APPENDIX L NOISE IMPACT ASSESSMENT

Traffic Noise Impact Assessment Everleigh, Greenbank

RoL 13 Application

Mirvac

Project No.: ATP230238

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Executive Summary

ATP Consulting Engineers (ATP) was engaged by Mirvac to prepare a traffic noise impact assessment in support of the RoL 13 application for the *Everleigh* development in Greenbank.

The following report presents the results of the detailed road traffic noise propagation modelling considering Anderson Drive, Road 103, and Guroman Drive which are major internal arterial road within the boundaries of the development.

Based on the results of the traffic noise impact assessment for RoL 13 of the *Everleigh* development, the following is concluded:

- The residential dwellings adjacent to Anderson Drive and Guroman Drive have to be designed as per AS3671-1989 to mitigate traffic noise ingress.
- A setback distance of 5m and 10m from the lot boundary facing Anderson Drive and Guroman Drive, respectively, must be imposed to comply with the outdoor play area and outdoor learning area criterion for educational facilities.
- Acoustic upgrades are required for education facilities located within 50m from the boundary facing Anderson Drive and Guroman Drive.

Provided the recommended planning and design noise control measures are implemented in the construction of *Everleigh* development RoL 13, road traffic noise will not impose any further constraints on the establishment of this stage of the development.

Table of Contents

Tables

Figures

Appendices

1. Introduction

1.1 Project background

ATP Consulting Engineers (ATP) was engaged by Mirvac to prepare a traffic noise impact assessment in support of the RoL 13 application for the *Everleigh* development in Greenbank.

The following report presents the results of the detailed road traffic noise propagation modelling considering Anderson Drive, Road 103, and Guroman Drive which are major internal arterial road within the boundaries of the development.

1.2 Study objectives

Study objectives are as follows:

- Site specific noise measurements near Teviot Road to obtain information about the existing noise levels.
- Development of a 3D traffic noise propagation model using SoundPLAN software considering the development layout and civil engineering design of RoL 13. The traffic flows along Anderson Drive, and higher order internal roads, Road 103 and Guroman Drive to the year 2044 will be considered in the SoundPLAN model.
- Calculation of the traffic noise levels at the facades and private open spaces of the future dwellings to be constructed at Precinct 6 and 7.
- Based on the calculated traffic noise levels ATP Consulting will provide recommendations for noise control measures (i.e., acoustic barriers and advice on the architectural treatments to the building facades) to ensure compliance with the relevant external and internal noise criteria.
- Provision of a detailed acoustic report (traffic noise impact assessment) in a format required by EDQ and Logan City Council (LCC). The report will present the traffic noise assessment methodology, tabulated measured noise levels, calculated traffic noise levels, and recommendations for noise control measures.

1.3 Development plan

The approved *Everleigh* development is a master-planned community in Greenbank with frontage to Teviot Road to the west and Greenbank Road to the south. The subject site has a total area of 482.1 Ha. The site is located within the Greater Flagstone priority development area (PDA).

The development layout for RoL 13 is presented in Appendix A.

2. Existing Noise Amenity

2.1 Site-specific noise measurements

Noise monitoring was carried out adjacent to Teviot Road, to obtain information about the existing traffic and background noise levels.

The noise measurement methodology is summarised in Table 2.1.

Table 2.1 Noise measurements

Relevant legislation, standards, and guidelines	The noise measurements were carried out in accordance with: • Australian Standard AS 1055:2018 (*Acoustics – Description and measurement of environmental noise*); and • Australian Standard AS 2702-1984 (*Acoustics – Methods for measurement of road traffic noise*).
Measurement location	The noise monitoring was carried out at the south-western boundary of the existing Lot 3 on SP297192. The measurement location was approximately 20m setback from Teviot Road The noise measurement location is presented in Figure 2.1, and the photos are presented in Appendix B.
Measurement period	Continuous noise monitoring was carried out 24 hours a day from 5 to 18 March 2020.
Measurement equipment	The following noise measurement equipment was used: • Environmental noise logger – ARL EL-315 (serial no. 15-203-537); and • Calibration – RION NC-74 Sound Level Calibrator (serial no. 34615224). The noise measurement instruments conform to Australian Standard AS IEC61672.1-2004. Calibration was performed during set up and download of the data from the noise logger. The calibration drift was <0.1 dB(A).
Meteorological conditions	Rainfall occurred on 6, 9, 10 and 12 March 2020. Noise data affected by periods of rainfall was excluded from the results. Full meteorological data for the monitoring period is presented in Appendix C.
Analysis of data	The noise measurement data was analysed to determine the following noise descriptor: • **$L_{10,18hr}$:** L_{10} is the level of noise exceeded for 10% of any time period; $L_{10,18hr}$ is the typical traffic noise descriptor, and is the arithmetic average of 18 hourly $L_{10,1hr}$ levels over consecutive hours between 6am and 12am.

Figure 2.1 Noise measurement location

2.2 Measurement results

The results of the noise measurements undertaken from 5 to 18 March 2020 are presented in Table 2.2 and Appendix D.

Table 2.2 Noise measurement results

Date	Traffic Noise Levels		Background Noise Levels	
	$L_{10,18hr}$ (6am-12am)	$L_{10,1hr\ max}$ (6am-12am)	$L_{90,18hr}$ (6am-12am)	$L_{90,8hr}$ (10pm-6am)
5 Mar 2020 (Thu)	—	—	—	39
6 Mar 2020 (Fri)	64	67	52	36
7 Mar 2020 (Sat)	64	65	51	37
8 Mar 2020 (Sun)	62	65	49	38
9 Mar 2020 (Mon)	66	68	54	39
10 Mar 2020 (Tue)	64	68	53	39
11 Mar 2020 (Wed)	64	68	54	40
12 Mar 2020 (Thu)	65	68	55	41
13 Mar 2020 (Fri)	65	68	55	38
14 Mar 2020 (Sat)	64	66	52	39
15 Mar 2020 (Sun)	64	67	51	38
16 Mar 2020 (Mon)	64	68	52	39
17 Mar 2020 (Tue)	64	70	53	38
18 Mar 2020 (Wed)	63	67	52	39
Arithmetic Mean	64	67	52	39
Weekdays Only	64	68	53	39

Noise data disregarded due to rainfall.

3. Traffic Noise Criteria

3.1 External noise criteria

The development site is located within the Greater Flagstone PDA, a priority development area designated by Economic Development Queensland (EDQ).

There are no traffic noise criteria specific to the Greater Flagstone PDA. Traffic noise impact assessment for the Everleigh development should be carried out in accordance with the Department of Transport and Main Roads (TMR) *Road Traffic Noise Management: Code of Practice*.

The relevant traffic noise criteria are provided in the following documents:

- Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP), *State Development Assessment Provisions (SDAP) version 3.0 (February 2022), State code 1: Development in state-controlled road environment*; and
- Department of Transport and Main Roads (TMR), *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure Version 4 (October 2017)*.

The applicable criteria from the TMR Policy and the SDAP are presented in Table 3.1.

Table 3.1 External noise criteria for new residential and educational development

Transport infrastructure	Development type	Location within development	Environmental criteria
State-controlled Road	Accommodation activities[1]	All facades	≤60dB(A) $L_{10,18hr}$ facade corrected (measured $L_{90,8hr}$ free field between 10pm and 6am ≤ 40dB(A))
			≤63dB(A) $L_{10,18hr}$ facade corrected (measured $L_{90,8hr}$ free field between 10pm and 6am > 40dB(A))
		Outdoor spaces for passive recreation	≤57dB(A) $L_{10,18hr}$ free field (measured $L_{90,18hr}$ free field between 6am and 10pm ≤ 45dB(A))
			≤60dB(A) $L_{10,18hr}$ free field (measured $L_{90,18hr}$ free field between 6am and 10pm > 45dB(A))
	Childcare centre or educational establishment	All facades	≤58dB(A) $L_{10,1hr}$ façade corrected (maximum hour during normal opening hours)
		Outdoor education areas and outdoor play areas	≤63dB(A) $L_{10,12hr}$ free field (between 6am and 6pm)

[1] Includes caretaker's accommodation, community residence, dual occupancy, dwelling house, dwelling unit, multiple dwelling, relocatable home park, residential care facility, resort complex, retirement facility, rooming accommodation, short-term accommodation, and tourist park.

The relevant façade adjusted[2] road traffic noise criterion for the building facades is 63dB(A)$L_{10,18hr}$[3] and 58dB(A) $L_{10,1hr}$ for residential and educational developments, respectively.

The designated private open spaces have to comply with the free-field traffic noise criterion of 60dB(A)$L_{10,18hr}$ and 63dB(A) $L_{10,12hr}$ for residential and educational developments, respectively.

In case of exceedance of the external traffic noise criteria, architectural treatment has to be applied to the external facade of the building to protect the internal noise amenity of the residential dwellings.

3.2 Internal noise criteria

Where the external noise criteria cannot be met, the residential dwellings must be designed to mitigate intrusion of traffic noise into habitable rooms. At the building approval stage, the dwellings at the affected allotments should be designed and constructed as per AS3671-1989 (floor-plan specific acoustic design) or acceptable forms of construction from QDC MP4.4.

When carrying out acoustic design as per AS3671, it is recommended to adopt the internal noise criteria specified in AS/NZS 2107:2016 as presented in Table 3.2.

Table 3.2 Internal noise criteria (dwellings)

Type of occupancy	Maximum L_{Aeq}
Living areas	45 dB(A)
Sleeping areas	40 dB(A)

The internal noise criterion for childcare centres / educational establishments is presented in table 3.3.

Table 3.3 Internal traffic noise criteria

Type of occupancy	Maximum L_{Aeq}
Indoor educational areas and indoor play areas	35 dB(A)

[2] The façade adjusted noise criteria contains +2.5dB(A) adjustment factor for the sound energy that is result of the reflection of the sound wave from the hard surface of typical buildings. This adjustment is applicable for areas within 3m from a hard reflective vertical surface.
[3] Within a 10-year planning horizon, as the development is established, background noise levels in the vicinity of Anderson Drive are expected to be greater than 40dB(A) $L_{90,8hr}$ between 10pm and 6am.

4. Traffic Noise Calculation Methodology

The traffic noise from Greenbank Road and Everleigh Drive was calculated using SoundPLAN noise propagation modelling software as per the procedure specified in the UK Department of Transport Welsh Office *Method of Calculation of Road Traffic Noise* (CoRTN'88). This is an accepted traffic noise calculation procedure applied widely in Australia[4].

The 10-year traffic forecast (2044) after completion of Everleigh Master Planned Community was considered in the traffic noise propagation modelling. Detailed road traffic noise propagation modelling was carried out for the allotments located within RoL 13.

4.1 Traffic noise model – Planning horizon (Year 2044)

Traffic noise calculations were carried out for a 10-year planning horizon upon completion of the Everleigh Master Planned Community (2044). Traffic volumes for Anderson Drive, Guroman Drive, and internal Road 103, were sourced from the Everleigh Traffic Model by Premise dated 18 March 2024.

The daily traffic volumes for 2044 are presented in Table 4.1 and in Appendix E.

Table 4.1 Traffic flow data – 2044 planning horizon

Road	2044 Traffic Flow AADT	Heavy Vehicles (%)
Anderson Drive	7,092	3
Guroman Drive	1,948	3
Internal Road (Road 103)	3,052	3

[4] CoRTN (Calculation of Road Traffic Noise) is a widely accepted procedure in Australia for calculation of traffic noise and it is specifically recommended in QLD TMR's Code of Practice Volume 1, Section 4.3.2, Page 29.

The various factors considered in the model are presented in Table 4.2.

Table 4.2 Data and assumptions – Planning horizon model

Parameter	Data/Assumptions
Mean vehicle speed	• **Anderson Drive:** 60 km/h • **Guroman Drive:** 50km/h • **Internal roads:** 50 km/h
Calculation procedure	• CoRTN (Calculation of Road Traffic Noise) • SoundPLAN grid spacing is 3m while the increment for angle of view is 1º
Road traffic volume for CoRTN procedure	• The CoRTN procedure requires 18 hours traffic volume data. Traffic volume for 18-hours (6:00am to midnight) was considered as 94% of the 24-hour AADT.
Road type and alignment	• **Anderson Drive:** One lane in each direction. • **Guroman Drive:** One lane in each direction. • **Internal roads:** One lane in each direction. • Source: - *Civil CAD Base File "240405 x-mirsgb base ROL13 DA"*
Road surface	• **Anderson Drive:** Dense graded asphalt. • **Guroman Drive:** Dense graded asphalt. • **Internal roads:** Dense graded asphalt. Dense graded asphalt requires no adjustment factor.
Development layout	• Source: - *Civil CAD Base File "240405 x-mirsgb base ROL13 DA"*
Buildings	• Residential buildings on all lots were considered as one storey high with total height of 4.0m.
Receivers	**Façade noise levels** • Although buildings were considered as single-storey, receivers were allocated to ground (1.8m AGL) as well as upper floor (4.6m AGL) to calculate noise levels at potential two-storey houses. Note: *AGL: above ground level* • SoundPLAN adds +2.5dB(A) to the calculated noise levels when the receivers are attached to the buildings, thus the tabulated traffic noise levels are façade adjusted. **Private open spaces** • Receivers were placed at the outdoor living areas which are located at the ground floor at the rear of each dwelling (i.e., backyards). • Receivers were placed at a free-field location 4m from the building façades. • Receivers were placed at 1.5m AGL.
CoRTN correction factor	• Application of CoRTN correction factor of –1.7dB for receivers located 1m from building façades is considered in Australia, and –0.7dB for free-field receivers, as recommended by *TMR Code of Practice*.
Terrain	• Sourced from earthworks drawings by Premise: - *"2024-04-05 MIR-1300 ROL13 Finished Surface Triangles"* from Premise, received 5 April 2024
Noise control measures	• Traffic noise levels were calculated with the noise control measures recommended in Section 6 of this report.

Overview of the SoundPLAN traffic noise model for RoL 13 is presented in Figure 4.1.

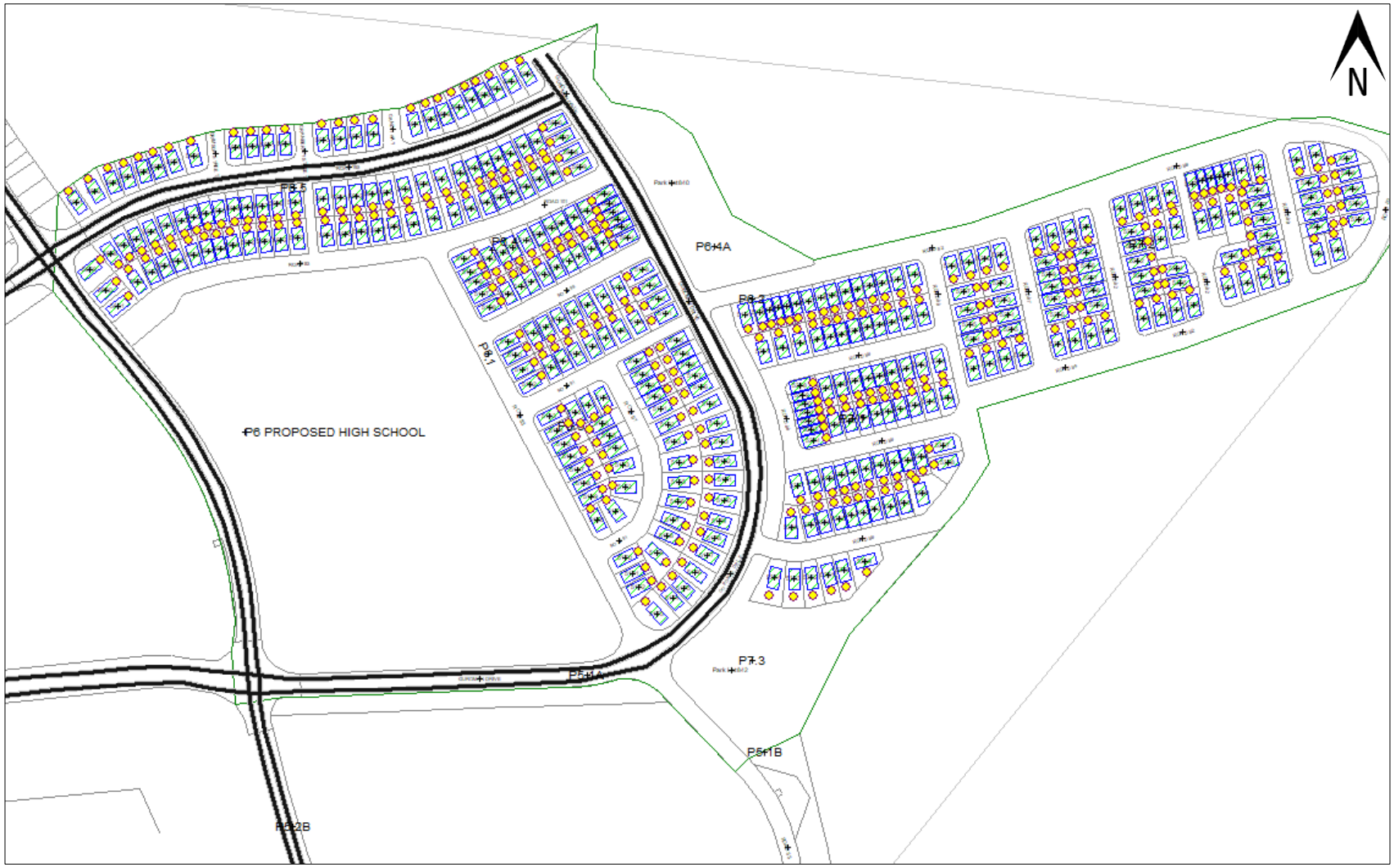


Figure 4.1 SoundPLAN traffic noise model – RoL 13

5. Calculated Traffic Noise Levels

The road traffic noise levels were calculated at the facades (ground and upper floors) and private open space (ground floor outdoor living area) of each dwelling.

The calculated noise levels were then assessed against the traffic noise criteria (≤ 63dB(A) $L_{10,18hr}$ facade adjusted for building facades; and ≤ 60dB(A) $L_{10,18hr}$ free field for private open spaces).

The calculated traffic noise levels at the allotments located within RoL 13 are presented in Table 5.1.

