



WAVEFORM
ACOUSTICS

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Project – 294 Lygon St Brunswick East
Date – 17.2.22
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ACOUSTIC REPORT INFORMATION SHEET

Project

294 Lygon St Brunswick East

Prepared for

Nick Graham

Prepared by

Rohan Barnes from Waveform Acoustics

REVISIONS REGISTER	Issue Date
Draft Acoustic Report	14.1.22
Final Acoustic Report	17.2.22

DOCUMENT REGISTER	Issue Date
Letter of engagement	19.7.21

1.0 – EXECUTIVE SUMMARY

Waveform Acoustics has been engaged by Nick Graham to provide an Acoustic Report in relation to Music and Entertainment noise generated at 294 Lygon St, and Condition 7 requirement from the Moreland City Council as follows:

1. *Condition 7 of the Permit requires that:*
 - a. *Within 2 months of the commencement of the use, acoustic testing is to be carried out to ascertain whether the use complies with the maximum noise levels prescribed by SEPP N-2*.*
 - b. *If the testing reveals that the use does not meet the specified maximum noise levels the buildings and works must be modified to make the use compliant with those levels.*
 - c. *After any modifications are made further acoustic testing must be carried out to ascertain whether the use complies with the prescribed noise levels.*
 - d. *All acoustic testing is to be carried out during a busy period and the results to be provided to the Responsible Authority and made available to the public.*
2. *A new Acoustic Report must be prepared to accompany this application that is generally consistent with the one completed by Marshall Day (endorsed, attached). The Acoustic Report must be updated to provide a more detailed assessment of the opening/passage between the two venues and any potential noise impacts. The Acoustic Report must also be updated to reflect the deletion of 1 x airlock door which is no longer proposed to be constructed (This will be reflected on the plans).*

*Please note that the current EPA protocols are now within the new 1826.4 legislation.

In particular demonstrating that the proposed use and level of noise generated can be appropriately contained on the site without unreasonable impact on the residences and accommodation in close proximity to the venue.

The site is situated in a Commercial 1 Zone, is largely surrounded by Mixed Use Zoning, and is adjacent to a Neighbourhood Residential Zone. It is under the Moreland City Council planning scheme.

The nearest noise sensitive receivers are directly above the venue, in apartments in the same facility.

The facility will need to demonstrate compliance with the EPA 1826.4 noise protocol requirements during the day evening and night period, particularly the Music and Entertainment noise limits.

Testing was conducted during the evening and night period of the 19.12.21 both inside the apartment complex as well as externally.

After taking measurements at apartments 105 and 108 directly above the Piano Bar, it is evident that then noise levels currently exceed the levels required by the EPA noise protocol.

As such we recommend that further investigation is undertaken to determine the sound path (which appears to be up the wall systems – rather than through the floor/ceiling system). At which time a rectification strategy will be provided. Notwithstanding we have addressed some issues than can be quickly implemented to provide for compliance in the interim.

Testing was also conducted at various external residential receivers and the levels were all below those required by the Noise Protocol. It is therefore our assessment that the deletion of the airlock as well as the adjoining door between the two venues has not materially effected the external compliance for the facility.

Best Regards,



Rohan Barnes MAAS
Principal Consultant

2.0 – LEGISLATION AND GUIDELINES

In the preparation of the report the following legislation and guidelines were used:

EPA publication 1826.4: ‘Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues’ (Noise Protocol).*

This publication provides a protocol for the purpose of determining noise limits for new and existing commercial, industrial and trade premises and entertainment venues as defined by the Regulations. It sets the methodology for assessing the effective noise level to determine unreasonable noise under Regulations 118, 125 and 130. The measurement procedures of this Noise Protocol are also used to determine aggravated noise under Regulations 121, 127 and 131.

Environment Protection Regulations 2021

The objectives of these Regulations are to further the purposes of, and give effect to, the Environment Protection Act 2017 by imposing obligations in relation to environmental protection in Victoria.

State Environmental Protection General Environmental Duty 2021

New environment protection laws will mean that anyone engaging in an activity posing a risk of harm to human health and the environment, from pollution or waste, must manage that risk to prevent harm as far as reasonably practicable. This general environmental duty applies to all Victorians. It means you will need to proactively assess and manage the risks of harm from your activities. Eliminating or reducing risk is important because industry activities could impact - Noise – affecting people’s sleep; communication, cognition and learning; domestic or recreational activities; tranquillity and enjoyment inside and outside

*Please note that the permit Condition 7 requires SEPP N-2 compliance, this has been superseded by the new 1824.6 protocols from the EPA.

3.0 – ACOUSTIC ASSESSMENT

A Svantek 979 sound level meter recorded the environmental noise data calibrated prior to and after measurement. This equipment was used to take attended measurements at various locations.

Details of the instrumentation

equipment register	s/n	calibration date
ARL Ngara Noise Logger (BRUCE)	878153	due 2.11.22
ARL Ngara Noise Logger (Harry)	878120	due 2.11.22
SV 33A Calibrator	73304	due 28.7.22
SVANTEK 979	69424	due 28.7.22

Details of Testing

Date and Time	Location	Atmospheric
19.12.21	Various attended measurements	<i>Conditions according to the BOM¹</i>

Atmospheric

No rain or strong winds were detected during testing, ideal conditions for noise data measurement.

¹ <http://www.bom.gov.au/climate/dwo/202112/html/IDCJDW3033.202112.shtml>

3.1 – 1826.4 NOISE PROTOCOL

ENTERTAINMENT AND MUSIC ACTIVITIES

Indoor Measurements:

We understand that the most effected apartments to the venue are directly above at apartment 105 and apartment 108. As such according to the regulations below we have used these areas to both set the limits and check/demonstrate compliance.

(105) The measurement point must be located within a noise sensitive area or at an alternative assessment location.

