

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2025-FLA-4182

Date: 17 April 2026



NOISE IMPACT ASSESMENT: EVERLEIGH SHOPPING CENTRE

Project ID: 17415

5/12/2025

Release: R1

Prepared For:

Lancini Property Group

Assured Environmental



DOCUMENT CONTROL PAGE

Project Title: NOISE IMPACT ASSESMENT: EVERLEIGH SHOPPING CENTRE

Project Reference ID: 17415

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Table 1: History of Revisions

Revision	Date	Issued to	Changes
RO	21/11/2025	T. Lancini	Initial Release
RI	5/12/2025	T. Lancini	Update layout and associated changes

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GLOSSARY

A-Weighting	A response provided by an electronic circuit which modifies sound in such a way that the resulting level is similar, to that perceived by the human ear.
ABL	Assessment Background Level is derived from the measured noise levels and calculated to be the tenth percentile of the background L_{A90} noise levels (i.e. sort the recorded hourly L_{A90} into ascending order and select the lowest ten percentile level). The ABL is a single-figure background level representing each assessment period (day / evening / night), i.e. three ABLs for each 24-hour period of monitoring.
Background Creep	A gradual increase in the total amount of background noise in the area or place measured.
Background Noise	Noise level at a given location and time measured in the absence of any alleged noise nuisance sources. Typically, represented by the L_{A90} noise statistic.
Calibrator	An instrument used to carry out 'field calibrations' before and after monitoring to ensure the sound level meter does not drift.
dB (decibel)	This is the scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and the reference pressure (0.00002 N/m ²).
dB(A) or dBA	This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e., 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Fast Time Weighting	Sound level meters apply a time-smoothing function to the measured sound. Fast time weighting has an exponential smoothing time constant of 125 milliseconds.
Free field	Refers to a sound pressure level determined at a point away from reflective surfaces other than the ground with no significant contribution due to sound from other reflective surfaces; generally, as measured outside and away from buildings.
L_{Aeq}	This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over the given period. Noise levels often fluctuate over a wide range with time. Therefore, when a noise varies over time, the L_{Aeq} is the equivalent continuous sound which would contain the same sound energy as the time varying sound. Many studies show that human reaction to level-varying sounds tends to relate closer to the L_{Aeq} noise level than any other descriptor.
L_{A10} , L_{A90} , L_{An}	Noise level exceeded for n% of the measurement period with A-weighted, calculated by statistical analysis - where n is between 0.01% and 99.99%. For example, L_{A10} is the noise level just exceeded for 10% of the measurement period, calculated by statistical analysis and used to determine traffic noise and L_{A90} is the noise level exceeded for 90% of the measurement period, A-weighted and calculated by statistical analysis and used to determine background noise levels.
L_{AFmax}	A-weighted, fast response, maximum, sound level.
L_{AFmin}	A-weighted, fast response, minimum, sound level.
RBL	Rating background noise level is the overall single-figure background level representing each assessment period (day / evening / night) over the whole monitoring period, i.e., three RBLs for the whole monitoring period.
SPL	Sound pressure level is a measure of the loudness of sound, determined by the pressure of sound waves in the air, measured in decibels (dB).
SWL	Sound power level in decibels is ten times the logarithm of the ratio of the sound power to the sound power reference level of 1 picowatt.



ABBREVIATIONS

AGL	Above Ground Level
BOM	Bureau of Meteorology
DEM	Digital Elevation Model
EDQ	Economic Development Queensland
F&B	Food and Beverage restaurant
GFA	Gross Floor Area
HD	Heavy Duty
hr	Hour
km	Kilometres
LGA	Local Government Area
m	Metres
MEDQ	Minister for Economic Development Queensland
NML	Noise Monitoring Location
NSW	New South Wales
PDA	Priority Development Area
QLD	Queensland
RTA	Roads and Traffic Authority
SRTM	Shuttle Radar Topography Mission
SWL	Sound Power Level
WHO	World Health Organisation



1 INTRODUCTION

1.1 Background

Lancini Property Group (herein referred to as 'the Client') are seeking development consent to construct, operate and maintain a mixed-use shopping centre precinct on Lot 812 Teviot Road, Greenbank, Queensland (QLD) (herein referred to as the 'Subject Site').

The application includes a Priority Development Area (PDA) Preliminary Approval for a Material Change of Use for multiple uses in accordance with the applicable design guidelines and Reconfiguring a Lot (for one lot into three lots at Teviot Road, Greenbank described as Lot 9003 on SP330384). The three lots subdivided from Lot 9003 are:

- Lot 812 (Neighbourhood hub) (relevant to this assessment);
- Lot 813 (Future Medical Hub); and
- Lot 9003 (Balance).

On 17 June 2024, pursuant to s.85(4)(b) of the QLD Economic Development Act, 2012, the Minister for Economic Development QLD (MEDQ) decided to grant all of the Preliminary Development Approval development application applied for, in accordance with the Preliminary Development Approval decision notice.

1.2 Scope of Assessment

Assured Environmental (AE) was appointed by the Client to undertake a Noise Impact Assessment for the proposed shopping centre precinct at the Subject Site.

This noise study has been undertaken to assess the potential impacts of operational noise at the Subject Site, on nearby sensitive receptors in accordance with the following QLD policies and guidelines:

- Economic Development Act, 2012;
- Economic Development QLD (EDQ) Greater Flagstone Development Scheme, 2025;
- Environmental Protection Act, 1994 (EP Act); and
- Environmental Protection (Noise) Policy, 2019 (EPP (Noise)).

In accordance with the requirements of the above guidelines, computational modelling and first-principle calculations have been undertaken to support the assessment of the potential for adverse amenity impacts as a result of the proposed development at the Subject Site.

1.3 This Report

This report summarises the methodology, results and conclusions of the Noise Impact Assessment.



2 PROJECT DESCRIPTION

2.1 Overview

The proposed development comprises:

- One main supermarket building (4,010 m² gross floor area (GFA)) and adjoining tenancies including liquor, food and beverage and specialty uses (488 m² GFA);
- One mixed-use 10-tenancy building (1,597 m² GFA);
- One food and beverage (F&B) building (fast food) including drive-thru (395 m² GFA);
- One carwash facility including manual and automatic wash bays, dog wash and vacuum bays (1,306 m² site area);
- One 'Town Square' open space allocation (1,568 m² site area); and
- Associated car parking (total 303 bays), amenities, refuse and services.

A plan detailing the layout of the Subject Site is shown in Figure 1 (DA-200 Ground Floor Plan prepared by Bayer Stevens on 3 December 2025, reference 25111 Issue D). The layout shows the arrangement of buildings, parking and access, within the site bordered by Teviot Road (west) and Anderson Drive (south).

2.2 Operational Hours

It is expected that the supermarket and tenancies will operate between 6 am and 10 pm, and the F&B and carwash will operate 24 hours a day, seven days a week (24/7). Mechanical plant will operate 24/7.

2.3 Traffic Generation

Vehicle trips have been derived from the rates in the New South Wales (NSW) Roads and Traffic Authority (RTA) Guide to traffic generating developments, 2002 (Traffic Guide) which determines the following:

- Shopping centres less than 10 000 m² – 14 trips per 100 m² GFA peak hour (average of Thursday, Friday and Saturday);
- Fast food – 55 trips per 100 m² GFA peak hour; and
- Carwash – not specified in Traffic Guide, however service station (without convenience store) rates have been used as an alternative – 0.04 per 1 m² area of site.

2.4 Equipment

The proposed operational information, relevant to the noise assessment has been summarised in Table 2.



Table 2: Proposed Operational Information

Development Component	Equipment / Activity	Proposed Operation
Supermarket	Operating hours	6:00 am to 10:00 pm
	Deliveries	Up to 4 x deliveries per hour
	Waste collection	1 x waste collection per day (assume up to 1 x waste collection for entire Subject Site per hour) Enter from West, exit from East
	Trolley collection	1 x truck collecting throughout the day within operating hours only; 20 minutes to complete trolley collection
	Mechanical plant (on roof)	10 x adiabatic gas coolers 4 x air cooled chillers 1 x comms room condensing unit 1 x hot water pump skid 3 x hot water boiler 3 x kitchen exhaust fan
	Vehicles	(From RTA Traffic Guide) 14 trips per 100m ² ≈ 560 trips per hour, then reduced 15 % for dual purpose trips, i.e., ≈ 420 trips per hour 4 x 6 cars at click and collect bay per hour
Tenancies	Operating hours	6:00 am to 10:00 pm
	Deliveries	Contained within supermarket area
	Waste collection	Contained within supermarket area
	Mechanical plant (on roof)	16 x air condenser unit (spread across tenancies) 5 x kitchen exhaust 5 x refrigeration unit
	Vehicles	14 trips per 100m ² then halved to account for dual purpose trips ≈ 145 trips per hour
F&B	Operating hours	24 hours
	Deliveries	Up to 1 x delivery per hour
	Waste collection	Assume waste or delivery does not occur within same hour
	Mechanical Plant (on roof)	1 x refrigeration unit 2 x air condenser unit 2 x kitchen exhaust fan
	Vehicles	55 trips per 100m ² ≈ 215 trips per hour, then reduced 15 % for dual purpose trips, i.e., ≈ 185 trips per hour
	Other	2 x drive- thru order points 2 x drive-thru collection points
Carwash	Operating hours	24 hours
	Deliveries	Up to one per week – minimal and not accessible
	Waste collection	1 x waste collection per day (assume up to 1 x waste collection for entire Subject Site per hour) Enter from West, exit from East
	Mechanical Plant	2 x automatic wash bay machines 3 x manual wash bay machines



Development Component	Equipment / Activity	Proposed Operation
		3 x dog wash machines
		5 x vacuum machines
		1 x enclosed plant room
	Vehicles	0.04 per area ≈ 52 trips per hour
Home Delivery (HD) van parking	Operating hours	6:00 am to 10:00 pm
	Parking activities	Parking for supermarket home delivery vehicles – assume up to 5 x movements occur per hour

2.5 Noise Mitigation

Existing noise mitigation measures at the Subject Site include screening around rooftop plant items, existing property fences and structures (walls and buildings that will provide significant shielding and attenuation) for the proposed development. Details are discussed in Section 5.5.