Table 5.1 Calculated traffic noise levels – RoL 13 Lots

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P06_Lot 5001	61	Yes	63	Yes	52	Yes
P06_Lot 5002	61	Yes	62	Yes	48	Yes
P06_Lot 5003	61	Yes	62	Yes	48	Yes
P06_Lot 5004	62	Yes	63	Yes	47	Yes
P06_Lot 5005	62	Yes	63	Yes	46	Yes
P06_Lot 5006	62	Yes	63	Yes	45	Yes
P06_Lot 5007	61	Yes	62	Yes	45	Yes
P06_Lot 5008	61	Yes	62	Yes	45	Yes
P06_Lot 5009	60	Yes	61	Yes	44	Yes
P06_Lot 5010	60	Yes	62	Yes	44	Yes
P06_Lot 5011	60	Yes	62	Yes	43	Yes
P06_Lot 5012	61	Yes	62	Yes	44	Yes
P06_Lot 5013	60	Yes	61	Yes	44	Yes
P06_Lot 5014	60	Yes	62	Yes	44	Yes
P06_Lot 5015	60	Yes	62	Yes	44	Yes
P06_Lot 5016	61	Yes	62	Yes	46	Yes
P06_Lot 5017	61	Yes	62	Yes	45	Yes
P06_Lot 5018	61	Yes	62	Yes	44	Yes
P06_Lot 5019	60	Yes	62	Yes	44	Yes
P06_Lot 5020	61	Yes	62	Yes	44	Yes
P06_Lot 5021	60	Yes	61	Yes	45	Yes
P06_Lot 5022	61	Yes	62	Yes	45	Yes
P06_Lot 5023	61	Yes	62	Yes	46	Yes
P06_Lot 5024	61	Yes	62	Yes	49	Yes
P06_Lot 5025	63	Yes	64	No	56	Yes
P06_Lot 5026	64	No	65	No	55	Yes
P06_Lot 5027	65	No	65	No	47	Yes
P06_Lot 5028	64	No	64	No	46	Yes
P06_Lot 5029	64	No	64	No	45	Yes
P06_Lot 5030	61	Yes	62	Yes	46	Yes
P06_Lot 5031	61	Yes	62	Yes	45	Yes
P06_Lot 5032	61	Yes	62	Yes	45	Yes
P06_Lot 5033	61	Yes	61	Yes	45	Yes
P06_Lot 5034	60	Yes	61	Yes	44	Yes
P06_Lot 5035	60	Yes	61	Yes	44	Yes
P06_Lot 5036	60	Yes	61	Yes	44	Yes
P06_Lot 5037	60	Yes	61	Yes	44	Yes
P06_Lot 5038	60	Yes	61	Yes	44	Yes
P06_Lot 5039	60	Yes	61	Yes	44	Yes
P06_Lot 5040	60	Yes	61	Yes	44	Yes
P06_Lot 5041	61	Yes	62	Yes	45	Yes
P06_Lot 5042	61	Yes	62	Yes	45	Yes

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P06_Lot 5043	61	Yes	62	Yes	45	Yes
P06_Lot 5044	61	Yes	62	Yes	46	Yes
P06_Lot 5045	61	Yes	62	Yes	46	Yes
P06_Lot 5046	61	Yes	62	Yes	46	Yes
P06_Lot 5047	61	Yes	62	Yes	46	Yes
P06_Lot 5048	61	Yes	62	Yes	47	Yes
P06_Lot 5049	61	Yes	62	Yes	47	Yes
P06_Lot 5050	61	Yes	62	Yes	47	Yes
P06_Lot 5051	62	Yes	63	Yes	47	Yes
P06_Lot 5052	62	Yes	63	Yes	48	Yes
P06_Lot 5053	61	Yes	63	Yes	48	Yes
P06_Lot 5054	61	Yes	63	Yes	48	Yes
P06_Lot 5055	61	Yes	63	Yes	48	Yes
P06_Lot 5056	61	Yes	63	Yes	48	Yes
P06_Lot 5057	62	Yes	63	Yes	49	Yes
P06_Lot 5058	62	Yes	63	Yes	52	Yes
P06_Lot 5059	67	No	68	No	54	Yes
P06_Lot 5060	67	No	67	No	48	Yes
P06_Lot 5061	67	No	67	No	51	Yes
P06_Lot 5062	57	Yes	59	Yes	50	Yes
P06_Lot 5063	54	Yes	57	Yes	47	Yes
P06_Lot 5064	53	Yes	56	Yes	47	Yes
P06_Lot 5065	53	Yes	55	Yes	46	Yes
P06_Lot 5066	52	Yes	55	Yes	45	Yes
P06_Lot 5067	52	Yes	54	Yes	45	Yes
P06_Lot 5068	51	Yes	54	Yes	44	Yes
P06_Lot 5069	51	Yes	53	Yes	44	Yes
P06_Lot 5070	50	Yes	53	Yes	43	Yes
P06_Lot 5071	50	Yes	52	Yes	43	Yes
P06_Lot 5072	49	Yes	52	Yes	43	Yes
P06_Lot 5073	49	Yes	52	Yes	43	Yes
P06_Lot 5074	49	Yes	51	Yes	43	Yes
P06_Lot 5075	48	Yes	50	Yes	43	Yes
P06_Lot 5076	47	Yes	50	Yes	43	Yes
P06_Lot 5077	47	Yes	50	Yes	43	Yes
P06_Lot 5078	46	Yes	49	Yes	43	Yes
P06_Lot 5079	46	Yes	49	Yes	43	Yes
P06_Lot 5080	46	Yes	49	Yes	42	Yes
P06_Lot 5081	45	Yes	49	Yes	42	Yes
P06_Lot 5082	45	Yes	48	Yes	42	Yes
P06_Lot 5083	45	Yes	48	Yes	42	Yes
P06_Lot 5084	45	Yes	48	Yes	42	Yes
P06_Lot 5085	45	Yes	48	Yes	43	Yes
P06_Lot 5086	46	Yes	49	Yes	43	Yes
P06_Lot 5087	47	Yes	50	Yes	43	Yes
P06_Lot 5088	48	Yes	51	Yes	44	Yes
P06_Lot 5089	66	No	65	No	44	Yes
P06_Lot 5090	66	No	65	No	43	Yes
P06_Lot 5091	66	No	65	No	44	Yes
P06_Lot 5092	66	No	65	No	44	Yes
P06_Lot 5093	66	No	65	No	44	Yes
P06_Lot 5094	65	No	65	No	44	Yes
P06_Lot 5095	51	Yes	54	Yes	45	Yes
P06_Lot 5096	49	Yes	52	Yes	44	Yes
P06_Lot 5097	48	Yes	50	Yes	44	Yes

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P06_Lot 5098	47	Yes	49	Yes	44	Yes
P06_Lot 5099	46	Yes	49	Yes	44	Yes
P06_Lot 5100	45	Yes	48	Yes	43	Yes
P06_Lot 5101	45	Yes	48	Yes	43	Yes
P06_Lot 5102	44	Yes	48	Yes	43	Yes
P06_Lot 5103	44	Yes	48	Yes	43	Yes
P06_Lot 5104	46	Yes	48	Yes	42	Yes
P06_Lot 5105	46	Yes	49	Yes	40	Yes
P06_Lot 5106	46	Yes	48	Yes	41	Yes
P06_Lot 5107	46	Yes	48	Yes	41	Yes
P06_Lot 5108	46	Yes	48	Yes	41	Yes
P06_Lot 5109	45	Yes	48	Yes	40	Yes
P06_Lot 5110	45	Yes	48	Yes	41	Yes
P06_Lot 5111	45	Yes	48	Yes	41	Yes
P06_Lot 5112	45	Yes	48	Yes	41	Yes
P06_Lot 5113	45	Yes	48	Yes	41	Yes
P06_Lot 5114	46	Yes	49	Yes	41	Yes
P06_Lot 5115	47	Yes	50	Yes	42	Yes
P06_Lot 5116	49	Yes	51	Yes	42	Yes
P06_Lot 5117	50	Yes	53	Yes	43	Yes
P06_Lot 5118	64	No	64	No	44	Yes
P06_Lot 5119	64	No	65	No	44	Yes
P06_Lot 5120	65	No	65	No	44	Yes
P06_Lot 5121	65	No	65	No	44	Yes
P06_Lot 5122	49	Yes	52	Yes	45	Yes
P06_Lot 5123	47	Yes	50	Yes	44	Yes
P06_Lot 5124	45	Yes	49	Yes	44	Yes
P06_Lot 5125	45	Yes	48	Yes	44	Yes
P06_Lot 5127	45	Yes	48	Yes	44	Yes
P06_Lot 5128	45	Yes	48	Yes	44	Yes
P06_Lot 5129	46	Yes	48	Yes	41	Yes
P06_Lot 5130	46	Yes	48	Yes	41	Yes
P06_Lot 5131	46	Yes	48	Yes	41	Yes
P06_Lot 5132	46	Yes	48	Yes	41	Yes
P06_Lot 5133	45	Yes	48	Yes	41	Yes
P06_Lot 5134	45	Yes	48	Yes	42	Yes
P06_Lot 5135	45	Yes	48	Yes	42	Yes
P06_Lot 5136	46	Yes	48	Yes	42	Yes
P06_Lot 5137	46	Yes	49	Yes	42	Yes
P06_Lot 5138	47	Yes	50	Yes	43	Yes
P06_Lot 5139	49	Yes	51	Yes	44	Yes
P06_Lot 5140	46	Yes	49	Yes	44	Yes
P06_Lot 5141	47	Yes	49	Yes	45	Yes
P06_Lot 5142	47	Yes	49	Yes	45	Yes
P06_Lot 5143	46	Yes	48	Yes	40	Yes
P06_Lot 5144	47	Yes	49	Yes	40	Yes
P06_Lot 5145	47	Yes	49	Yes	41	Yes
P06_Lot 5146	47	Yes	49	Yes	41	Yes
P06_Lot 5147	47	Yes	49	Yes	42	Yes
P06_Lot 5148	47	Yes	49	Yes	42	Yes
P06_Lot 5149	47	Yes	50	Yes	42	Yes
P06_Lot 5150	47	Yes	50	Yes	43	Yes
P06_Lot 5151	46	Yes	50	Yes	42	Yes
P06_Lot 5152	46	Yes	49	Yes	42	Yes
P06_Lot 5153	46	Yes	49	Yes	43	Yes

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P06_Lot 5154	46	Yes	49	Yes	44	Yes
P06_Lot 5155	46	Yes	49	Yes	44	Yes
P06_Lot 5156	46	Yes	49	Yes	44	Yes
P06_Lot 5157	47	Yes	50	Yes	46	Yes
P06_Lot 5158	45	Yes	49	Yes	44	Yes
P06_Lot 5159	45	Yes	49	Yes	44	Yes
P06_Lot 5160	46	Yes	49	Yes	44	Yes
P06_Lot 5161	46	Yes	50	Yes	44	Yes
P06_Lot 5162	47	Yes	50	Yes	45	Yes
P06_Lot 5163	47	Yes	51	Yes	46	Yes
P06_Lot 5164	47	Yes	51	Yes	45	Yes
P06_Lot 5165	47	Yes	51	Yes	46	Yes
P06_Lot 5166	47	Yes	51	Yes	46	Yes
P06_Lot 5167	47	Yes	51	Yes	46	Yes
P06_Lot 5168	48	Yes	52	Yes	47	Yes
P06_Lot 5169	49	Yes	53	Yes	48	Yes
P06_Lot 5170	50	Yes	52	Yes	43	Yes
P06_Lot 5171	51	Yes	53	Yes	44	Yes
P06_Lot 5172	52	Yes	55	Yes	46	Yes
P06_Lot 5173	64	No	64	No	50	Yes
P06_Lot 5174	64	No	64	No	47	Yes
P06_Lot 5175	64	No	64	No	46	Yes
P06_Lot 5176	64	No	64	No	46	Yes
P06_Lot 5177	64	No	64	No	46	Yes
P06_Lot 5178	64	No	64	No	46	Yes
P06_Lot 5179	64	No	64	No	46	Yes
P06_Lot 5180	64	No	64	No	46	Yes
P06_Lot 5181	64	No	64	No	45	Yes
P06_Lot 5182	64	No	64	No	45	Yes
P06_Lot 5183	64	No	64	No	45	Yes
P06_Lot 5184	64	No	64	No	45	Yes
P06_Lot 5185	64	No	64	No	45	Yes
P06_Lot 5186	64	No	64	No	45	Yes
P06_Lot 5187	64	No	64	No	44	Yes
P06_Lot 5188	64	No	64	No	44	Yes
P06_Lot 5189	64	No	64	No	44	Yes
P06_Lot 5190	64	No	64	No	45	Yes
P06_Lot 5191	59	Yes	60	Yes	56	Yes
P06_Lot 5192	52	Yes	56	Yes	51	Yes
P06_Lot 5193	50	Yes	55	Yes	48	Yes
P06_Lot 5194	49	Yes	54	Yes	47	Yes
P06_Lot 5195	49	Yes	53	Yes	46	Yes
P06_Lot 5196	48	Yes	52	Yes	46	Yes
P06_Lot 5197	47	Yes	52	Yes	45	Yes
P06_Lot 5198	46	Yes	51	Yes	44	Yes
P06_Lot 5199	46	Yes	50	Yes	44	Yes
P06_Lot 5200	45	Yes	49	Yes	43	Yes
P06_Lot 5201	45	Yes	49	Yes	43	Yes
P06_Lot 5202	44	Yes	48	Yes	42	Yes
P06_Lot 5203	44	Yes	47	Yes	42	Yes
P06_Lot 5204	43	Yes	47	Yes	41	Yes
P06_Lot 5205	43	Yes	46	Yes	40	Yes
P07_Lot 5126	45	Yes	48	Yes	44	Yes
P07_Lot 5206	43	Yes	47	Yes	40	Yes
P07_Lot 5207	43	Yes	47	Yes	40	Yes

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P07_Lot 5208	44	Yes	48	Yes	40	Yes
P07_Lot 5209	44	Yes	48	Yes	41	Yes
P07_Lot 5210	44	Yes	49	Yes	41	Yes
P07_Lot 5211	45	Yes	49	Yes	41	Yes
P07_Lot 5212	46	Yes	50	Yes	42	Yes
P07_Lot 5213	47	Yes	51	Yes	42	Yes
P07_Lot 5214	48	Yes	51	Yes	43	Yes
P07_Lot 5215	50	Yes	53	Yes	44	Yes
P07_Lot 5216	53	Yes	55	Yes	46	Yes
P07_Lot 5217	58	Yes	60	Yes	50	Yes
P07_Lot 5218	56	Yes	57	Yes	40	Yes
P07_Lot 5219	56	Yes	58	Yes	39	Yes
P07_Lot 5220	56	Yes	58	Yes	40	Yes
P07_Lot 5221	56	Yes	58	Yes	40	Yes
P07_Lot 5222	56	Yes	58	Yes	40	Yes
P07_Lot 5223	56	Yes	58	Yes	40	Yes
P07_Lot 5224	56	Yes	58	Yes	40	Yes
P07_Lot 5225	49	Yes	54	Yes	46	Yes
P07_Lot 5226	46	Yes	52	Yes	45	Yes
P07_Lot 5227	45	Yes	51	Yes	44	Yes
P07_Lot 5228	45	Yes	50	Yes	43	Yes
P07_Lot 5229	44	Yes	49	Yes	43	Yes
P07_Lot 5230	44	Yes	48	Yes	42	Yes
P07_Lot 5231	43	Yes	48	Yes	42	Yes
P07_Lot 5232	43	Yes	47	Yes	41	Yes
P07_Lot 5233	42	Yes	47	Yes	41	Yes
P07_Lot 5234	43	Yes	46	Yes	35	Yes
P07_Lot 5235	43	Yes	46	Yes	35	Yes
P07_Lot 5236	43	Yes	45	Yes	35	Yes
P07_Lot 5237	42	Yes	45	Yes	35	Yes
P07_Lot 5238	43	Yes	45	Yes	39	Yes
P07_Lot 5239	41	Yes	44	Yes	38	Yes
P07_Lot 5240	40	Yes	44	Yes	38	Yes
P07_Lot 5241	40	Yes	43	Yes	37	Yes
P07_Lot 5242	42	Yes	44	Yes	39	Yes
P07_Lot 5243	42	Yes	45	Yes	39	Yes
P07_Lot 5244	42	Yes	45	Yes	39	Yes
P07_Lot 5245	42	Yes	45	Yes	39	Yes
P07_Lot 5246	41	Yes	44	Yes	34	Yes
P07_Lot 5247	41	Yes	44	Yes	34	Yes
P07_Lot 5248	41	Yes	44	Yes	34	Yes
P07_Lot 5249	41	Yes	43	Yes	34	Yes
P07_Lot 5250	41	Yes	43	Yes	34	Yes
P07_Lot 5251	41	Yes	43	Yes	38	Yes
P07_Lot 5252	39	Yes	42	Yes	37	Yes
P07_Lot 5253	38	Yes	42	Yes	36	Yes
P07_Lot 5254	38	Yes	42	Yes	36	Yes
P07_Lot 5255	40	Yes	42	Yes	37	Yes
P07_Lot 5256	40	Yes	42	Yes	36	Yes
P07_Lot 5257	39	Yes	42	Yes	36	Yes
P07_Lot 5258	39	Yes	42	Yes	36	Yes
P07_Lot 5259	39	Yes	42	Yes	36	Yes
P07_Lot 5260	39	Yes	41	Yes	32	Yes
P07_Lot 5261	39	Yes	41	Yes	32	Yes
P07_Lot 5262	39	Yes	41	Yes	32	Yes

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P07_Lot 5263	39	Yes	41	Yes	32	Yes
P07_Lot 5264	39	Yes	41	Yes	32	Yes
P07_Lot 5265	39	Yes	41	Yes	37	Yes
P07_Lot 5266	37	Yes	41	Yes	35	Yes
P07_Lot 5267	37	Yes	40	Yes	35	Yes
P07_Lot 5268	37	Yes	40	Yes	35	Yes
P07_Lot 5269	38	Yes	40	Yes	36	Yes
P07_Lot 5270	36	Yes	40	Yes	35	Yes
P07_Lot 5271	36	Yes	40	Yes	35	Yes
P07_Lot 5272	36	Yes	39	Yes	35	Yes
P07_Lot 5273	36	Yes	39	Yes	35	Yes
P07_Lot 5274	36	Yes	39	Yes	35	Yes
P07_Lot 5275	36	Yes	39	Yes	34	Yes
P07_Lot 5276	38	Yes	40	Yes	36	Yes
P07_Lot 5277	38	Yes	40	Yes	34	Yes
P07_Lot 5278	38	Yes	39	Yes	35	Yes
P07_Lot 5279	38	Yes	39	Yes	36	Yes
P07_Lot 5280	37	Yes	39	Yes	34	Yes
P07_Lot 5281	37	Yes	39	Yes	31	Yes
P07_Lot 5282	37	Yes	39	Yes	31	Yes
P07_Lot 5283	37	Yes	39	Yes	31	Yes
P07_Lot 5284	37	Yes	39	Yes	31	Yes
P07_Lot 5285	37	Yes	39	Yes	34	Yes
P07_Lot 5286	35	Yes	38	Yes	34	Yes
P07_Lot 5287	36	Yes	38	Yes	33	Yes
P07_Lot 5288	37	Yes	38	Yes	34	Yes
P07_Lot 5289	36	Yes	38	Yes	33	Yes
P07_Lot 5290	36	Yes	38	Yes	33	Yes
P07_Lot 5291	36	Yes	38	Yes	33	Yes
P07_Lot 5292	35	Yes	38	Yes	34	Yes
P07_Lot 5293	36	Yes	38	Yes	34	Yes
P07_Lot 5294	36	Yes	39	Yes	34	Yes
P07_Lot 5295	36	Yes	39	Yes	35	Yes
P07_Lot 5296	36	Yes	40	Yes	35	Yes
P07_Lot 5297	38	Yes	40	Yes	35	Yes
P07_Lot 5298	38	Yes	40	Yes	31	Yes
P07_Lot 5299	36	Yes	40	Yes	35	Yes
P07_Lot 5300	36	Yes	40	Yes	36	Yes
P07_Lot 5301	37	Yes	40	Yes	36	Yes
P07_Lot 5302	37	Yes	40	Yes	37	Yes
P07_Lot 5303	39	Yes	41	Yes	37	Yes
P07_Lot 5304	38	Yes	41	Yes	34	Yes
P07_Lot 5305	38	Yes	41	Yes	34	Yes
P07_Lot 5306	37	Yes	40	Yes	35	Yes
P07_Lot 5307	37	Yes	41	Yes	35	Yes
P07_Lot 5308	37	Yes	41	Yes	35	Yes
P07_Lot 5309	39	Yes	41	Yes	36	Yes
P07_Lot 5310	38	Yes	42	Yes	36	Yes
P07_Lot 5311	39	Yes	43	Yes	36	Yes
P07_Lot 5312	39	Yes	43	Yes	37	Yes
P07_Lot 5313	40	Yes	43	Yes	38	Yes
P07_Lot 5314	40	Yes	45	Yes	38	Yes
P07_Lot 5315	41	Yes	45	Yes	39	Yes
P07_Lot 5316	41	Yes	46	Yes	40	Yes
P07_Lot 5317	44	Yes	46	Yes	41	Yes

Lot No.	Building Facades				Private Open Space	
	Ground Floor		Upper Floor			
	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) facade-adjusted	Compliance ≤63dB(A) $L_{10,18hr}$	$L_{10,18hr}$ dB(A) free-field	Compliance ≤60dB(A) $L_{10,18hr}$
Precincts 06 and 07 – Residential Lots						
P07_Lot 5318	43	Yes	47	Yes	40	Yes
P07_Lot 5319	43	Yes	47	Yes	41	Yes
P07_Lot 5320	44	Yes	48	Yes	41	Yes
P07_Lot 5321	44	Yes	48	Yes	41	Yes
P07_Lot 5322	44	Yes	49	Yes	41	Yes
P07_Lot 5323	45	Yes	49	Yes	41	Yes
P07_Lot 5324	45	Yes	50	Yes	42	Yes
P07_Lot 5325	46	Yes	51	Yes	42	Yes
P07_Lot 5326	47	Yes	52	Yes	43	Yes
P07_Lot 5327	59	Yes	60	Yes	53	Yes
P07_Lot 5328	53	Yes	56	Yes	48	Yes
P07_Lot 5329	50	Yes	54	Yes	46	Yes
P07_Lot 5330	49	Yes	53	Yes	45	Yes
P07_Lot 5331	47	Yes	52	Yes	45	Yes
P07_Lot 5332	46	Yes	51	Yes	44	Yes
P07_Lot 5333	45	Yes	50	Yes	44	Yes
P07_Lot 5334	45	Yes	50	Yes	44	Yes
P07_Lot 5335	45	Yes	49	Yes	43	Yes
P07_Lot 5336	44	Yes	49	Yes	43	Yes
P07_Lot 5337	45	Yes	48	Yes	41	Yes
P07_Lot 5338	45	Yes	48	Yes	42	Yes
P07_Lot 5339	43	Yes	48	Yes	42	Yes
P07_Lot 5340	44	Yes	49	Yes	42	Yes
P07_Lot 5341	44	Yes	49	Yes	43	Yes
P07_Lot 5342	45	Yes	50	Yes	43	Yes
P07_Lot 5343	46	Yes	51	Yes	43	Yes
P07_Lot 5344	46	Yes	52	Yes	44	Yes
P07_Lot 5345	47	Yes	52	Yes	45	Yes
P07_Lot 5346	48	Yes	53	Yes	46	Yes
P07_Lot 5347	51	Yes	56	Yes	48	Yes
P07_Lot 5348	58	Yes	60	Yes	53	Yes
P07_Lot 5349	45	Yes	51	Yes	41	Yes
P07_Lot 5350	47	Yes	52	Yes	47	Yes
P07_Lot 5351	48	Yes	53	Yes	47	Yes
P07_Lot 5352	50	Yes	54	Yes	48	Yes
P07_Lot 5353	54	Yes	56	Yes	50	Yes
P07_Lot 5354	59	Yes	60	Yes	54	Yes

Noise contour maps showing the traffic noise levels across the residential lots and educational establishment lot at RoL 13 are presented in Appendix F.

