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Blood Diamond Group Pty Ltd

**104-106 St Georges
Road, Toorak**

Acoustic Town Planning
Report

wsp

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March 2026

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104-106 St Georges Road, Toorak
Acoustic Town Planning Report



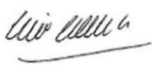
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02	19/03/2026	For approval

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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Table of contents

ADVERTISED PLAN

Executive summary	iii
1 Introduction	1
2 Site description	2
3 Acoustic criteria	3
3.1 Apartment Design Guidelines Victoria	3
3.2 National Construction Code	3
3.3 Internal noise levels	4
3.3.1 AS / NZS 2107	4
3.4 Clause 55 Standards	5
4 Environmental noise emissions.....	6
4.1 Background.....	6
4.2 Time periods	7
4.3 Zoning levels.....	7
4.4 Measured background noise levels.....	8
4.5 Noise limits	9
4.6 Equivalent sound pressure levels	10
4.7 Attended noise survey	10
4.7.1 Attended noise survey equipment.....	11
4.7.2 Measurement results	11
5 External building fabric.....	12
6 Internal building fabric.....	13
6.1 Walls and floors (Between apartments)	13
6.1.1 Walls separating SOU's.....	13
6.1.2 Services wall types	13
7 Building services noise control	14
7.1 Response to Clause 55 B5-6	14
7.1.1 Solid barriers between mechanical plant and dwellings.....	14
7.1.2 Lifts	14
7.1.3 Mechanical car storage.....	14



8	Limitations	15
8.1	Permitted purpose	15
8.2	Qualifications and assumptions	15
8.3	Use and reliance	15
8.4	Disclaimer	16

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Executive summary

WSP Australia Pty Ltd (WSP) was commissioned by Blood Diamond Group Pty Ltd to conduct an acoustic assessment relating to the proposed residential development at 104-106 St Georges Road, Toorak (the Project) to assist with the Town Planning application. Our acoustic assessment has been conducted in accordance with the requirements of the *EPA Victoria Publication 1826.5* (EPA 1826.5).

Unattended and attended noise monitoring was conducted during the period 14-20 December 2020 to measure background noise levels near the Project. Noise limits applicable to environmental noise emissions from the Project to nearby noise sensitive receivers have been established in accordance with EPA 1826.5.

An acoustic assessment of the Project façade has been undertaken and acoustic performance requirements for the façade have been established in accordance with relevant standards and guidelines and the measured site noise levels.

The Project is understood to be approved by the Department of Transport and Planning (DTP) Development Facilitation Program (DFP). The report provides a response and information to address clause B5-6 Noise Impacts of the application requirements.

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1 Introduction

WSP has been commissioned to conduct an acoustic assessment as part of the Town Planning Application in relation to the proposed residential development at 104-106 St Georges Road, Toorak (The Project)..

The acoustic assessment has been conducted in accordance with the requirements of:

- EPA Victoria Publication 1826.5 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues*, May 2021 (EPA 1826.4)
- Environment Protection Regulations 2021 S.R. No. 47/2021 (EPR)
- Australian / New Zealand Standard 2107:2016 – *Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS/NZS 2107)
- National Construction Code 2019 *Building Code of Australia – Volume One – Part F5: Sound transmission and Insulation* (BCA)
- Australian Standard AS 1055:2018 *Acoustics – Description and measurement of environmental noise* (AS 1055)
- Toorak Pavilion (TK05) Clause 55 Standards Assessment

This report presents information regarding:

- An overview of the Project
- Development of acoustic criteria
- Preliminary guidance on façade acoustic requirements
- Acoustic separation between spaces with different BCA Classifications
- Preliminary guidance for building services noise control to achieve compliance with EPA 1826 noise limits.

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2 Site description

The Project is located at 104-106 St Georges Road. An aerial photograph showing the Project location and surrounding area is presented in Figure 2.1, marked up with noise measurement locations as discussed below.

Figure 2.1 Aerial photo of Project site showing noise measurement locations



The Project comprises a 6-storey residential use building with a façade along St Georges Road. The Project contains:

- Three split levels of basement carpark
- Residential lobby with reception
- Five levels of residential apartments
- A roof top communal area with a pool

The local noise environment at the Project site is dominated by general road traffic noise from St Georges Road, with continual but less severe traffic noise from the M1 Freeway.

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3 Acoustic criteria

The following sections provide an overview of the acoustic criteria applicable to the Project.

3.1 Apartment Design Guidelines Victoria

Internal noise criteria for apartments within the Project are based on the *Apartment Design Guidelines for Victoria* (ADG). The Guidelines were introduced in 2017 and include acoustic measures to provide appropriate internal acoustic amenity for occupants of apartments located within a “Noise Influence Area”, the definition of which is outlined in Table 3.1.

Table 3.1 Apartment Design Guidelines – Noise Influence Area

Noise Source	Noise influence area
Zone interface Industry	300 metres from the Industrial 1, 2 and 3 zone boundaries
Roads Freeways, tollways and other roads carrying 40,000 Annual Average Daily Traffic Volume	300 metres from the nearest trafficable lane
Railways Railway servicing passengers in Victoria	80 metres from the centre of the nearest track
Railway servicing freight outside Melbourne Victoria	80 metres from the centre of the nearest track
Railway servicing freight outside Metropolitan Melbourne	135 metres from the centre of the nearest track

Note: The Noise Influence Area is measured from the closest part of the building to the noise source

The Project is located within 165m of the M1. Based on this, the ADG are applicable to the Project. According to the ADG, internal noise levels in the building must be designed to the levels as shown in Table 3.2.

Table 3.2 Apartment Design Guidelines – Design sound level ranges for different room types

Type of Occupancy	Recommended sound level in dBA	Time
Living areas	$L_{eq,16h} \leq 40$ dBA	6am to 10pm
Bedrooms	$L_{eq,8h} \leq 35$ dBA	10pm to 6am

3.2 National Construction Code

The residential components of the Project are classified as Class 2 under the BCA, which must achieve the acoustic performance requirements outlined in part F5 of the BCA as summarised in Table 3.3.

Table 3.3 BCA acoustic requirements for Class 2 dwellings

Building Element	Description	Impact Noise Requirements	Airborne Noise Requirements
Walls	Separating sole occupancy units	—	$R_w + C_{tr} \geq 50$

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	Separating a habitable room of a sole occupancy unit from a bathroom, sanitary compartment, laundry or kitchen in an adjacent sole occupancy unit	Discontinuous construction ¹	$R_w + C_{tr} \geq 50$
	Separating a sole occupancy unit and a stairway, public corridor, public lobby or the like	—	$R_w \geq 50$
	Separating a sole occupancy unit and a plant room or lift shaft	Discontinuous construction	$R_w \geq 50$
	A door between a sole occupancy unit and a stairway, public corridor, lobby or the like.	—	$R_w \geq 30$
Floors	Separating sole-occupancy units and separating sole-occupancy units and a plant room, lift shaft, stairway, public corridor, public lobby or the like.	$L_{n,w} \leq 62$	$R_w + C_{tr} \geq 50$
Services	A duct, soil, waste, water supply pipe and stormwater pipe located in a wall or floor cavity, serves or passes through more than one sole occupancy unit if the adjacent room is a habitable room (other than a kitchen)	—	$R_w + C_{tr} \geq 40$
	A duct, soil, waste, water supply pipe and stormwater pipe located in a wall or floor cavity, serves or passes through more than one sole occupancy unit if the adjacent room is a kitchen or any other non-habitable room.	—	$R_w + C_{tr} \geq 25$
Pumps	The point of connection between the service pipes in a building and any circulating or other pump.	A flexible coupling at the connection	—

Notes:

(1) Discontinuous constructions must have a minimum 20 mm gap between separate leaves. Cavity masonry walls are to have resilient wall ties or no wall ties. Staggered stud construction is not regarded as discontinuous.

3.3 Internal noise levels

3.3.1 AS / NZS 2107

Internal noise criteria for have been developed based on the recommendations of AS/NZS 2107 as shown in Table 3.4.

Table 3.4 AS/NZS 2107 – Design sound level ranges for different room types

Room	Design Sound Level Range Leq, dBA	Design Reverberation Time T, s
Houses and apartments in suburban areas or near minor roads		
Living Areas	< 40	-
Sleeping areas (night time)	< 35	-
Apartment common areas (e.g. foyer, lift lobby)	< 50	-
Enclosed carparks	< 65	-
Toilets and washrooms	< 55	-

Measurement of internal noise levels will be in accordance with methodology.

3.4 Clause 55 Standards

As part of the Department of Transport and Planning (DTP) Development Facilitation Program (DFP), the Project has to respond to requirements contained in *Toorak Pavilion (TK05) Clause 55 Standards Assessment*. The document stipulates clause B5-6 needs to be addressed for Noise Impacts. The clause is detailed below.

Mechanical plant, including mechanical car storage and lift facilities are not located immediately adjacent to bedrooms of new or existing dwellings or small second dwellings, unless a solid barrier is in place to provide a line-of-sight barrier to transmission of noise and the location of all relevant bedrooms.

This report has addressed this item via information contained in Section 7.1.

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4 Environmental noise emissions

The following section provides information on the zoning and noise limit calculation procedure contained within EPA 1826.4 and the EPR.

4.1 Background

EPA 1826.4 and the definitions within Section 5.3 (Noise) of the EPR are the applicable legislative and procedural documents for the assessment of environmental noise emissions from new and existing commercial, industrial and trade premises within both urban and rural areas of Victoria.

EPA 1826.4 Part I *A.1 Noise Limits – Urban Area Method* prescribes the methodology to determine noise limits and assess whether the measured or predicted noise levels emitted from the commercial, industrial or trade premises are unreasonable in comparison to the ascertained noise limits. The Urban Area Method applies to commercial, industrial or trade premises located within the metropolitan Melbourne/ Melbourne urban growth boundary as well as local government areas deemed to be major urban areas (MUA) under Annex A, Table A.3 in EPA 1826.4.