(106) Where the measurement is to be made in a noise sensitive area, the measurement point must be located outdoors near a sensitive room unless –

- a. For indoor entertainment venues: i. the main transmission path of the music noise entering the sensitive room consists of a floor, ceiling or wall with no openings;
- ii. an outdoor measurement does not represent the noise exposure within the sensitive room; or

As such we set up a Noise logger in each apartment – Apartment 105 was unoccupied for the period.

Attended measurements were also taken at various times during the evening and night period to correlate the data within the apartments as well as in the venue while the Pianos were playing.

The limits have therefore been setout in table 1 below:

TABLE 1: EPA 1826.4 Determined noise limits for entertainment & music activities

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz)							A Scale
		63	125	250	500	1k	2k	4k	
DAY PERIOD (0900-1800)	$L_{A90} + 5\text{dB(A)}$								N/A
EVENING PERIOD (1800-2200 hours)	$L_{A90} + 5\text{dB(A)}$								25
NIGHT PERIOD* (22.00 - 0900 hours)	$L_{OCT90} + 8\text{dB}$	32	29	29	26	20	18	19	

Table 2 describes the external noise limits set in the EPA 1826.4 Noise Protocol in relation to noise associated with indoor entertainment, specifically music and the activities which may be involved.

Measured Results – Apartment 105

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz)							A Scale
		63	125	250	500	1k	2k	4k	
EVENING PERIOD (1800-2200 hours)	L _{Aeq}								28
	Limit								25
NIGHT PERIOD (22.00 - 0900 hours)	L _{OCT10}	41	37	34	29	20	15	15	
	Limit	32	29	29	26	20	18	19	

Notes:

1. Measurements were taken in the rear bedroom that was not exposed road, tram or pedestrian noise.
2. Levels in red are above the noise protocol limits

Measured Results – Apartment 108

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz)							A Scale
		63	125	250	500	1k	2k	4k	
EVENING PERIOD (1800-2200 hours)	L _{Aeq}								40
	Limit								26
NIGHT PERIOD (22.00 - 0900 hours) Front Bedroom	L _{OCT10}	52	48	47	38	33	28	22	
	Limit	39	32	29	20	17	18	20	
NIGHT PERIOD (22.00 - 0900 hours) Rear Bedroom	L _{OCT10}	44	43	41	29	15	14	14	

Notes:

Measurements were taken as follows:

1. in the front bedroom that was exposed road, tram or pedestrian noise (it was difficult to determine compliance or otherwise in this space due to the variability of noise sources)
2. The logger was then moved to the rear bedroom that was not exposed road, tram or pedestrian noise.
3. Levels in red are above the noise protocol limits

4.0 – INITIAL RECOMMENDATIONS

1. Speakers
 - a. We would recommend that the Speakers currently mounted to the roof mounted truss system as either:
 - i. Removed and mounted on floor mounted stands or/
 - ii. Vibration isolation mounts are added to the mount system to ensure there is no low frequency transfer into the slab.
2. Music Limiter/reduction in volume
 - a. Until further building works are undertaken (if required) we recommend that the music level is reduced (we did not while onsite that there were times when the music was distorting the sound system – in our opinion the level could be reduced without materially effecting the performance.
 - b. A noise limiter should then be installed and calibrated such that the Noise Protocol limits are not exceeded. Such as a CESVA 010 Limiter²
3. Further Investigation
 - a. Further testing should be undertaken to determine the sound paths (which appear to be the wall systems). At which point a decision can be made regarding what additional acoustic treatment is required.
 - b. It is our understanding that the apartments above are open to further testing being conducted in their apartments.
4. Final compliance
 - a. Once this work is completed another night of testing should be conducted in order to demonstrate compliance at which point a new Acoustic Report would be issued.

² <https://www.cesva.com/en/products/logger-limiters/lf010/>

5.0 – SUMMARY

This report gives consideration to acoustic matters associated with the operation of the venue, with recommended acoustic treatments and relevant practices to achieve and or/maintain compliance to the EPA 1826.4 Noise Protocol.