6. Discussion and Recommendations

Traffic noise propagation modelling was carried out considering the future traffic flows for a planning horizon of 2044. The results of the noise propagation modelling indicate that, without noise mitigation measures, the proposed development site will be impacted by traffic noise from Anderson Drive and the major internal collector roads.

A noise control strategy has been adopted in the planning of the Everleigh development. The general objectives of the noise control strategy are as follows:

1. Ensure that at all residential allotments, there is at least one private open space (outdoor living area) which complies with the traffic noise criterion of 60dB(A) $L_{10,18hr}$ (free-field). Likewise, for the proposed educational facility lot, ensure that all outdoor play and outdoor learning areas complies with the traffic noise criterion of 63dB(A) $L_{10,12hr}$ (free-field).

2. Ensure compliance with the façade traffic noise criterion of 63dB(A) $L_{10,18hr}$ at all residential allotments and 58dB(A) $L_{10,1hr}$ for the proposed educational facility lot where it is practical to do so (i.e. where a noise barrier or acoustic setback is feasible).

3. At allotments where a noise barrier or acoustic setback is not feasible and traffic noise criteria for residential dwellings and educational establishments are exceeded, the building envelope should be constructed in accordance with QDC MP4.4 or AS 3671-1989 to ensure compliance with the internal noise criteria from AS/NZS 2107:2016.

The proposed noise mitigation measures are as follows:

- For front-loaded residential allotments, ensure that outdoor living areas are located on the protected façade.

- Acoustic design to be carried out at the building approval stage for any residential dwellings and educational establishment where the traffic noise criterion is exceeded. This may include upper floors of two storey houses and houses on front loaded allotments facing internal collector roads.

- Acoustic setback for the outdoor play areas and outdoor learning areas of the proposed high school along Anderson Drive.

Summary of the recommended noise control measures is presented in Figure 6.1

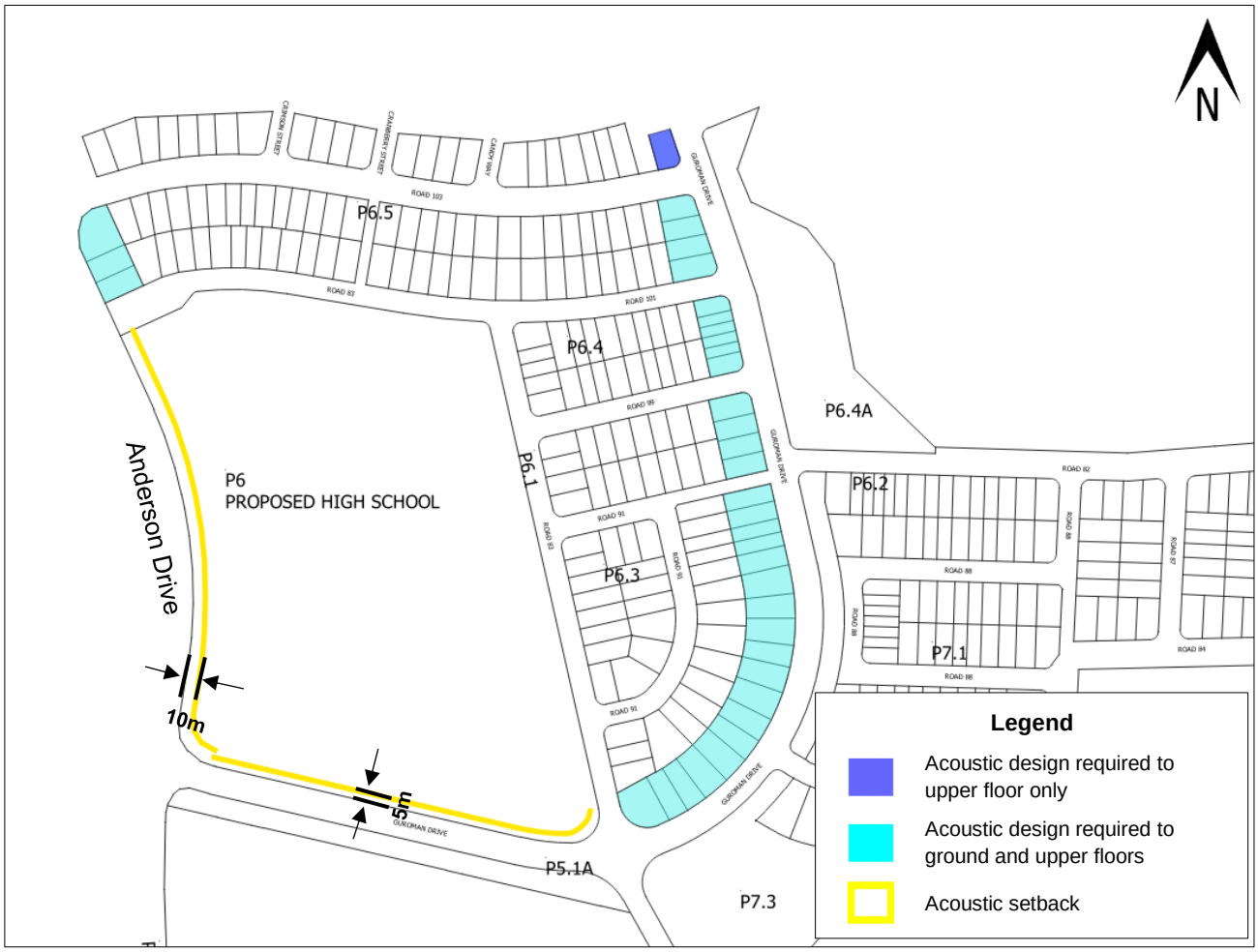


Figure 6.1 Noise control measures – RoL 13

6.1 Front loaded lots

Front loaded lots facing Anderson Drive and Guroman Drive will have traffic noise impacts on the most exposed façade. The noise affected lots are identified in Figure 6.1.

At the building approval stage, future houses at the noise affected lots should be designed and constructed as per AS 3671-1989 (floor-plan specific acoustic design) or using acceptable forms of construction from QDC MP4.4 to mitigate intrusion of traffic noise into habitable rooms.

At the front loaded lots facing Anderson Drive and Guroman Drive, it is recommended to locate the private open spaces at the rear of the houses. Provided that the private open spaces are located along the protected rear façades (facing away from the road), or in a protected courtyard recessed into the side of the buildings, compliance with the traffic noise criterion will be achieved.

Typical layout showing outdoor living area located on the protected façade is presented in Figure 6.2.

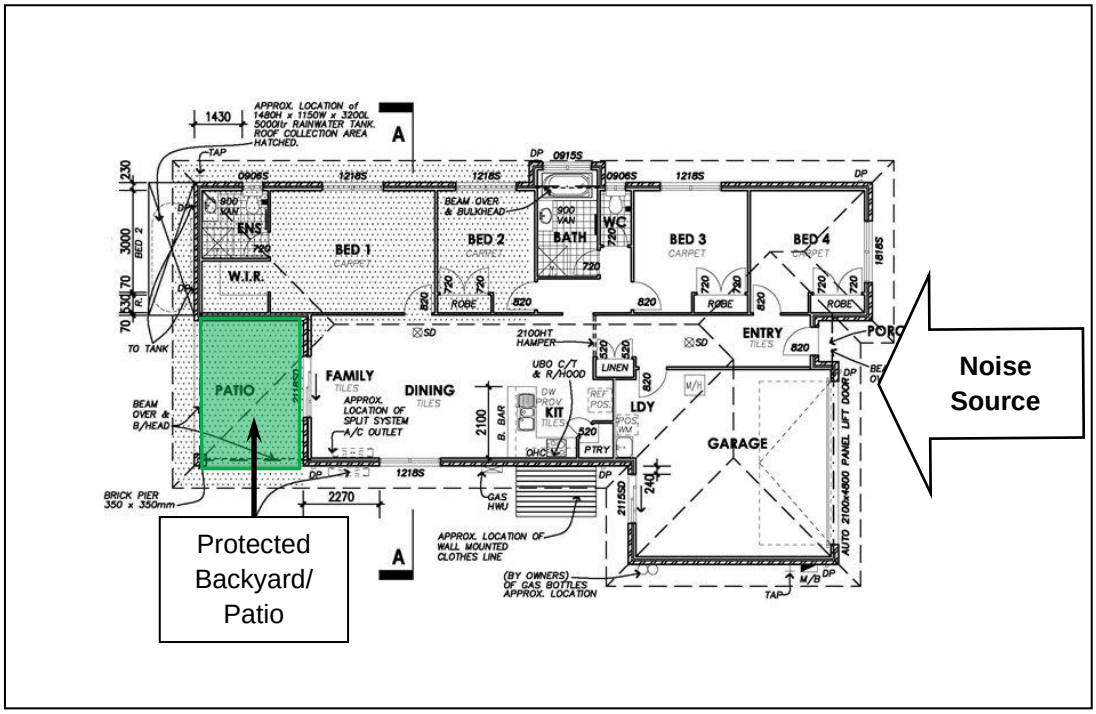


Figure 6.2 Outdoor living area on protected façade

6.2 Summary of lots requiring acoustic design

The results of the noise propagation modelling indicate that the proposed noise control strategy is effective at minimising the traffic noise impacts on the development.

Private Open Spaces **–** With the proposed noise mitigation measure in Section 6.1, compliance with the traffic noise criterion for private open spaces can be achieved at all allotments.

Building Facades – Some allotments will require acoustic design to the building envelope to mitigate intrusion of traffic noise at the most exposed façade. Any allotments which are predicted to exceed the traffic noise criterion of 63dB(A) $L_{10,18hr}$ will require acoustic design as per AS 3671-1989 (floor-plan specific acoustic design) or should utilise acceptable forms of construction from QDC MP4.4.

The lots which are predicted to exceed the traffic noise criterion of 63dB(A) $L_{10,18hr}$ are listed in Table 6.1.

Table 6.1 Lots requiring acoustic design

Precinct	Acoustic requirements	
	Ground floor	**Upper floor**
Precinct 6.2	Acoustic design required for: • Lot 5173 • Lot 5174 • Lot 5175 • Lot 5176 • Lot 5177 • Lot 5178 • Lot 5179 • Lot 5180 • Lot 5181 • Lot 5182 • Lot 5183 • Lot 5184 • Lot 5185 • Lot 5186 • Lot 5187 • Lot 5188 • Lot 5189 • Lot 5190	Acoustic design required for: • Lot 5173 • Lot 5174 • Lot 5175 • Lot 5176 • Lot 5177 • Lot 5178 • Lot 5179 • Lot 5180 • Lot 5181 • Lot 5182 • Lot 5183 • Lot 5184 • Lot 5185 • Lot 5186 • Lot 5187 • Lot 5188 • Lot 5189 • Lot 5190
Precinct 6.4	Acoustic design required for: • Lot 5060 • Lot 5061 • Lot 5089 • Lot 5090 • Lot 5091 • Lot 5092 • Lot 5093 • Lot 5094 • Lot 5118	Acoustic design required for: • Lot 5060 • Lot 5061 • Lot 5089 • Lot 5090 • Lot 5091 • Lot 5092 • Lot 5093 • Lot 5094 • Lot 5118

Precinct	Acoustic requirements	
	Ground floor	Upper floor
	• Lot 5119 • Lot 5120 • Lot 5121	• Lot 5119 • Lot 5120 • Lot 5121
Precinct 6.5	Acoustic design required for: • Lot 5026 • Lot 5027 • Lot 5028 • Lot 5029 • Lot 5059	Acoustic design required for: • Lot 5025 • Lot 5026 • Lot 5027 • Lot 5028 • Lot 5029 • Lot 5059

For any dwellings where the traffic noise criterion is exceeded, the most practical approach is acoustic treatment to the building envelope (external walls, windows and roof/ceiling). At the building approval stage, the houses on the affected allotments should be designed and constructed as per AS 3671-1989 (floor-plan specific acoustic design) or acceptable forms of construction from QDC MP4.4 to mitigate intrusion of traffic noise into habitable rooms.

All the other allotments within RoL 13 of the *Everleigh* development are not affected by road traffic noise and the houses on these allotments do not require acoustic design to the façade.

6.3 Educational Facility Lot

The results of the noise propagation modelling indicate that the site for the proposed high school experiences minor intrusion of road traffic noise. The following noise control strategy are recommended to achieve internal noise criteria:

Outdoor Play Area and Outdoor Learning Areas **–** An acoustic setback of 10m from the lot boundary facing Anderson Drive and 5m acoustic setback from the lot boundary facing Guroman Drive is recommended for outdoor play areas and outdoor learning areas so that compliance with the traffic noise criterion for can be achieved at all times.

Building Facades – Educational facilities located greater than 50m from the boundary facing Anderson Drive and Guroman Drive proposed high school boundary will not require acoustic upgrades. However, due to the extent of this buffer, it may not be practical to construct buildings at such setback distance.

Any educational facilities that are located less than 50m from the boundary facing Anderson Drive and Guroman Drive will require acoustic upgrades. Based on the results, the noise levels within the buffer zone can be effectively mitigated through standard masonry construction, such as brick veneer. Additionally, installing 6.38mm thick laminated glass windows to facades facing the roads will provide sufficient noise mitigation to the road traffic noise.

Provided the recommended planning and design noise control measures are implemented in the construction of *Everleigh* development RoL 13, road traffic noise will not impose any further constraints on the establishment of this stage of the development.

7. Conclusions

Based on the results of the traffic noise impact assessment for RoL 13 of the *Everleigh* development, the following is concluded:

- The residential dwellings adjacent to Anderson Drive and Guroman Drive have to be designed as per AS3671-1989 to mitigate traffic noise ingress.
- A setback distance of 5m and 10m from the lot boundary facing Anderson Drive and Guroman Drive, respectively, must be imposed to comply with the outdoor play area and outdoor learning area criterion for educational facilities.
- Acoustic upgrades are required for education facilities located within 50m from the boundary facing Anderson Drive and Guroman Drive.

Provided the recommended planning and design noise control measures are implemented in the construction of *Everleigh* development RoL 13, road traffic noise will not impose any further constraints on the establishment of this stage of the development.

8. References

- Australian Standard AS 1055.1:2018 (*Acoustics - Description and Measurement of Environmental Noise Part 1: General Procedures*)
- Australian Standard AS 1055.2:2018 (*Acoustics - Description and Measurement of Environmental Noise Part 2: Application to Specific Situations*)
- Australian Standard AS/NZS 2107:2016 (*Acoustics – Recommended design sound levels and reverberation times for building interiors*)
- Australian Standard ASIEC61672.1-2004 (*Electroacoustics - Sound level meters – Specifications*)
- Australian Standard *AS 3671-1989 (Acoustics – Road Traffic Noise Intrusion – Building siting and construction)*
- Department of State Development Infrastructure and Planning, *State Development Assessment Provisions* (Version 3.0), February 2022
- Department of Transport and Main Roads, 2013, *Transport Noise Management: Code of Practice, Volume 1 – Road Traffic Noise*
- Department of Transport and Main Roads, *Development on land affected by environmental emissions*, Version 4, October 2017
- Logan City Council, 2015, *Logan Planning Scheme 2015*
- Queensland Government, 2015, '*Queensland Development Code (QDC) MP4.4 (Buildings in a Transport Noise Corridor)*'

Appendices

- Appendix A – RoL 13 Development Layout
- Appendix B – Site photos
- Appendix C – Meteorological data
- Appendix D – Noise measurement results
- Appendix E – Traffic volumes, 2044
- Appendix F – Traffic noise levels

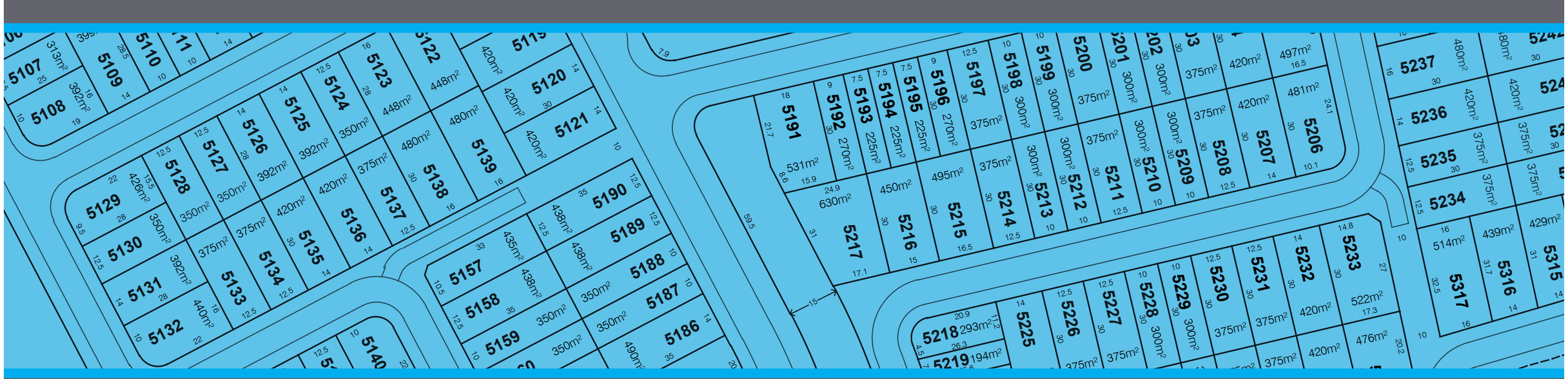
Appendix A – RoL 13 Development Layout

Everleigh

ROL 13:
RECONFIGURATION OF A LOT PLANS

TEVIOT ROAD, EVERLEIGH

MARCH 2024



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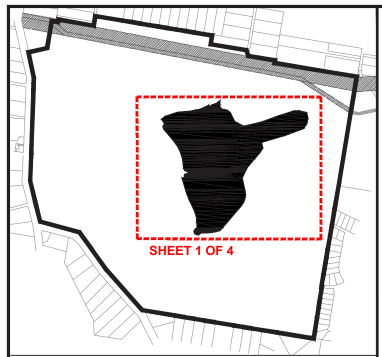


LOCALITY DIAGRAM

LEGEND

GENERAL

- ROL 13 Boundary
- Proposed Lot Boundaries
- Proposed Road Carriageways
- Proposed High School
- Future Residential
- Major Linear Park
- Neighbourhood Park
- Local Park / Pedestrian Link
- Conservation Area
- Additional Verge for Bushfire Buffer

RESIDENTIAL - STANDARD LOTS

HOUSE (ATTACHED)

- Front Loaded Terrace
- Potential Attached Dwelling (refer to House (Attached) Design Criteria which prevails to the extent of any inconsistency with this plan)

HOUSE (DETACHED)

- Villa
- Premium Villa
- Courtyard
- Premium Courtyard
- Traditional
- Premium Traditional

MULTIPLE RESIDENTIAL

- Potential Duplex Dwelling

ROL 13 - YIELD SUMMARY

LOT TYPE		INDICATIVE LOT FRONTAGE	TOTAL	
			LOTS	%
	Front Loaded Terrace	7.5m wide	23 lots	6.5%
	Rear Loaded Terrace	7.5m wide	0 lots	0%
	Villa	10m wide	49 lots	13.8%
	Premium Villa	12.5m wide	113 lots	31.9%
	Courtyard	14m wide	85 lots	24.0%
	Premium Courtyard	16m wide	72 lots	20.3%
	Traditional	18m wide	10 lots	2.8%
	Premium Traditional	20m wide	2 lots	0.6%
TOTAL RESIDENTIAL LOTS			354 lots	100%
DENSITY (NET RESIDENTIAL DENSITY)			17.14 dw/ha	

NOTE:

- Balance lots, while not appearing on ROL 13: Reconfiguration of a Lot Plans, will be included on the relevant survey plans as development progresses.
- This ROL plan may be changed via compliance assessment in accordance with the ROL 13: Plan of Development - Design Criteria document.