The Project is located within metropolitan Melbourne and is therefore subject to the urban area method of assessment.

A noise sensitive area is defined in Section 5.3 (Noise) of the EPR as that part of the land within the apparent boundaries of any piece of land, which is within a distance of 10m outside the external walls of:

- Buildings such as a dwelling, residential building, noise sensitive residential use¹; or
- Dormitory, ward, bedroom or living room of a building such as a caretaker's house, hospital, hotel (including residential), motel, specialist disability accommodation, corrective institution, tourist establishment, retirement/residential village; or
- Classroom or any room in which learning occurs of a building (during their operating hours) such as a childcare centre, kindergarten, primary or secondary school.

The method for setting noise limits under EPA 1826.4 is based on:

- The time of day: different noise limits apply for different periods of the day (day, evening and night).
- Zoning levels: calculated based on the relevant planning scheme zoning designations within 200m of the noise sensitive area.
- The background noise level (L_{A90}): the measured background noise level within the noise sensitive area or a derived point, in the absence of noise from commercial, industrial or trade operations.

Once noise limits have been determined, the effective noise level from the commercial, industrial or trade premises is measured for existing premises, or predicted for proposal premises. The measured effective noise level is derived from 30-minute equivalent sound pressure level ($L_{Aeq, 30min}$). Adjustments to the measured effective noise level are applied under EPA 1826.4 to account for the effects of duration, tonality, and impulsiveness. Adjustments to the predicted effective noise levels to account for the effects of duration and tonality can also be applied under EPA 1826.4.

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¹ Noise sensitive residential use means community care accommodation, dependent person's unit, dwelling, residential aged care facility, residential village, retirement village or rooming house.

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4.2 Time periods

Time periods defined by the EPR Part 5.3 Division 3 for use under the EPA 1826.4 urban area method are presented in Table 4.1.

Table 4.1 Time Period Definitions

Day	Time Periods		
	Day	Evening	Night
Monday - Saturday	0700 to 1800 hours	1800 to 2200 hours	2200 to 0700 hours
Sundays & Public Holidays	-	0700 to 2200 hours	

4.3 Zoning levels

The nearest noise sensitive areas relative to the Project are expected to be the residential housing buildings along St Georges Road as indicated in Figure 4.1.



Figure 4.1 Noise Sensitive Areas © Metro Map 2022

The residential houses located at 77, 102 and 108A St Georges Road have been identified as the most affected, and therefore the worst-case scenario, and adopted as the nearest noise sensitive receivers in the assessments. These residences have been used for the calculation of zoning levels according to EPA 1826.4 Part I and Annex A. The results are presented in Table 4.2.

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Table 4.2 Zoning Levels for Identified Noise Sensitive Areas

Location	Zoning level (dBA) by Time Period		
	Day	Evening	Night
77 St Georges Road	51	45	40
102 St Georges Road	51	45	40
108A St Georges Road	52	46	41

4.4 Measured background noise levels

Details of all equipment used during the long-term background noise monitoring are presented in Table 4.3.

Table 4.3 Equipment Details

Equipment	Manufacturer	Make	Serial Number	Calibration Due Date
Acoustic Calibrator	Rion	NC-75	34980922	07/10/2023
Noise Logger	Rion	NL-42EX	00709596	02/02/2023

Unattended noise monitoring was conducted during the period of 14 – 20 December 2021 at the Project site to establish existing background noise levels in accordance with EPA 1826.4. The position selected is considered representative of the background noise level at the closest noise sensitive area. Calibration measurements were taken before and after the noise logging and showed no significant drift in readings (less than ± 1 dB).

The results of the hourly background noise monitoring conducted at the Project site are presented in Figure 4.2.

Logger Summary – 106 St Georges Road

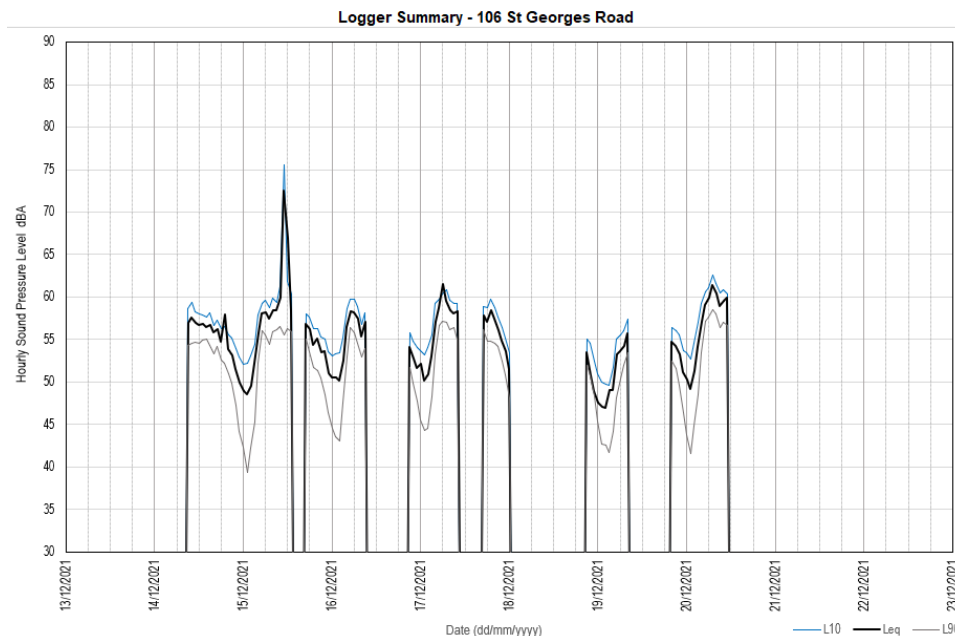


Figure 4.2 Measured background noise levels at 106 St Georges Road, Toorak

Analysis of the Bureau of Meteorology’s 30 minute weather data for Melbourne (Olympic Park) during the monitoring period was done in accordance with EPA 1826.4. The analysis showed there was no rain but there were significant wind

speeds (wind conditions higher than Beaufort Wind Scale level 3) during the monitoring period, for which relevant data was removed.

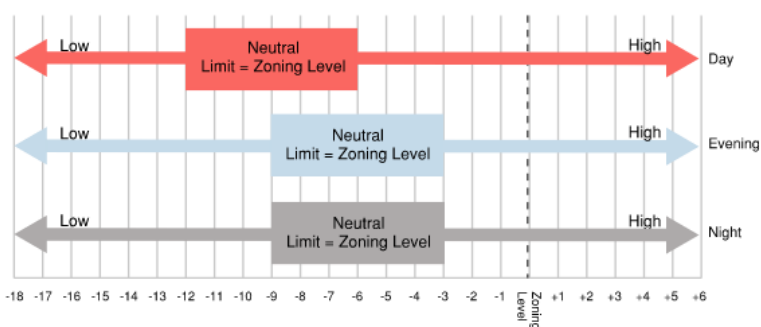
The lowest 1-hour measured background levels are presented in Table 4.4. Additional information on background level measurements can be found in .

Table 4.4 Measured background levels

Background Level (L90, dBA) by time period		
Day	Evening	Night
54	51	47

4.5 Noise limits

Noise limits have been established in accordance EPA 1826.4 Part I. The noise limit depends on the zoning level and the measured background levels. The difference between the two levels determines the designation of the background level, which can be assessed as low, neutral, or high relative to the zoning level. Based on the designation, noise limits are established for each period of the day. Figure 4.3 shows the designation of the background noise level in relation to the zoning level.



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Figure 4.3 EPA 1826.4 Part I Background designation definition

The noise limits applicable to noise emissions from the Project at surrounding noise sensitive areas are presented in Table 4.5, Table 4.6 and

Table 4.7.

Table 4.5 Noise limits for noise emissions at 77 St Georges Road

	Noise Limits by time period		
	Day	Evening	Night
Zoning Level, dBA	51	45	40
Background Noise Level L _{A90} , dBA	54	51	47
Designation	High	High	High
Baseline Noise Limit, L_{Aeq,30min} dBA	60	54	50
Cumulative correction	5	5	5
Noise Limit, L_{Aeq,30min} dBA	55	49	45

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Table 4.6 Noise limits for noise emissions at 102 St Georges Road

	Noise Limits by time period		
	<i>Day</i>	<i>Evening</i>	<i>Night</i>
Zoning Level, dBA	51	45	40
Background Noise Level L_{A90} , dBA	54	51	47
Designation	High	High	High
Baseline Noise Limit, $L_{Aeq,30min}$ dBA	60	54	50
Cumulative correction	5	5	5
Noise Limit, $L_{Aeq,30min}$ dBA	55	49	45

Table 4.7 Noise limits for noise emissions at 108A St Georges Road

	Noise Limits by time period		
	<i>Day</i>	<i>Evening</i>	<i>Night</i>
Zoning Level, dBA	51	45	40
Background Noise Level L_{A90} , dBA	54	51	47
Designation	High	High	High
Baseline Noise Limit, $L_{Aeq,30min}$ dBA	60	54	50
Cumulative correction	5	5	5
Noise Limit, $L_{Aeq,30min}$ dBA	55	49	45

4.6 Equivalent sound pressure levels

Equivalent sound pressure levels (L_{eq}) over defined time periods have been presented in Table 4.8.

Table 4.8 Equivalent Sound Pressure Levels

Elevation	$L_{eq,16hr}$ (7:00am – 10:00pm)	$L_{eq,max\ hour}$ (7:00am – 10:00pm)	$L_{eq,8hr}$ (10:00pm – 7:00am)	$L_{eq,max\ hour}$ (10:00pm – 7:00am)
St Georges Road	68 dBA	69 dBA	55 dBA	68 dBA
All other facades	59 dBA	62 dBA	54 dBA	59 dBA

4.7 Attended noise survey

An attended short-term noise survey was conducted in the vicinity of the Project between 8:00am and 10:00am on 14 December 2021 and 3:00pm and 4:00pm 20 December 2021 to determine the noise contribution from surrounding roads.

