



MARSDEN HIGH SCHOOL PLANNING PROPOSAL
ACOUSTIC REPORT

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Project: MARSDEN HIGH SCHOOL PLANNING PROPOSAL

Prepared for: SCHOOL INFRASTRUCTURE NSW
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1.0 INTRODUCTION

Marshall Day Acoustics Pty Ltd (MDA) has been commissioned by School Infrastructure NSW (SINSW) on behalf of the Department of Education (DOE) to prepare an acoustic report to supplement a Planning Proposal to amend a 'land use zone' Development Standard in the Ryde Local Environmental Plan 2014 from SP2 Educational Establishment to RE1 Public Recreation.

The subject site is currently known as Marsden High School and is located at 22 Winbourne Street, West Ryde.

Neither Ryde City Council nor any known State Government bodies provide specific policy or guidance for the acoustic assessment of proposed 'land use zone' changes. This report provides a qualitative assessment of acoustic factors relating to the proposed 'land use zone' change, comparing and contrasting the acoustic characteristics associated with the current and proposed uses and providing comments on conceptual acoustic considerations for future development, should the sought change be approved.

2.0 DEVELOPMENT DESCRIPTION

The subject site is located at 22 Winbourne Street, West Ryde, approximately 1.5 km north west of Meadowbank and 5 km south east of Macquarie Park and is currently occupied by Marsden High School buildings and associated facilities.

The site is currently zoned SP2 Educational Establishment in the Ryde Local Environmental Plan 2014 (Ryde LEP 2014). Surrounding residential lots are predominantly zoned R2 Low Density Residential

A street map indicating the site, boundary and surrounds is provided in Figure 1. An aerial image of the site and surrounds is provided in Figure 2.

Figure 1: Locality map as provided by SINSW



Figure 2: Aerial image of the site as provided by SINSW



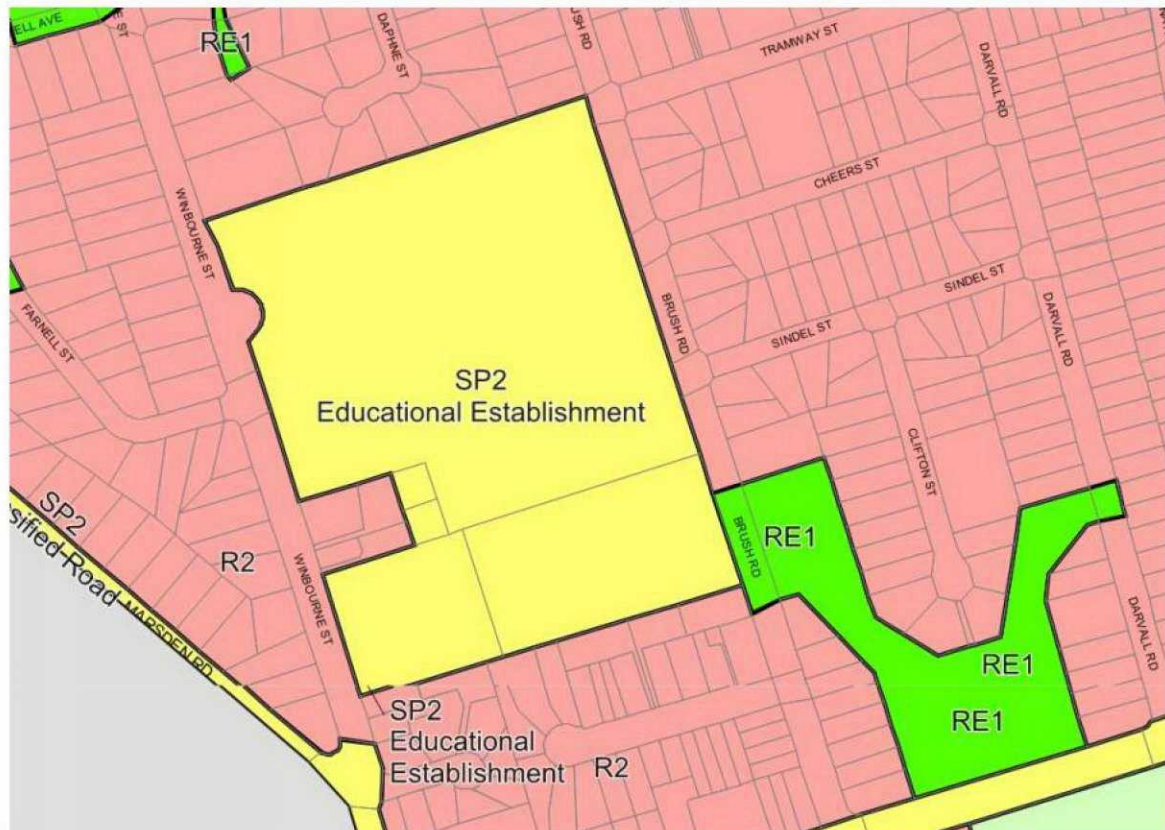
Vehicular and pedestrian access is currently via Winbourne Street and Brush Road. A pedestrian refuge island is located on Winbourne Street adjacent to the school site.