DA-200

GROUND FLOOR PLAN

Name	Department	Area
AMENITIES	COMMERCIAL - BUSINESS	75 m²
CARWASH	RETAIL - FAST FOOD	48 m²
DRIVE THROUGH	RETAIL - FAST FOOD	406 m²
BOT	RETAIL	46 m²
K	RETAIL	22 m²
LIQUOR	RETAIL	156 m²
SUPERMARKET	RETAIL	3663 m²
SUPERMARKET OFFICES	COMMERCIAL - BUSINESS	128 m²
SUPERMARKET ONLINE	COMMERCIAL - BUSINESS	340 m²
T01	RETAIL	64 m²
T02	RETAIL	44 m²
T03	COMMERCIAL - BUSINESS	67 m²
T04	COMMERCIAL - BUSINESS	66 m²
T05	COMMERCIAL - BUSINESS	69 m²
T06	COMMERCIAL - HEALTH SERVICES	167 m²
T07	COMMERCIAL - HEALTH SERVICES	68 m²
T08	COMMERCIAL - HEALTH SERVICES	61 m²
T09	COMMERCIAL - BUSINESS	68 m²
T10	COMMERCIAL - BUSINESS	68 m²
T11	RETAIL	286 m²
T12	INDOOR SPORT & RECREATION	813 m²
T13	RETAIL	180 m²
T14	RETAIL	115 m²
T15	INDOOR SPORT & RECREATION	118 m²
TOTAL: 6755 m²		

Name	Department	Area
CARWASH	COMMERCIAL - BUSINESS	42 m²
DRIVE THROUGH	RETAIL - FAST FOOD	381 m²
K	RETAIL	22 m²
LIQUOR	RETAIL	148 m²
SUPERMARKET	RETAIL	3623 m²
SUPERMARKET OFFICES	COMMERCIAL - BUSINESS	122 m²
SUPERMARKET ONLINE	COMMERCIAL - BUSINESS	339 m²
T01	RETAIL	68 m²
T02	RETAIL	38 m²
T03	COMMERCIAL - BUSINESS	64 m²
T04	COMMERCIAL - BUSINESS	64 m²
T05	COMMERCIAL - BUSINESS	66 m²
T06	COMMERCIAL - HEALTH SERVICES	149 m²
T07	COMMERCIAL - HEALTH SERVICES	67 m²
T08	COMMERCIAL - HEALTH SERVICES	67 m²
T09	COMMERCIAL - BUSINESS	66 m²
T10	COMMERCIAL - BUSINESS	66 m²
T11	RETAIL	277 m²
T12	INDOOR SPORT & RECREATION	802 m²
T13	RETAIL	183 m²
T14	RETAIL	113 m²
T15	RETAIL	112 m²
TOTAL: 6483 m²		

BY DISPOSITION	BY SECT	BY TIER	BY
BY SECT	355	361	1
STANDING BY	270	361	20
TOTAL CARPARK HOURS: 51			

CARPARK RATE FOR 6755m²: 4.6 BAYS PER 100m² GFA

RETAIL
COMMERCIAL - BUSINESS
COMMERCIAL - HEALTH SERVICES
FAST FOOD
INDOOR SPORT & RECREATION

NOTES:
 1. LANDSCAPING SHOWN INDICATIVELY ONLY. REFER RELEVANT CONSULTANT REPORTS.
 2. ALL REFERENCES TO SIGNAGE ARE SUBJECT TO A SEPARATE SIGNAGE APPLICATION AND APPROVAL BY LOCAL AUTHORITY.
 3. ALL MATERIALS/FINISHES SHOWN INDICATIVELY ONLY. SUBJECT TO TENDANT STANDARDS.
 ALL DRAWINGS ARE FOR THE PURPOSES OF DEVELOPMENT APPLICATION ONLY AND NO OTHER PURPOSES. NOT FOR CONSTRUCTION PURPOSES.

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 Date of Issue | 3/12/2025
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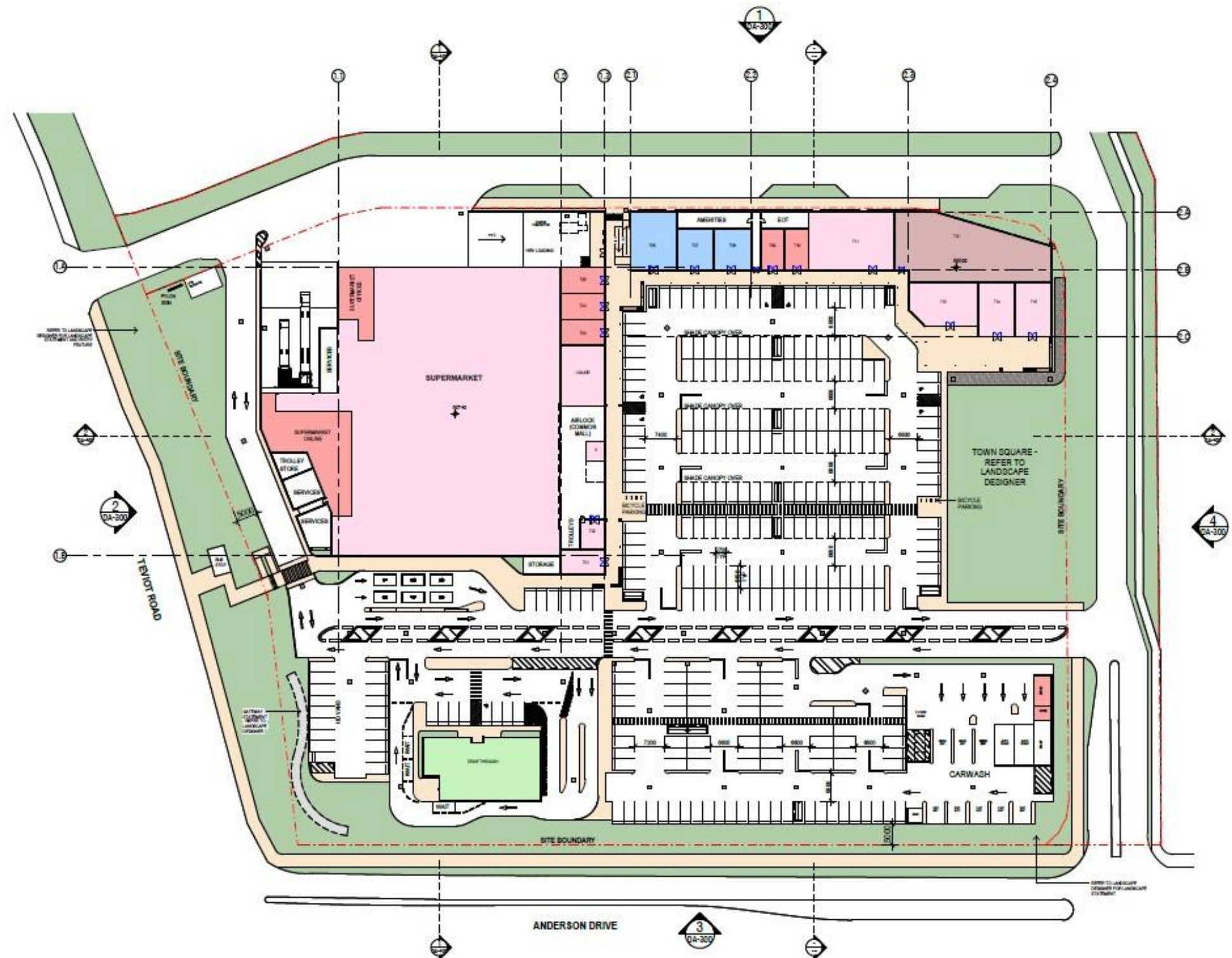


Figure 1: Layout of the Proposed Development at the Subject Site



3 DESCRIPTION OF ENVIRONMENTAL VALUE

3.1 Location and Surrounding Land Use

The address of the Subject Site is Lot 812 Teviot Road, Greenbank. The Subject Site is located approximately 15 km south-west of Logan Central and falls within the LCC Local Government Area (LGA).

The Subject Site is zoned Priority Development Area – Greater Flagstone and is situated fronting an urban arterial road (being Teviot Road, to the west). It is mostly surrounded by existing and future residential uses. A health precinct is proposed adjacent the north of the Subject Site on Lot 813.

The location of the Subject Site and surrounding land uses is shown in Figure 2.

3.2 Topography

The local topography, as obtained from Geoscience Australia One-second SRTM Digital Elevation Model (DEM data), is illustrated in Figure 3. It can be seen in Figure 3 that the topography of the general area is undulating with the Subject Site at higher elevation than the surrounding area.

3.3 Sensitive Receptors

As detailed in Section 3.1, there are proposed residential receptors and potential health receptors located in the vicinity of the Subject Site. For the purposes of assessment, indicative locations and heights (1.5 m, representative of single-storey building) will be used to represent these future receptors. Existing sensitive uses have been determined based on the land zoning, a site visit and aerial imaging.

The nearest sensitive receptors are shown in Figure 2. Table 3 provides a summary of the nearby sensitive receptors and approximate distance to the Subject Site.