4.7.1 Attended noise survey equipment

All noise measurements were conducted with a Type 1 sound level meter, which was calibrated on site using a sound level calibrator. Calibration measurements were taken before and after the measurements and showed no significant drift in readings. The sound level meter and calibration information is presented in Table 4.9.

Table 4.9 Equipment details

Equipment	Manufacturer	Make	Serial Number	Calibration Due Date
Sound Level Meter	NTI	XL2	A2A-06084-E0	07/10/2023
Acoustic Calibrator	Rion	NC-75	34980922	07/10/2023

Noise measurements were conducted at the following locations:

- Position 1: 104 St Georges Road
- Position 2: Rear of 106 St Georges Road

The measurement positions are shown in Figure 2.1. Short term noise measurements (15-minute duration) were conducted at each position.

At the time of the short-term noise survey, the weather conditions were calm, and no rain was present. Weather data from Melbourne Olympic Park weather station was used as a basis to assess weather conditions during the period of the survey. Generally, wind speeds were below 5m/s, which is in accordance with the guidance provided in AS 1055.

4.7.2 Measurement results

The results of the short-term noise measurements are shown in Table 4.10.

Table 4.10 Short term noise measurement results summary

Survey Measurement	Time	L _{AEQ}	L _{A10}	L _{A90}	L _{AMAX}
Position 1	08:20 - 08:35am	68	72	52	86
	09:18 - 09:33am	67	72	53	83
	03:04 - 03:19pm	68	71	58	87
	03:19 - 03:34pm	68	72	59	85
	03:34 - 03:49pm	69	72	58	85
Position 2	08:39 - 08:54am	58	59	54	80
	08:54 - 09:09am	57	59	55	76

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5 External building fabric

Acoustic performance requirements of the building envelope have been prepared, based on the measured background noise levels and internal noise criteria presented above. The final acoustic design of the building envelope will be developed as the design progresses, since it depends on several factors such as façade glazing area, room internal finishes, room layouts, façade location and exposure to external noise, etc.

At this stage, the façade calculations demonstrate that the internal noise criteria can be achieved based on commercially available acoustically rated façade constructions. It is noted that noise from traffic is significant but with most of the façade being shielded by concrete a large proportion of the noise is mitigated by the building design.

To achieve internal noise requirements all façade elements must provide the minimum following requirements in Table 5.1. The performances in table relate to habitable spaces within the project.

Table 5.1 Façade performance requirements

Location	Component	Acoustic performance requirement
Elevations to and with views to St Georges Street and Vehicular Access Routes to the Building	Glazing	Rw 42
	Non-glazed	Rw 50
	Doors	Rw 34
All other facades	Glazing	Rw 33
	Non-glazed	Rw 45
	Doors	Rw 32

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6 Internal building fabric

6.1 Walls and floors (Between apartments)

Wall and floor constructions between apartments will be designed to achieve the BCA sound insulation criteria within Table 3.3 during the forthcoming design stage.

The Project must meet or exceed this minimum legislation requirements.

6.1.1 Walls separating SOU's

The internal partitions between SOU's must meet the minimum legislative BCA requirements. The specific wall types and constructions are still under development and the Project may wish to consider higher acoustic performance.

Typical approaches to internal walls to satisfy performance requirements noted in Table 6.1:

Table 6.1 Internal partitions and floors

Locations	Typical provisions
Between SOU's	Masonry concrete or blockwork
Between SOU's and plant, public or common areas (Walls)	Lightweight plasterboard formed from a higher density plasterboard (such as fire rated plasterboard either side a double stud frame with insulation. This may incorporate structural elements and consideration will be provided to the detailing to maintain acoustic performance Masonry walls may be applied to internal plant rooms.
Between SOU's (Floors)	Concrete structural slabs Floor finishes required for architectural requirements. Resilient layers applied under hard or vinyl floor finishes. This will be above the concrete structure with a ceiling below.
Roof pool and outdoor deck	This will consider an appropriate level of vibration isolation between the pool and the base structure

6.1.2 Services wall types

Where the following services pass through or serve more than one SOU, they are required to be acoustically treated under the BCA:

- mechanical services ducts
- soil, waste, water supply and storm water pipes.

Services risers will be designed to meet legislation requirements as a minimum. Hydraulic services are expected to be resiliently mounted.

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7 Building services noise control

The building services design of the Project is not yet sufficiently progressed to develop building services noise control treatment. As the design progresses, acoustic treatment for building services will be developed as required to achieve compliance with the EPA 1826.5 noise limits, as outlined in Section 4, and maintain internal noise level requirements. The specifics of the noise control treatment required will depend on the equipment type, location, and noise level. Noise control measures may include sound attenuators, acoustic enclosures or acoustic barriers as required.

7.1 Response to Clause 55 B5-6

The following sections address the approach the Project has undertaken to address Clause 55 B5-6 Noise Impact.

7.1.1 *Solid barriers between mechanical plant and dwellings*

The Project has located mechanical equipment in two key general types of locations. These are:

- Internal plant rooms which are formed from solid partitioning and structure.
- External plant compounds and / or enclosures that will incorporate solid material elements that provide no line of sight to dwelling space.

Further detail is shown in Appendix B..

7.1.2 *Lifts*

Lifts will be required for providing vertical access across the Project. Where possible these have been located in positions to avoid being adjacent to bedrooms. Where lifts are adjacent to bedrooms appropriate engineering controls will be provided to control noise impacts.. This will include provisions such as independent wall structures that are isolated from the lift core to control air borne and structure borne noise.

Lift systems will also be supplied with appropriate vibration isolation systems to maintain acoustic amenity to the bedroom spaces.

7.1.3 *Mechanical car storage*

The car stackers have been located within the car park on level 1 under a plant room, not adjacent to any bedroom space. There is solid partitioning between the car park and adjacent apartments.

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8 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Blood Diamond Group Pty Ltd (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal and agreement with the Client (*Agreement*).

8.1 Permitted purpose

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

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The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information*), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

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Appendix A

Environmental Assessment Data and Zoning
Map

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Project No.	PS126271	Date	20 December 2021	Sheet	2
Project Title	Toorak Pavillion	Engineer	LF	Rev	1
Description	Unattended noise survey			Type	LG

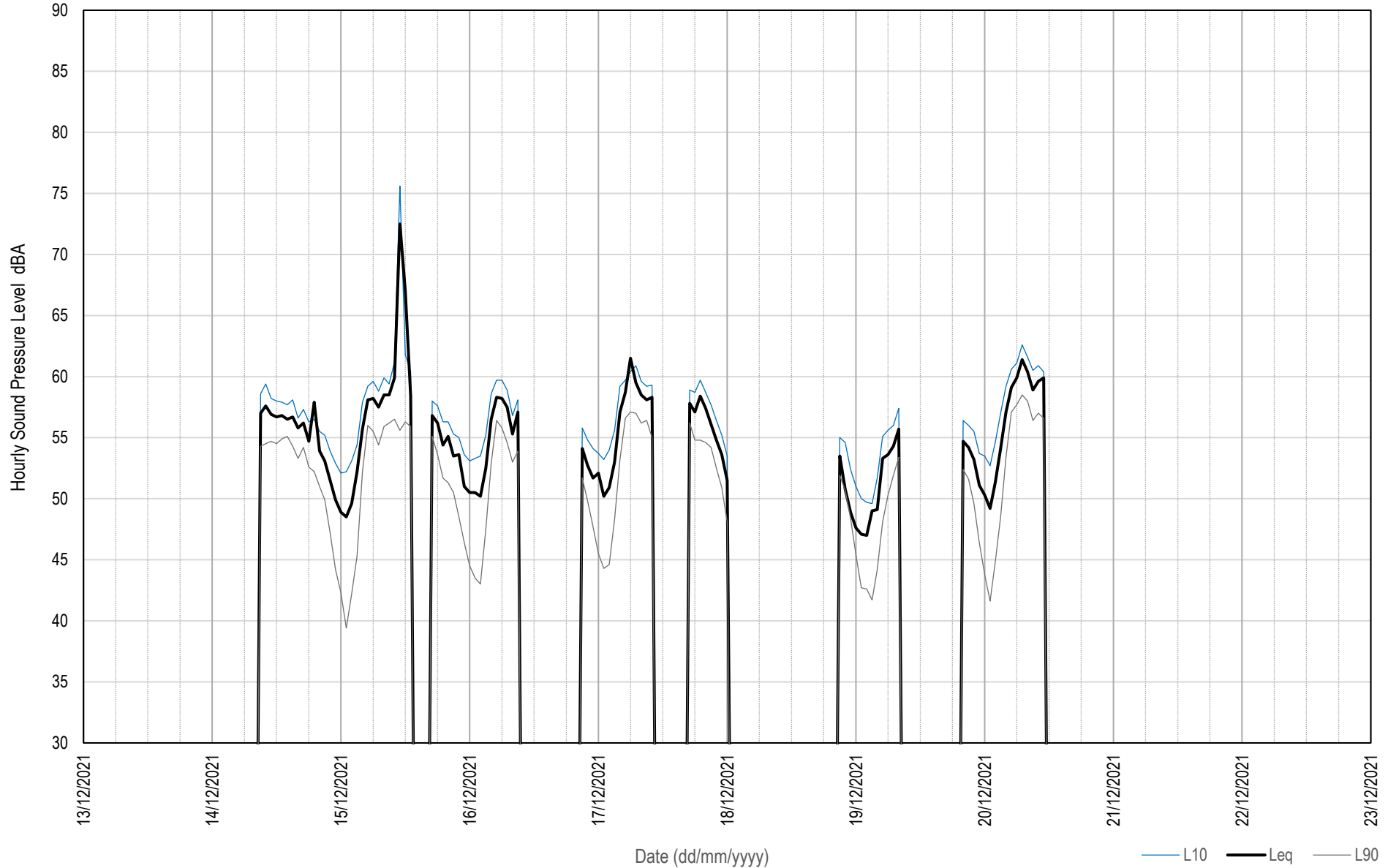
Logger Location	106 St Georges Road
Microphone Position	