There is high value biodiversity (vegetation) to the north east and scattered trees/cleared land to the remainder of the site. An open waterway exists to the north east of the site, within the vegetated area, whereafter it is piped to the south eastern corner of the site under Brush Road. Topography of the site falls from north/north west to south east

2.1 Site surrounds

Ermington Public School, zoned SP2 Educational Establishment, is located immediately south of the site. Properties zoned R2 Low Density Residential surround the site to the north, east and west. Maze Park, zoned RE1 Public Recreation, is located south east of the site. There are two locally heritage listed items within vicinity of the site, being the former School residence/1988 Ermington School Building and Maze Park. A current zoning map, taken from the Ryde LEP 2014, for the subject site and surrounds is shown in Figure 3.

Figure 3: Current zoning map for site and surrounds



3.0 EXISTING NOISE ENVIRONMENT

Two unattended noise loggers were deployed at the site from Thursday 18 February 2021 until Wednesday 3 March 2021. Information regarding equipment specifications is provided in Table 1. The location of the noise loggers is denoted in Figure 4.

Table 1: Unattended logger information

Position	Make	Model	Serial Number	Location
1	01dB	Duo Smart Noise Monitor	10196	7 Daphne Street
2	01dB	Duo Smart Noise Monitor	10419	20 Winbourne Street

Figure 4: Unattended noise logger locations


Both loggers continuously measured background levels with post-processing resampling noise levels into 15 minute intervals following methodologies provided in the NSW EPA's Noise Policy for Industry (NPfI).

Logger background noise data was then analysed and edited, removing data sets affected by poor weather conditions and data exclusion guidelines also set out in the NPfI. Data for 24 and 25 February 2021 was not available for the logger at Position 1 due to an equipment storage failure. In order to provide comparable survey periods, data for Position 2 was excluded for the same period.

The calibration of both units was checked prior to and following the measurement period using a Rion NC-74 Sound Level Calibrator and exhibited no significant deviation.

The background and ambient noise levels measured by the loggers and processed in accordance with the NPfI are shown in Figure 5 and Figure 6.

Figure 5: Background and ambient noise levels for logger location 1 – 7 Daphne Street

Period	Time of day	Rating Background Level, dB L _{A90, 15min}	Equivalent Continuous Noise Level, dB L _{Aeq, 15min}
Day	0700-1800 hrs	39	60
Evening	1800 – 2200 hrs	38	53
Night	2200 - 0700 hrs	31	41

Figure 6: Background and ambient noise levels for logger location 2 – 20 Winbourne Street

Period	Time of day	Rating Background Level, dB L _{A90, 15min}	Equivalent Continuous Noise Level, dB L _{Aeq, 15min}
Day	0700-1800 hrs	43	52
Evening	1800 – 2200 hrs	42	61
Night	2200 - 0700 hrs	40	49

In review of the measured noise levels, and incorporating experiences on-site during deployment and retrieval of equipment, the site exhibits a noise environment typical for a Suburban area as defined in the NPfI:

‘Suburban—an area that has local traffic with characteristically intermittent traffic flows or with some limited commerce or industry. This area often has the following characteristic: evening ambient noise levels defined by the natural environment and human activity.’

Further, the surrounding land use zones align with those summarised in Table 2.3 of the NPfI as being associated with the receiver category ‘Suburban residential’.

On this basis the acoustic environment of the subject site and surrounds is defined as Suburban in nature.