Table 3: Nearby Sensitive Receptors

Receptor ID	Description	Coordinates (EPSG 7856)		Assessable Height (m) ^{b)}
		Easting	Northing	
R01	Indicative Future Health Precinct	498553	6932438	1.5
R02	Indicative Future Health Precinct	498602	6932438	1.5
R03	Indicative Future Health Precinct	498650	6932432	1.5
R04	Indicative Future Health Precinct	498701	6932423	1.5
R05	Indicative Future Health Precinct	498749	6932415	1.5
R06	Indicative Future Residential	498777	6932382	1.5
R07	Indicative Future Residential	498772	6932350	1.5
R08	Indicative Future Residential	498770	6932331	1.5
R09	Indicative Future Residential	498765	6932300	1.5
R10	Indicative Future Residential	498759	6932257	1.5
R11	Existing Residential	498631	6932201	1.5
R12	Existing Residential	498615	6932199	1.5
R13	Existing Residential	498599	6932202	1.5
R14	Existing Residential	498582	6932202	1.5



Receptor ID	Description	Coordinates (EPSG 7856)		Assessable Height (m) ^{b)}
		Easting	Northing	
R15	Existing Residential	498552	6932204	1.5
R16	Existing Residential	498408	6932328	1.5
R17	Existing Residential	498394	6932417	1.5
R18	Indicative Future Residential	498440	6932460	1.5

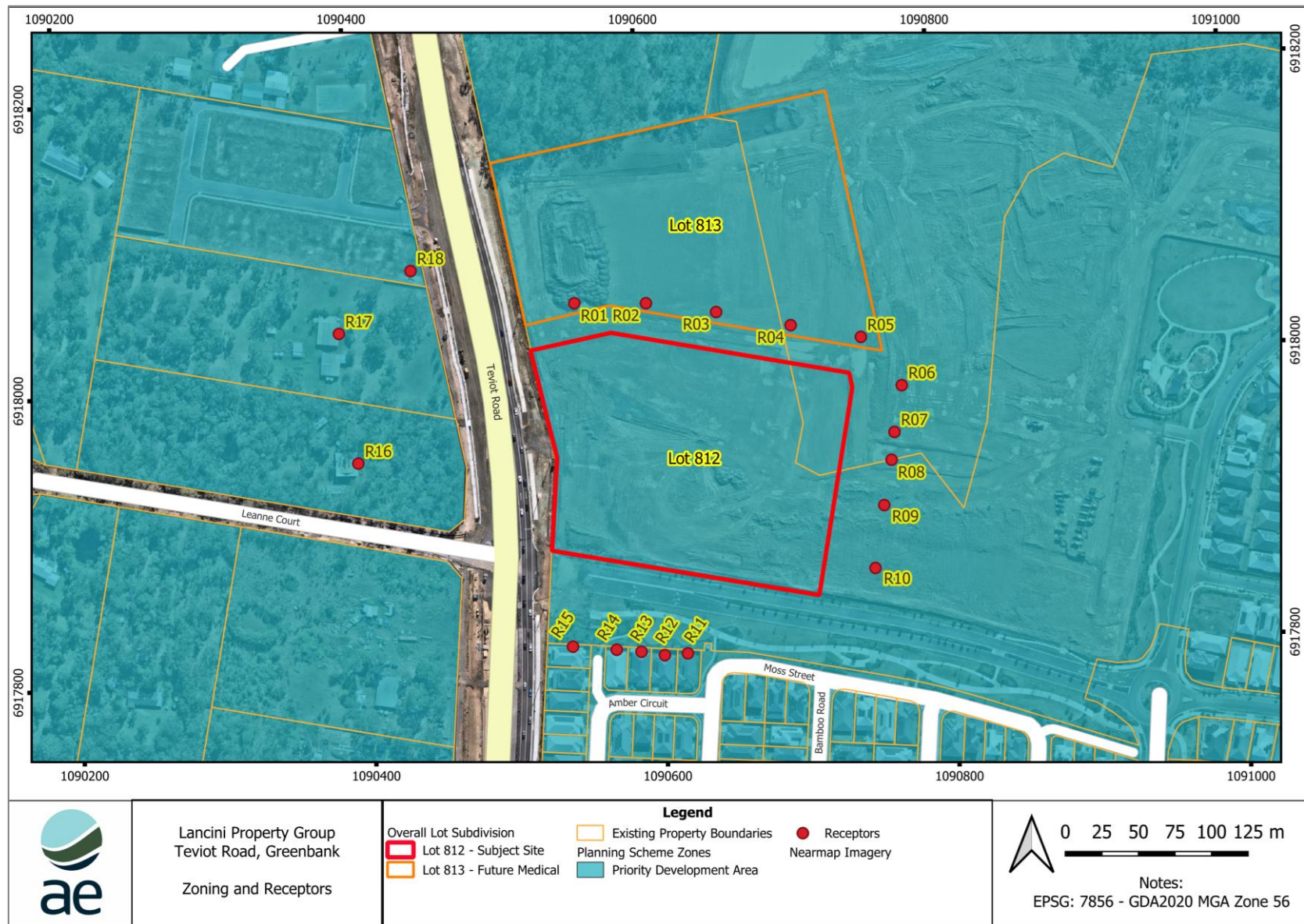


Figure 2: Surrounding Land Use & Sensitive Receptors

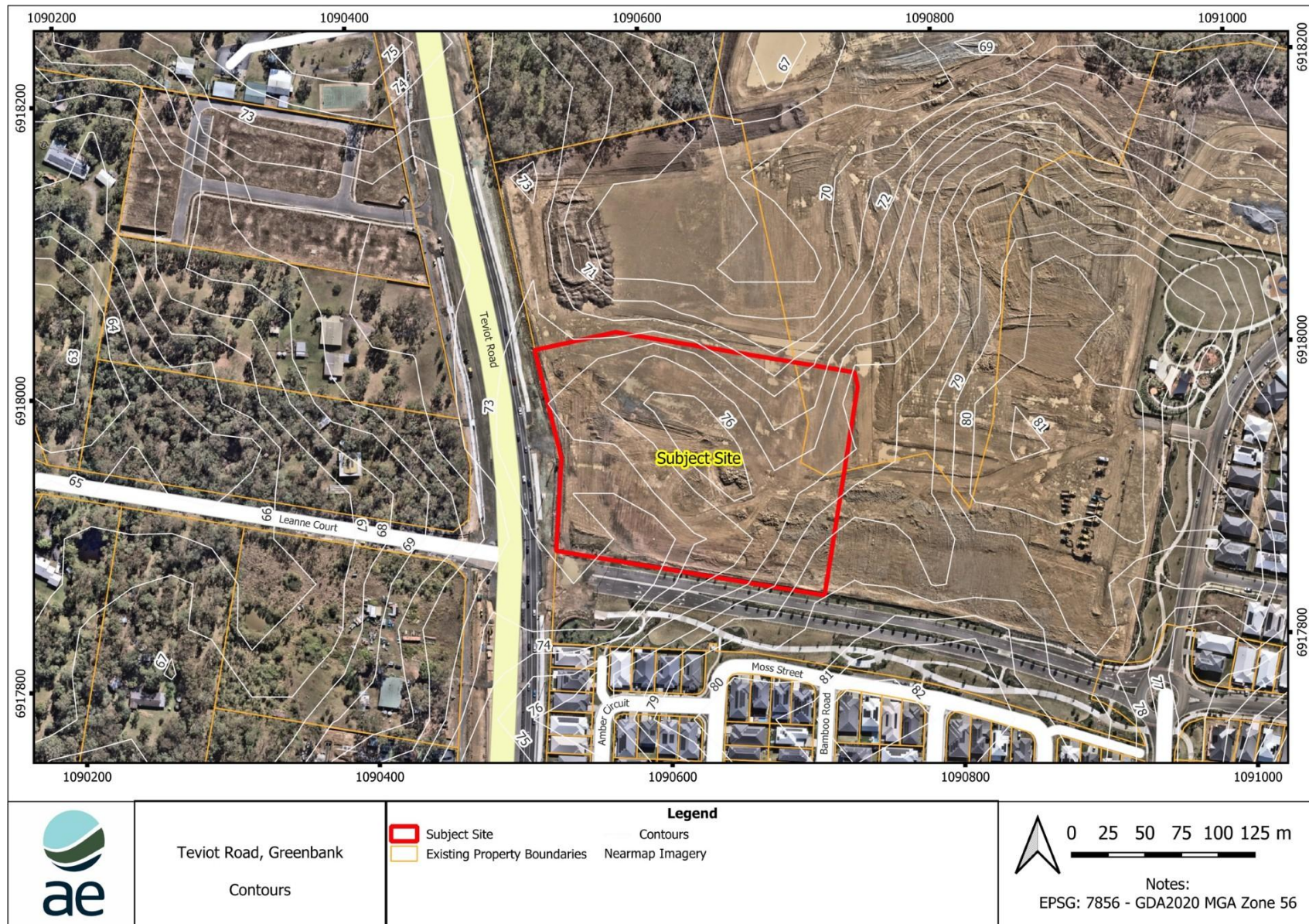


Figure 3: Topography

3.4 Existing Noise Environment

To quantify the existing noise environment, background noise monitoring was undertaken at one location (117 Teal Circuit, Greenbank) from 27 August 2025 to 5 September 2025. As long-term construction activities (related to the housing estate, Everleigh where the proposed development is to be located) are being carried out in the vicinity of the Subject Site, the noise monitoring location was located further to the south, in a residential area representative of the residential (and future residential) receptors to the Subject Site.

The noise monitoring information is presented in Appendix A with the noise monitoring location presented in Figure 4.