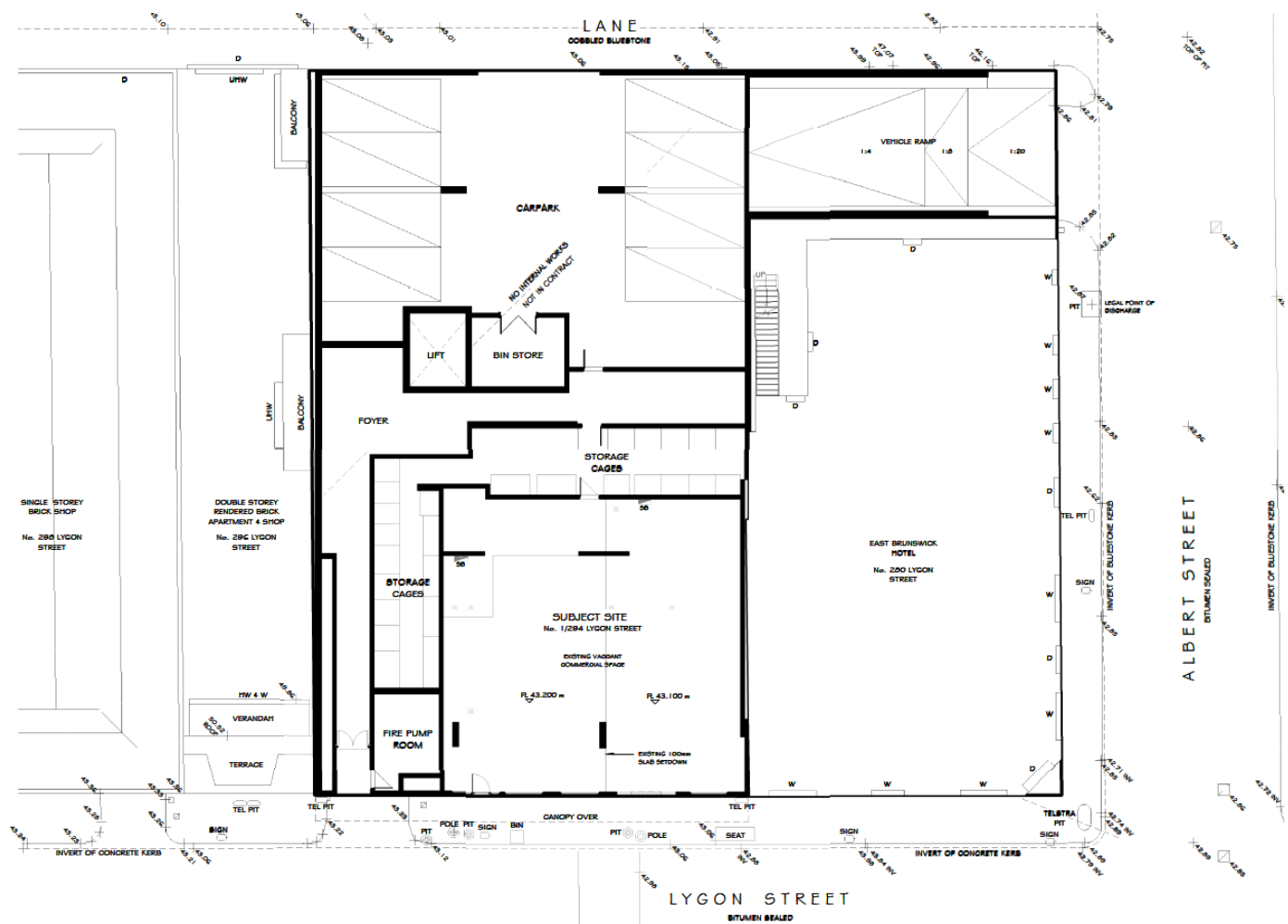
Where clarification is required or the recommended acoustic treatments may be found to impact on other services or statutory requirements, independent advice, as appropriate, is to be sought in respect to any such impact that these acoustic works may have on the building design and construction.

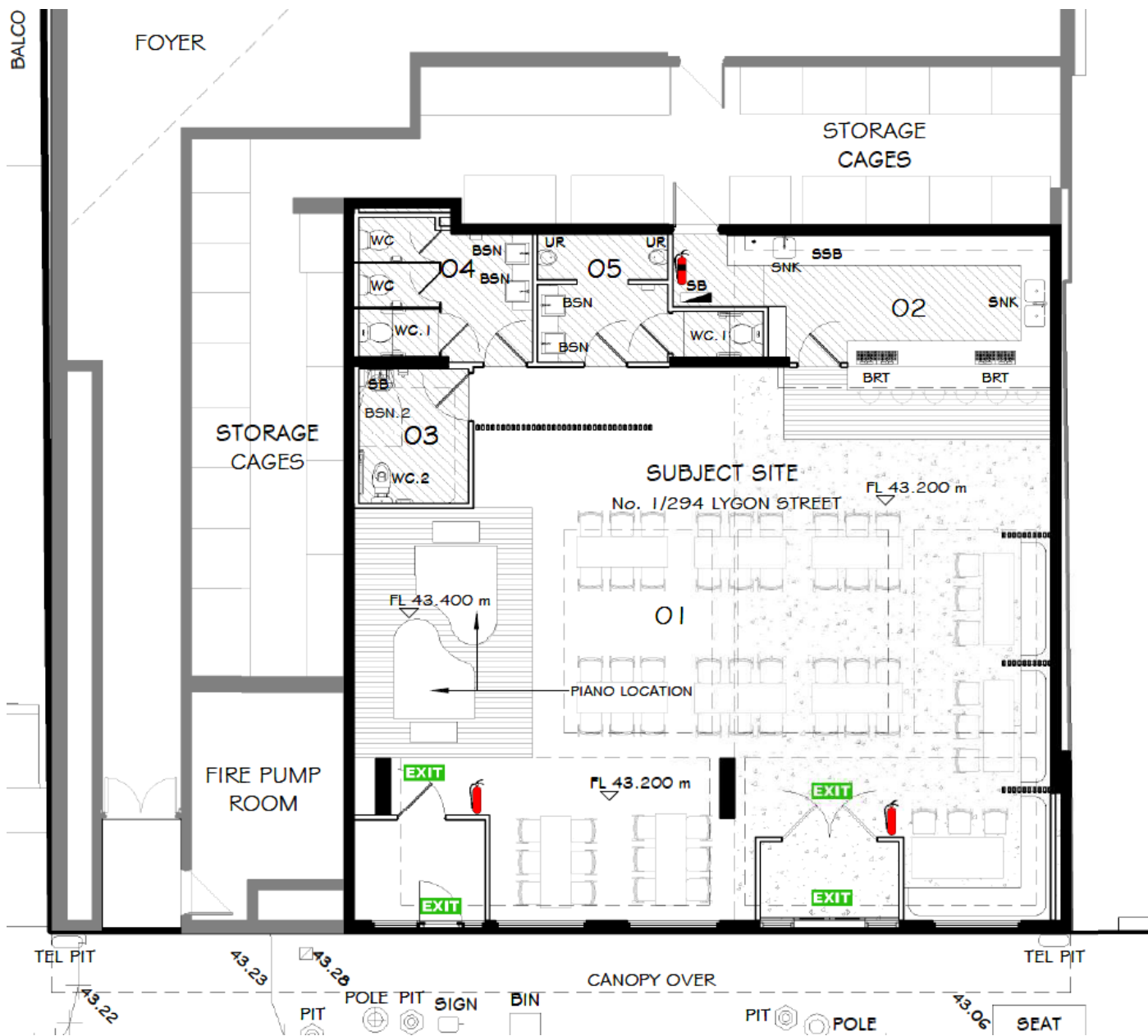
Rohan Barnes

Waveform Acoustics.