4.0 RYDE LOCAL ENVIRONMENTAL PLAN 2014

The Ryde LEP 2014 provides a Land Use Table, aiming to define the types of developments and uses that may be permitted under a particular land use zone. The aim of the overall planning instrument is to ensure consistency and alignment between adjoining land uses whilst fostering a flexible attitude with respect to development opportunities..

Whilst the Ryde LEP 2014 (or other available statutory or advisory document) does not provide prescriptive methodologies, assessment criteria or other guidance for the acoustic assessment of rezoning proposals, it is assumed that the intent of the Ryde LEP 2014 would need to be considered by any submission seeking a land zone use change.

For the purposes of this acoustic assessment it is expected that any proposed land use change would need to ensure that the introduction of a new land use zone provides consistency and alignment with neighbouring land use zones, in an acoustic context.

In considering this, the potential developments permitted under the sought land use zone (RE 1 Public Recreation) will be qualitatively and conceptually reviewed with respect to the existing zone (SP2 Infrastructure Educational Establishment), with consideration given to the acoustic amenity of adjoining residential receivers and the likelihood or otherwise of adverse impact.

Table 2 provides extracts from the Ryde LEP 2014 denoting the current and proposed land use zones for the subject site as well as the land use zones for the surrounding residential receivers. Also included are the types of developments permitted for the land use zones as defined in the Ryde LEP 2014.

Table 2: Development types permitted under the current and proposed land use zones for the subject site and surrounds, Ryde LEP 2014

Current subject site and adjoining land use zone and permitted developments	Proposed subject site and adjoining land use zone and permitted developments	Surrounding residential land use zone and permitted developments
<p>SP2 Infrastructure</p> <p>The Ryde LEP 2014 does not provide extensive detail regarding the development types permitted under the Zone SP2 Infrastructure land use zone, with 'Aquaculture' and 'Roads' only described as permitted with consent.</p> <p>Given the site is currently zoned specifically as <i>SP2 Infrastructure – Educational Establishment</i> Ryde City has clearly accepted an Educational Establishment to be permitted under the SP2 Infrastructure land use zone.</p>	<p>RE1 Public Recreation</p> <p>The Ryde LEP 2014 indicates that 'Environmental protection works' are permitted without consent.</p> <p>Developments that are permitted but require a consent submission are listed as:</p> <ul style="list-style-type: none"> - Aquaculture - Business identification signs - Community facilities - Environmental facilities - Kiosks - Recreation areas - Recreation facilities (indoor) - Recreation facilities (outdoor) - Restaurants or cafes - Roads 	<p>R2 Low Density Residential</p> <p>The Ryde LEP 2014 indicates that 'home occupation' is permitted without consent.</p> <p>Developments that are permitted but require a consent submission are extensive and listed as:</p> <ul style="list-style-type: none"> - Bed and breakfast accommodation - Boarding houses - Business identification signs - Centre-based child care facilities - Community facilities - Dual occupancies (attached) - Dwelling houses - Environmental protection works - Group homes - Health consulting rooms - Home-based child care - Home businesses - Home industries - Hospitals - Oyster aquaculture - Places of public worship - Pond-based aquaculture - Recreation areas - Residential care facilities - Respite day care centres - Roads - Secondary dwellings - Tank-based aquaculture

5.0 ACOUSTIC ASSESSMENT OF PROPOSED LAND USE ZONE CHANGE

Marsden High School has been located at the subject site, in one form or another, since 1959.

The existence and operation of Marsden High School over the past 50 years means the noise amenity and characteristics associated with the school are an integral part of the noise environment at the surrounding residential receivers.

On this basis, it is assumed that the noise characteristics and amenity associated with the SP2 Infrastructure Education Establishment, subject to appropriate noise control and management, are

acceptable for integration with the adjoining R2 Low Density Residential receivers. This is supported by the widespread locating of schools within low density residential areas throughout NSW.

In order to provide a conceptual, qualitative assessment of the proposed land use zone change, a comparison of the acoustic amenity of the current and proposed land use zones is provided comparing and contrasting associated acoustic characteristics.

This approach is taken to determine whether the proposed RE1 Public Recreation use is acoustically similar to the current SP2 Infrastructure Educational Establishment use, and thus may be suitable for integration with the surrounding R2 Low Density Residential zoning.