URBIS

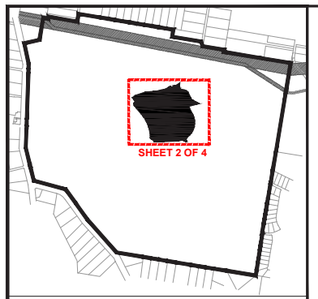
EVERLEIGH

RECONFIGURATION OF A LOT PLAN - ROL 13 - SHEET 1 OF 4

Scale: 1:4,000 @ A3

0 50 100 150 200

PROJECT NO: P0018054
DATE: 11.03.2024
DRAWING NO: ROL13-1
REV: 06



LOCALITY DIAGRAM

LEGEND

GENERAL

- ROL 13 Boundary
- Proposed Lot Boundaries
- Proposed Road Carriageways
- Proposed High School
- Future Residential
- Major Linear Park
- Neighbourhood Park
- Local Park / Pedestrian Link
- Conservation Area
- Additional Verge for Bushfire Buffer

RESIDENTIAL - STANDARD LOTS

HOUSE (ATTACHED)

- Front Loaded Terrace
- Potential Attached Dwelling (refer to House (Attached) Design Criteria which prevails to the extent of any inconsistency with this plan)

HOUSE (DETACHED)

- Villa
- Premium Villa
- Courtyard
- Premium Courtyard
- Traditional
- Premium Traditional

MULTIPLE RESIDENTIAL

- Potential Duplex Dwelling

NOTE:

- Balance lots, while not appearing on ROL 13: Reconfiguration of a Lot Plans, will be included on the relevant survey plans as development progresses.
- This ROL plan may be changed via compliance assessment in accordance with the ROL 13: Plan of Development - Design Criteria document.

APPROVED DEVELOPMENT

CONSERVATION AREA

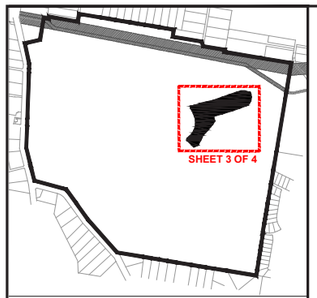
Park Lot 840
1.28ha

PROPOSED HIGH SCHOOL
9.3ha
(FUTURE APPLICATION)

EXISTING PRIMARY SCHOOL

Park Lot 841
3168m²

15.5m WIDE ROAD
21m WIDE ROAD
20m WIDE ROAD
14m WIDE ROAD
10m WIDE DRIVEWAY
PEDESTRIAN LINK



LOCALITY DIAGRAM

LEGEND

GENERAL

- ROL 13 Boundary
- Proposed Lot Boundaries
- Proposed Road Carriageways
- Proposed High School
- Future Residential
- Major Linear Park
- Neighbourhood Park
- Local Park / Pedestrian Link
- Conservation Area
- Additional Verge for Bushfire Buffer

RESIDENTIAL - STANDARD LOTS

HOUSE (ATTACHED)

- Front Loaded Terrace
- Potential Attached Dwelling (refer to House (Attached) Design Criteria which prevails to the extent of any inconsistency with this plan)

HOUSE (DETACHED)

- Villa
- Premium Villa
- Courtyard
- Premium Courtyard
- Traditional
- Premium Traditional

MULTIPLE RESIDENTIAL

- Potential Duplex Dwelling

NOTE:

- Balance lots, while not appearing on ROL 13: Reconfiguration of a Lot Plans, will be included on the relevant survey plans as development progresses.
- This ROL plan may be changed via compliance assessment in accordance with the ROL 13: Plan of Development - Design Criteria document.

CONSERVATION AREA

Park Lot 840
1.28ha

Park Lot 841
316m²

Park Lot 842
16,234m²

15.5m WIDE ROAD

20m WIDE ROAD

14m WIDE ROAD

12m WIDE DRIVEWAY

PEDESTRIAN LINK

CONSERVATION AREA

URBIS

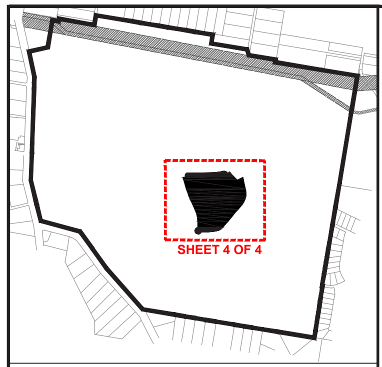
EVERLEIGH

RECONFIGURATION OF A LOT PLAN - ROL 13 - SHEET 3 OF 4

Scale: 1:2,500 @ A3

0 20 40 60 80 100

PROJECT NO: P0018054
DATE: 11.03.2024
DRAWING NO: ROL13-3
REV: 06



LOCALITY DIAGRAM

LEGEND

GENERAL

- ROL 13 Boundary
- Proposed Lot Boundaries
- Proposed Road Carriageways
- Proposed High School
- Future Residential
- Major Linear Park
- Neighbourhood Park
- Local Park / Pedestrian Link
- Conservation Area
- Additional Verge for Bushfire Buffer

RESIDENTIAL - STANDARD LOTS

HOUSE (ATTACHED)

- Front Loaded Terrace
- Potential Attached Dwelling (refer to House (Attached) Design Criteria which prevails to the extent of any inconsistency with this plan)

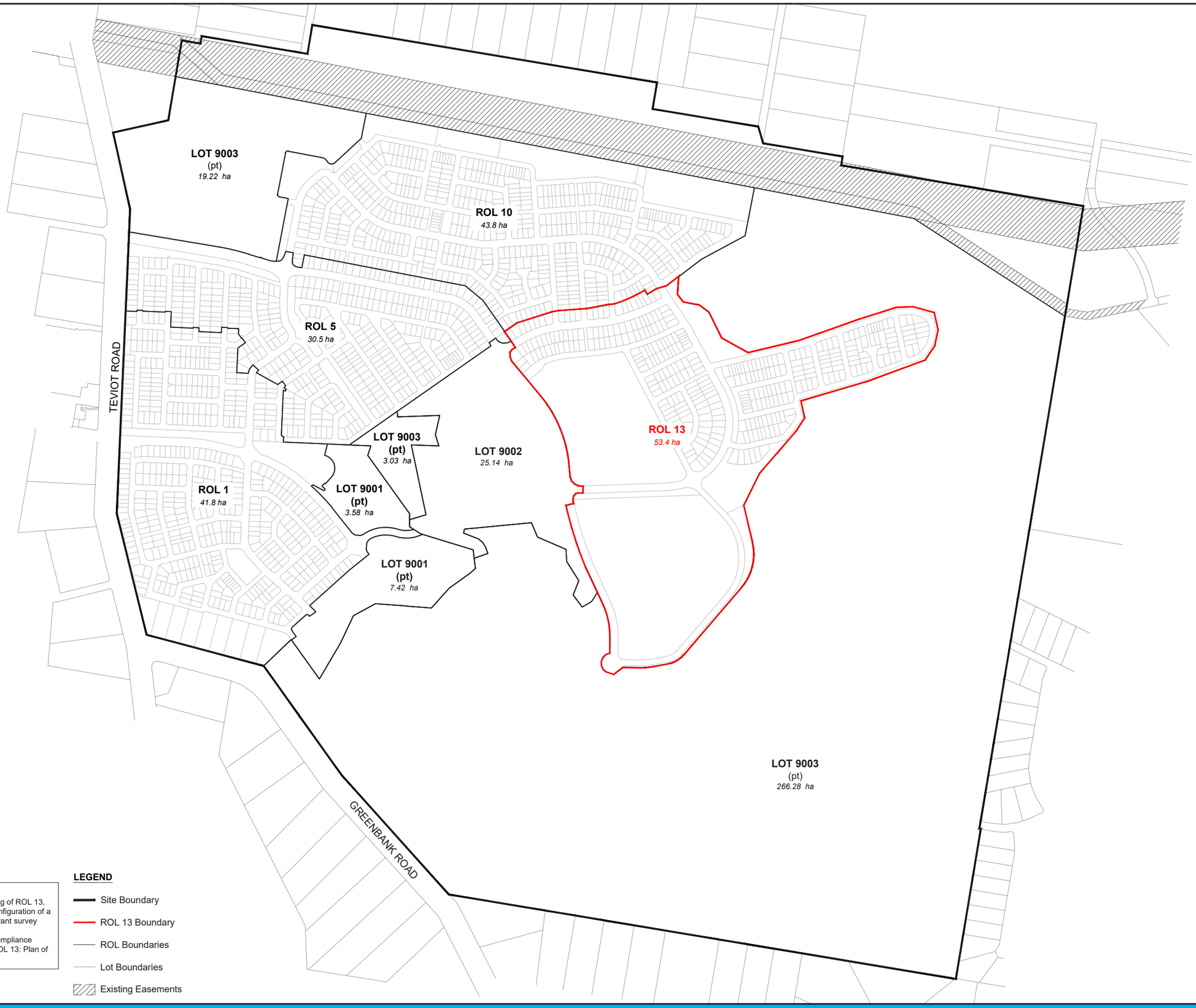
HOUSE (DETACHED)

- Villa
- Premium Villa
- Courtyard
- Premium Courtyard
- Traditional
- Premium Traditional

MULTIPLE RESIDENTIAL

- Potential Duplex Dwelling

NOTE:
- Balance lots, while not appearing on ROL 13: Reconfiguration of a Lot Plans, will be included on the relevant survey plans as development progresses.
- This ROL plan may be changed via compliance assessment in accordance with the ROL 13: Plan of Development - Design Criteria document.



NOTE:
- Balance lots for the progressive staging of ROL 13, while not appearing on ROL 13: Reconfiguration of a Lot Plans, will be included on the relevant survey plans as development progresses.
- This ROL plan may be changed via compliance assessment in accordance with the ROL 13: Plan of Development - Design Criteria.

LEGEND

- Site Boundary
- ROL 13 Boundary
- ROL Boundaries
- Lot Boundaries
- Existing Easements

URBIS

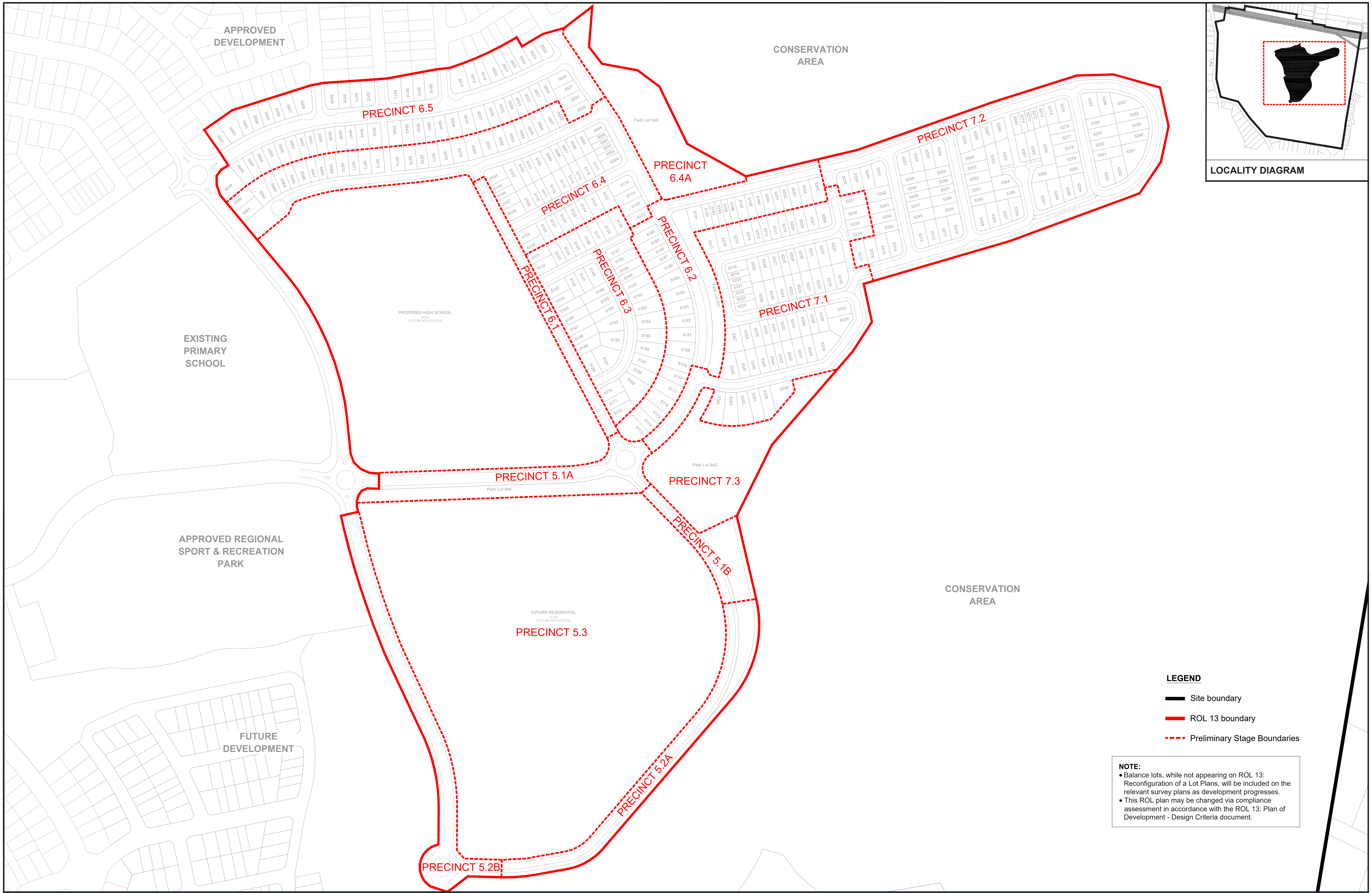
EVERLEIGH

RECONFIGURATION OF A LOT PLAN - ROL 13 - BALANCE LOTS

Scale: 1:10,000 @ A3

0 | 100 | 200 | 300 | 400 | 500

PROJECT NO: P0018054
DATE: 11.03.2024
DRAWING NO: ROL13-5
REV: 06



APPROVED DEVELOPMENT
CONSERVATION AREA
PRECINCT 6.5
PRECINCT 7.2
PRECINCT 6.4A
PRECINCT 6.4
PRECINCT 6.2
PRECINCT 6.3
PRECINCT 6.1
PRECINCT 7.1
EXISTING PRIMARY SCHOOL
PROPOSED HIGH SCHOOL
PRECINCT 5.1A
Park Lot 845
PRECINCT 7.3
Park Lot 842
PRECINCT 5.1B
APPROVED REGIONAL SPORT & RECREATION PARK
CONSERVATION AREA
FUTURE RESIDENTIAL
PRECINCT 5.3
FUTURE DEVELOPMENT
PRECINCT 5.2A
PRECINCT 5.2B
LOCALITY DIAGRAM
LEGEND
Site boundary
ROL 13 boundary
Preliminary Stage Boundaries
NOTE:
• Balance lots, while not appearing on ROL 13: Reconfiguration of a Lot Plans, will be included on the relevant survey plans as development progresses.
• This ROL plan may be changed via compliance assessment in accordance with the ROL 13: Plan of Development - Design Criteria document.