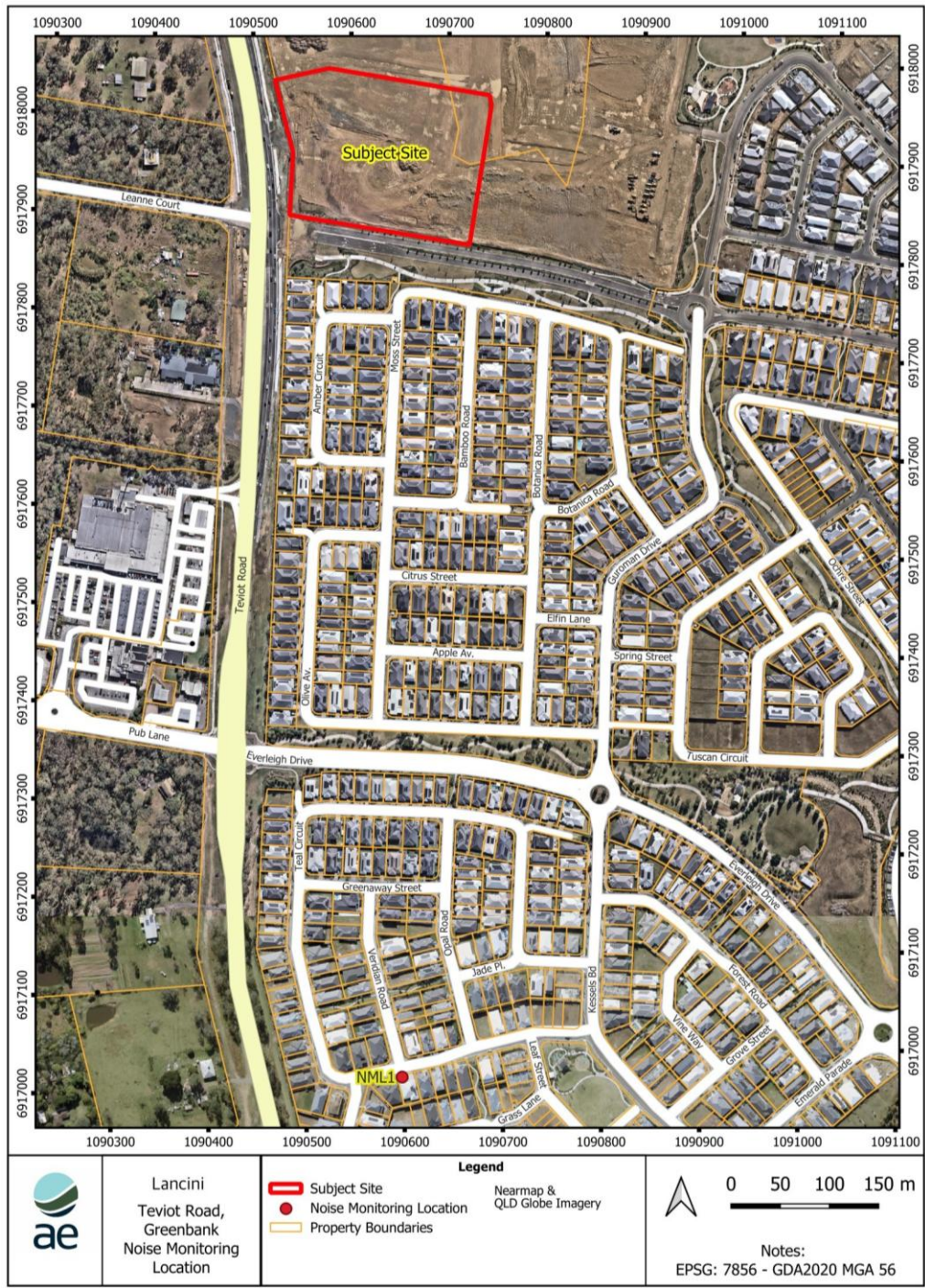


Figure 4: Noise Measurement Location



Noise measurements were undertaken in accordance with the requirements of Australian Standard AS 1055-2018 'Acoustics – Description and measurement of environmental noise'. The instrument was situated in a free-field position, and a data logging time of 15-minutes was adopted for the monitoring. The microphone was positioned at a height of 1.5 m above ground level and fitted with a windshield throughout the measurements. The serial number and calibration information for the instrument, and daily measurement and time history data are also presented in Appendix A.

Noise monitoring has the potential to be influenced by rainfall and wind speeds exceeding 5 m/s. A review of meteorological data from the nearby Bureau of Meteorology (BOM) weather station (ID 140009) indicates that there were no instances of rainfall or extraneous wind affecting measurements. This is collaborated with the calm conditions noted whilst on-site setting up and retrieving the noise logger.

Review of the 1/3 octave noise levels identified that some data were affected by extraneous noise sources such as insects and the monitoring data has consequently been adjusted to remove this influence.

A summary of the noise levels for each period across various statistical noise parameters are presented in Table 4. Detailed noise monitoring analysis is presented in Appendix A.

Table 4: Summary of Noise Monitoring Results

Period	Noise Metric (dB(A))					
	L _{Amax}	L _{AI}	L _{A10}	L _{A90} ^{a)}	L _{Aeq}	RBL ^{a) b)}
Day (7 am to 6 pm)	123	63	52	43	63	40
Evening (6 pm to 10 pm)	122	59	49	40	65	38
Night (10 pm to 7 am)	85	54	46	35	48	28
Night shoulder (6 am to 7 am) ^{c)}	85	63	54	45	54	44
^{a)} Adjusted noise level which excludes influence from extraneous noise sources such as insects, birds and frogs.						
^{b)} RBL is the rating background noise level or overall background noise level for each period.						
^{c)} Shoulder period identifies the portion of the night-time period where most of the operations at the Subject Site are proposed (excluding continuous noise sources).						

3.4.1 Discussion of Noise Monitoring Results

A shoulder period for night-time has been established for 6 am to 7 am. This time-period is comparable to the main operational time of the Subject Site (6 am to 10 pm) and generally considered to be more representative than the entire night-time period (excluding continuous noise sources).

Table 4 shows the background noise levels (L_{A90} and RBL) are considerably higher (by 10 – 16 dB) during the night shoulder period (6 am to 7 am) than the entire night period (10 pm to 7 am) and slightly higher (by 2 – 4 dB) during the night shoulder period (6 am to 7 am) than the daytime period. This is to be expected as this shoulder period often marks the transition between night-time quiet and the build up to daily activities (such as commuter traffic and general suburban neighbourhood noises). The L_{A90} pattern of low night-time noise, building (from approximately 4 am) to higher morning-period noise and fluctuating daytime noise, can be seen in the overall noise plots in Appendix A (the RBL cannot be shown on the plots, however, is derived from the L_{A90} level).

Consideration of the existing noise level trends, proposed operational time and applicable time-periods, should be given to the assessment.



4 ASSESSMENT CRITERIA

4.1 Overview

The assessment considers the potential operational noise impacts from the proposed development at the Subject Site. This section reviews the applicable criteria, taking into consideration the following documents:

- QLD Economic Development Act;
- EDQ Greater Flagstone Development Scheme;
- EP Act; and
- EPP (Noise).

4.2 Greater Flagstone Development Scheme

The Subject Site is located within the Greater Flagstone PDA and is assessable under the EDQ Greater Flagstone Development Scheme (Development Scheme), prepared under the QLD Economic Development Act.

The Development Scheme shows the Subject Site is within an urban living zone (zoning plan shown in Appendix B). Applicable zoning provisions (detail in Section 3.4 of the Development Scheme) state “non-residential uses may be approved in the urban living zone where it is demonstrated that impacts associated with the use (such as noise) will not affect residential or other sensitive uses”.

The EDQ is a state assessment authority and state policy apply. The relevant state policy for noise impact assessment is EPP (Noise), prepared under the EP Act.

4.3 EPP (Noise)

4.3.1 Acoustic Quality Objectives

The EPP (Noise) provides acoustic quality objectives for a range of receptors with respect to the potential impact of an activity upon on the health, well-being and biodiversity of the receptors. Specifically, the objectives are intended to enhance or protect the following environmental values:

- The qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystem;
- The qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following:
 - Sleep;
 - Study or learn; and
 - 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.

The acoustic quality objectives as detailed in the EPP (Noise) and applicable to sensitive receptors nearby the Subject Site, are reproduced in Table 5.

Table 5: EPP (Noise) Schedule 1 Acoustic Quality Objectives

Sensitive Receptor	Time of Day	Acoustic Quality Objectives (dB(A)) ^{a)}			Environmental Value
		L _{Aeq,adj,1-hour}	L _{A10,adj,1-hour}	L _{A1,adj,1-hour}	
Residence (for outdoors)	Daytime and evening	50	55	65	Health and wellbeing
	Daytime and evening	35	40	45	Health and wellbeing
Residence (for indoors)	Night-time	30 (37)	35 (42)	40 (47)	Health and wellbeing, in relation to the ability to sleep
Hospital, surgery or other medical institution (for indoors)	Visiting hours	35 (55)			Health and wellbeing
	Anytime, other than visiting hours	30 (50)			Health and wellbeing, in relation to the ability to sleep

a) Acoustic quality objectives measured at the receptor. Noise levels in brackets () denote the resultant external noise criterion, assuming a 7 dB(A) facade transmission loss through open windows for residential receptors and 20 dB(A) facade transmission loss through fixed windows for medical facility receptors.

Where an internal residential noise level is specified by EPP (Noise), an external noise level has also been established – and denoted in brackets in Table 5 – based on an assumed 7 dB(A) facade transmission loss (considered slightly conservative and in-line with standard practice for a typical QLD home with open windows).

For assessment of proposed medical receptors, a conservative 20 dB(A) facade transmission loss has been applied representative of fixed windows and a commercial construction. It is noted here that assessment of medical receptors is indicative and preliminary at this stage.

The L_{Aeq} metric (in Table 5) will be the focus of the assessment as it is the more stringent criteria and is easily compared to noise data (noise source SWLs in Table 11). Whilst vehicle noise sources can be measured via the L_{A10} metric, the relationship $L_{A10} \approx L_{Aeq} + 3 \text{ dB}$ is commonly used; again, showing the L_{Aeq} metric is more stringent and compliance with the L_{Aeq} criteria, will imply compliance with the L_{A10} criteria.

The L_{A1} objective is compared to the L_{Amax} criteria associated with the assessment of maximum noise events during the night that may have the potential to result in sleep disturbance (however L_{A1} is a much more stringent criterion).

The EPP (Noise) provides amenity objectives which do not take into consideration the surrounding environment. The QLD Environmental Protection (Noise) Policy 2008 Explanatory Notes for SL 2008 No. 442 states:

It is not intended that, as part of achieving the acoustic quality objectives, any part of the existing acoustic environment be allowed to deteriorate. It is intended that the acoustic quality objectives be progressively achieved as part of achieving the purpose of this policy over the long term [Section 8].

And

The acoustic quality objectives are to inform the decision-making process including any conditions relating to noise levels in relation to the decision. The objectives assist in



identifying whether the environmental values are protected. However, meeting the objectives does not always mean that the environmental values are protected and not meeting the objectives does not always mean that the environmental values are not protected [Section 8].

Therefore, while the acoustic quality objectives are useful for assessment purposes, it is noted that they are in fact, objectives, rather than firm limits. In the case of the Subject Site, where existing (and future) noise levels are dominated by road traffic noise (generated from Teviot Road), it is reasonable to consider the existing noise levels in the area when setting project noise objectives.