	Tue, 14 Dec 2021			Wed, 15 Dec 2021			Thu, 16 Dec 2021			Fri, 17 Dec 2021			Sat, 18 Dec 2021			Sun, 19 Dec 2021			Mon, 20 Dec 2021			Tue, 21 Dec 2021			
	L _{A10}	L _{Aeq}	L _{A90}	L _{A10}	L _{Aeq}	L _{A90}	L _{A10}	L _{Aeq}	L _{A90}	L _{A10}	L _{Aeq}	L _{A90}	54.4	L _{Aeq}	L _{A90}	L _{A10}	L _{Aeq}	L _{A90}	L _{A10}	L _{Aeq}	L _{A90}	L _{A10}	L _{Aeq}	L _{A90}	
Daily Averages	LA10,18h	56.8		59.3			56.9			58.7			54.0			55.8			61.2						
	LAeq,24h		55.9		61.6			55.2		57.2				51.5			52.5			58.3					
	LAeq,16h		56.3		63.5			56.7		58.5				53.5			54.6			60.1					
	LAeq,8h		53.2		53.9			54.3		53.5				49.6			54.5								
	LA90 Day			54.4		55.7			53.8								52.7				57.3				
	LA90 Evening			51.4		51.8			51.7		55.5			51.9			52.0								
	LA90 Night			47.1		48.7			49.7		50.5			46.0			49.2								
Hourly Values	00:00 to 01:00			52.1	48.9	42.3	53.1	50.5	44.5	53.7	52.1	45.5	53.5	51.5	48.1	51.0	47.6	45.4	53.5	50.3	43.8				
	01:00 to 02:00			52.2	48.5	39.4	53.3	50.5	43.5	53.2	50.2	44.3	53.2*	50.9*	46.7*	50.0	47.1	42.7	52.7	49.2	41.6				
	02:00 to 03:00			53.1	49.6	42.2	53.5	50.2	43.0	54.0	50.9	44.6	54.2*	52.2*	47.9*	49.7	47.0	42.6	54.6	51.3	44.8				
	03:00 to 04:00			54.4	52.2	45.3	55.2	52.5	47.5	55.6	53.0	48.3	54.6*	51.9*	47.3*	49.6	49.0	41.7	57.0	54.1	48.5				
	04:00 to 05:00			57.9	55.7	52.2	58.6	56.5	52.9	59.2	57.1	53.2	56.7*	54.5*	50.6*	51.7	49.1	44.2	59.2	57.1	53.4				
	05:00 to 06:00			59.2	58.1	56.0	59.7	58.3	56.4	59.7	58.7	56.6	57.4*	55.4*	52.4*	55.1	53.3	48.1	60.6	59.1	57.1				
	06:00 to 07:00			59.6	58.2	55.5	59.7	58.2	55.8	60.4	61.5	57.1	58.3*	56.5*	53.9*	55.6	53.6	50.3	61.1	59.9	57.7				
	07:00 to 08:00			58.8	57.5	54.4	58.9	57.5	54.6	60.9	59.5	57.0	58.8*	57.4*	54.3*	56.0	54.3	51.9	62.6	61.4	58.5				
	08:00 to 09:00	60.6*	65.1*	55.4*	59.9	58.5	55.9	56.8	55.3	53.0	59.6	58.5	56.2	61.2*	59.8*	56.9*	57.4	55.7	53.4	61.6	60.4	58.0			
	09:00 to 10:00	58.6	57.0	54.3	59.4	58.5	56.2	58.1	57.1	53.9	59.2	58.1	56.4	61.6*	60.1*	57.6*	58.5*	57.1*	54.7*	60.5	58.9	56.4			
	10:00 to 11:00	59.4	57.6	54.5	61.2	59.9	56.5	58.6*	57.3*	55*	59.3	58.3	55.0	61*	59.4*	57.3*	59.6*	58.1*	56.3*	60.9	59.6	57.0			
	11:00 to 12:00	58.2	56.9	54.7	75.6	72.5	55.6	58.2*	57.5*	55*	59.2*	57.5*	54.8*	60.5*	58.1*	55.3*	63*	61.3*	58.8*	60.4	59.9	56.6			
	12:00 to 13:00	58.0	56.7	54.5	61.8	67.0	56.3	58*	56.5*	54.7*	59.3*	57.7*	54.7*	57.5*	56.4*	54.6*	60.7*	59.4*	57.6*	60.5*	58.8*	56.7*			
	13:00 to 14:00	57.9	56.8	54.9	60.4	58.4	55.9	58.2*	56.9*	55.1*	59.1*	56.9*	52.7*	57.7*	56.6*	54.6*	64.6*	61.7*	57.9*	60.7*	59.4*	57.1*			
	14:00 to 15:00	57.7	56.5	55.1	59.7*	57.6*	54.9*	57.6*	56.6*	54*	58.6*	57*	54.7*	57.9*	56.8*	54.2*	62.5*	61.1*	59.3*	60.8*	60.1*	58.9*			
	15:00 to 16:00	58.1	56.7	54.3	57.5*	56.1*	54.2*	56.7*	55.6*	53.4*	58.9*	57.4*	54.5*	57.1*	56*	53.6*	61.9*	60*	57.8*						
	16:00 to 17:00	56.6	55.8	53.3	57.4*	56.3*	54.4*	57.4*	56.4*	53.2*	58.8*	58.2*	55.4*	57.2*	54.9*	53.5*	61.4*	59.6*	57.2*						
	17:00 to 18:00	57.3	56.2	54.2	58.0	56.8	55.1	56.1*	54.9*	52.3*	58.9	57.8	56.2	56*	55*	53.1*	59.1*	57.7*	55.5*						
	18:00 to 19:00	56.3	54.7	52.6	57.6	56.2	53.6	56.9*	55.7*	53.7*	58.7	57.1	54.8	56*	53.7*	52.6*	57.5*	56.4*	53.8*						
	19:00 to 20:00	56.5	57.9	52.2	56.3	54.4	51.7	57.2*	55.5*	53.3*	59.7	58.4	54.8	54.9*	54.6*	51.8*	57.4*	55.7*	53.4*						
	20:00 to 21:00	55.5	53.9	51.0	56.3	55.1	51.3	56.8*	56.5*	52.8*	58.7	57.4	54.6	55.2*	54.2*	51.7*	56.4	54.7	52.4						
	21:00 to 22:00	55.2	53.1	49.9	55.3	53.5	50.5	55.8	54.1	51.7	57.7	56.1	54.2	55.0	53.5	51.9	56.0	54.2	51.6						
	22:00 to 23:00	53.9	51.5	47.2	55.0	53.6	48.5	54.8	52.7	49.8	56.4	54.8	52.5	54.6	50.8	50.7	55.5	53.2	49.6						
	23:00 to 00:00	52.9	49.9	44.2	53.6	51.0	46.4	54.1	51.7	47.7	55.2	53.6	50.9	52.4	48.9	48.4	53.7	51.1	46.4						



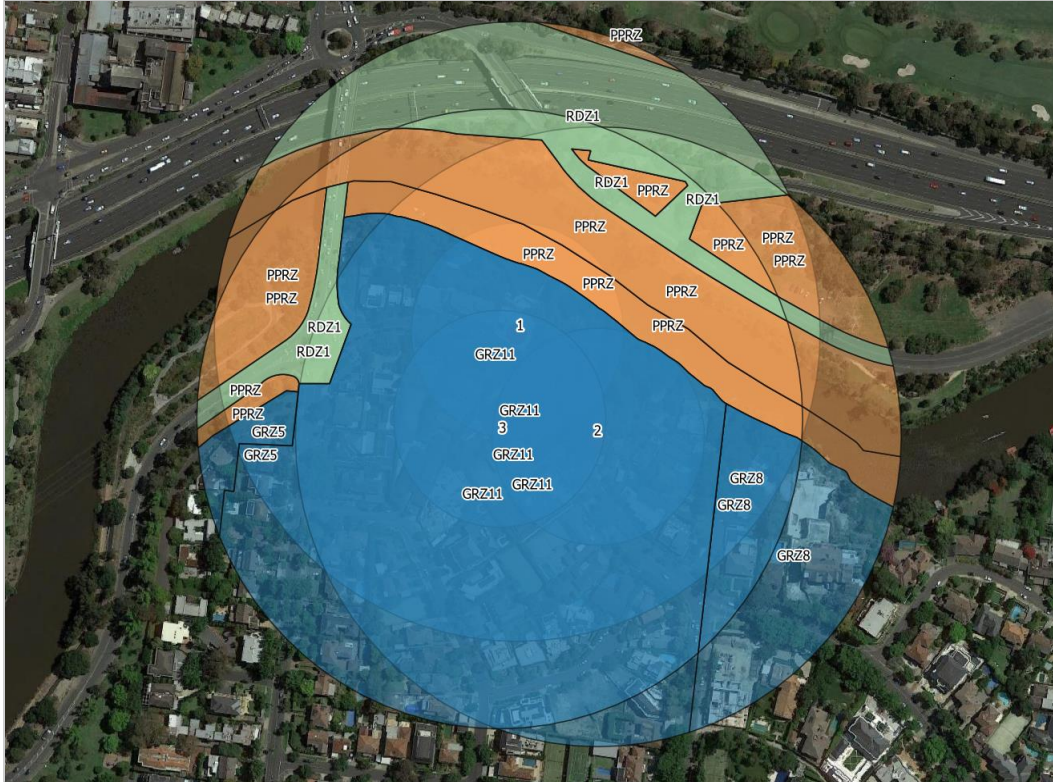
ADVERTISED PLAN

Logger Summary - 106 St Georges Road



Project No.	PS126271	Date	20 January 2022	Sheet	3
Project Title	Toorak Pavillion	Engineer	LF	Rev	1
Description	Location 1	Reviewer	DY	Type	EPA1826