5.1 SP2 Infrastructure – Educational Establishment - Existing Acoustic Amenity

Acoustic sources related to operation of the school and the times in which they may typically occur are detailed in Table 3. These factors are important in understanding how the operation of the school influences the local acoustic amenity.

Table 3: SP2 Infrastructure Education Establishment - associated noise characteristics

Noise source	Time of occurrence	Acoustic considerations
Traffic and pedestrian noise from student and staff arrival and departure	Typically occurring 0730-0900 hrs and 1500-1800 hrs Weekdays	Noise management likely to be implemented by the school through student education and use of traffic marshals
Noise emissions from internal spaces	0900-1500 hrs Weekdays	Noise generated within internal spaces of a school are typically low in magnitude and often well controlled by the building façade. Amplified music or speech for performance or assemblies may be used occasionally giving rise to higher noise emissions. The school has abilities to control emissions through the closing of openable façade elements.
School bell/PA	0900-1500 hrs Weekdays	---
Outdoor play/sporting activities	Sporadic occurrence throughout 0900-1500 hrs Weekdays	Play/sporting activities may give rise to shouting or yelling from participants as well as instruction from teaching staff and whistles throughout gameplay. Primary noise control measures would be implemented through activity management with physical noise controls playing a secondary role.

Noise source	Time of occurrence	Acoustic considerations
Community use	Occasional weekday evenings and weekends	<p>It would be expected that weekday evening use may occur in both internal spaces and external sporting facilities. Weekend use may include community use of sporting fields during the day giving rise to noise characteristics similar to weekday play/sporting activities.</p> <p>Before and after school care may also occur internally and externally typically after 7am and up to 6pm Monday to Friday.</p> <p>Specific existing community use of the school is not known.</p>
Mechanical services	Likely to occur continuously. Some equipment may turn on and off with use with use occurring primarily during the weekday periods.	---

5.2 RE1 Public Recreation - Associated Acoustic Amenity

An exhaustive review of the variety of development permutations that may be captured under the RE1 Public Recreation development types listed in Table 3 is not within the scope of this assessment. Whilst the proposed development types are somewhat varied, for acoustic purposes they can generally be grouped into two types of development:

Passive – in which use is characterised by contemplative activities that generate little noise e.g. open parkland or recreational activities that may not require prepared facilities or require facilities that do not generate significant noise

Active – in which use is characterised by commerce or recreation (e.g. sporting) activities which generate their own noise e.g. restaurants /kiosks/cafes or structured individual or team activity that requires the use of special facilities, courses, fields, or equipment

As can be seen above, the crucial consideration in determining whether a use may be Passive or Active for acoustic purposes is the extent of noise generation arising from the facilities and use.

Based on the features of the subject site, it appears to be unlikely that aquaculture or environmental facilities (waste treatment type uses) are likely to be a future development consideration. As such these development types are excluded from consideration in this report.

The remaining development types are primarily related to restaurant/café/kiosk uses or recreation and sporting activities. These have been grouped based on the above Passive and Active definitions, and are shown in Table 4. Some development types are applicable to both groups and have been included with context.

Table 4: Passive and active grouping of RE1 Public Recreation developments

Passive recreation uses	Active recreation uses
<p>Business identification signs Zero noise generation</p> <p>Recreation facilities (outdoor), Recreation areas Where no prepared facilities are required or facilities that in themselves are unlikely to give rise to significant noise generation e.g. outdoor artificial climbing wall, wildlife viewing, jogging paths</p>	<p>Community facilities, Recreation facilities (indoor), Recreation facilities (outdoor), Recreation areas Sporting facilities e.g netball, hockey, football, tennis, skateboarding. Indoor or outdoor community performance spaces likely to exhibit amplified speech or music</p> <p>Kiosks, restaurants or cafes Premises may range in size from minor ice cream kiosk type location to larger premises with indoor and outdoor dining spaces. Provision of mechanical services may be included. May feature a liquor license.</p> <p>Roads Publicly accessible and/or navigable by motorised vehicles. May include provisions for car parking</p>

5.2.1 Acoustic Characteristics

Acoustic characteristics associated with the RE1 Public Recreation land use zone have been evaluated. A summary is provided in Table 5.