URBIS

EVERLEIGH

RECONFIGURATION OF A LOT PLAN - ROL 13 - PRELIMINARY STAGING PLAN

Scale: 1:4,000 @ A3

0 | 50 | 100 | 150

PROJECT NO: P0018054
DATE: 11.03.2024
DRAWING NO: ROL13-6
REV: 06

Appendix B – Site photos

Photo 1 – Noise monitoring location (Greenbank Road)

Appendix C – Meteorological data

Greenbank (Defence), Queensland
March 2020 Daily Weather Observations

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Su	17.6	32.5	0			NE	19	15:08	26.6	62		SW	7		32.4	45		NNE	4	
2	Mo	18.2	35.8	0			NNE	22	16:50	27.1	67		W	6		34.9	30		SSE	6	
3	Tu	18.7	33.5	0			NE	28	16:24	27.7	68		NE	2		32.3	46		ENE	11	
4	We	22.0	29.6	23.2			SE	28	12:05	22.8	99			Calm		28.5	61		E	11	
5	Th	20.0	31.0	1.2			NE	33	12:20	26.8	72		NE	4		29.8	51		NNE	15	
6	Fr	23.5	32.1	0.6			NNE	20	16:00	27.4	79		N	6		30.0	65		NNE	7	
7	Sa	23.2	30.6	4.0			SSE	24	17:34	27.9	76		S	6		28.1	66		SSE	9	
8	Su	19.9	29.4	0			SSE	31	11:09	25.3	57		S	7		27.8	49		SE	11	
9	Mo	19.9	21.5	5.2			ESE	26	14:29	20.3	98		S	2		20.3	97		SSE	4	
10	Tu	18.1	23.9	39.6			SE	26	17:07	21.1	87		S	7		22.5	78		SE	9	
11	We	17.3	27.3	2.8			SE	35	11:58	23.0	70		S	9		25.6	53		SE	7	
12	Th	17.5	24.7	0.2			SSE	30	11:48	23.4	64		S	11		23.3	69		SSE	7	
13	Fr	17.0	27.1	4.4			ESE	33	16:53	23.2	67		S	9		26.2	53		ESE	11	
14	Sa	14.7	28.8	0			SE	22	15:17	23.7	59		S	6		26.8	49		ESE	7	
15	Su	16.6	27.4	0			SSW	35	12:57	23.3	65		SSW	11		26.4	52		S	17	
16	Mo	16.1	27.7	0			SSE	33	09:49	22.8	53		SSW	9		27.0	41		SSW	9	
17	Tu	16.3	26.6	0			SE	33	14:04	22.6	61		S	9		26.1	45		SSE	9	
18	We	13.4	28.6	0			ESE	28	16:15	22.7	56		S	7		28.2	38		E	7	
19	Th	12.4	30.0	0			N	20	11:32	23.1	57		SW	6		28.5	39		E	2	
20	Fr	13.2	31.0	0			NNE	26	17:14	23.5	67		W	4		30.1	37		N	7	
21	Sa	14.7	33.4	0			E	28	15:28	24.5	65		WNW	9		32.2	38		ENE	11	
22	Su	17.8		0						26.4	66		ESE	4							
Statistics for the first 22 days of March 2020																					
	Mean	17.6	29.2							24.3	68			6		28.0	52			8	
	Lowest	12.4	21.5							20.3	53			Calm		20.3	30		E	2	
	Highest	23.5	35.8	39.6			#	35		27.9	99		#	11		34.9	97		S	17	
	Total			81.2																	

Observations were drawn from Greenbank (Defence) {station 140009}

IDCJDW4156.202003 Prepared at 00:26 UTC on 22 Mar 2020

Appendix D – Noise measurement results

Unattended Noise Measurements
Everleigh, Greenbank - Location 1

Noise Levels - 18hr Day (Traffic Noise)

Logger Location - Southern-western boundary of existing Lot 3 on SP297192, approx. 20m setback from Teviot Road

ARL Environmental Noise Logger	
Logger Serial Number	15-203-537
Measurement Title	Everleigh - RoL 5
Measurement started at	05/03/2020 11:09 AM
Measurement stopped at	19/03/2020 06:34 AM
Frequency Weighting	A
Time Averaging	Fast
Statistical Interval	15 min
Pre-measurement Ref.	94.0
Post-measurement Ref.	94.0
Engineering Units	dB SPL

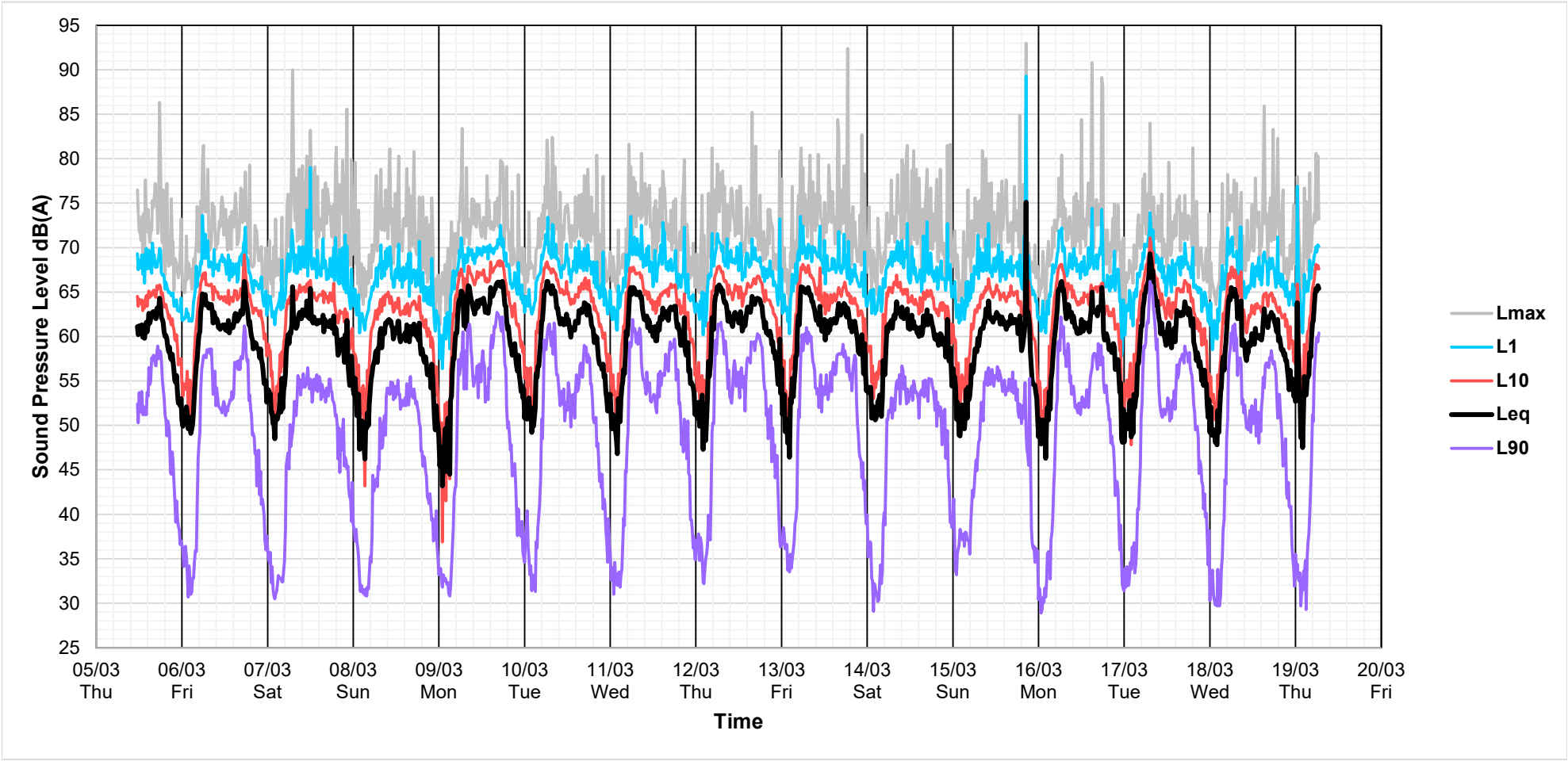
Note

— No noise data available

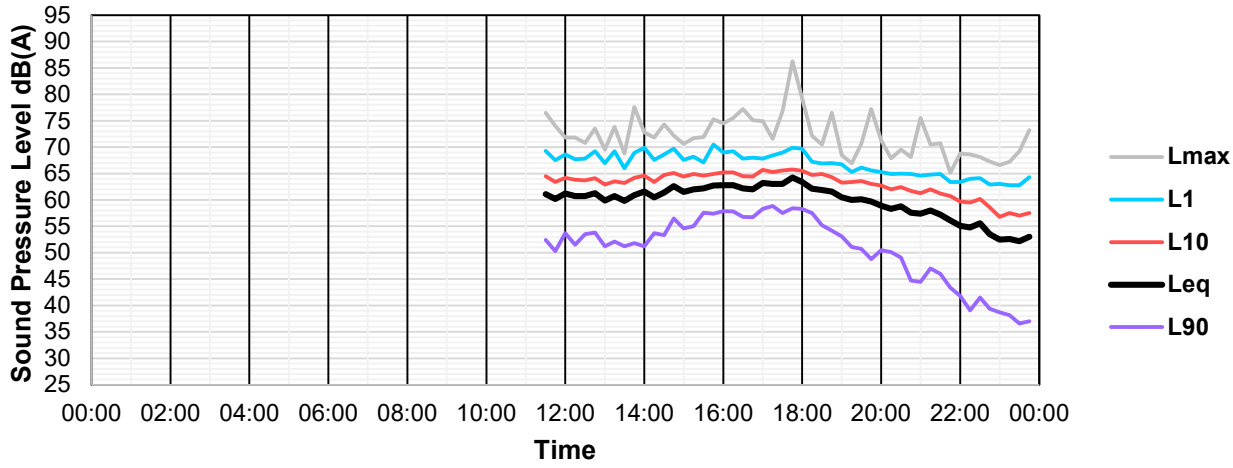
Rainfall recorded on this day

		$L_{A10,T}$			$L_{Aeq,T}$		$L_{A90,T}$	
Date	**Day**	**18hr day 6am-12am**	**1hr max 6am-12am**	**Time for 1hr max**	**18hr day 6am-12am**	**8hr night 10pm-6am**	**18hr day 6am-12am**	**8hr night 10pm-6am**
5/03/2020	Thursday	—	—	—	—	54	—	39
6/03/2020	Friday	64	67	17:00	61	54	52	36
7/03/2020	Saturday	64	65	11:00	61	53	51	37
8/03/2020	Sunday	62	65	09:00	59	53	49	38
9/03/2020	Monday	66	68	16:00	62	55	54	39
10/03/2020	Tuesday	64	68	06:00	61	55	53	39
11/03/2020	Wednesday	64	68	06:00	61	55	54	40
12/03/2020	Thursday	65	68	06:00	62	56	55	41
13/03/2020	Friday	65	68	06:00	62	55	55	38
14/03/2020	Saturday	64	66	08:00	61	54	52	39
15/03/2020	Sunday	64	67	20:00	61	54	51	38
16/03/2020	Monday	64	68	06:00	61	54	52	39
17/03/2020	Tuesday	64	70	07:00	61	54	53	38
18/03/2020	Wednesday	63	67	06:00	60	56	52	39
Average		**64**	**67**		**61**	**54**	**52**	**39**
Average (weekdays only)		**64**	**68**		**61**	**55**	**53**	**39**

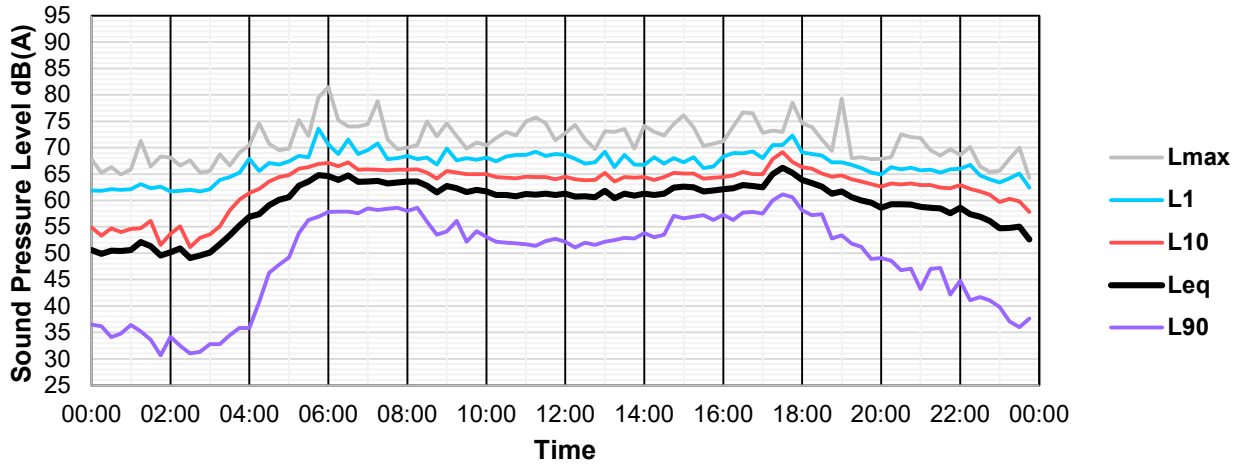
Unattended Noise Measurements
5 to 19 March 2020



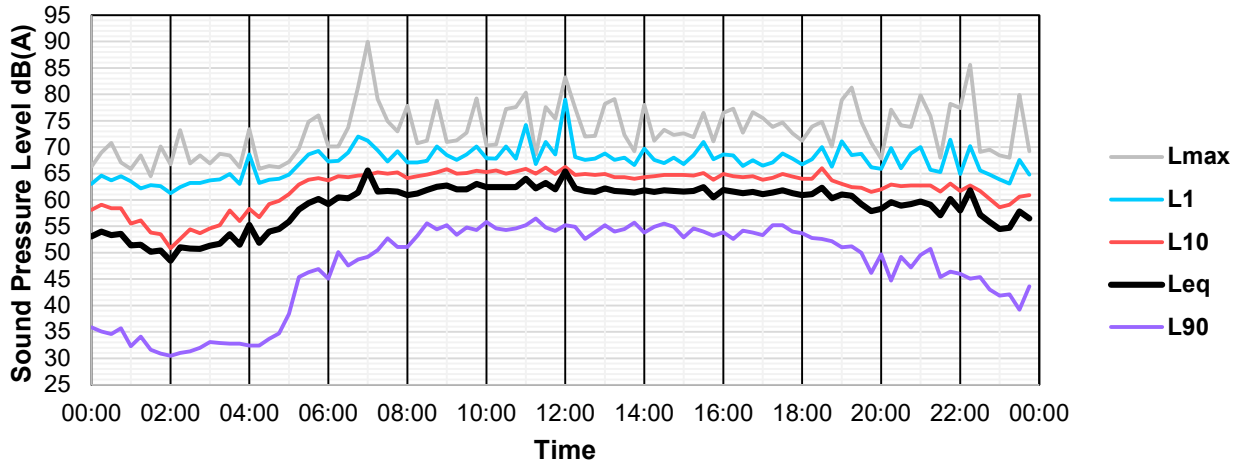
Unattended Noise Measurements
Thursday 5 March 2020



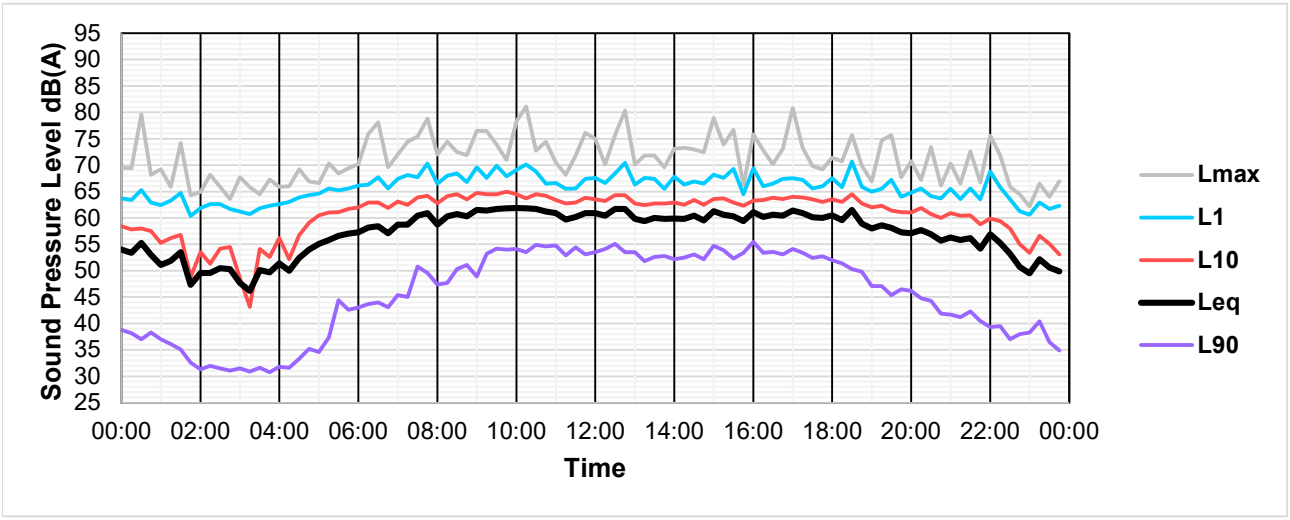
Unattended Noise Measurements
Friday 6 March 2020



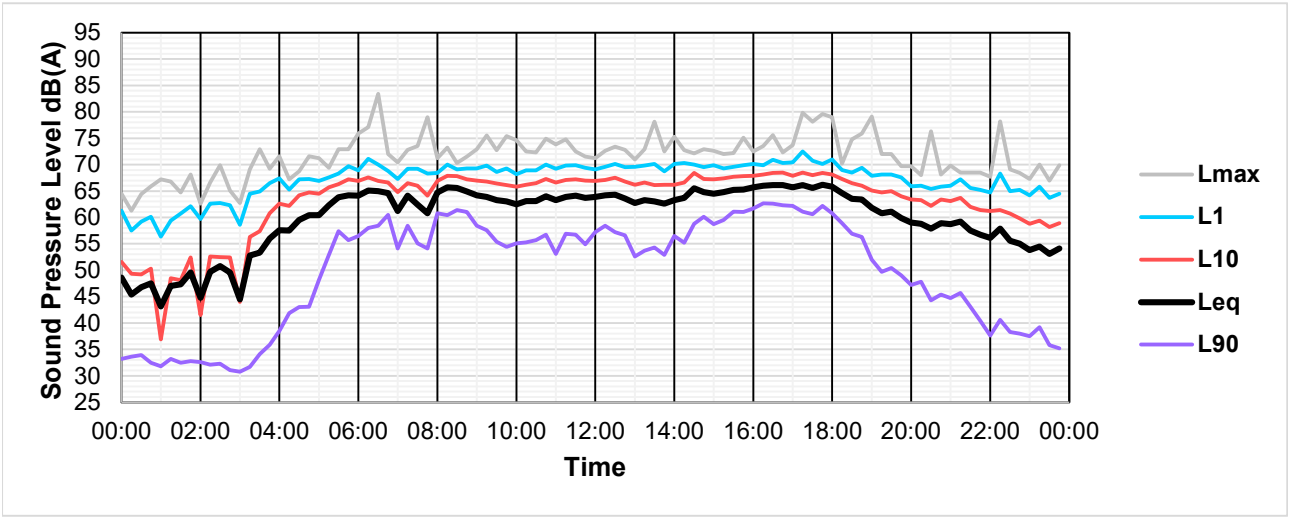
Unattended Noise Measurements
Saturday 7 March 2020



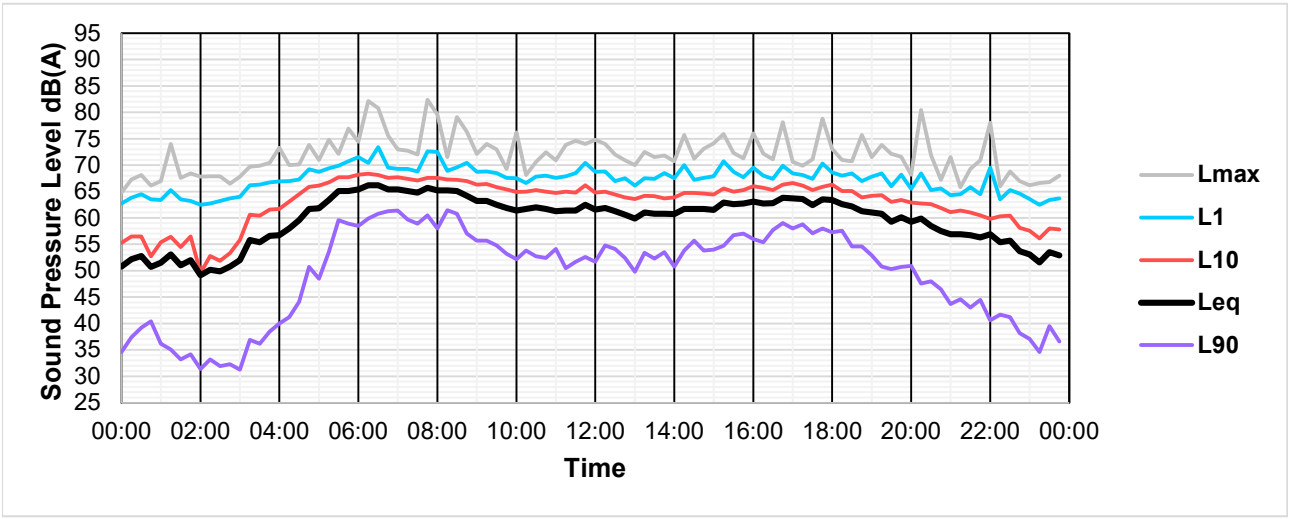
Unattended Noise Measurements
Sunday 8 March 2020