Area Map



Proportion of Total Area

Circle Diameter (m)	Type 1		Type 2		Type 3	
	Area (m ²)	Percentage	Area (m ²)	Percentage	Area (m ²)	Percentage
140 Ø	15378 m ²	100%	0 m ²	0%	0 m ²	0%
400 Ø	99322 m ²	12%	0 m ²	0%	26214 m ²	0%

Influencing Factor

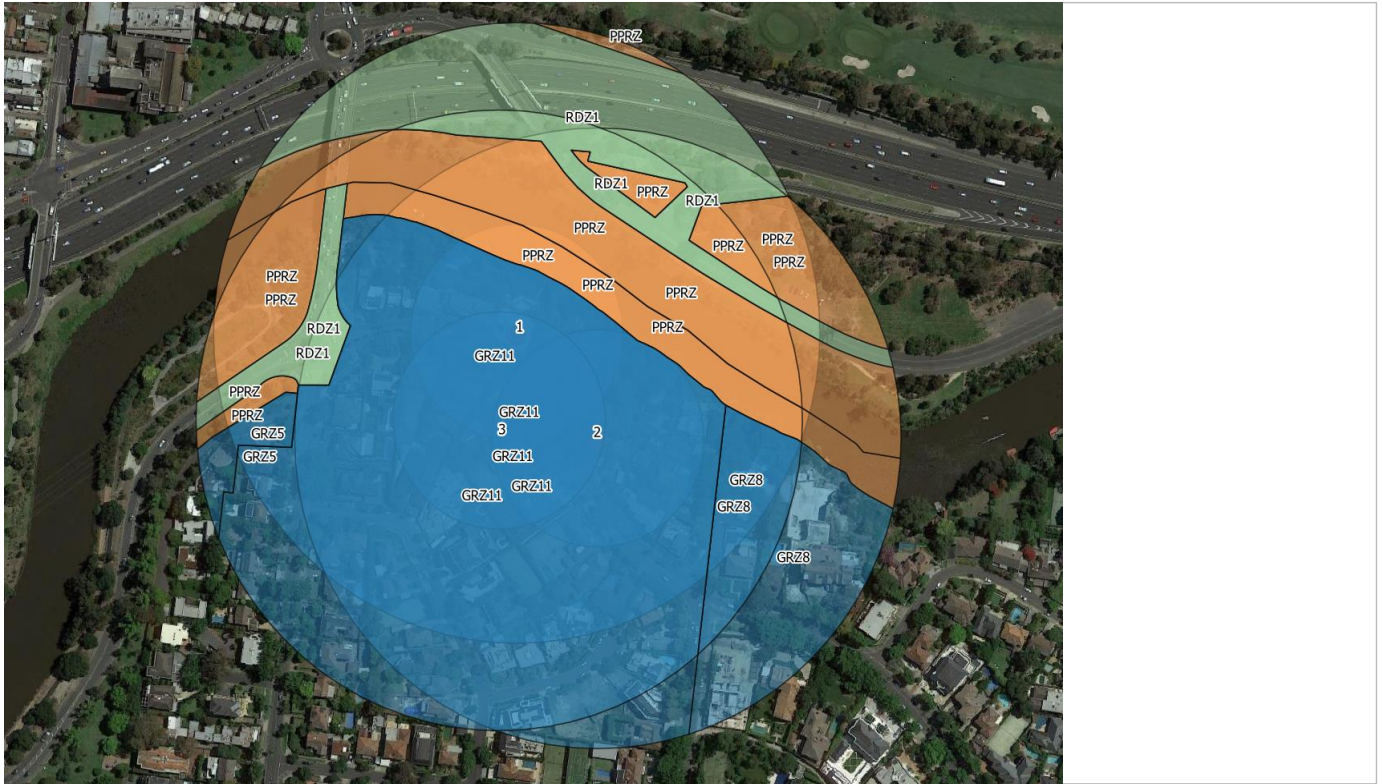
Partial Influencing Factor (140 Ø)	0.00
Partial Influencing Factor (400 Ø)	0.10
Total Influencing Factor	0.10

Noise Limits

Description / Comment	Period		
	Day	Evening	Night
Zoning Level, dBA	52 dBA	46 dBA	41 dBA
Measured Background Noise Level, L ₉₀ dBA	54 dBA	53 dBA	49 dBA
Background Condition	37 to 43	32 to 38	0
Noise Limit, L_{eq} dBA	60 dBA	56 dBA	52 dBA
Noise Limit - Emergency equipment, L_{eq} dBA	70 dBA	61 dBA	57 dBA

Project No.	PS126271	Date	20 January 2022	Sheet	4
Project Title	Toorak Pavillion	Engineer	LF	Rev	1
Description	Location 2	Reviewer	DY	Type	EPA1826

Area Map



Proportion of Total Area

Circle Diameter (m)	Type 1		Type 2		Type 3	
	Area (m ²)	Percentage	Area (m ²)	Percentage	Area (m ²)	Percentage
140 Ø	15378 m ²	100%	0 m ²	0%	0 m ²	0%
400 Ø	117066 m ²	12%	0 m ²	0%	8469 m ²	0%

Influencing Factor

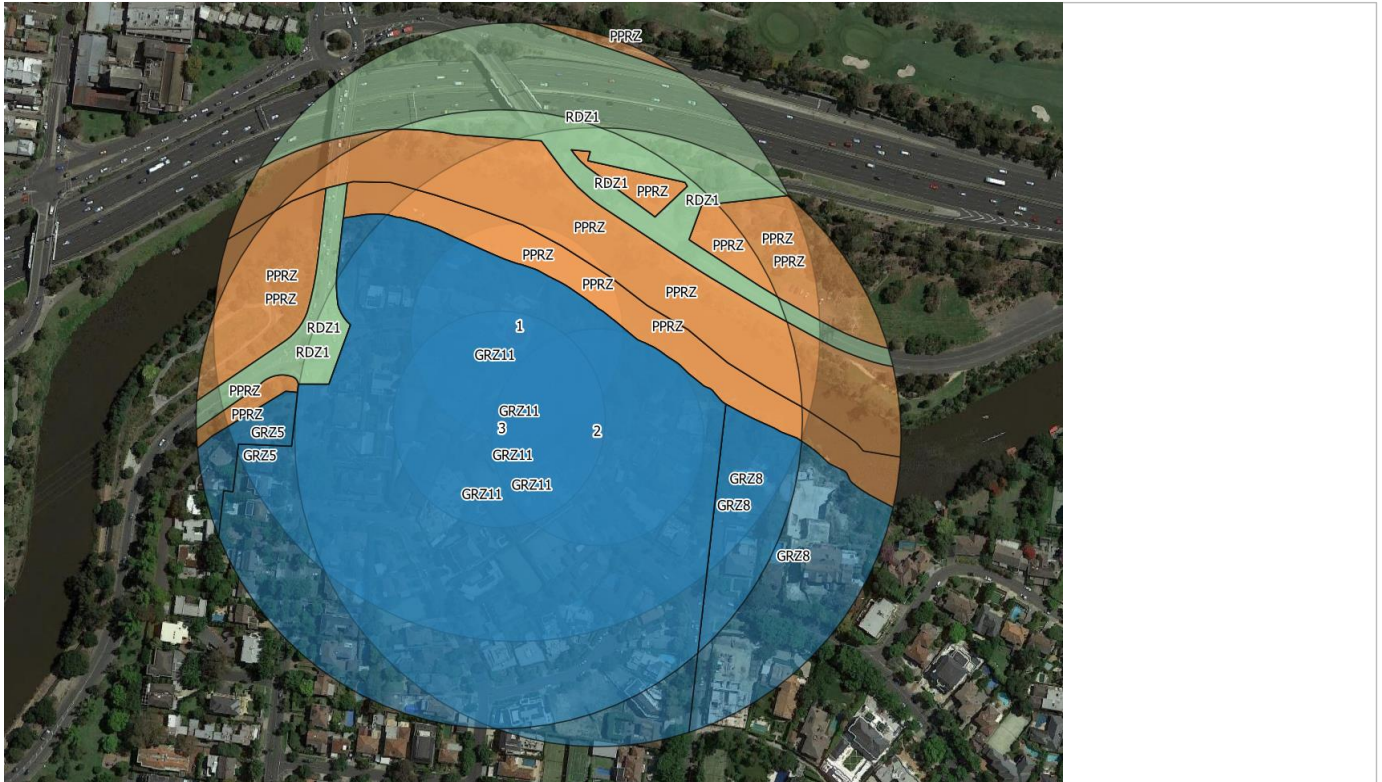
Partial Influencing Factor (140 Ø)	0.00
Partial Influencing Factor (400 Ø)	0.03
Total Influencing Factor	0.03

Noise Limits

Description / Comment	Period		
	Day	Evening	Night
Zoning Level, dBA	51 dBA	45 dBA	40 dBA
Measured Background Noise Level, L ₉₀ dBA	54 dBA	53 dBA	49 dBA
Background Condition	36 to 42	31 to 37	0
Noise Limit, L_{eq} dBA	60 dBA	56 dBA	52 dBA
Noise Limit - Emergency equipment, L_{eq} dBA	70 dBA	61 dBA	57 dBA