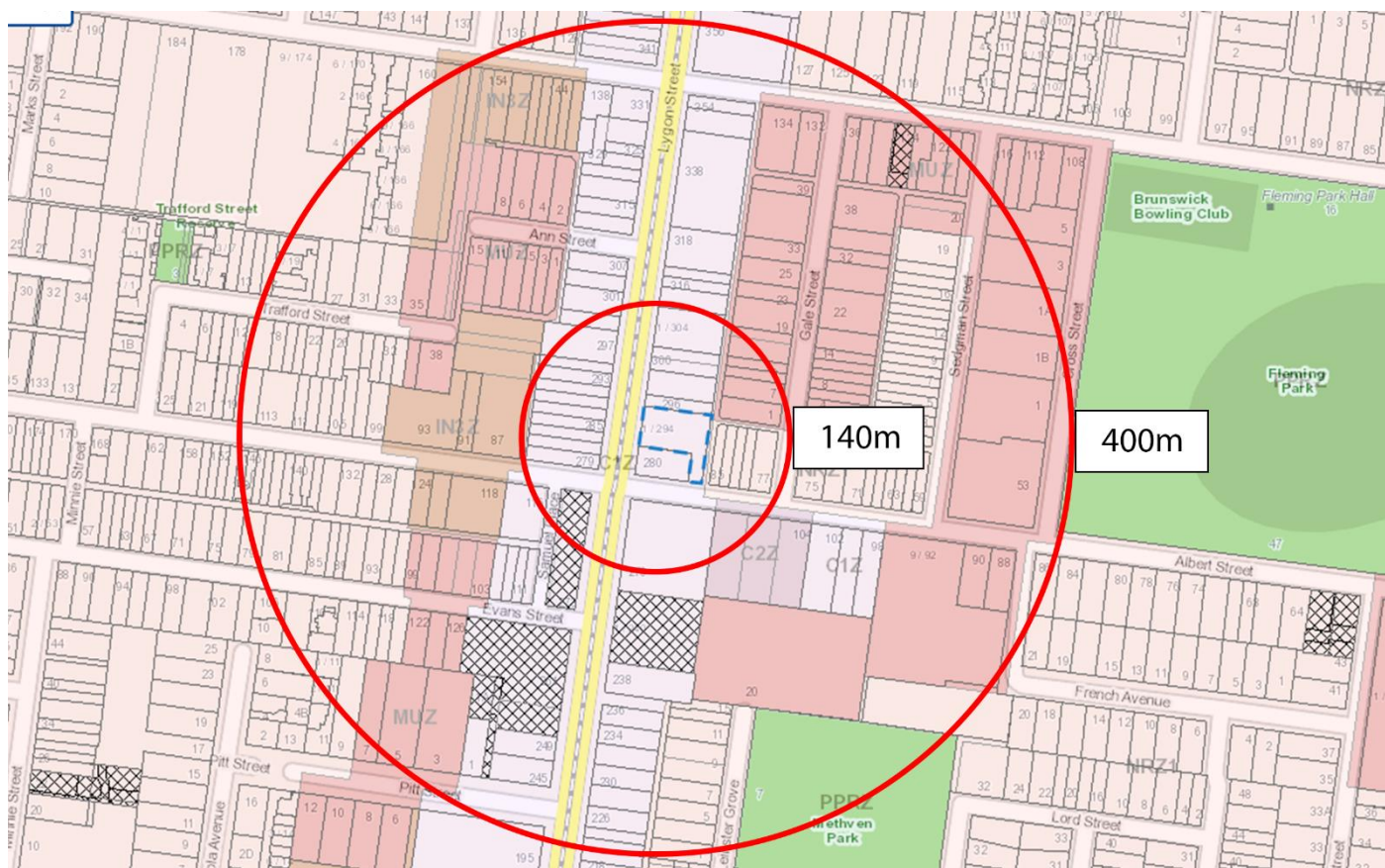
APPENDIX 1 – SITE PLAN







APPENDIX 2 – ZONING MAP



APPENDIX 3 – PLANNING REPORT

PLANNING PROPERTY REPORT



Environment,
Land, Water
and Planning

From www.planning.vic.gov.au at 14 January 2022 01:10 PM

PROPERTY DETAILS

Address: **1/294 LYGON STREET BRUNSWICK EAST 3057**
Lot and Plan Number: **Lot G01 PS706696**
Standard Parcel Identifier (SPI): **G01\PS706696**
Local Government Area (Council): **MORELAND**
Council Property Number: **1000045934**
Planning Scheme: **Moreland**
Directory Reference: **Melway 29 K8**

www.moreland.vic.gov.au

[Planning Scheme - Moreland](#)

UTILITIES

Rural Water Corporation: **Southern Rural Water**
Melbourne Water Retailer: **Yarra Valley Water**
Melbourne Water: **Inside drainage boundary**
Power Distributor: **CITIPOWER**

STATE ELECTORATES

Legislative Council: **NORTHERN METROPOLITAN**
Legislative Assembly: **BRUNSWICK**