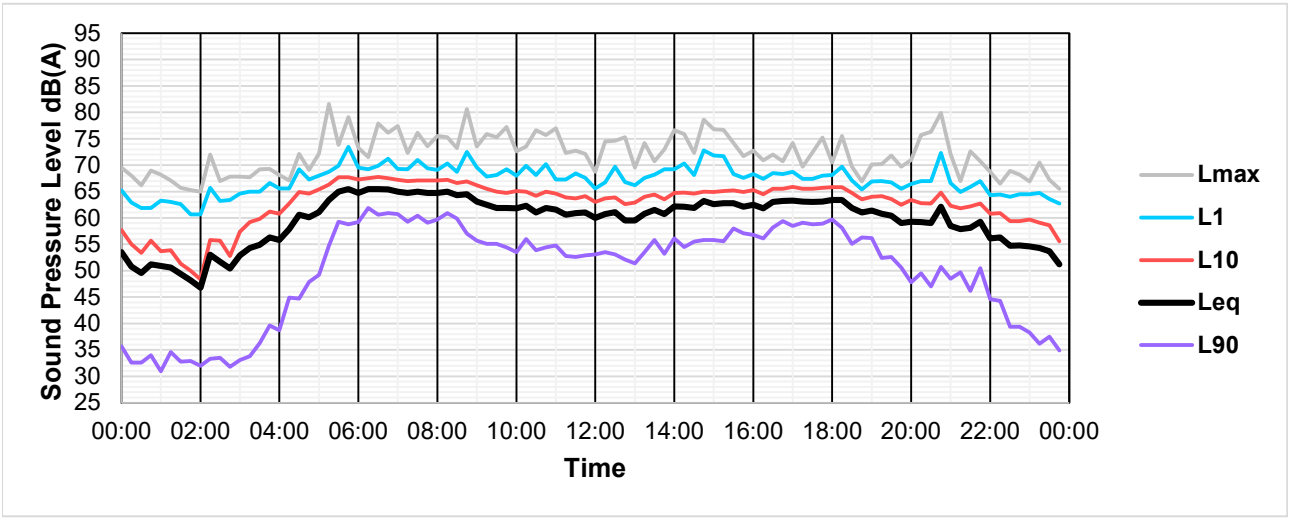
Unattended Noise Measurements
Monday 9 March 2020



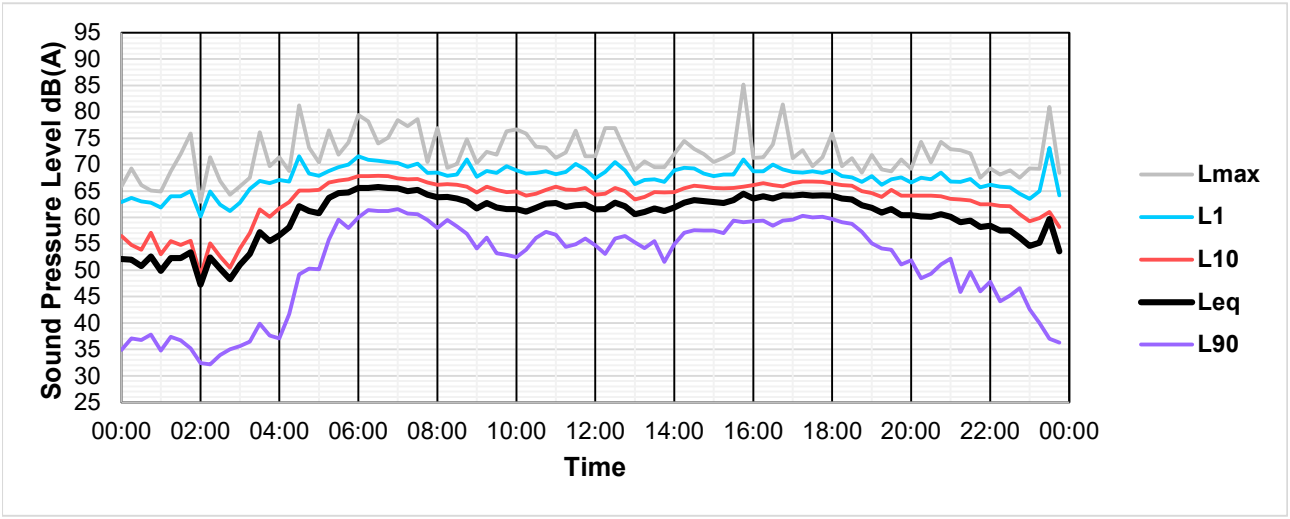
Unattended Noise Measurements
Tuesday 10 March 2020



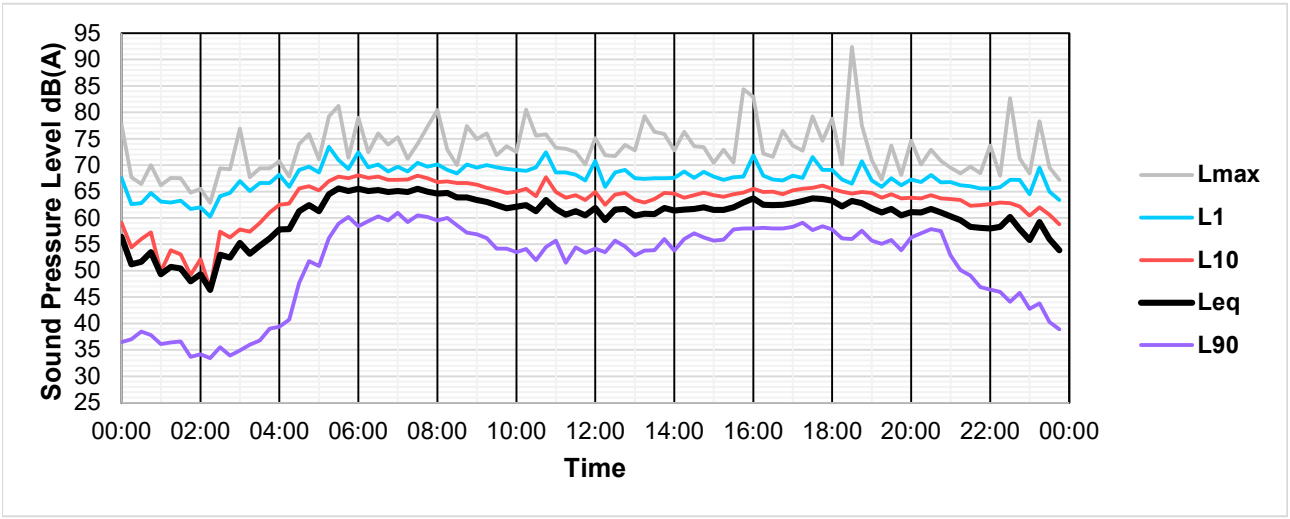
Unattended Noise Measurements
Wednesday 11 March 2020



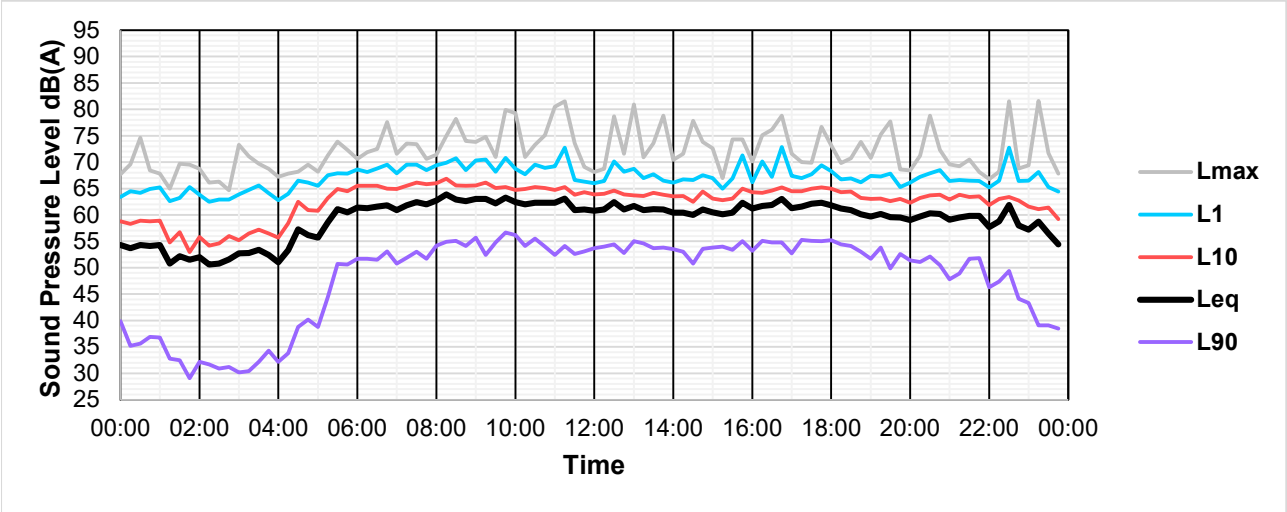
Unattended Noise Measurements
Thursday 12 March 2020



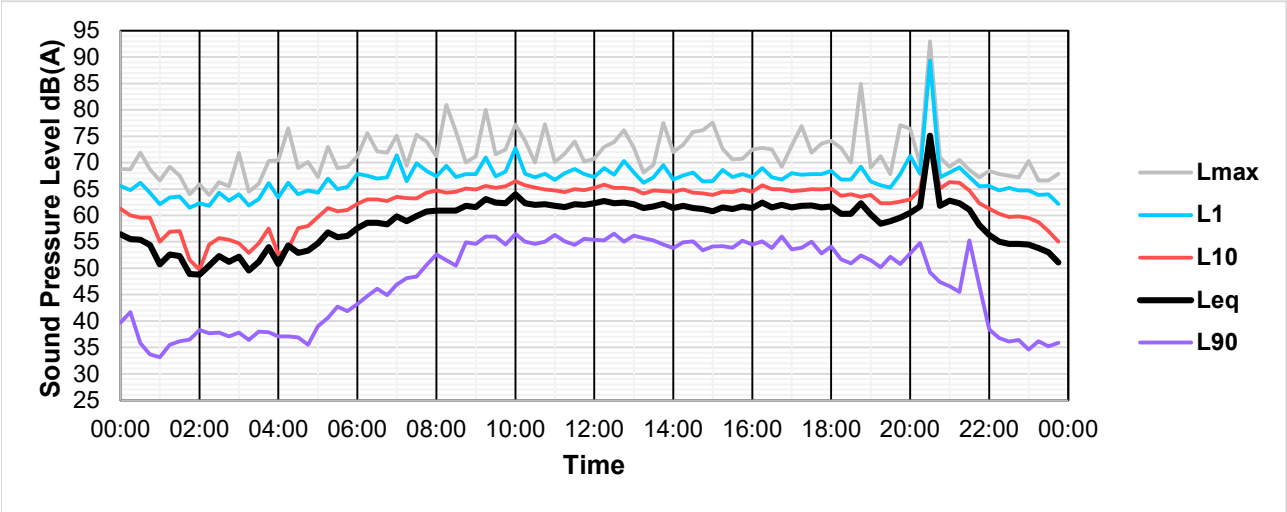
Unattended Noise Measurements
Friday 13 March 2020



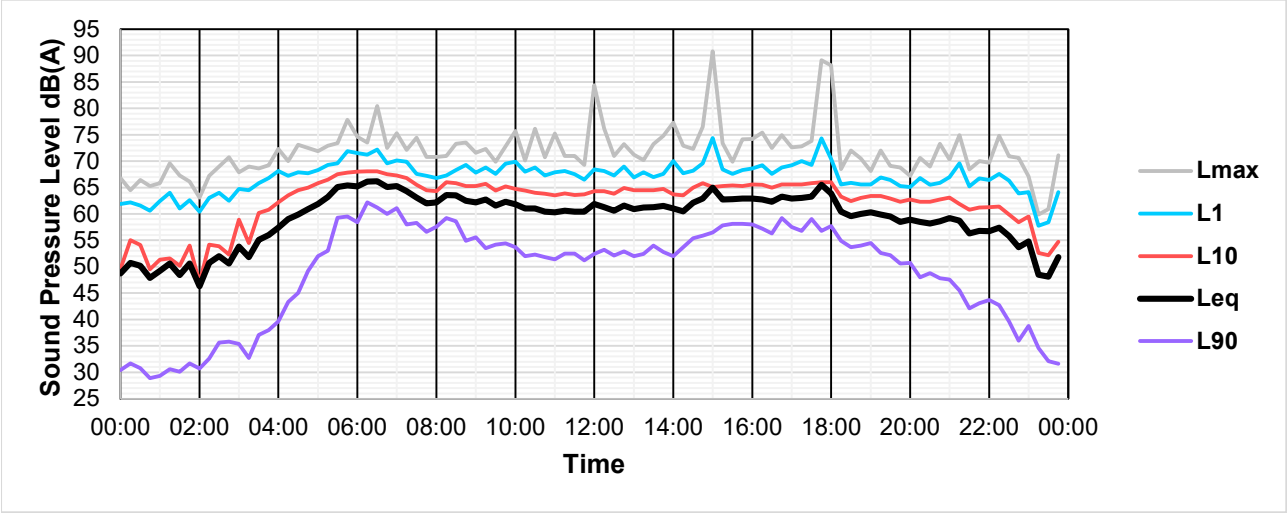
Unattended Noise Measurements
Saturday 14 March 2020



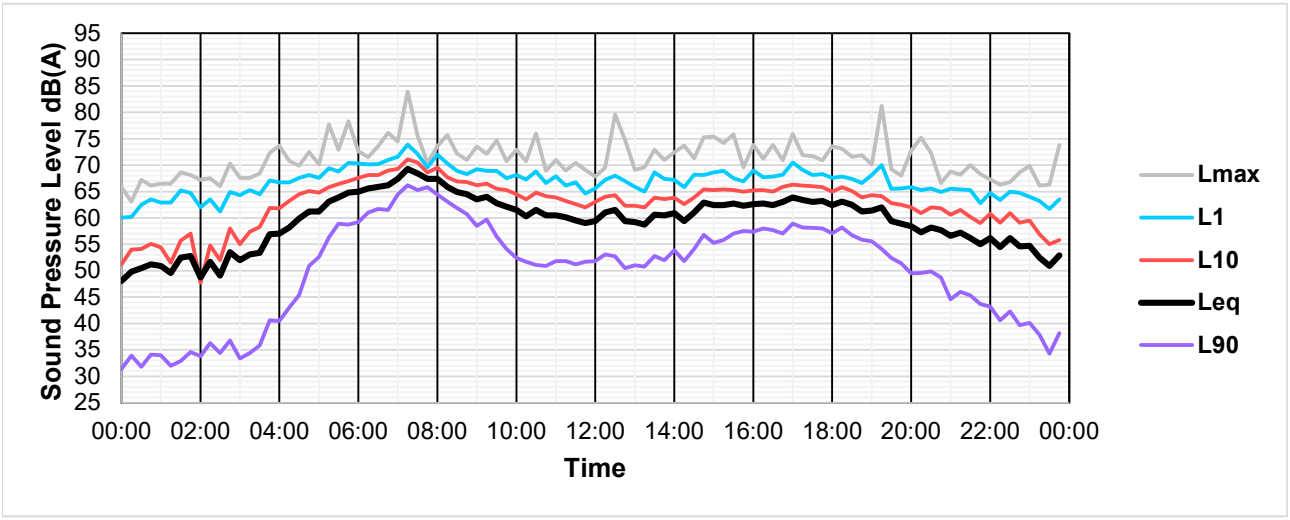
Unattended Noise Measurements
Sunday 15 March 2020



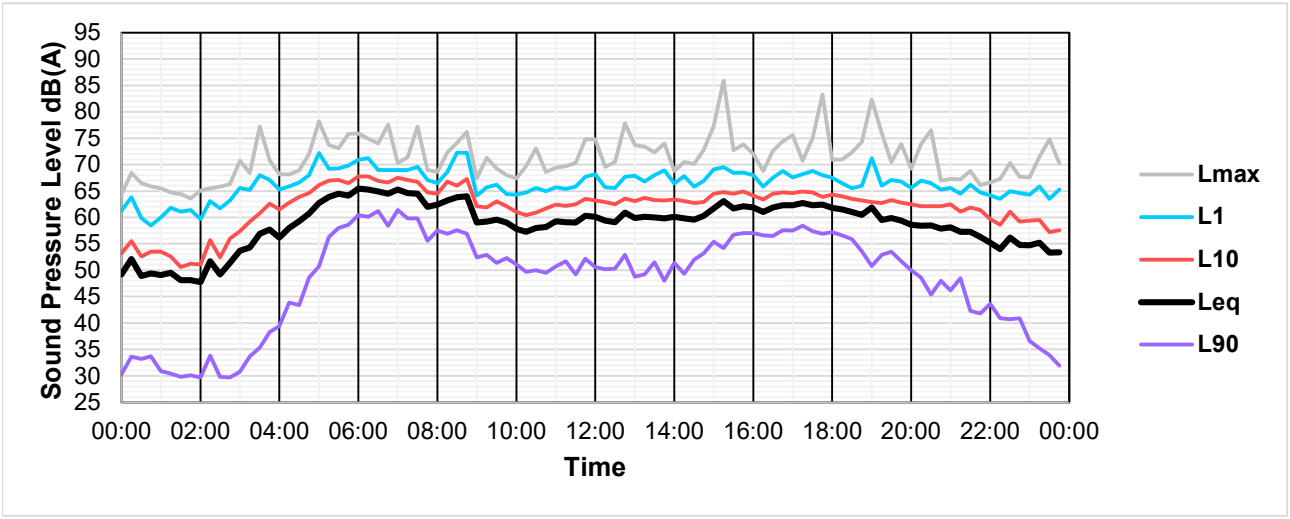
Unattended Noise Measurements
Monday 16 March 2020



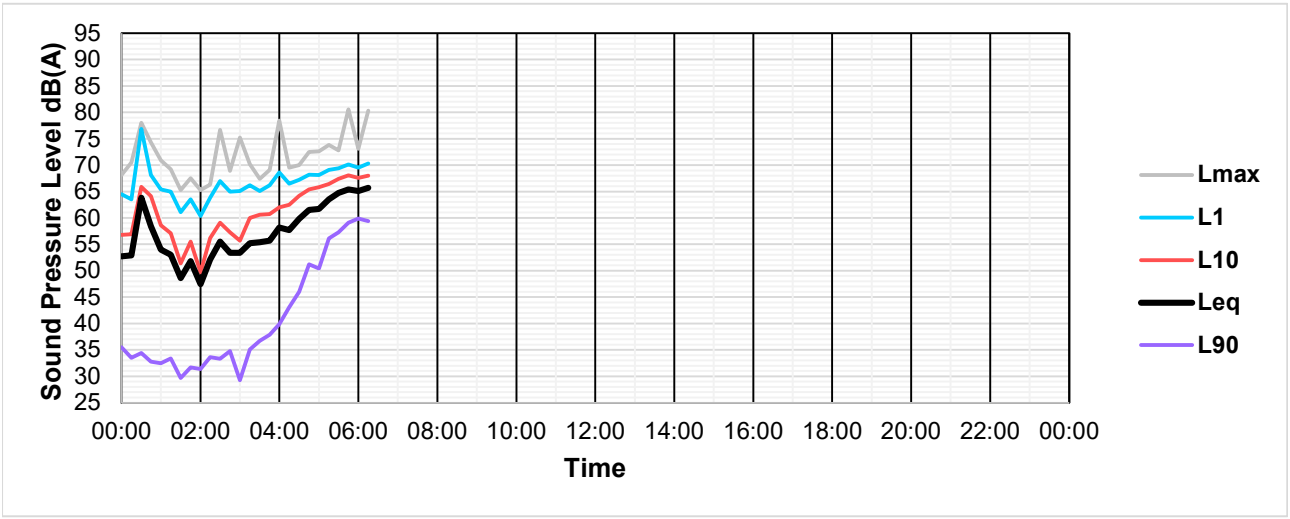
Unattended Noise Measurements
Tuesday 17 March 2020