Project No.	PS126271	Date	20 January 2022	Sheet	5
Project Title	Toorak Pavillion	Engineer	LF	Rev	1
Description	Location 3	Reviewer	DY	Type	EPA1826

Area Map



Proportion of Total Area

Circle Diameter (m)	Type 1		Type 2		Type 3	
	Area (m ²)	Percentage	Area (m ²)	Percentage	Area (m ²)	Percentage
140 Ø	15378 m ²	100%	0 m ²	0%	0 m ²	0%
400 Ø	115803 m ²	12%	0 m ²	0%	9731 m ²	0%

Influencing Factor

Partial Influencing Factor (140 Ø)	0.00
Partial Influencing Factor (400 Ø)	0.04
Total Influencing Factor	0.04

Noise Limits

Description / Comment	Period		
	Day	Evening	Night
Zoning Level, dBA	51 dBA	45 dBA	40 dBA
Measured Background Noise Level, L ₉₀ dBA	54 dBA	53 dBA	49 dBA
Background Condition	36 to 42	31 to 37	0
Noise Limit, L_{eq} dBA	60 dBA	56 dBA	52 dBA
Noise Limit - Emergency equipment, L_{eq} dBA	70 dBA	61 dBA	57 dBA

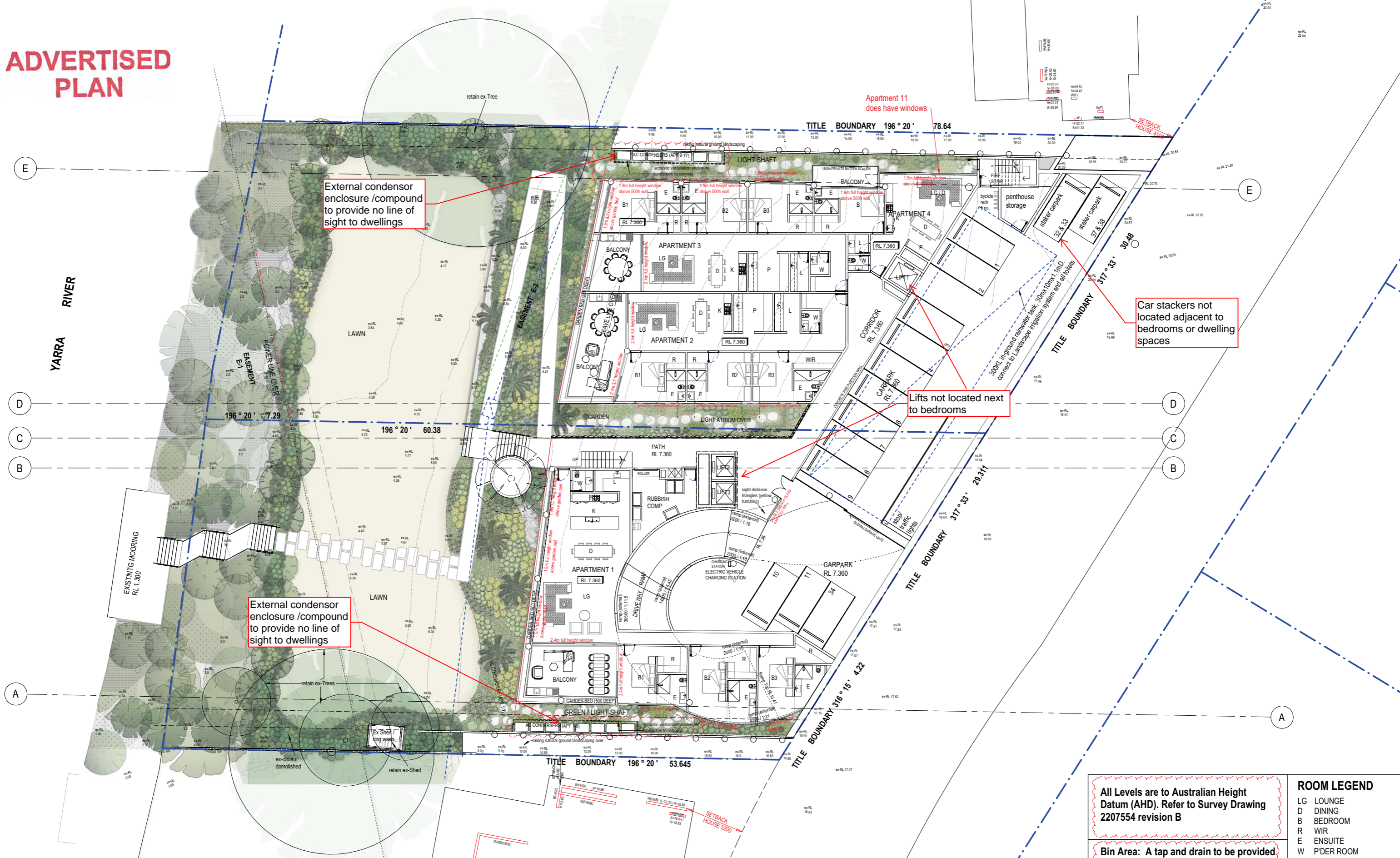
Appendix B

Response drawings to Clause 55 B5-6

**ADVERTISED
PLAN**



ADVERTISED PLAN



TOORAK PAVILION MELBOURNE
 104&106 ST GEORGES ROAD, TOORAK, VIC 3142

All Levels are to Australian Height Datum (AHD). Refer to Survey Drawing 2207554 revision B

Bin Area: A tap and drain to be provided to wash bins area as per Standard B5-5. A mechanical exhaust ventilation system to be provided as per Standard B5-5.

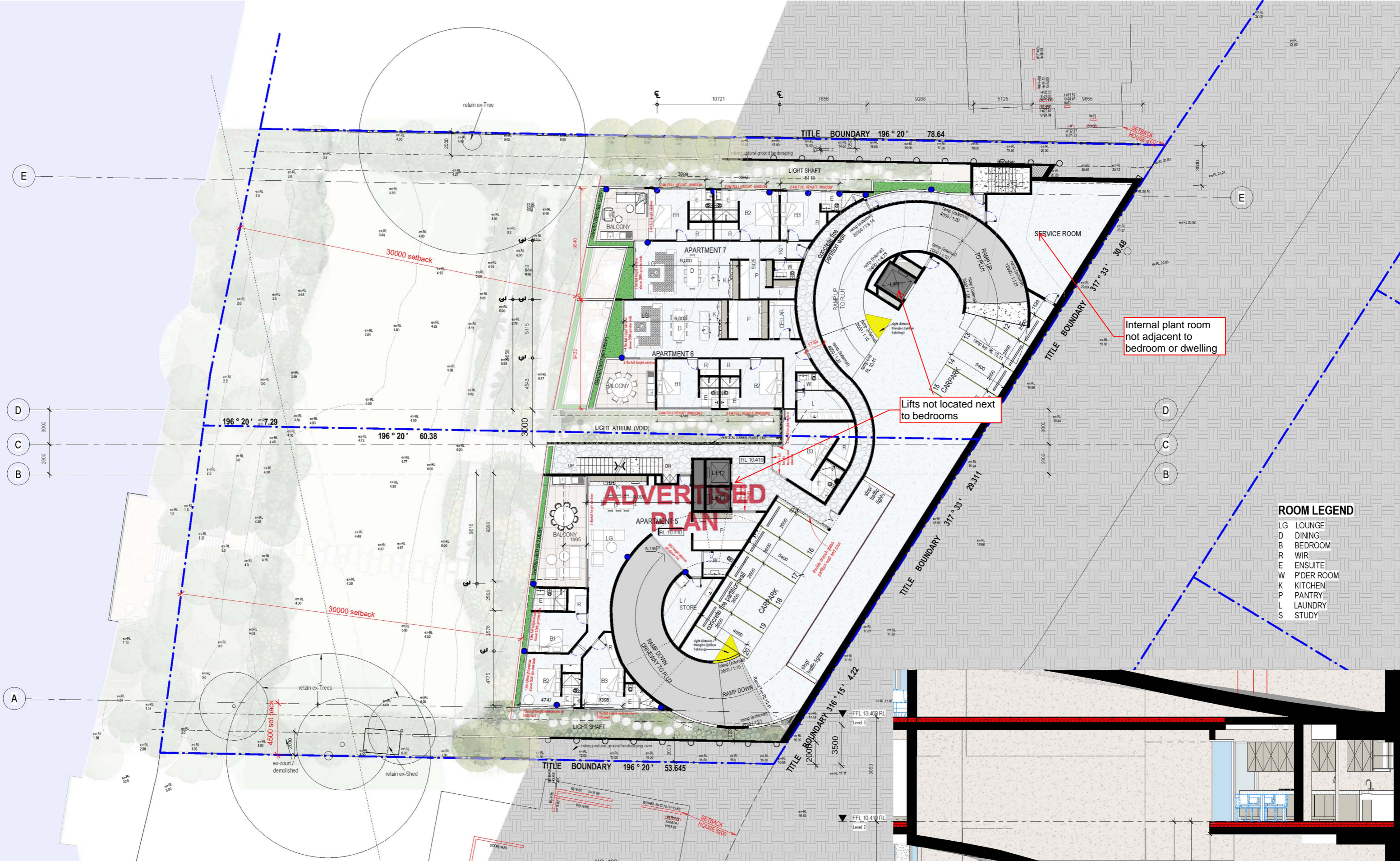
Note:
Acoustic material performance requirements of elements must meet the minimum requirements stated in the Project Acoustic Report.