Table 5: RE1 Public Recreation - associated noise characteristics

Development type	Noise source	Time of occurrence	Acoustic considerations
Passive recreation uses			
Business identification signs	N/A	N/A	Zero noise generation
Recreation facilities (outdoor), Recreation areas	General chatter and/or quiet instruction related to contemplative activities Footfall noise associated with running/jogging	Typically expected during day and evening daily	The magnitude of noise emissions associated with passive activities would not be expected to require noise control considerations or be of a level to give rise to adverse noise impacts. Generally speaking noise emissions are expected to be minimal.
Active recreation uses			
Community facilities, Recreation facilities (indoor), Recreation facilities (outdoor), Recreation areas	External and internal sporting activities may give rise to noise from participants as well as instruction from teaching staff and whistles throughout gameplay Amplified speech or music related to indoor or outdoor community performances	Outdoor activity may occur on any day and could occur in the evening if lighting is provided. Indoor spaces could be in use any day or evening.	The extent of noise emissions would be related to the number of activities occurring concurrently, the management of the activity and the performance of the building enclosure where indoor activities apply. Primary noise control measures may be implemented through activity management or via physical noise controls For indoor facilities, the performance of the building façade may need to be considered as well as the emissions from external mechanical services.

Development type	Noise source	Time of occurrence	Acoustic considerations
Kiosks/Restaurants and cafes	Patron noise emissions during services Business shutdown and waste disposal Outdoor patrons Mechanical services	Operations might occur on any day of the week and could include evening or night-time use.	<p>For smaller takeaway kiosk type premises patron noise would be expected to be sporadic, brief and low in volume. Where a large number of patrons may be in attendance appropriate management procedures can assist in minimising noise emissions.</p> <p>The building enclosure may need to be developed to provide suitable noise control performance to control noise emissions from internal spaces.</p> <p>Similar management procedures to ensure waste disposal and business shutdown is conducted quietly and without impact may also be required.</p> <p>Noise emissions from operation of mechanical services may need to be evaluated.</p> <p>Management procedures in conjunction with physical noise controls may need to be employed to reduce noise impacts.</p>
Roads	Public vehicle use Car parking	Roads in use 24 hours a day. Car parks more typically in use day and evening daily	<p>Construction of a new road would trigger assessment under the NSW EPA Road Noise Policy, however this would not be out of character with the existing road network.</p> <p>Use of internal roads or car parks is likely to give rise to noise emissions that will need to be appropriately controlled.</p> <p>The extent of noise emissions will be dependent on size and intensity of use.</p> <p>Physical noise controls, as well as the careful planning of routes and positioning may be required to minimise impacts.</p>

5.3 Discussion – Comparison of SP2 Education use and RE1 Public Recreation use

Review of the acoustic amenity and characteristics associated with an RE1 Public Recreation land use zone indicates that noise emissions from the permitted development types are likely to range in magnitude from quieter passive uses to more active uses such as sporting facilities.

Generally, noise emissions from potential passive recreation use may be lower than that for the existing Marden High School as the noisier, active sport and play associated with the school would not be present as part of a passive recreation use. Similarly, amplified music or speech related to school or community performances within the school buildings would also not be present for passive recreation use.

Whilst the timing of activities likely to occur under the passive recreation use may differ to that expected during school use i.e. some activities may occur at the weekend, the noise associated with passive use is likely to be compatible with the adjacent land uses.

New developments permitted under the RE1 Public Recreation that may be characterised by active uses such as sporting facilities and commerce (kiosks/restaurants/cafes) are not expected to introduce any new significant noise source types such as industrial noise, with the types of associated acoustic sources being generally similar to that of the existing school.

Both uses feature sporting activities likely to comprise calls, shouts, whistles and elevated instruction. Buildings associated with both uses may feature internal amplified music and external mechanical services. Patrons/students are a feature of both uses. Noise from traffic and car park activities is also common.

Acoustic differences may arise however when the timing of activities is considered, as public recreation activities may be expected to occur more prevalently during the evening and weekends than occurs for education facilities. The implementation of noise control measures such as physical noise controls and management processes may assist in ameliorating impacts.

The impact from any proposed use of the site for café/kiosk/restaurant, new road or dedicated indoor or outdoor recreational facilities would need to be assessed if/when a development approval is put forward.