4.3.2 Background Creep

In addition to the above acoustic quality objectives, the EPP (Noise) requires that, where reasonable to do so, background creep should be prevented or minimised [Section 9(2)(b)]. While specific noise limits to achieve this outcome are not provided in the EPP (Noise) 2019, reference is made to the previous objectives provided in the now repealed EPP (Noise) 2008 as follows:

To the extent that is reasonable to do so, noise from an activity must not be:

- *For noise that is continuous noise measured by $L_{A90,T}$ — more than nil dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$; and*
- *For noise that varies over time measured by $L_{Aeq,adj,T}$ — more than 5 dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$.*

It is noted that $L_{A90,T}$ is represented in the noise measurement results (Table 4) as RBL level, as RBL denotes the overall measured background noise level.

The indicative noise level targets that may be considered appropriate to prevent or minimise background creep at nearby sensitive residential uses are determined in Table 6.

Table 6: Noise Level Targets for the Prevention of Background Creep

Receptors	Parameter	Noise Level (dB(A))		
		Day	Evening	Night
Residential	Continuous Noise ($L_{A90,T}$)	40 + 0 = 40	38 + 0 = 38	28 + 0 = 28
	Variable Noise ($L_{Aeq,adj,T}$)	40 + 5 = 45	38 + 5 = 43	28 + 5 = 33

For the development under consideration, noise emissions are considered variable (such as vehicle movements) with continuous components (such as fixed mechanical plant).

For continuous noise, the noise parameters L_{Aeq} and L_{A90} are considered approximately equal because the sound level remains stable over time, resulting in minimal variation between the equivalent continuous level (L_{Aeq}) and the level exceeded for 90 % of the measurement period (L_{A90}). Therefore, while the background creep continuous noise parameter according to EPP (Noise) is $L_{A90,T}$, it can also be assessed against the $L_{Aeq,adj,T}$ parameter.

4.4 Sleep Disturbance

Predicted noise impacts from development can be assessed for the potential to cause sleep disturbance by comparison against the noise levels recommended by the World Health Organisation (WHO), as discussed in the following publications:

- Community Noise; Berglund M and Lindvall T (WHO, 1995);
- Guidelines for Community Noise; Berglund M, Lindvall T and Schwela D (WHO, 1999);
- Burden of disease from environmental noise (WHO, 2011); and
- Environmental noise guidelines for the European Region (WHO, 2018).

For a good night sleep, the WHO recommend indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10-15 times per night. If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30 dB $L_{Aeq,8-hour}$ indoors for continuous noise.

The noise level criteria recommended by WHO for protection against sleep disturbance are shown in Table 7.

Table 7: WHO Recommended Noise Criteria for Prevention of Sleep Disturbance

Noise Descriptor	Recommended Criterion (indoors, in sleeping spaces)	Façade Noise Reduction ^{a)}	External (Free-Field) Sleep Disturbance Criterion
L_{Aeq}	30 dB(A)	7 dB(A)	37 dB(A)
L_{Amax}	45 dB(A)	7 dB(A)	52 dB(A)
<i>a) Standard conservative facade noise transmission loss, per discussion above.</i>			

4.5 Summary of Operational Noise Criteria

The noise criteria for each time-period (day, evening and night) at sensitive receptors around the Subject Site have been determined after reviewing the applicable policies and selecting the lowest criterion for each receptor in each period.

For this assessment, the noise criteria in Table 8 have been adopted and are listed according to the receptor type and ID (per Table 3).

Table 8: Summary Operational Noise Criteria

Receptor Type and ID	Period	Noise Parameter (dB(A))		
		$L_{Aeq,1-hour}$	$L_{A90,1-hour}$ ^{a)}	L_{Amax}
Indicative Medical (R01 – R05)	Day (7 am to 6 pm)	55	-	-
	Evening (6 pm to 10 pm)	55	-	-
	Night (10 pm to 7 am)	50	-	-
Residential (R06 – R18)	Day (7 am to 6 pm)	45	40	-
	Evening (6 pm to 10 pm)	43	38	-
	Night (10 pm to 7 am) ^{b)}	33	28	52
	Night shoulder (6 am to 7 am) ^{c)}	45	40	-

a) For continuous noise, only; assessed against L_{Aeq} metric (as discussed in Section 4.3.2).

b) For noise sources operational across the whole night period.

c) For noise sources operational only during the night-time shoulder period, rather than the whole night period. The daytime noise limits have been applied as this is more conservative than direct comparison with the shoulder period noise levels.



A night shoulder period has been established (discussed in Section 3.4.1) for assessing operational noise sources which only occur within the 6 am to 7 am period and not throughout the night, such as shopping centre and tenancy activities. The night shoulder noise limits have been conservatively determined from the daytime noise limits (rather than a direct comparison of the shoulder period noise levels). Carwash activities, F&B activities and selected mechanical plant which are expected to occur throughout the night, are assessable against the entire night-time criteria.



5 ASSESSMENT METHODOLOGY

5.1 Software

For the purposes of predicting impacts associated with operational noise emissions from the proposed development on nearby sensitive receptors, noise modelling of the sources was completed using the proprietary software CadnaA (Version 2026 build 213.5606) developed by DataKustik. CadnaA incorporates the influence of meteorology, terrain, ground type and air absorption in addition to source characteristics to predict noise impacts at receptor locations.

The model is utilised to assess the potential noise emissions from the Subject Site under a range of operating scenarios and meteorological conditions. The noise modelling also allows investigation of possible noise management solutions, in the event that non-compliance with the assessment criterion is predicted.

5.2 Meteorology

AE has considered the influence of meteorological effects on noise propagation, specifically, temperature inversions and / or gradient winds. The meteorological conditions were selected to predict the worst-case noise levels at all receptors during all seasons and time periods and are shown in Table 9.

Table 9: Noise Enhancing Meteorological Conditions

Time Period	Meteorological Parameters		
	Stability Class ^{a)}	Wind Speed (m/s) ^{b)}	Wind Direction ^{c)}
Day (7 am to 6 pm)	D	3	Worst-case
Evening (6 pm to 10 pm)	D	3	Worst-case
Night (10 pm to 7 am)	F	2	Worst-case
<i>d) Pasquill Gifford Atmospheric Stability Class.</i>			
<i>e) At 10 m, above ground level (AGL).</i>			
<i>f) Wind direction source to receptor.</i>			

5.3 Model Configuration

Table 10 summarises the model configuration used for the modelling.

Table 10: Model Configuration

Parameter	Approach
Standards	CONCAWE
Time Periods	Day (7 am to 6 pm) Evening (6 pm to 10 pm) Night (10 pm to 7 am)
Digital Terrain	DEM data at 1 m intervals. Triangulation calculation applied.
Ground Absorption	Ground absorption set for soft ground (1), hard ground areas (0.1) digitised for roads and Subject Site.
Other	Buildings and structures associated with the development and existing and proposed fencing have been included to incorporate relevant shielding and attenuation.



5.4 Noise Sources

Sound power level (SWL) data for each noise source was obtained from AE's noise source library database and are based on surveys of similar sources by AE, published literature, and manufacturer information. All data has been reviewed for any applicable modifying factor adjustments such as tonality, low frequency and impulsiveness.

A summary of the noise source information for the operation of the proposed development is detailed in Table 11. Noise Source locations are shown in Figure 5.

5.5 Modelling Assumptions

In addition to the operational conditions, the noise assessment includes modelling assumptions intended to represent the likely built form and operational conditions of the development as follows:

- All plant equipment is roof-mounted on condenser decks and acoustically screened. The screens are modelled as 2 m above the deck level, with the exception of the chiller deck on the supermarket building and the refrigeration deck on the northern tenancy building, where 3 m high screening has been applied;
- The main supermarket loading area includes a wall along the western and northern boundaries of the docking area;
- Existing noise barriers have been included; and
- It has been assumed, based on advice from EDQ, that a 1.8 m high fence (acoustic quality – overlapped timber panels without gaps present) will be constructed along the property boundary of the proposed land lease to the east of the Subject Site (represented in this assessment by receptors RO6–R10). The fence will run continuously along the property boundary (red annotation line on master plan of adjacent land lease, Appendix C), including one pedestrian link (break in fencing for access) adjacent the northeast corner of the Subject Site.

Noise barriers are shown in Figure 6.



Table 11: Operation Noise Sources

Location	Source	Source Height (m)	Period	Usage	Number of Sources	Sound Power Level (dB(A))	
						L _{Aeq,hour}	L _{Amax} ^{a)}
Supermarket	Passenger vehicle 15 km/hr ^{b)} (line source) Includes tenancy vehicles	0.5	Day	283 vph	1	72/m	89
			Evening	142 vph	1	66/m	89
			Night	18 vph	1	60/m	89
	Trolley collection tractor (line source)	1	Day	1 vph	1	59/m	101
			Evening	1 vph-	1		
			Night	1 vph	1		
	Click and collect bays (point source)	0.5	6 am to 10 pm	50 %	6	67	89
	Air conditioning condenser for comms room (point source)	1	All hours	100 %	1	78	-
	Adiabatic gas cooler (point source)	1	All hours	100 %	10	80	-
	Air cooled chiller (point source)	1	All hours	100 %	4	85	-
	Hot water pump skid (point source)	1	6 am to 10 pm	50 %	1	70	71
	Hot water boiler (point source)	1	6 am to 10 pm	50 %	3	70	71
	Kitchen exhaust fan (point source)	1	6 am to 10 pm	100 %	1	71	-
	Compactor (point source)	1	6 am to 10 pm	5 min per hour	1	104	104
	Large refrigerated truck idle in loading dock (point source)	1.5	Day	50 %	3	91	91
			Evening	25 %			
			Night	25 %			
	Small refrigerated truck idle in loading dock (point source)	1.5	Day	50 %	1	75	75
			Evening	25 %			
			Night	25 %			
Tenancies	Air conditioning condenser (point source)	1	All hours	100 %	16	78	-
	Kitchen exhaust fan (point source)	1	All hours	100 %	5	71	-
	Refrigeration unit (point source)	1	All hours	100 %	5	79	-