OTHER

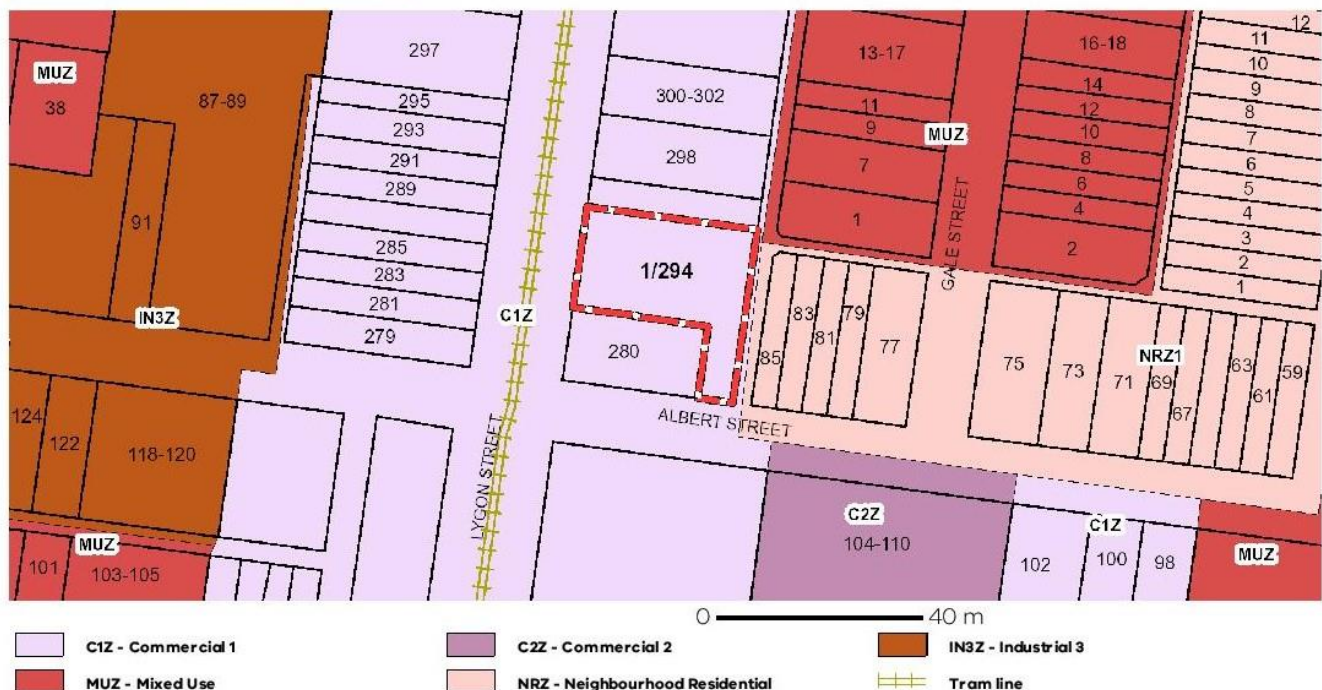
Registered Aboriginal Party: **Wurundjeri Woi Wurrung Cultural
Heritage Aboriginal Corporation**

[View location in VicPlan](#)

Planning Zones

[COMMERCIAL 1 ZONE \(C1Z\)](#)

[SCHEDULE TO THE COMMERCIAL 1 ZONE \(C1Z\)](#)

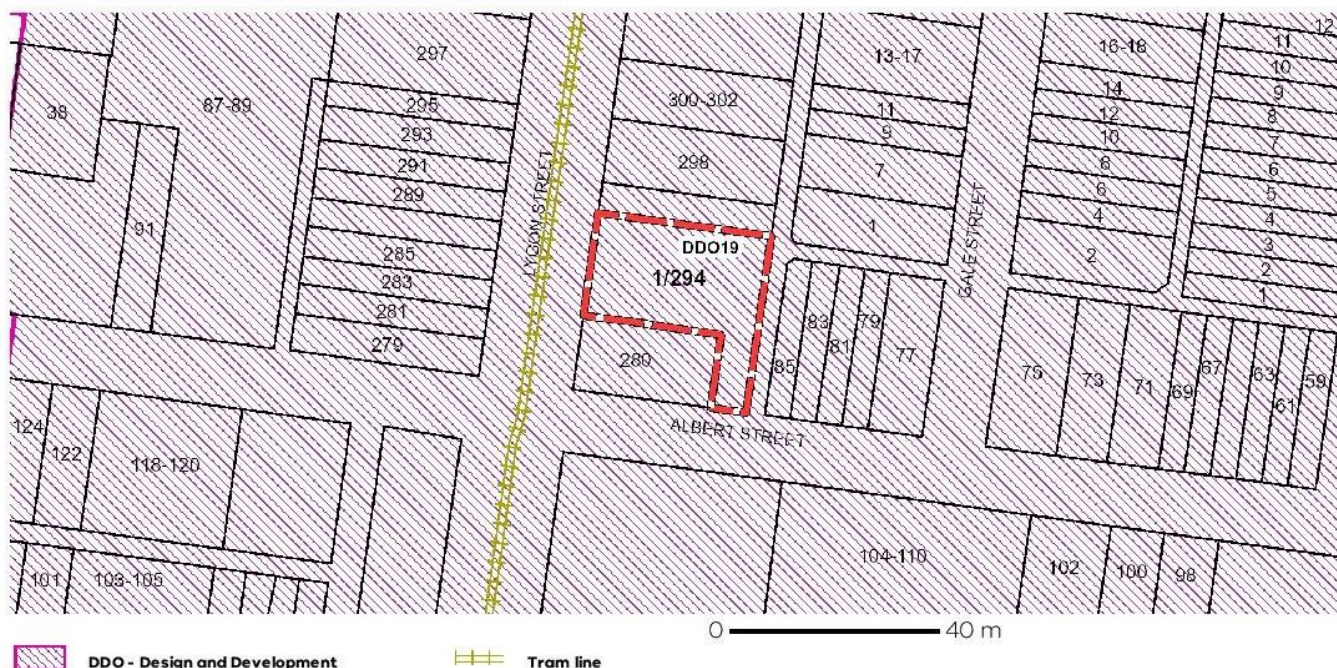


Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

Planning Overlays

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 19 (DDO19)



DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY (DCPO)

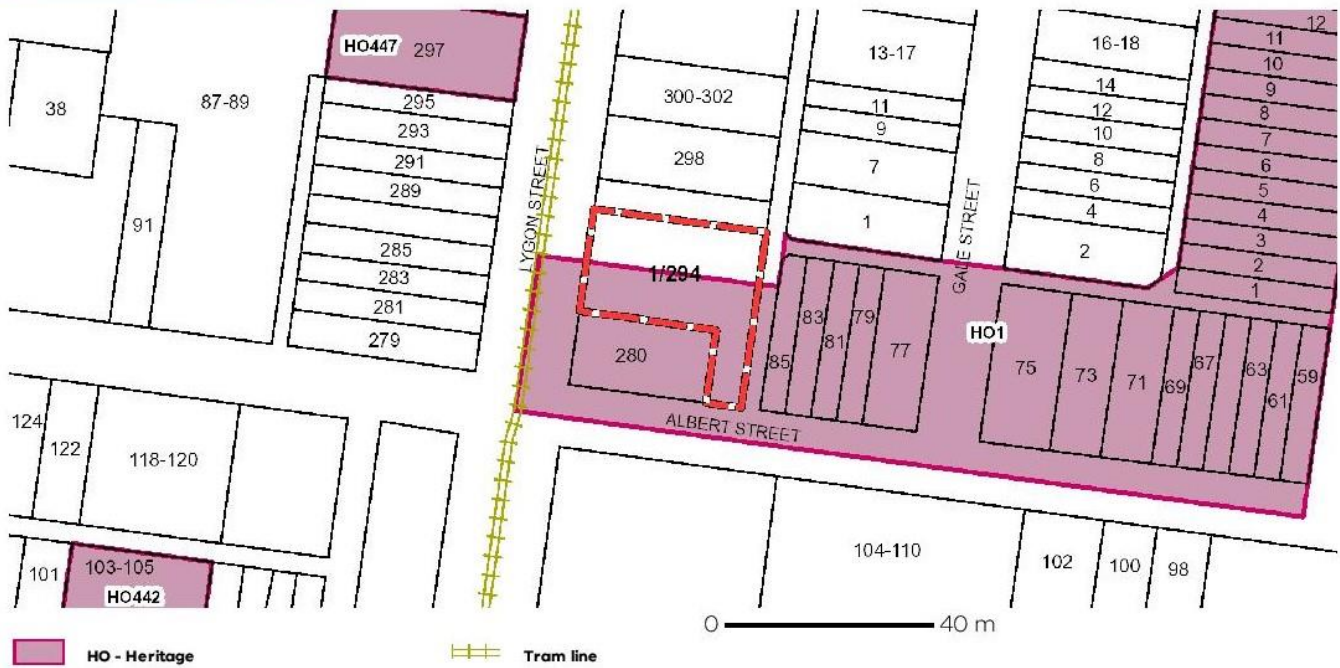
DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY - SCHEDULE 1 (DCPO1)



Planning Overlays

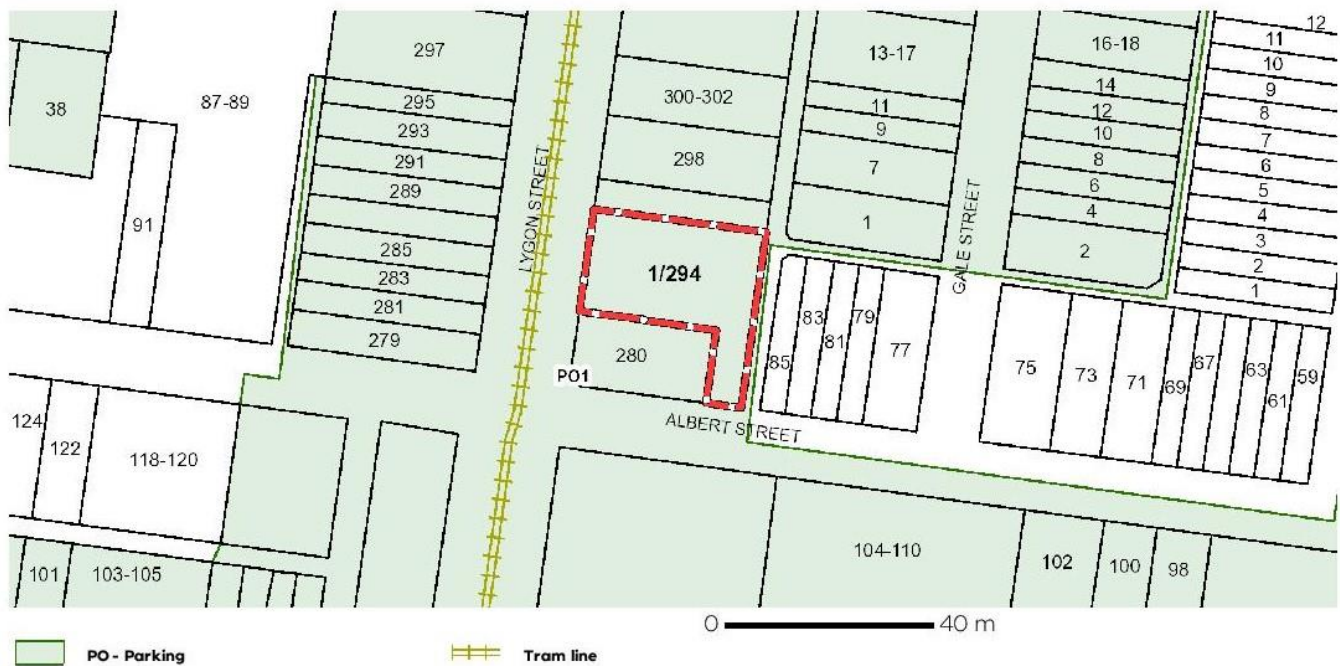
HERITAGE OVERLAY (HO)