ROOM LEGEND	
LG	LOUNGE
D	DINING
B	BEDROOM
R	WIR
E	ENSUITE
W	P'DER ROOM
K	KITCHEN
P	PANTRY
L	LAUNDRY
S	STUDY

LEVEL 1 PLAN
 Scale 1:150
 Date 19/03/2026

TOWN PLANNING

JOB NO. TK05 DRAWING NO. A101 REV. TP-9
 DATE 19/03/2026



Internal plant room not adjacent to bedroom or dwelling

Lifts not located next to bedrooms

ROOM LEGEND

- LG LOUNGE
- D DINING
- B BEDROOM
- R WIR
- E ENSUITE
- W P'DER ROOM
- K KITCHEN
- P PANTRY
- L LAUNDRY
- S STUDY

Note:
Acoustic material performance requirements of elements must meet the minimum requirements stated in the Project Acoustic Report.

TOORAK PAVILION

MELBOURNE

104&106 ST GEORGES ROAD, TOORAK, VIC 3142

LEVEL 2 PLAN

Scale 1:150

Date 05/10/2025

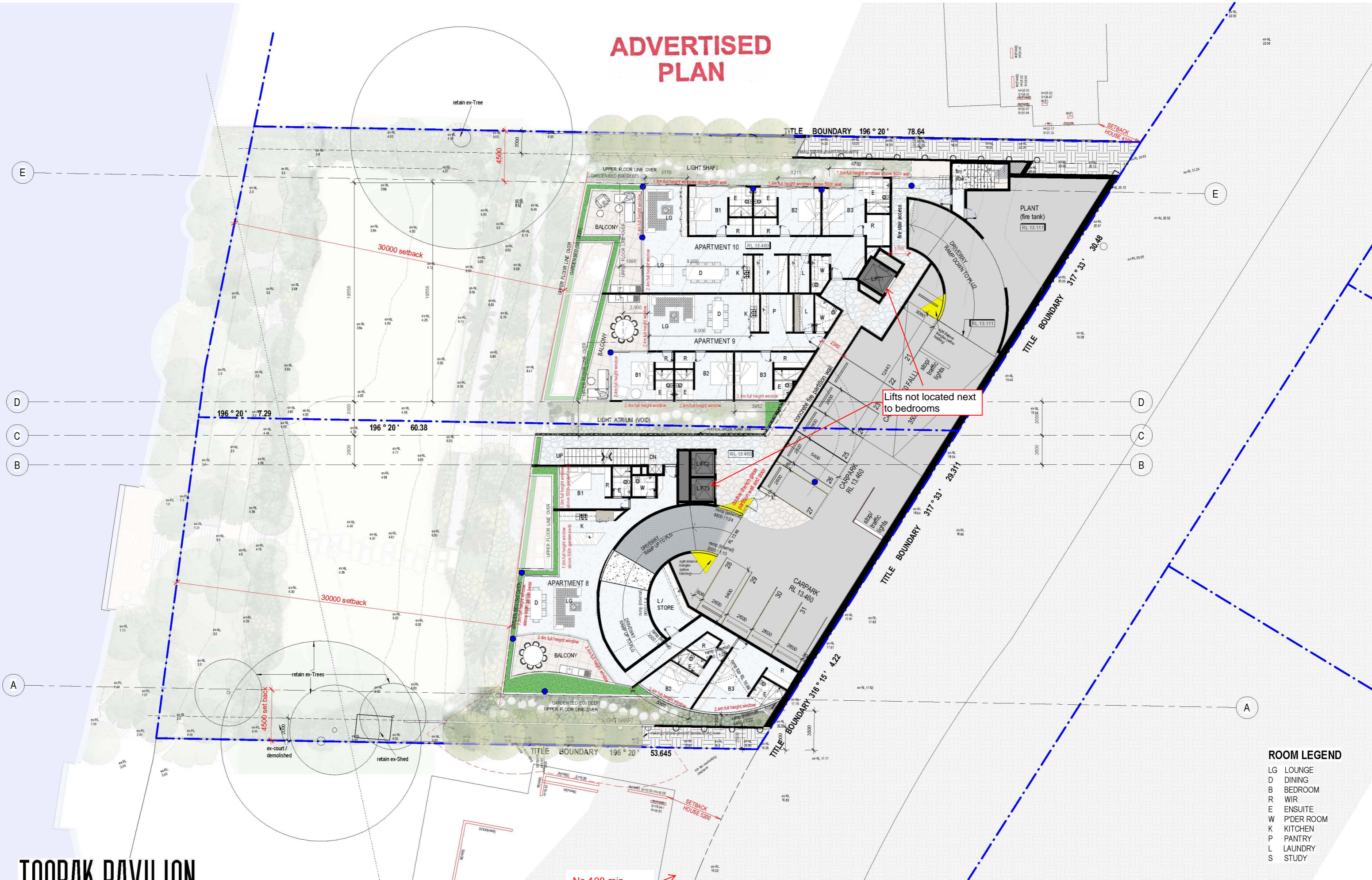


TOWN PLANNING



SECTION S1 1:100@A1

ADVERTISED PLAN



ROOM LEGEND

- LG LOUNGE
- D DINING
- B BEDROOM
- R WIR
- E ENSUITE
- W P'DER ROOM
- K KITCHEN
- P PANTRY
- L LAUNDRY
- S STUDY

Note:
Acoustic material performance requirements of elements must meet the minimum requirements stated in the Project Acoustic Report.

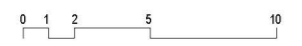
TOORAK PAVILION

MELBOURNE

104&106 ST GEORGES ROAD, TOORAK, VIC 3142

LEVEL 3 PLAN

Scale 1:150
Date 05/10/2025



TOWN PLANNING

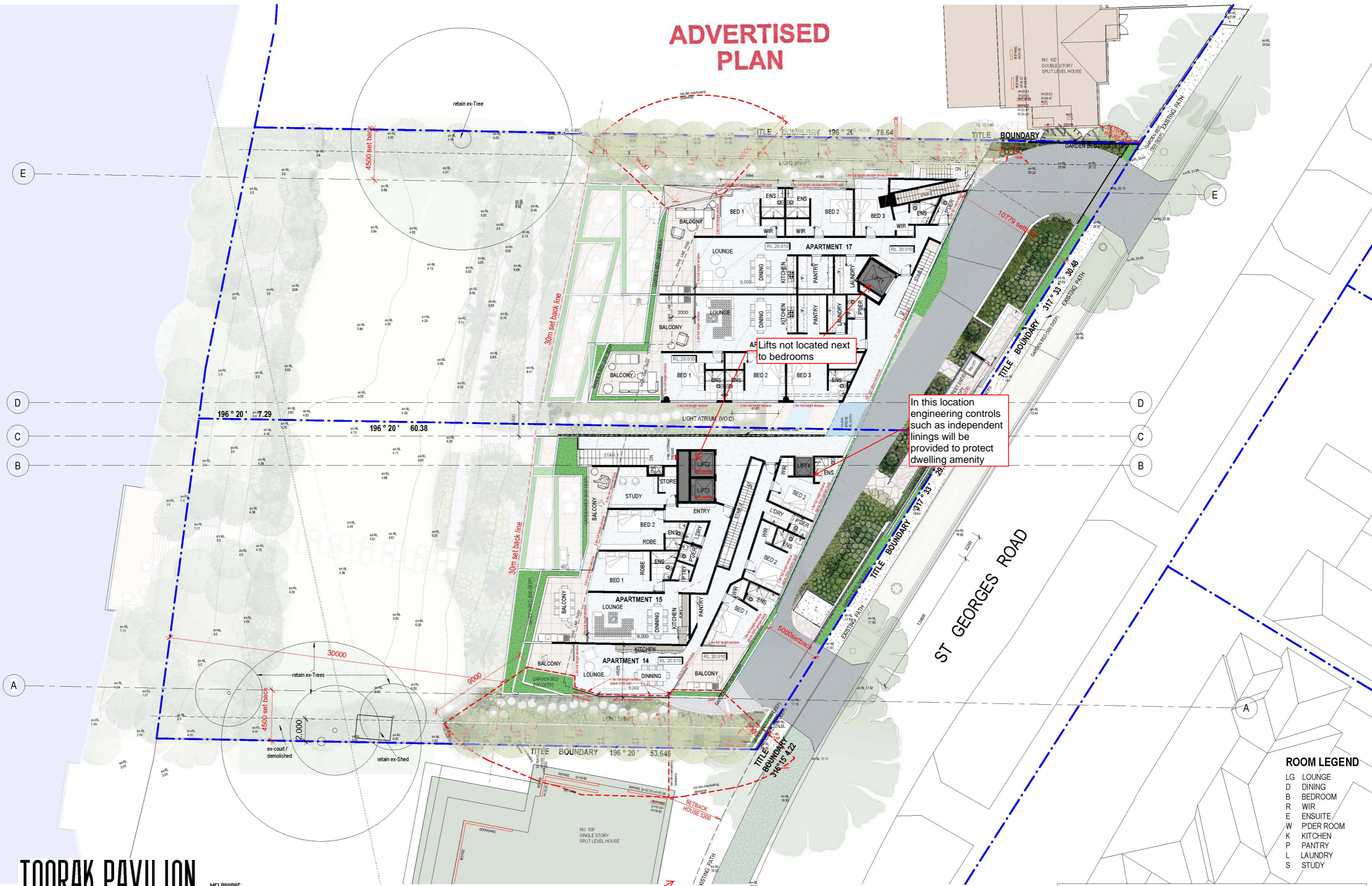


Charles Wright Architects

Job No. 1000000000
Drawing No. A103
Rev. TP-7

Job No. TK05
Drawing No. A103
Rev. TP-7

ADVERTISED PLAN



In this location engineering controls such as independent linings will be provided to protect dwelling amenity

AR Lifts not located next to bedrooms

ROOM LEGEND

- LG LOUNGE
- D DINING
- B BEDROOM
- R WIR
- E ENSUITE
- W P'DER ROOM
- K KITCHEN
- P PANTRY
- L LAUNDRY
- S STUDY

Note: Acoustic material performance requirements of elements must meet the minimum requirements stated in the Project Acoustic Report.