6.0 CONCLUSION

Ryde City does not provide specific policy or guidance for the acoustic assessment of proposed 'land use zone' changes.

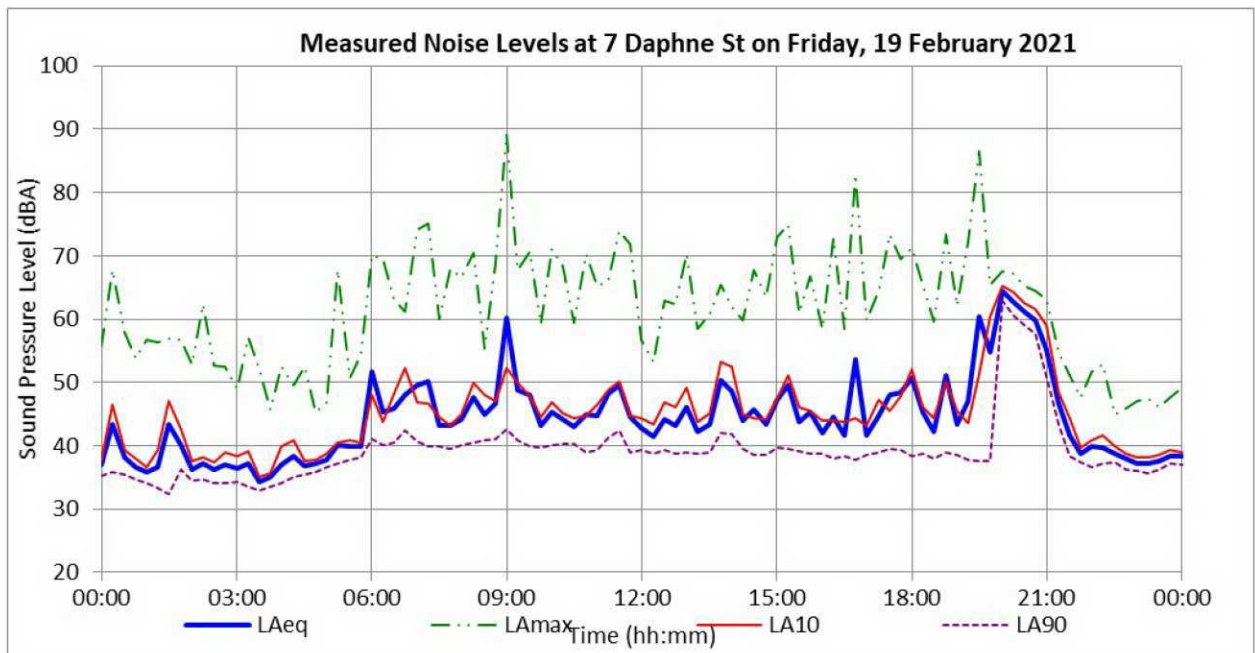
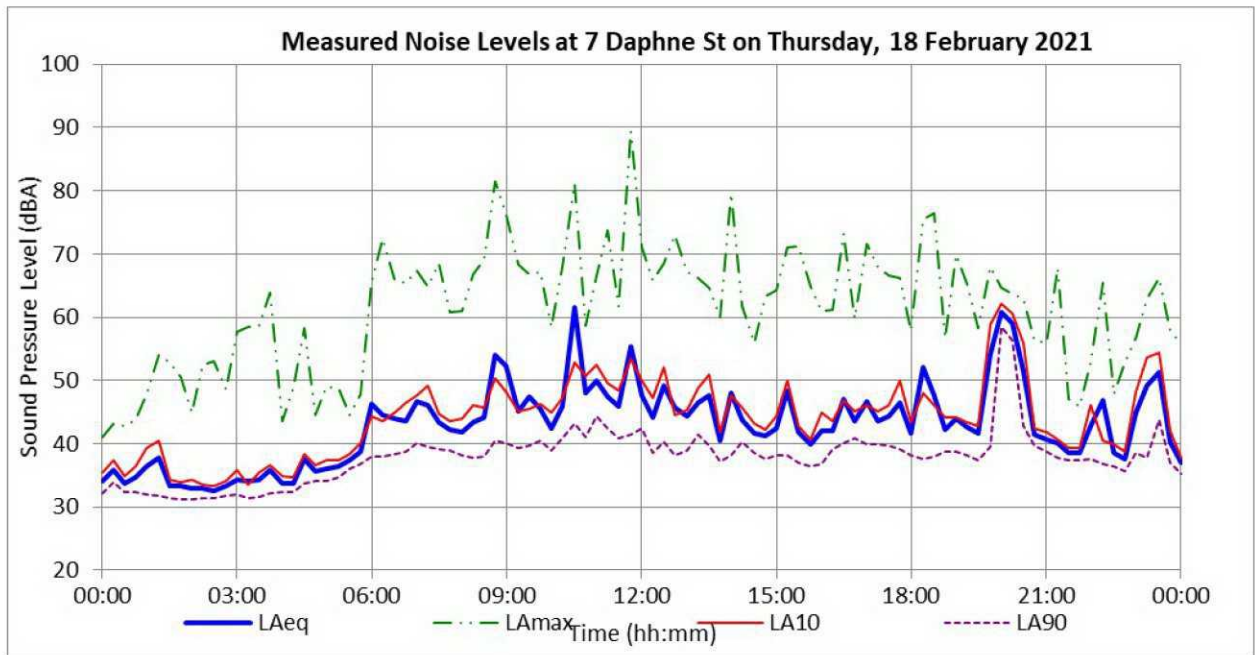
To evaluate the acoustic impacts that may be associated with the proposed change of 'land use zone' for the subject site, from SP2 Infrastructure Educational Establishment to RE1 Public Recreation, a qualitative assessment of acoustic factors has been developed.