HERITAGE OVERLAY - SCHEDULE (HO1)



PARKING OVERLAY (PO)

PARKING OVERLAY - PRECINCT 1 SCHEDULE (PO1)

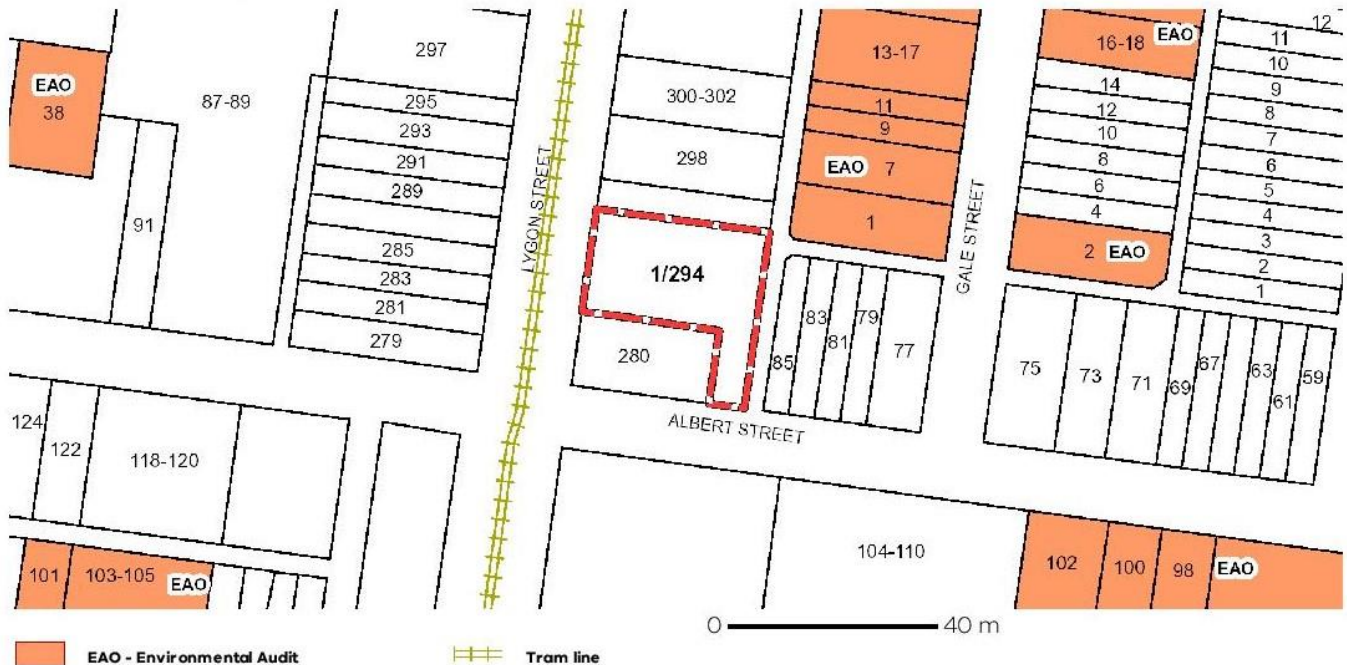


Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

ENVIRONMENTAL AUDIT OVERLAY (EAO)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

Further Planning Information

Planning scheme data last updated on 23 December 2021.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting <https://www.planning.vic.gov.au>

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the **Planning and Environment Act 1987**. It does not include information about exhibited planning scheme amendments, or zonings that may affect the land. To obtain a Planning Certificate go to Titles and Property Certificates at Landata - <https://www.landata.vic.gov.au>

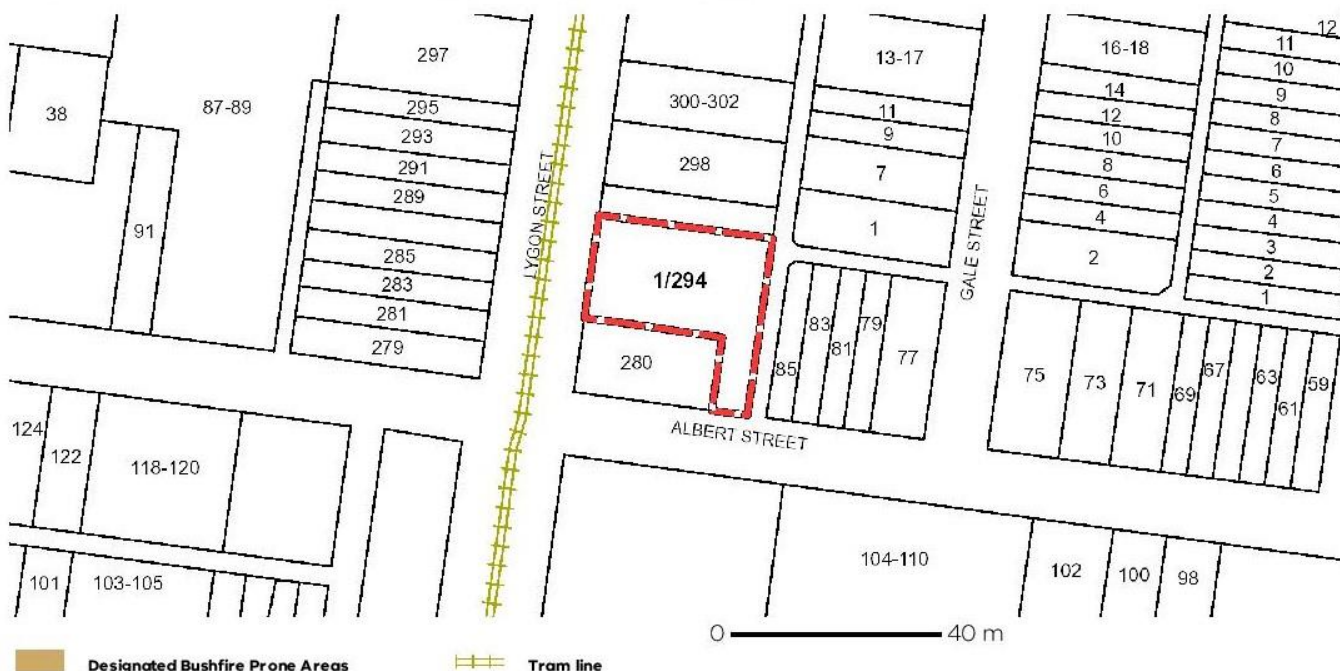
For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit <https://mapshare.maps.vic.gov.au/vicplan>