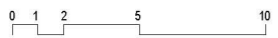
TOORAK PAVILION MELBOURNE

104&106 ST GEORGES ROAD, TOORAK, VIC 3142

No. 108 min house setback 2400 as drawing A002

LEVEL 5 PLAN

Scale 1:150
Date 05/10/2025



TOWN PLANNING



Charles Wright Architects

PROJECT NO. 104&106 ST GEORGES ROAD, TOORAK, VIC 3142
DRAWING NO. A105
DATE 05/10/2025

1: 4512 0000 1000
1: 4512 0000 1000

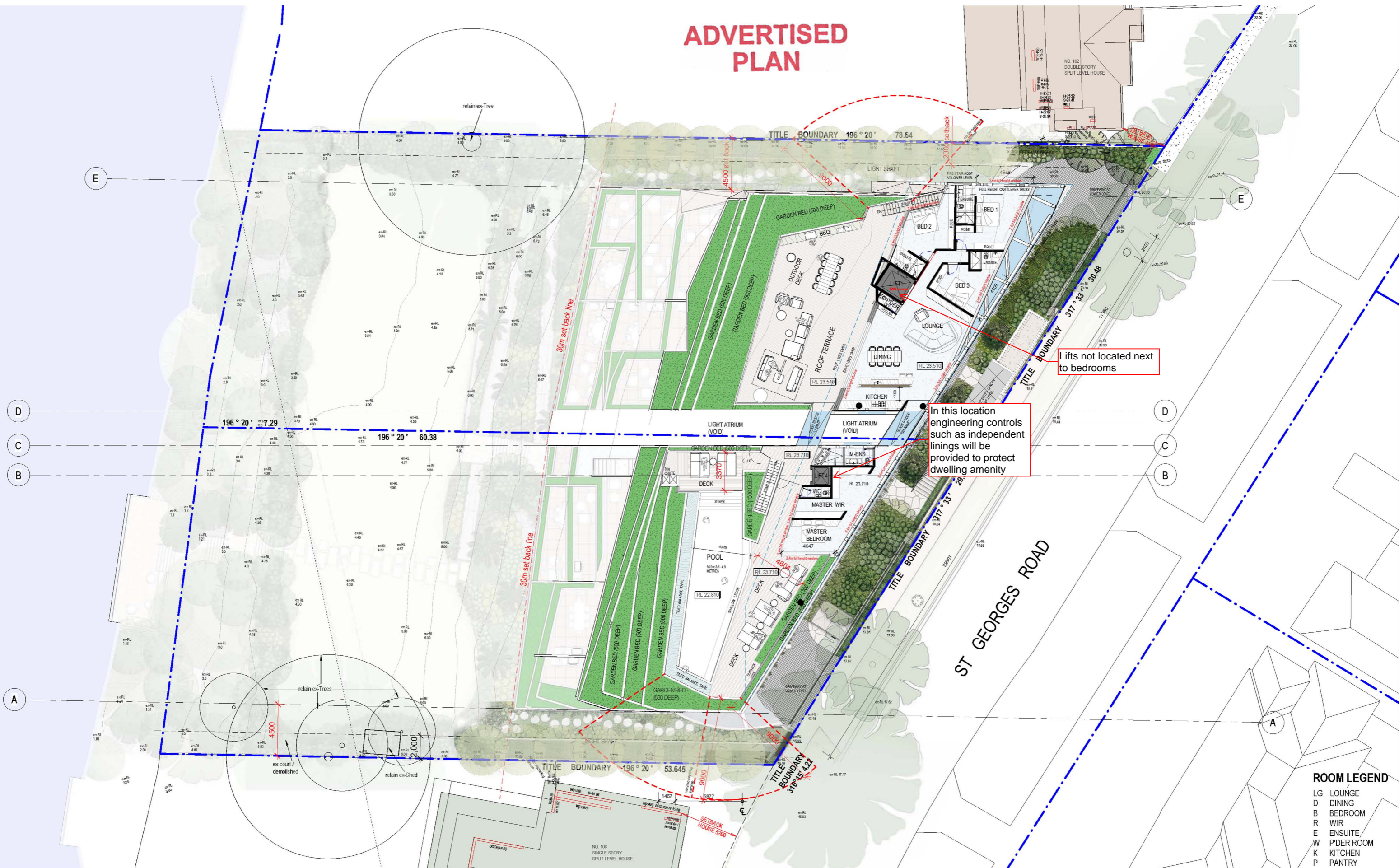
JOB NO. TK05

DRAWING NO. A105

TP-7

REV TP-7

ADVERTISED PLAN



TOORAK PAVILION

MELBOURNE

104&106 ST GEORGES ROAD, TOORAK, VIC 3142

No.108 min house setback 2400 as drawing A002

Note:
Acoustic material performance requirements of elements must meet the minimum requirements stated in the Project Acoustic Report.

LEVEL 6 (PENTHOUSE) PLAN

Scale 1:150
Date 05/10/2025



TOWN PLANNING



CWA
Charles Wright Architects

NO. 104 & 106 ST GEORGES ROAD, TOORAK, VIC 3142
PROJECT NO. 2025/0010
ARCHITECT: CHARLES WRIGHT ARCHITECTS
DATE: 05/10/2025

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JOB NO.
TK05

DRAWING NO.
A106

REV
TP-6

Appendix C

Glossary

**ADVERTISED
PLAN**



C1 Glossary

Term	Definition	Term	Definition
A-weighting	A frequency weighting devised to attempt to take into account the fact that human response to sound is not equally sensitive to all frequencies; it consists of an electronic filter in a sound level meter, which attempts to build in this variability into the indicated noise level reading so that it will correlate, approximately, with human response.	Attenuation	The reduction of sound energy as a function of distance travelled.
Decibel	The decibel (dB) is a logarithmic scale that allows a wide range of values to be compressed into a more comprehensible range, typically 0 dB to 120 dB. Noise levels in decibels cannot be added arithmetically since they are logarithmic numbers. The human ear has a vast sound-sensitivity range of over a thousand billion to one so the logarithmic decibel scale is useful for acoustical assessments.	Equivalent Continuous Sound Level, L_{Aeq}	Many sounds, such as road traffic noise or construction noise, vary repeatedly in level over a period of time. More sophisticated sound level meters have an integrating/averaging electronic device inbuilt, which will display the energy time-average (equivalent continuous sound level - L_{Aeq}) of the 'A' frequency weighted sound pressure level. Because the decibel scale is a logarithmic ratio, the higher noise levels have far more sound energy, and therefore the L_{Aeq} level tends to indicate an average which is strongly influenced by short term, high level noise events. Many studies show that human reaction to level-varying sounds tends to relate closer to the L_{Aeq} noise level than any other descriptor.
Frequency	The number of oscillations or cycles of a wave motion per unit time, the SI unit is the hertz (Hz).	Hertz (Hz):	The unit used to measure frequency of sound expressed by cycles per second.
Impact Sound Insulation ($L_{nT,w}$)	Australian Standard AS ISO 717.2 – 2004 has specified that the Impact Sound Insulation of a floor/ceiling system be quantified by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The Weighted Standardised Impact Sound Pressure Level ($L_{nT,w}$) is the sound pressure level at 500 Hz for a reference curve fitted to the measured 1/3 octave	Maximum Noise level, L_{AFmax}	The Root-Mean-Square (RMS) maximum sound pressure level measured with a sound level meter using the 'A' frequency weighting and the 'F' (Fast) time weighting. Often used for noise assessments other than aircraft.

ADVERTISED PLAN

	band levels. Thus the lower $L_{nT,w}$ the better the impact sound insulation.		
Noise	Noise is unwanted, harmful or inharmonic (discordant) sound.	Octave	An octave is the interval between two points where the frequency at the second point is twice the frequency of the first.
Reverberation Time (T60)	The time in seconds, after a sound signal has ceased, for the sound level inside a room to decay by 60 dB. The first 5 dB decay is often ignored, because of fluctuations that occur while reverberant sound conditions are being established in the room. The decay time for the next 30 dB is measured and the result doubled to determine the T60. The Early Decay Time (EDT) is the slope of the decay curve in the first 10 dB normalised to 60 dB.	Sound Insulation	Sound Insulation refers to the acoustic properties of building elements or structures and their ability to reduce sound transmission from one space to the other.
Sound Pressure Level (L_p)	The level of sound measured on a sound level meter and expressed in decibels (dB). Where $L_p = 10 \log_{10}(P_a/P_o)^2$ dB (or $20 \log_{10}(P_a/P_o)$ dB) where P_a is the RMS sound pressure in Pascal and P_o is a reference sound pressure conventionally chosen is $20 \mu\text{Pa}$ ($20 \times 10^{-6} \text{ Pa}$) for airborne sound. L_p varies with distance from a noise source.	Sound Power Level (SWL)	Sound power level is a logarithmic measure of the sound power in comparison to a specified reference level (dB).
Weighted Sound Level Difference (D_w)	Single number quantity which characterises the airborne sound insulation properties of a building element over a defined range of frequencies (D_w is used to characterise the insulation of a partition that has been measured on site).	Weighted Sound Reduction Index (R_w)	This is a single number rating of the airborne sound insulation of a wall, partition or ceiling. The sound reduction is normally measured over a frequency range of 100 Hz to 3.150 kHz and averaged in accordance with ISO standard weighting curves (Refer AS/NZS 1276.1:1999). Internal partition wall $R_w + C$ ratings are frequency weighted to simulate insulation from human voice noise. The $R_w + C$ is similar in value to the STC rating value. External walls, doors and windows may be $R_w + C_{tr}$ rated to simulate insulation from road traffic noise. The spectrum adaptation term C_{tr} adjustment factor takes account of low frequency noise. The weighted sound reduction index is normally similar or slightly lower number than the STC rating value. R_w is a laboratory test.