Location	Source	Source Height (m)	Period	Usage	Number of Sources	Sound Power Level (dB(A))	
						L _{Aeq, hour}	L _{Amax} ^{a)}
F&B	Passenger vehicle 15 km/hr and 10 km/hr in drive-thru ^{b)} (line source)	0.5	Day	92 vph	1	69/m	89
			Evening	92 vph		69/m	89
			Night	23 vph		63/m	89
	Drive thru order point (point source)	1	Day	92 vph	2	78	90
			Evening	92 vph		78	90
			Night	23 vph		78	90
	Drive thru payment window (point source)	1	Day	92 vph	2	75	83
			Evening	92 vph		75	83
			Night	23 vph		75	83
	Car idling at waiting bay (point source)	0.5	All hours	100 %	1	67	89
	Air conditioning condenser (point source)	1	All hours	100 %	2	78	-
	Kitchen exhaust fan (point source)	1	All hours	100 %	2	71	-
	Refrigeration plant (point source)	1	All hours	100 %	1	79	-
	Carparking (including engine / door slam) ^{c)} (area source)	0.5	Day	23 vph	1	67	89
			Evening	23 vph		67	89
			Night	6 vph		67	89
HD van area	Delivery vehicle parking (point source)	1.5	6 am to 10 pm	5 min	5	91	99
Carwash	Passenger vehicle 15 km/hr ^{b)} (line source)	0.5	Day	22 vph	1	62/m	89
			Evening	22 vph		62/m	89
			Night	6 vph		56/m	89
	Automatic wash	1	Day	50 %	2	85	90
			Evening	25 %			
			Night	17 %			
	Manual wash	1	Day	67 %	3	90	110
			Evening	33 %			
			Night	17 %			



Location	Source	Source Height (m)	Period	Usage	Number of Sources	Sound Power Level (dB(A))	
						L _{Aeq, hour}	L _{Amax} ^{a)}
	Dog wash machine	0.5	Day	50 %	1	76	86
			Evening	25 %			
			Night	13 %			
	Vacuum (point source)	0.5	Day	50 %	5	83	84
			Evening	25 %	3		
			Night	13 %	3		
	Plant room enclosed (point source)	1	Day	50 %	1	78 ^{d)}	78
			Evening	25 %			
			Night	13 %			
All areas	Carparking (including engine / door slam) ^{c)} (area source)	0.5	Day	8 vph	1	67	89
			Evening	4 vph	1	67	89
			Night	2 vph	1	67	89
	Carparking – supermarket (area source)	0.5	Day	211 vph	1	67	89
			Evening	105 vph	1	67	89
			Night	0 vph	1	67	89
	Carparking – tenancies (area source)	0.5	Day	73 vph	1	67	89
			Evening	36 vph	1	67	89
			Night	18 vph	1	67	89
	Refuse / delivery truck 15 km/hr ^{e)} (line source)	1.5	6 am to 10 pm	1 vph	1	59/m	101
	Refuse collection / empty (point source)	1.5	6 am to 10 pm	1 per hour / 1 minute	1	88	101

a) No maximum level for continuous noise sources.

b) Assumed 50 % of vehicles enter the site from Teviot Road and 50 % enter from Anderson Drive.

c) Assumed 25 % vehicles park.

d) Based on standard plant SWL with 10 dB attenuation for building enclosure.

e) Assumed delivery or refuse trucks do not occur within the same hour.

General Table Notes:

vph = vehicles per hour; Day = 7 am - 6pm; Evening = 6 pm - 10 pm; Night = 10 pm - 7 am.

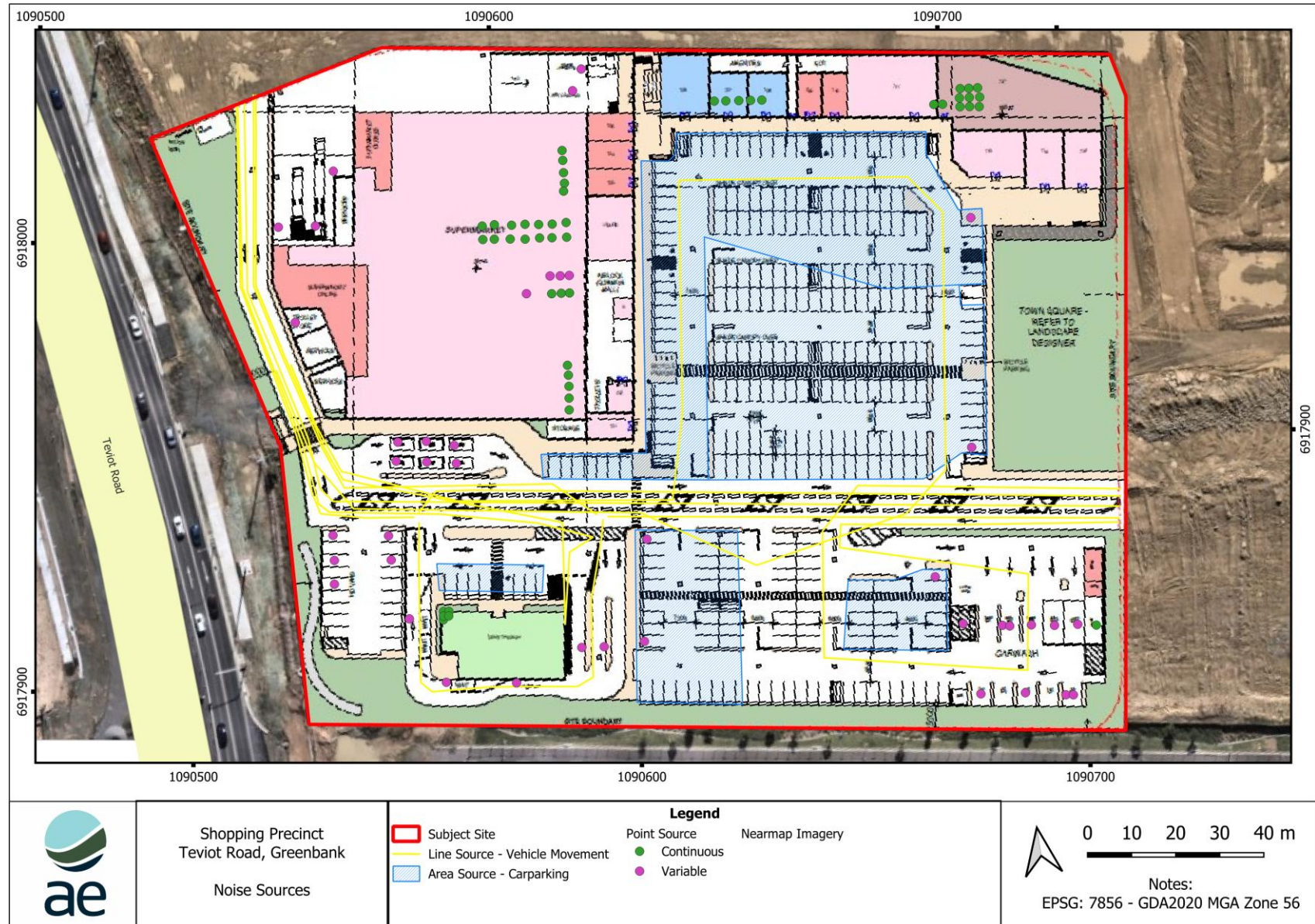


Figure 5: Noise Sources

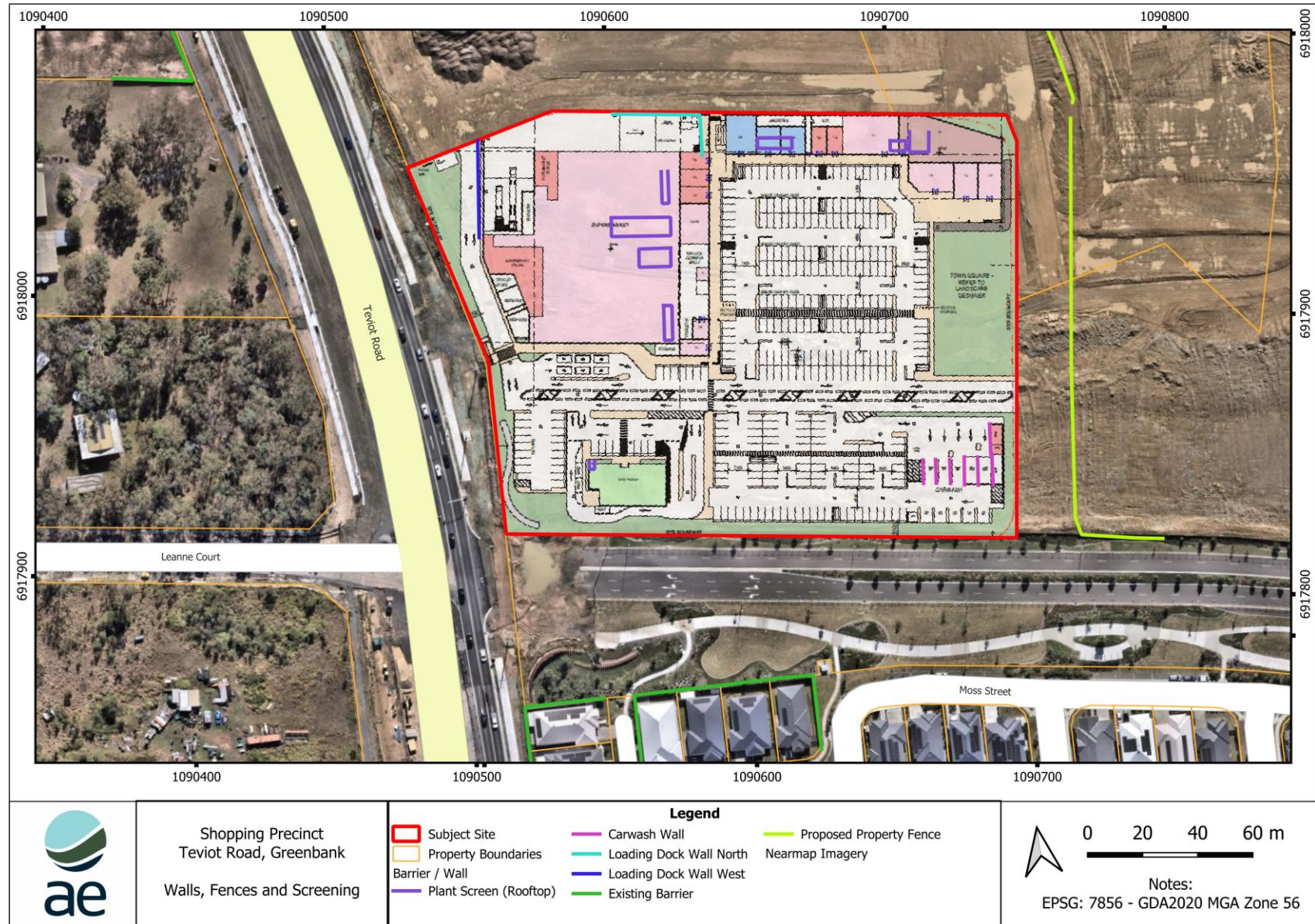


Figure 6: Noise Barriers and Included Attenuation



6 OPERATIONAL NOISE RESULTS

6.1 Overview

The predicted operational noise levels at nearby sensitive receptors to the Subject Site are based on the operational details in Section 2 and the methodology described in Section 5.