For other information about planning in Victoria visit <https://www.planning.vic.gov.au>

Designated Bushfire Prone Areas

This property is not in a designated bushfire prone area.
No special bushfire construction requirements apply. Planning provisions may apply.



Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Building Regulations 2018 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

Designated bushfire prone areas maps can be viewed on VicPlan at <https://mapshare.maps.vic.gov.au/vicplan> or at the relevant local council.

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website <https://www.vba.vic.gov.au>

Copies of the Building Act and Building Regulations are available from <http://www.legislation.vic.gov.au>

For Planning Scheme Provisions in bushfire areas visit <https://www.planning.vic.gov.au>

Native Vegetation

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see [Native Vegetation \(Clause 52.17\)](#) with local variations in [Native Vegetation \(Clause 52.17\) Schedule](#)

To help identify native vegetation on his property and the application of Clause 52.17 please visit the Native Vegetation Information Management system <https://nvim.delwp.vic.gov.au/> and [Native vegetation \(environment.vic.gov.au\)](https://environment.vic.gov.au/) or please contact your relevant council.

You can find out more about the natural values on your property through NatureKit [NatureKit \(environment.vic.gov.au\)](https://environment.vic.gov.au/)

APPENDIX 4 – HOW TO TEST FOR NOISE LEVEL COMPLIANCE

As described in EPA Noise Protocol 1826.4 – Commercial Noise Control Music and Equipment

Indoor entertainment venues during operation

(125) For the purpose of determining the effective noise level, the measurement must be made at a time when the greatest intrusion of music noise into a noise sensitive area is likely to occur, and include at least 15 cumulative minutes of music audible at the measurement point. The music noise is measured –

- for the day and evening period using the Fast time weighting and the A-frequency weighting network;
- for the night period using the Fast time weighting, and the linear weighting network.

(126) Where the measurement point is outdoors and is between 1 and 2 metres from an acoustically reflecting surface an adjustment of -2.5 dB must be made to the effective noise level.

(127) Where an indoor measurement is required, in accordance with clause 106 –

- a. for the purposes of clause 106(a)(i) the measurement must be made within the sensitive room, with all windows that are not major sound transmission paths closed.
- b. for the purposes of clause 106(a)(ii), the measurement must be made within the sensitive room with
 - i. any openable external window which is a major sound transmission path fully open during the measurement, and
 - ii. all windows that are not major sound transmission paths closed.
- c. for the purposes of clause 106(a)(iii), the measurement must be made within the sensitive room with windows and doors closed.

Proposed indoor entertainment venues:

(128) For proposed indoor entertainment venues or proposed extensions of existing indoor entertainment venues, the effective noise level of music noise must be calculated having regard to –

- a. all existing noise sensitive areas or future noise sensitive areas relevant to approved developments;
- b. the frequency spectrum of the music noise;
- c. the frequency-dependent sound insulation performance of the building within which the venue is located, as relevant;
- d. the sound paths to the noise sensitive area and other factors which may affect the propagation of sound; and
- e. the cumulative contribution from existing and approved entertainment venues or events affecting noise sensitive areas.

Using an outdoor noise measurement to assess indoor noise levels

(129) An outdoor measurement conducted directly outside a sensitive room can be used to assess the effective noise level indoors when –

- a. assessing music noise from a live music entertainment venue and, in application of clause 53.06 of the VPPs, the agent of change is a noise sensitive residential use; or
- b. assessing music noise from an outdoor entertainment venue in a noise sensitive area within the Docklands Noise Attenuation Area. (130) For the purpose of clause 129 the indoor effective noise level is determined by subtracting the noise reduction performance of the building envelope from the measured outdoor noise level, having regard to the frequency spectrum of the music noise and the specific acoustic conditions of the sensitive room within which the assessment is conducted.

Measurement Point

(106) Where the measurement is to be made in a noise sensitive area, the measurement point must be located outdoors near a sensitive room unless –

- a. For indoor entertainment venues:
 - i. the main transmission path of the music noise entering the sensitive room consists of a floor, ceiling or wall with no openings;
 - ii. an outdoor measurement does not represent the noise exposure within the sensitive room; or
 - iii. the noise sensitive residential use is the agent of change, in application of clause 53.06 of the VPPs.

GLOSSARY OF ACOUSTIC TERMS

L_{Aeq} means the equivalent continuous A-weighted sound pressure level.

L_{A90} means the A-weighted sound pressure level which is exceeded 90% of the time interval considered.

L_{Amax} means the maximum A-weighted sound pressure level during the time interval considered.

L_{Amin} means the minimum A-weighted sound pressure level during the time interval considered.

$L_{OCT 10}$ means the 'C' weighted or linear sound pressure level for a specified octave band that is exceeded for 10% of the time.