A)	75 - 79 dB(A)
Category 1	58 - 62 dB(A)	58 - 62 dB(A)	70 - 74 dB(A)
Category 0	≤ 57 dB(A)	≤ 57 dB(A)	≤ 69 dB(A)

Note* the sound levels are measured at 1 metre from the façade.

Table C2: Performance requirements of the QDC MP4.4

Performance Requirements	**Acceptable Solutions**
Residential Buildings	
P1 *Habitable rooms* in a *relevant residential building* are adequately protected from *transport noise* to safeguard occupants' health and amenity.	**A1** The *external envelope* of each habitable room in a *relevant residential building* must comply with the minimum R_w for each building component specified in Schedule 1 to achieve a minimum *transport noise reduction* level for the relevant *noise category* by: b) Using materials specified in Schedule 2; **OR** c) Using materials with *manufacturer's specifications* that, in combination, achieve the minimum R_w value for the relevant building component and acceptable *noise category*.

SCHEDULE 1

Noise category	Minimum transport noise reduction (dB(A)) required for habitable rooms	Component of building's external envelope	Minimum R_w required for each component
Category 4	40	Glazing	43
		External walls	52
		Roof	45
		Floors	51
		Entry doors	35
Category 3	35	Glazing	38 (where total area of glazing for a habitable room is greater than 1.8m^2)
			35 (where total area of glazing for a habitable room is less than or equal to 1.8m^2)
		External walls	47
		Roof	41
		Floors	45
		Entry doors	33
Category 2	30	Glazing	35 (where total area of glazing for a habitable room is greater than 1.8m^2)
			32 (where total area of glazing for a habitable room is less than or equal to 1.8m^2)
		External walls	41
		Roof	38
		Floors	45
		Entry doors	33
Category 1	25	Glazing	27 (where total area of glazing for a habitable room is greater than 1.8m^2)
			24 (where total area of glazing for a habitable room is less than or equal to 1.8m^2)
		External walls	35
		Roof	35
		Entry doors	28
Category 0	No additional acoustic treatment required – standard building assessment provisions apply		

SCHEDULE 2

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
Glazing	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter *acoustically rated seals*.
	38	Minimum 14.38mm thick laminated glass, with full perimeter *acoustically rated seals;* **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 *acoustically rated seals*.
	35	Minimum 10.38mm thick laminated glass, with full perimeter *acoustically rated seals*.
	32	Minimum 6.38mm thick laminated glass with full perimeter *acoustically rated seals.*
	27	Minimum 4mm thick glass with full perimeter *acoustically rated seals*.
	24	Minimum 4mm thick glass with standard weather seals

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
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 least 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 11kg/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.

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
External walls	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves **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 11kg/m^3 positioned between studs; and (ii) 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 the 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.

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
Roof	45	Concrete or terracotta tile or sheet metal roof with sarking, *acoustically rated plasterboard* ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m^3 in the cavity **OR** Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of *acoustically rated plasterboard* at least 16mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m^3 or polyester insulation at least 50mm thick with a density of at least 20kg/m^3 in the cavity.
	41	Concrete or terracotta tile or sheet metal 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/m^3 or polyester insulation at least 50mm thick with a density of at least 20kg/m^3 in the cavity **OR** Concrete suspended slab at least 100mm thick.
	38	Concrete or terracotta tile or sheet metal 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 11kg/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 constructions
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 *acoustically rated seals.*

Appendix D: Glossary

Event maximum sound pressure level (LA%,adj,T), L01

The L01 level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15 minute interval. L01 is an appropriate level to characterise single events, such as from train bypass.

In this Report, the measured L01 levels for day/evening/night are not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is found at the 90th percentile (L10 of L01 sample) in the interval is recorded as its "L01" level.

Average maximum sound pressure level (LA%,adj, T), L10

The "L10" level is an indicator of "steady-state" noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The L10 level is calculated as the noise level equalled and exceeded for 10% the measurement time, for example 90 seconds in any 15 minute interval. The measured L10 time-intervals for day/evening/night are arithmetically averaged to present the "average maximum" levels of the environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

Background sound pressure level (LA90,T), L90

Commonly called the "L90" or "background" level and is an indicator of the quietest times of day, evening or night. The L90 level is calculated as the noise level equalled and exceeded for 90% the measurement time. The measured L90 time-intervals are arithmetically averaged to present the "average background" levels of the environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The level is not adjusted for tonality or impulsiveness.

Equivalent Continuous or time average sound pressure level (LAeq,T), Leq

Commonly called the "Leq" level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The level can be adjusted for tonality.

Façade-adjusted level

A sound level that is measured at a distance of 1.0 metre from a wall or facade. The level is nominally 2.5 dB higher than the free-field level.

Free-field level

A sound level that is measured at a distance of more than 3.5 metres from a wall or facade.

Weighted Sound Reduction Index, Rw

A single number value used to compare the sound reduction index of building elements. Similar to the Sound Transmission Class (STC) rating that is still in common use. Rw and STC are not identical though may be considered, for most applications, as being interchangeable. A high Rw indicates high sound reduction.