6.2 Overall Assessment

The predicted receptor noise levels for each period (day, evening, night and night shoulder), at nearby sensitive receptors are presented in Table 12.

Table 12: Predicted Receptor Noise Levels

Receptor	Predicted Noise Levels ($L_{Aeq, 1-hour}$ dB(A))				Criteria: Day / Evening / Night / Shoulder (dB(A))	Comply (Y/N)
	Day	Evening	Night	Shoulder		
R01	49	47	36	45	55 / 55 / 50	Y / Y / Y / Y
R02	38	37	32	36	55 / 55 / 50	Y / Y / Y / Y
R03	36	36	30	36	55 / 55 / 50	Y / Y / Y / Y
R04	36	36	29	36	55 / 55 / 50	Y / Y / Y / Y
R05	40	39	32	36	55 / 55 / 50	Y / Y / Y / Y
R06	39	38	31	34	45 / 43 / 33 / 45	Y / Y / Y / Y
R07	39	38	31	33	45 / 43 / 33 / 45	Y / Y / Y / Y
R08	38	37	30	33	45 / 43 / 33 / 45	Y / Y / Y / Y
R09	40	38	31	34	45 / 43 / 33 / 45	Y / Y / Y / Y
R10	39	37	30	33	45 / 43 / 33 / 45	Y / Y / Y / Y
R11	36	35	29	32	45 / 43 / 33 / 45	Y / Y / Y / Y
R12	37	36	30	32	45 / 43 / 33 / 45	Y / Y / Y / Y
R13	36	35	29	31	45 / 43 / 33 / 45	Y / Y / Y / Y
R14	35	35	29	31	45 / 43 / 33 / 45	Y / Y / Y / Y
R15	34	33	28	30	45 / 43 / 33 / 45	Y / Y / Y / Y
R16	40	39	30	35	45 / 43 / 33 / 45	Y / Y / Y / Y
R17	41	40	30	37	45 / 43 / 33 / 45	Y / Y / Y / Y
R18	40	39	29	37	45 / 43 / 33 / 45	Y / Y / Y / Y

A review of the predicted noise levels confirms that compliance with the assessment criteria (established in accordance with EPP Noise) can be achieved for all receptors during the daytime, evening, and night-time periods under noise-enhancing meteorological conditions.

6.3 Continuous Assessment

The predicted receptor noise levels from continuous noise emissions (only) associated with the proposed development, at nearby sensitive receptors are presented in Table 12. It is noted that only residential receptors (i.e., receptors R06 – R18) are assessable against these criteria.

Table 13: Predicted Receptor Noise Levels

Receptor	Predicted Noise Levels ($L_{Aeq, 1-hour}$ dB(A))				Criteria: Day / Evening / Night / Shoulder (dB(A))	Comply (Y/N)
	Day	Evening	Night	Shoulder		
R06	30	30	27	30	40 / 38 / 28 / 40	Y / Y / Y / Y
R07	31	30	27	30	40 / 38 / 28 / 40	Y / Y / Y / Y
R08	30	30	27	30	40 / 38 / 28 / 40	Y / Y / Y / Y
R09	30	30	27	30	40 / 38 / 28 / 40	Y / Y / Y / Y
R10	30	29	27	29	40 / 38 / 28 / 40	Y / Y / Y / Y
R11	29	29	27	29	40 / 38 / 28 / 40	Y / Y / Y / Y
R12	29	29	27	29	40 / 38 / 28 / 40	Y / Y / Y / Y
R13	28	28	27	28	40 / 38 / 28 / 40	Y / Y / Y / Y
R14	28	28	27	28	40 / 38 / 28 / 40	Y / Y / Y / Y
R15	28	27	26	27	40 / 38 / 28 / 40	Y / Y / Y / Y
R16	27	27	26	27	40 / 38 / 28 / 40	Y / Y / Y / Y
R17	27	27	26	27	40 / 38 / 28 / 40	Y / Y / Y / Y
R18	28	28	26	28	40 / 38 / 28 / 40	Y / Y / Y / Y

A review of the predicted noise levels confirms that compliance with the continuous assessment criteria (established in accordance with EPP Noise and assessed against the L_{Aeq} metric) can be achieved for all receptors during the daytime, evening, and night-time periods under noise-enhancing meteorological conditions.

6.4 Maximum Assessment

The maximum night-time operational noise levels at nearby sensitive receptors to the Subject Site have also been predicted and are presented in Table 14. It is noted that only residential receptors (i.e., receptors R06 – R18) are assessable against this criterion.

Table 14: Predicted Maximum Receptor Noise Levels

Receptor	Predicted Maximum Night-time Noise Level (L_{Amax} dB(A))	Criteria, (Night) (dB(A))	Comply (Y/N)
R06	36	52	Y
R07	36	52	Y
R08	36	52	Y
R09	37	52	Y
R10	38	52	Y
R11	41	52	Y
R12	37	52	Y
R13	36	52	Y
R14	35	52	Y
R15	34	52	Y
R16	32	52	Y
R17	37	52	Y
R18	32	52	Y



The results show that all receptors comply with the maximum assessment criterion at all receptors.

6.5 Discussion of Results

Compliance with the applicable noise criteria is achieved based on the operational details in Section 2 and the methodology described in Section 5, which includes the source locations (as shown in Figure 5), localised noise attenuation (i.e., shielding from walls and fences, as shown in Figure 5) and assumptions about the building design.

Given this, it is noted that the wall along the western side of the loading dock is required to ensure compliance with the applicable noise criteria at R16 - R18.

If the wall along the northern part of the loading dock were not included in the shopping centre design, compliance with the 55 / 50 dB(A) noise criteria for health receptors would not be achieved at some health receptors. However, it is noted that these receptors are indicative and the derived criteria are conservative and based on internal noise level objectives. As such, the northern section wall is not strictly required to achieve compliance.

Compliance with the derived noise criteria at indicative residential receptors (R06 – R10) is achieved with the inclusion of the 1.8 m property fence (acoustic quality) proposed along the land lease property boundary, as confirmed by EDQ (details in Section 5.5).



7 CONCLUSION

AE was appointed by Lancini Property Group to undertake a Noise Impact Assessment for the proposed shopping centre precinct on Lot 812 Teviot Road, Greenbank, Queensland (QLD) (the 'Subject Site'). The proposed development comprises a supermarket, 15 mixed-use (including food and beverage use) tenancies, a stand-alone food and beverage building with drive-thru, a carwash facility, Town Square (open space) and associated carparking, amenities, refuse and services.

The noise assessment included all plant and equipment for the operation of the proposed development at the Subject Site and was conducted in accordance with Economic Development QLD (EDQ) and Environmental Protection (Noise) Policy (EPP (Noise)) requirements.

Environmental noise data has been collected to inform suitable assessment criteria at nearby sensitive receptors to the Subject Site and noise level predictions have been made using 3-D computational software.

The results of the predictive noise modelling demonstrate that compliance with the derived noise criteria (in Table 8) are expected to be achieved at all nearby sensitive receptors. This compliance is based on the layout and operational assumptions (determined in Section 2 and Section 5), including noise sources and mitigation measures (shown in Figure 5 and Figure 6).

As such, the proposed development at the Subject Site is unlikely to cause adverse amenity impacts during operation and can be considered a suitable location for the proposed use.

APPENDIX A: BACKGROUND NOISE MONITORING

Table 15: Site and Instrumentation Data

Site Details: NML 1	
Coordinates:	-27.741840, 152.986301
Start / End Date	27 August 2025 at 10:30 am to 5 September 2025 at 01:15 pm
Logger Details	Norsonic Nor139 (serial number – 1392970) Next Laboratory Calibration Due: 27 October 2025
Calibration Details	Pulsar Model 106 Acoustic Calibrator (serial number – 79636) Start / End Calibration Level: 94.0 dB(A) / 93.9 dB(A) Next Laboratory Calibration Due: 10 January 2026
Measurement Details:	Fast/ A-weighting / 15-min duration / 1.5 m microphone height / Free field position (≥ 10 m from foliage drip lines)
Weather Details	Nearby (5.8 km north) BOM weather station (Greenbank, station ID 140009) indicated that no periods were affected by wind and / or rainfall and on-site observations correlated with the calm conditions recorded at the BOM station
On-site Observations:	Located in the front yard of 117 Teal Circuit, Greenbank, QLD. Traffic noise from Teviot Road dominant; insects and birds also dominant; local dog barking at times