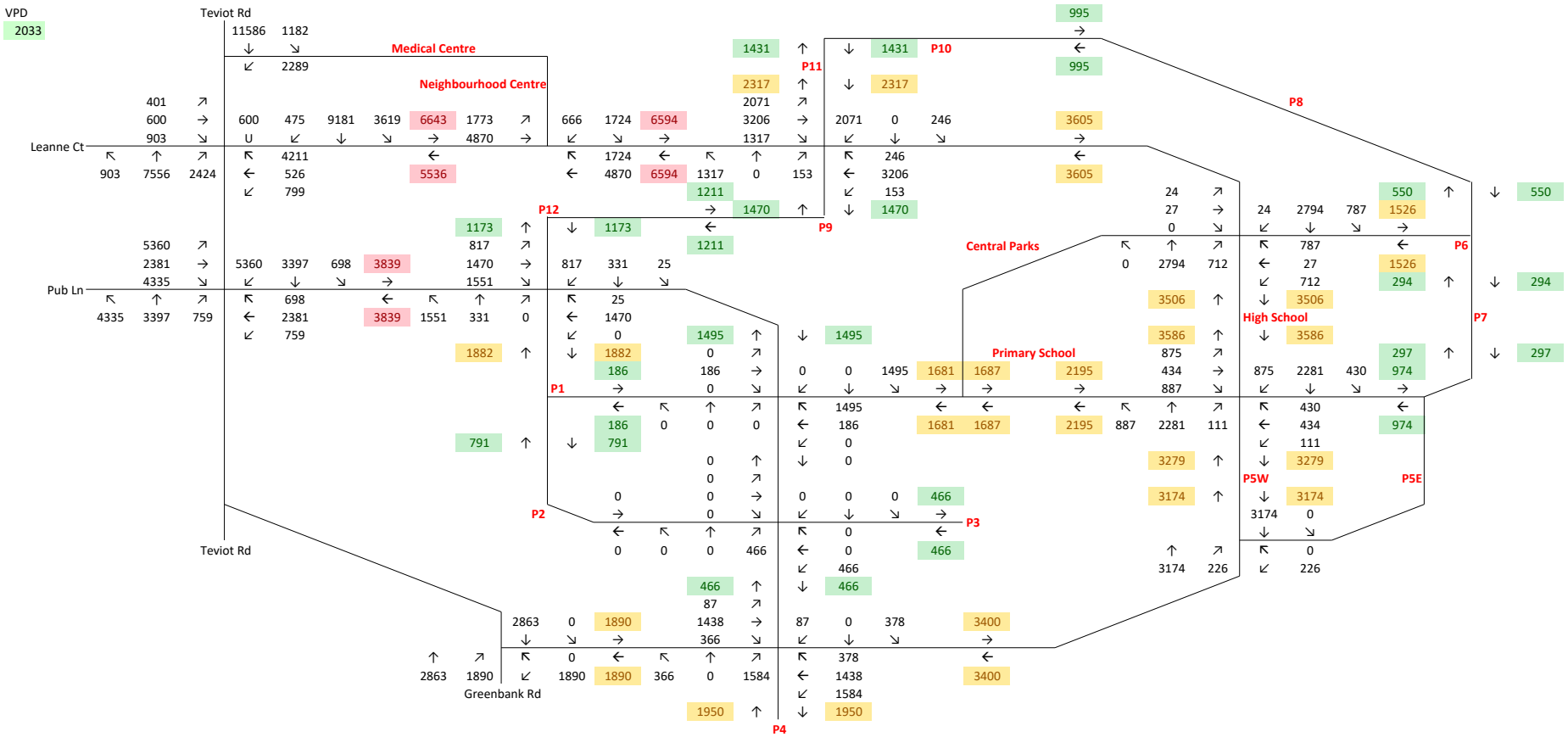
Unattended Noise Measurements
Wednesday 18 March 2020



Unattended Noise Measurements
Thursday 19 March 2020



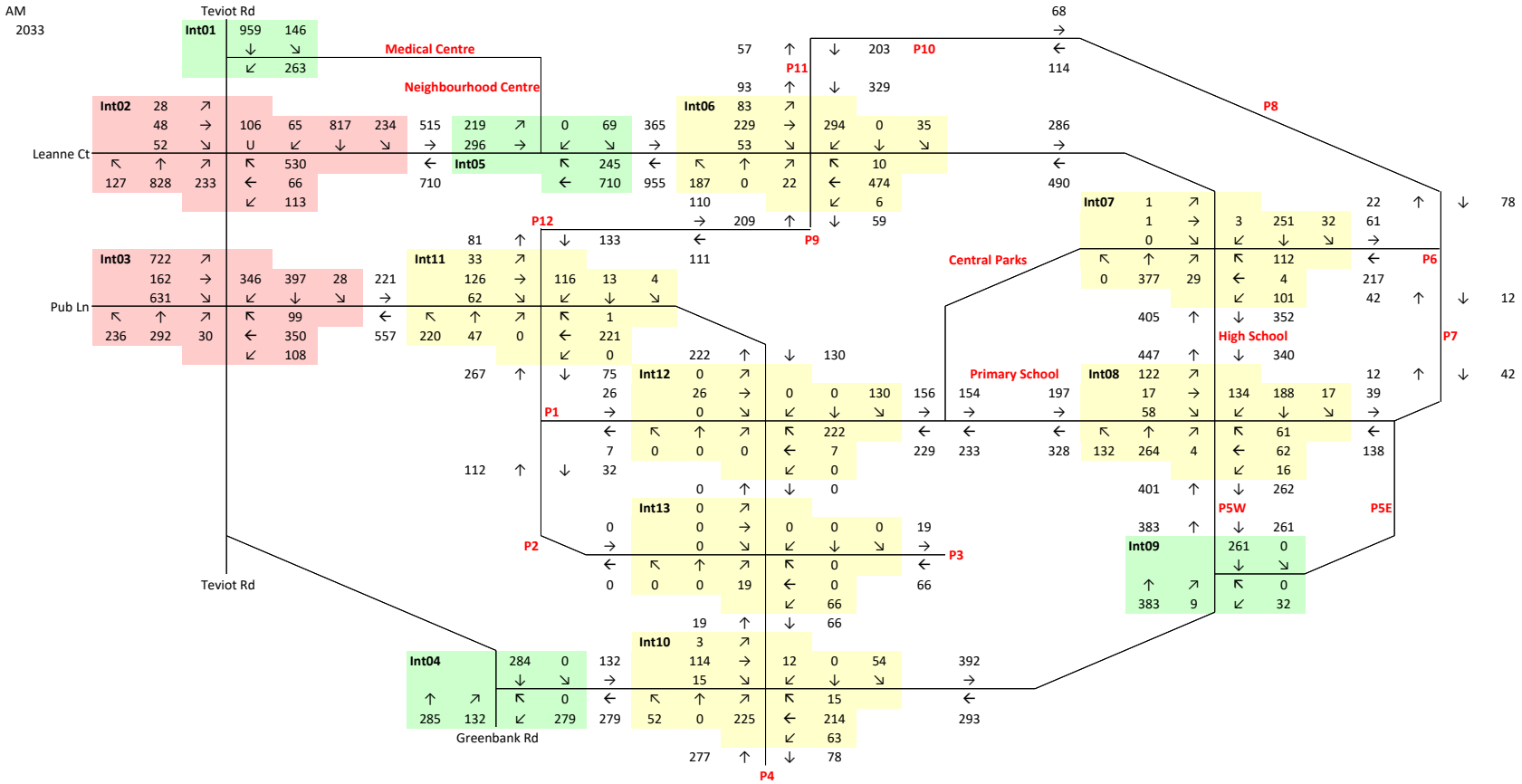
Appendix E – Traffic volumes, 2044

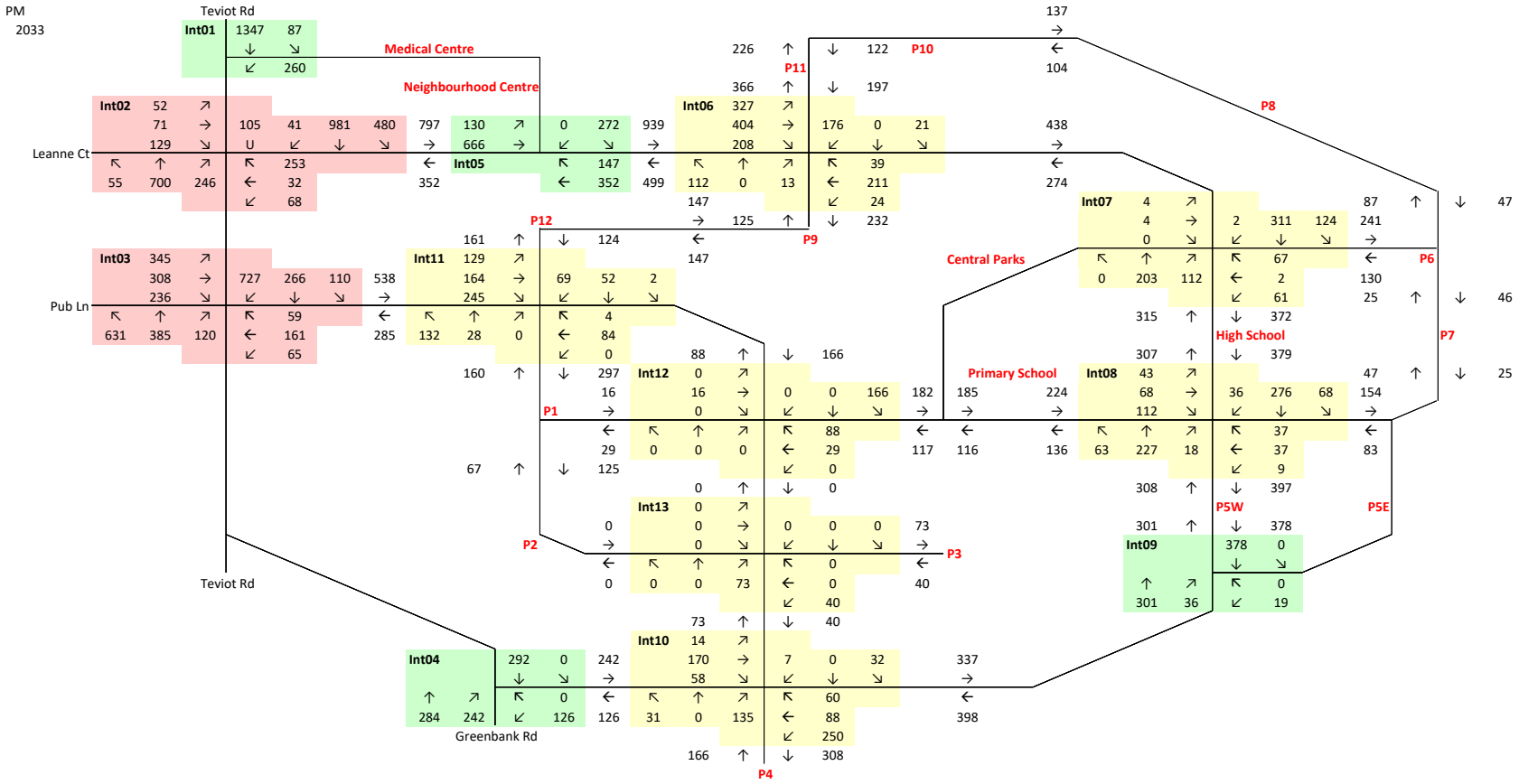


Greenbank Drive access		Y
P1	365	100%
P2	226	100%
P3	133	100%
P4	557	100%
P5W	48	100%
P6	195	100%
P7	169	100%
P8	286	100%
P9	423	100%
P10	280	100%
P11	253	100%
P12	143	100%
P5E	258	100%
Primary	1400	100%
Medical	8000	100%
Retail	8000	100%
Secondary	1800	100%
Background		Y

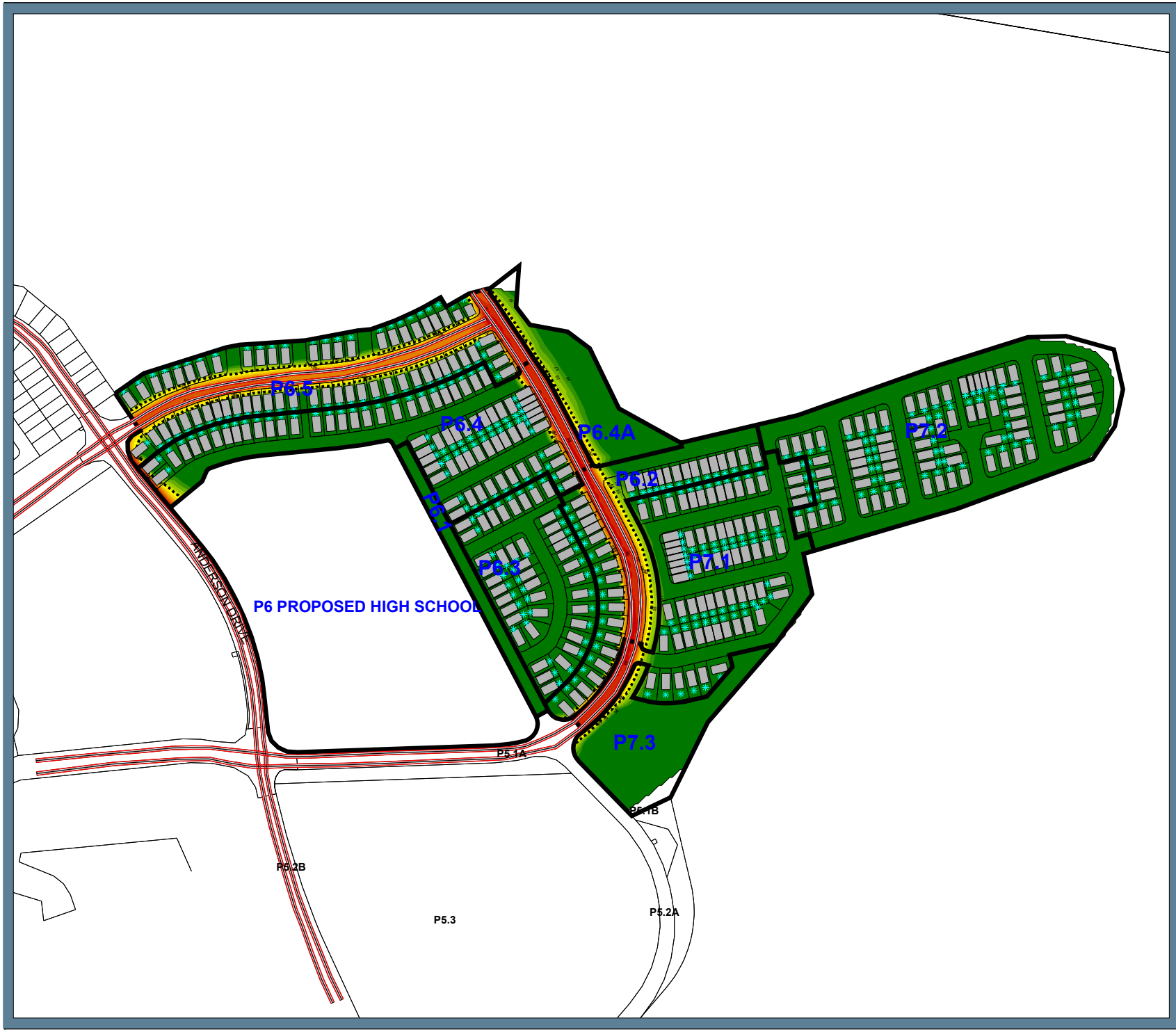
Everleigh Drive link: N

Anderson Drive link: Y


AM
2033
Teviot Rd
Int01
959
146
263
Medical Centre
Neighbourhood Centre
Leanne Ct
Pub Ln
Int02
Int03
Int04
Int05
Int06
Int07
Int08
Int09
Int10
Int11
Int12
Int13
P1
P2
P3
P4
P5E
P5W
P6
P7
P8
P9
P10
P11
P12
Central Parks
Primary School
High School
Greenbank Rd


PM
2033
Teviot Rd
Int01
Medical Centre
Neighbourhood Centre
Int02
Leanne Ct
Int05
Int06
P8
P10
P11
P12
P9
Int03
Pub Ln
Int11
Central Parks
Int07
P6
Int12
Primary School
Int08
High School
P7
P1
P5W
P5E
P2
P3
Int13
Int09
Teviot Rd
Int04
Int10
Greenbank Rd
P4

Appendix F– Traffic noise levels – Grid Noise Maps



CONSULTING ENGINEERS

ATP230238

Everleigh, Greenbank - RoL 13

Traffic Noise Modelling
Year 2044

Ground Floor Private Open Spaces
Residential Lots
(1.5m AGL)

Traffic noise level
Free field
$L_{10(18hr)}$dB(A)

	<=	56
56 <	<=	57
57 <	<=	58
58 <	<=	59
59 <	<=	60
60 <	<=	61
61 <	<=	62
62 <	<=	63
63 <	<=	64
64 <	<=	65
65 <	<=	66
66 <	<=	67
67 <	<=	68
68 <	<=	69
69 <		

Legend

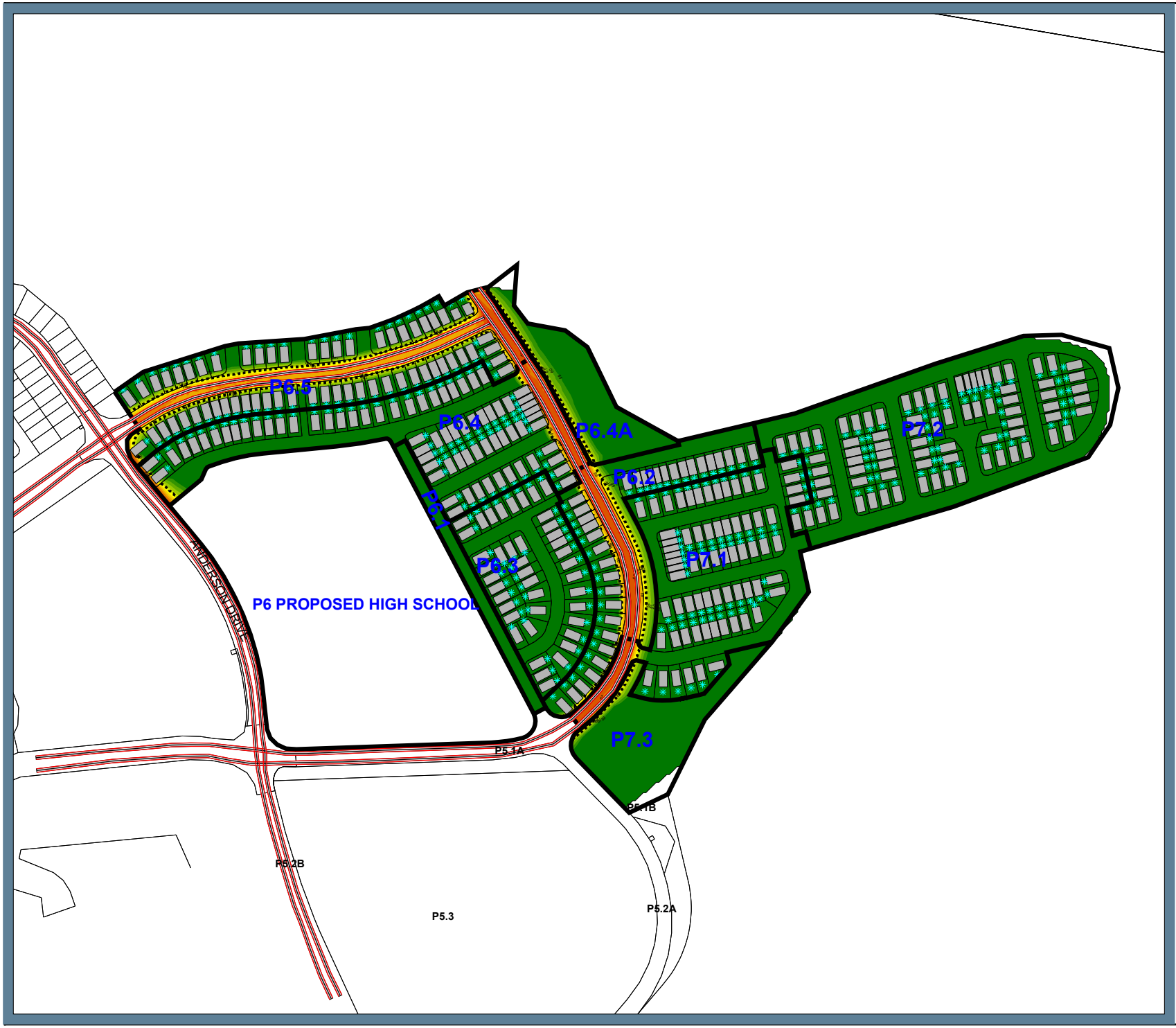
- Limit line - 60dB(A) criteria
- Road noise emission line
- Road surface
- Building
- Auxiliary building
- Private open space