Site Photo



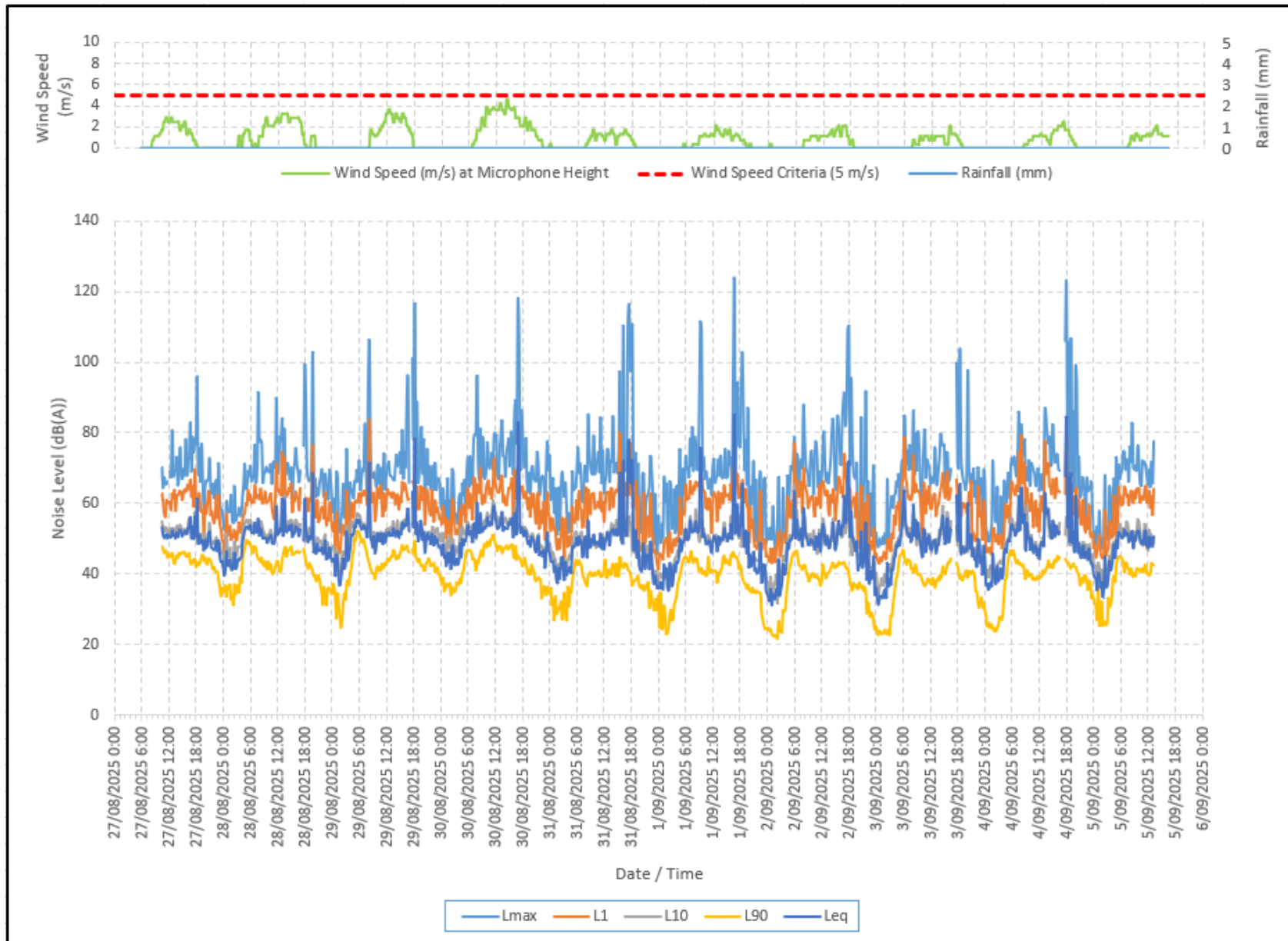


Figure 7: Overall Statistical Noise Measurement Data Plot



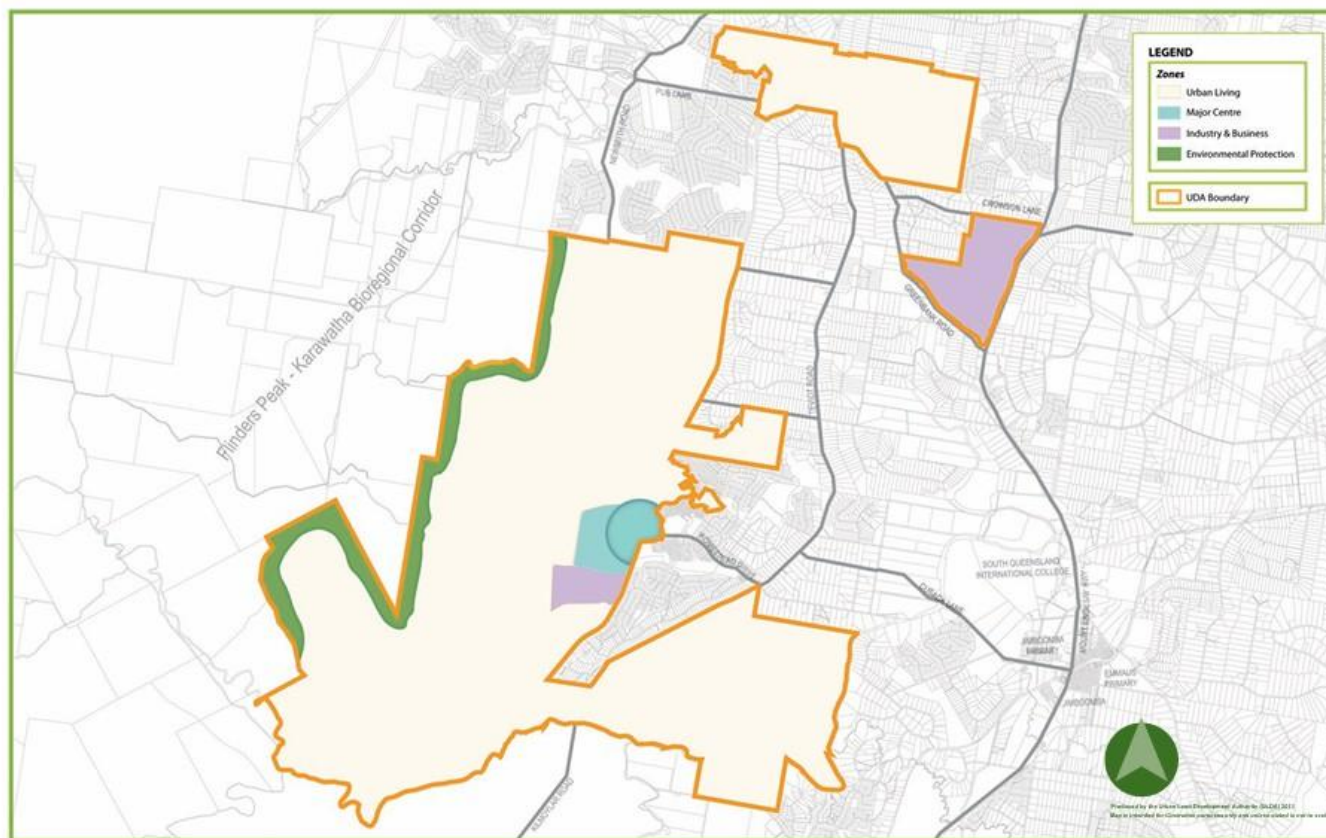
Table 16: Overall Noise Monitoring Results

Date	Period	Noise Metric (dB(A))						
		L _{max}	L ₁	L ₁₀	L ₉₀	L _{eq}	Min L _{90,1hr}	Median L _{eq,1hr}
27/08/2025	Day	-	-	-	-	-	-	-
Wednesday	Evening	95.9	59.0	50.0	43.5	52.2	42.8	49.2
	Night	71.3	55.0	49.0	39.7	48.6	34.3	46.2
28/08/2025	Day	91.4	62.4	53.1	44.4	53.4	41.9	52.1
Thursday	Evening	102.7	59.9	50.0	40.3	57.7	37.1	51.7
	Night	75.4	56.0	49.3	38.3	49.6	30.0	46.9
29/08/2025	Day	105.8	62.6	52.6	44.3	57.4	41.6	51.9
Friday	Evening	116.6	61.3	51.7	43.6	66.4	41.8	51.6
	Night	73.3	56.8	50.3	39.8	48.6	36.0	47.5
30/08/2025	Day	117.5	63.9	54.9	46.7	66.5	44.4	54.9
Saturday	Evening	81.5	60.1	50.7	40.8	49.9	38.6	49.2
	Night	77.5	53.9	46.0	34.9	45.8	29.9	44.4
31/08/2025	Day	116.3	61.9	51.1	40.7	63.9	39.7	51.0
Sunday	Evening	110.1	55.9	46.8	37.3	60.8	36.4	46.9
	Night	75.1	51.1	43.6	33.4	45.4	26.7	40.5
1/09/2025	Day	123.3	62.6	51.9	42.6	69.3	40.2	51.0
Monday	Evening	102.7	56.8	47.1	36.9	54.8	35.0	46.8
	Night	78.6	52.0	43.9	31.3	50.1	23.2	40.6
2/09/2025	Day	109.3	62.7	51.2	41.0	56.7	39.0	51.8
Tuesday	Evening	110.1	57.5	47.3	36.6	60.2	35.8	48.9
	Night	84.8	52.4	44.4	31.2	51.1	23.4	41.2
3/09/2025	Day	99.8	62.3	50.7	40.1	52.8	37.7	51.1
Wednesday	Evening	103.8	58.7	47.3	40.0	55.3	39.4	51.3
	Night	73.2	54.2	45.7	32.6	47.2	24.7	44.9
4/09/2025	Day	106.0	63.7	52.7	41.5	56.7	39.3	53.4
Thursday	Evening	122.2	61.7	49.5	40.9	72.5	37.7	60.1
	Night	74.7	52.7	45.4	35.1	46.2	28.0	44.6
5/09/2025	Day	-	-	-	-	-	-	-
Friday	Evening	-	-	-	-	-	-	-
	Night	-	-	-	-	-	-	-

APPENDIX B: GREATER FLAGSTONE ZONING PLAN

3.0 Land Use Plan: Zones

Map 8 - Zones



APPENDIX C: LAND LEASE MASTER PLAN AND PROPERTY BOUNDARY