SCALE @ A4 1:6000

0 35 70 140 210 280 m

N

Grid Spacing: 3m
Project Engineer: Bradley Thompson
Created: 23/04/2024
Processed with SoundPLAN 8.2



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ATP230238

Everleigh, Greenbank - RoL 13

Traffic Noise Modelling
Year 2044

Ground Floor
Residential Lots
(1.8m AGL)

Traffic noise level
Facade adjusted
$L_{10(18hr)}$dB(A)

	<=	59
59 <	<=	60
60 <	<=	61
61 <	<=	62
62 <	<=	63
63 <	<=	64
64 <	<=	65
65 <	<=	66
66 <	<=	67
67 <	<=	68
68 <	<=	69
69 <	<=	70
70 <	<=	71
71 <	<=	72
72 <		

Legend

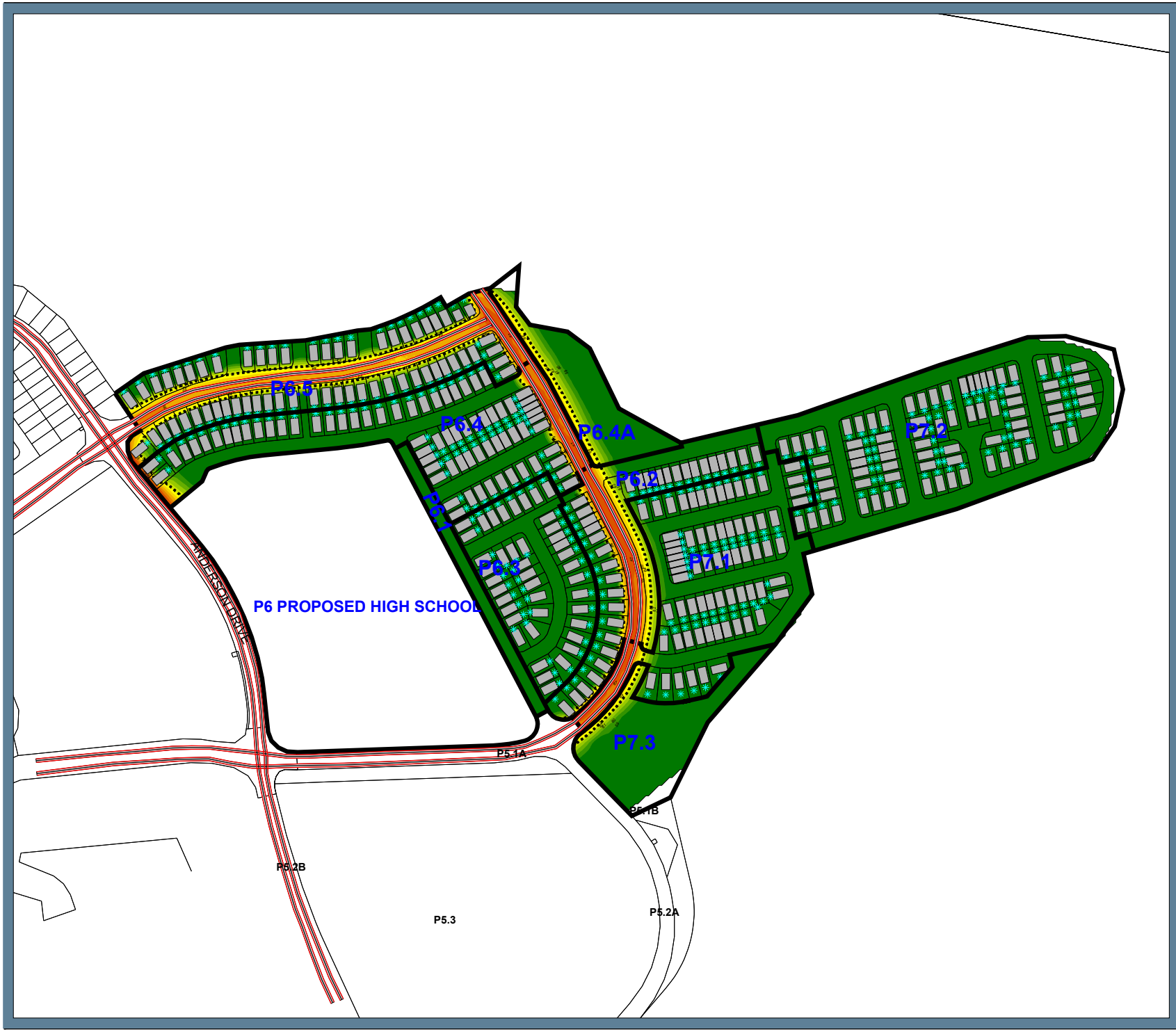
- Limit line - 63dB(A) criteria
- Road noise emission line
- Road surface
- Building
- Auxiliary building
- Private open space

SCALE @ A4 1:6000

0 35 70 140 210 280 m

N

Grid Spacing: 3m
Project Engineer: Bradley Thompson
Created: 23/04/2024
Processed with SoundPLAN 8.2



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Everleigh, Greenbank - RoL 13

Traffic Noise Modelling
Year 2044

First Floor
Residential Lots
(4.6m AGL)

Traffic noise level
Facade adjusted
$L_{10(18hr)}$dB(A)

	<=	59
59 <	<=	60
60 <	<=	61
61 <	<=	62
62 <	<=	63
63 <	<=	64
64 <	<=	65
65 <	<=	66
66 <	<=	67
67 <	<=	68
68 <	<=	69
69 <	<=	70
70 <	<=	71
71 <	<=	72
72 <		

Legend

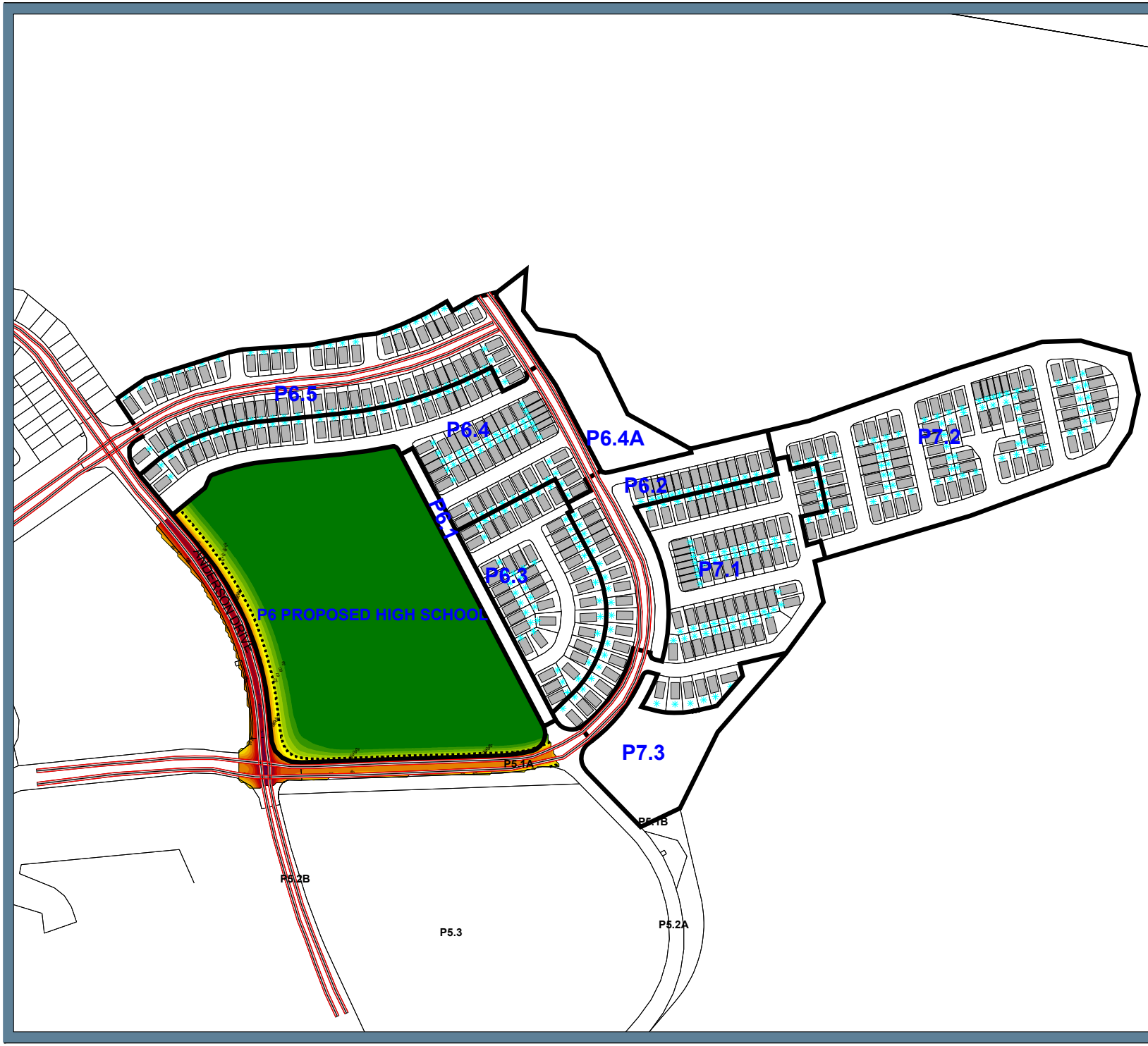
- Limit line - 63dB(A)
- Road noise emission line
- Road surface
- Building
- Auxiliary building
- Private open space

SCALE @ A4 1:6000

0 35 70 140 210 280 m

N

Grid Spacing: 3m
Project Engineer: Bradley Thompson
Created: 23/04/2024
Processed with SoundPLAN 8.2



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Everleigh, Greenbank - RoL 13

Traffic Noise Modelling
Year 2044

Ground Floor Outdoor Areas
Educational Facility Lot
(1.5m AGL)

Traffic noise level
Free field
$L_{10(12hr)}$dB(A)

	<=	59
59 <	<=	60
60 <	<=	61
61 <	<=	62
62 <	<=	63
63 <	<=	64
64 <	<=	65
65 <	<=	66
66 <	<=	67
67 <	<=	68
68 <	<=	69
69 <	<=	70
70 <	<=	71
71 <	<=	72
72 <		

Legend

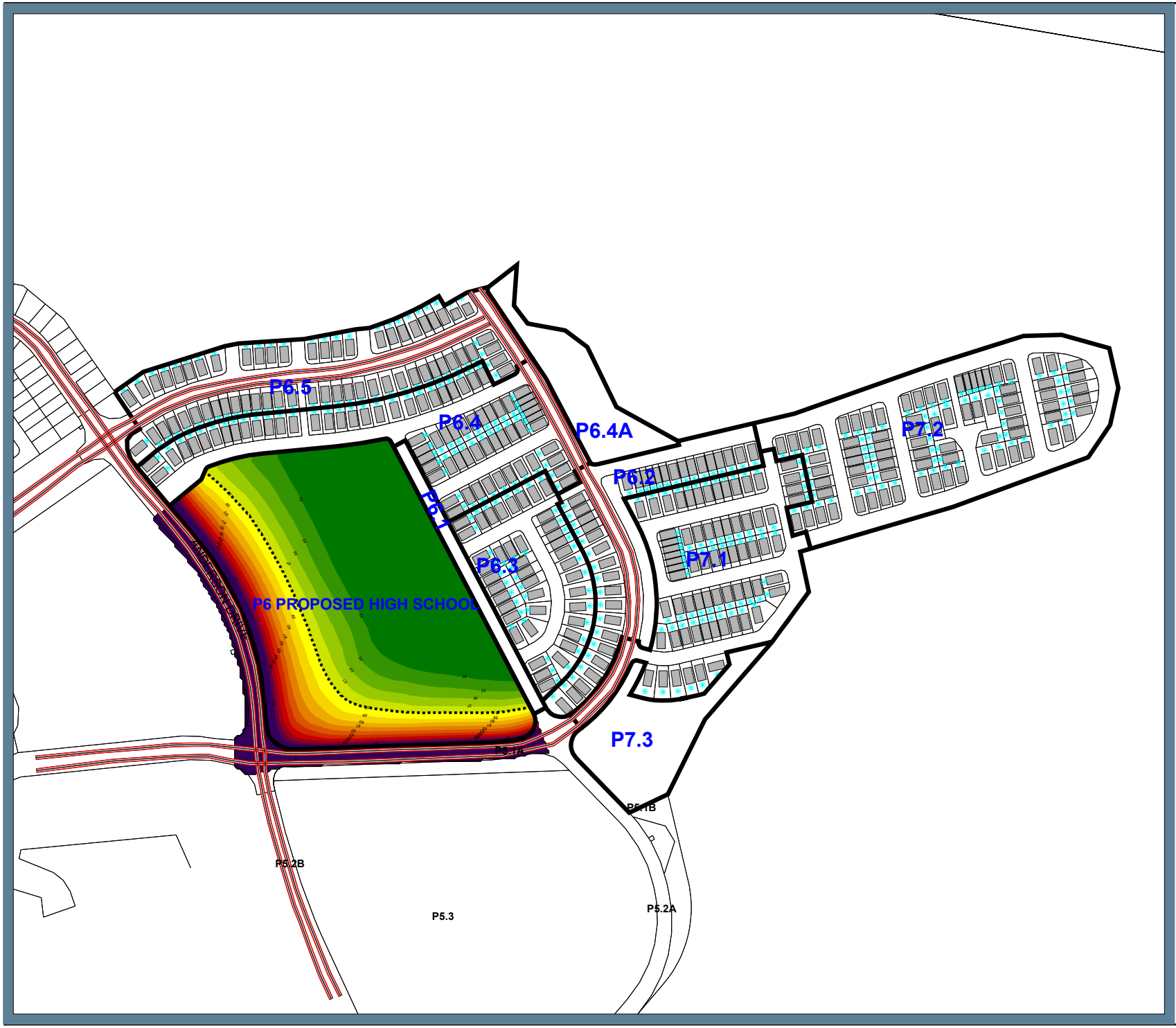
- Limit line - 63dB(A) criteria
- Road noise emission line
- Road surface
- Building
- Auxiliary building
- Private open space

SCALE @ A4 1:6000

0 35 70 140 210 280 m

N

Grid Spacing: 3m
Project Engineer: Bradley Thompson
Created: 23/04/2024
Processed with SoundPLAN 8.2



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Everleigh, Greenbank - RoL 13

Traffic Noise Modelling
Year 2044

Ground Floor
Educational Facility Lot
(1.8m AGL)

Traffic noise level
Facade adjusted
$L_{10(1hr)}$dB(A)

	<=	54
54 <	<=	55
55 <	<=	56
56 <	<=	57
57 <	<=	58
58 <	<=	59
59 <	<=	60
60 <	<=	61
61 <	<=	62
62 <	<=	63
63 <	<=	64
64 <	<=	65
65 <	<=	66
66 <	<=	67
67 <		

Legend

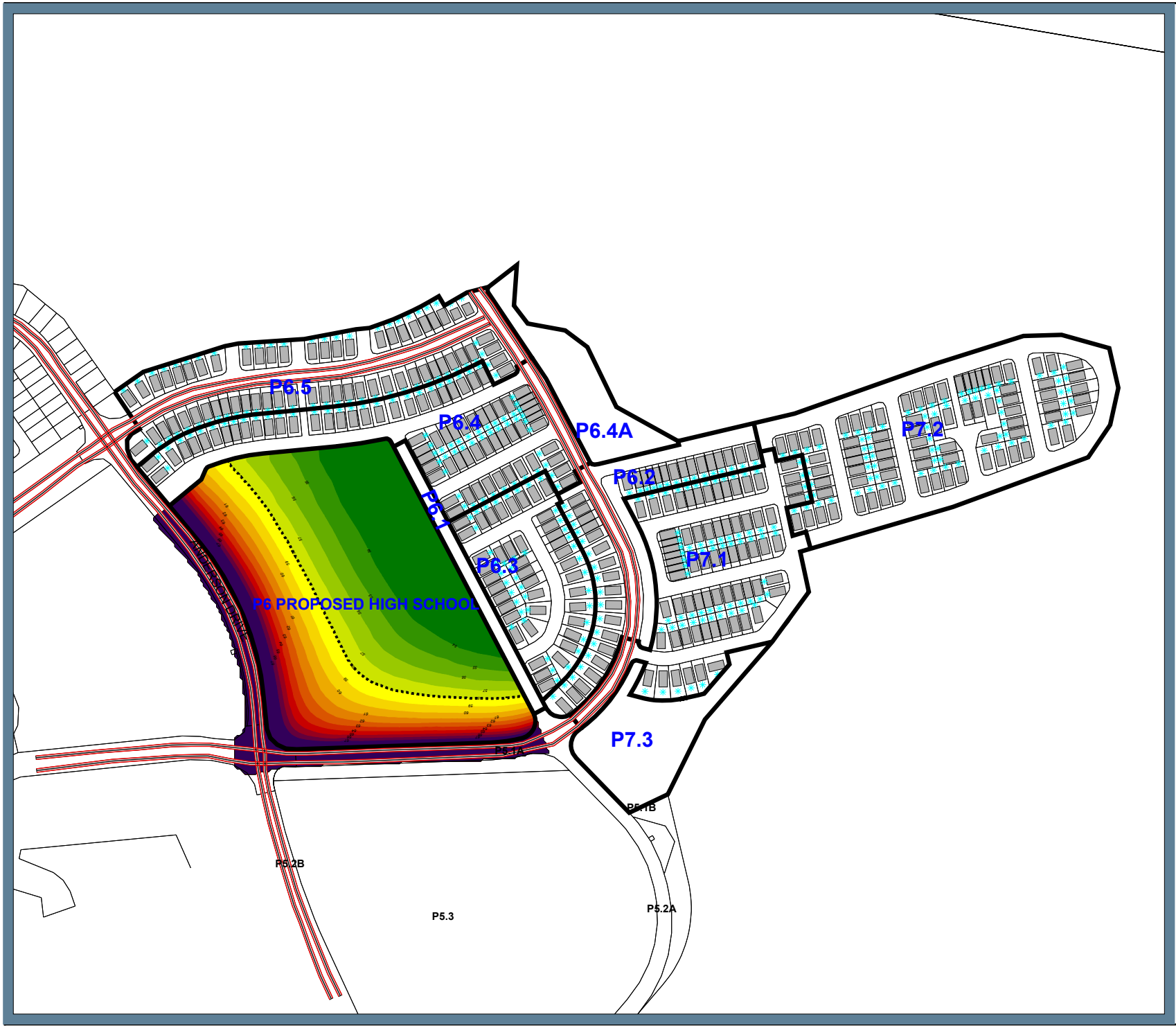
- Limit line - 58dB(A) criteria
- Road noise emission line
- Road surface
- Building
- Auxiliary building
- Private open space

SCALE @ A4 1:6000

0 35 70 140 210 280 m

N

Grid Spacing: 3m
Project Engineer: Bradley Thompson
Created: 23/04/2024
Processed with SoundPLAN 8.2



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Everleigh, Greenbank - RoL 13

Traffic Noise Modelling
Year 2044

First Floor
Educational Facility Lot
(4.6m AGL)

Traffic noise level
Facade adjusted
$L_{10(1hr)}$dB(A)

	<=	54
54 <	<=	55
55 <	<=	56
56 <	<=	57
57 <	<=	58
58 <	<=	59
59 <	<=	60
60 <	<=	61
61 <	<=	62
62 <	<=	63
63 <	<=	64
64 <	<=	65
65 <	<=	66
66 <	<=	67
67 <		

Legend

- Limit line - 58dB(A) criteria
- Road noise emission line
- Road surface
- Building
- Auxiliary building
- Private open space

SCALE @ A4 1:6000

0 35 70 140 210 280 m

N

Grid Spacing: 3m
Project Engineer: Bradley Thompson
Created: 23/04/2024
Processed with SoundPLAN 8.2