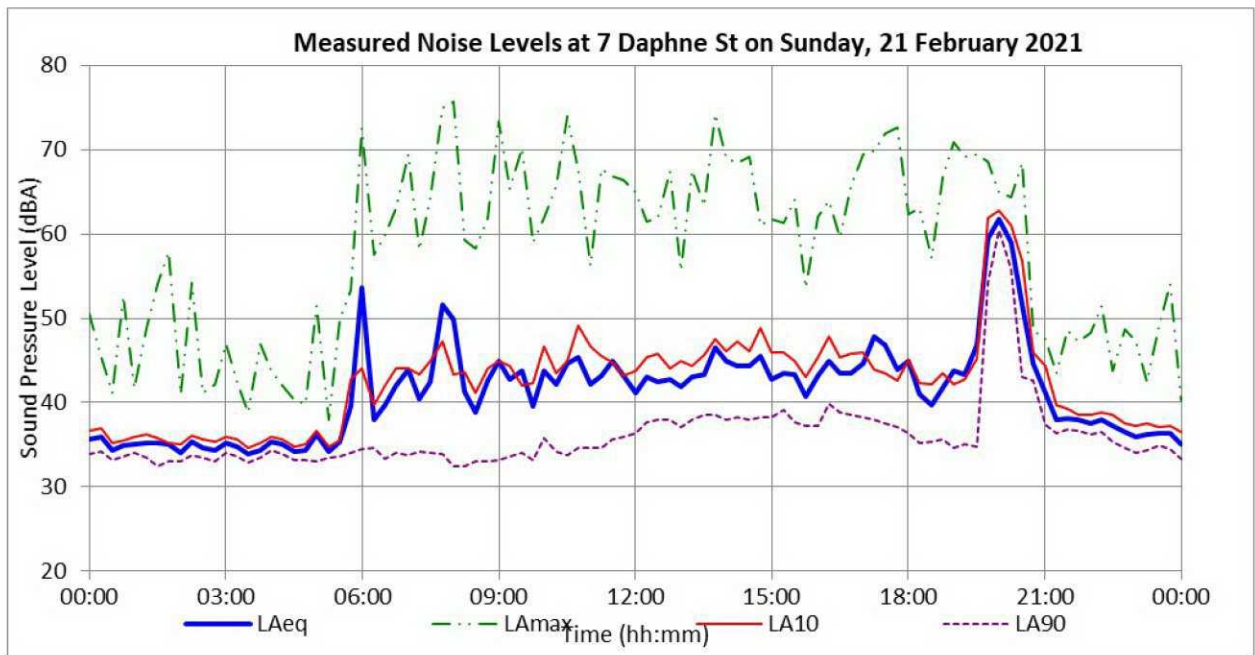
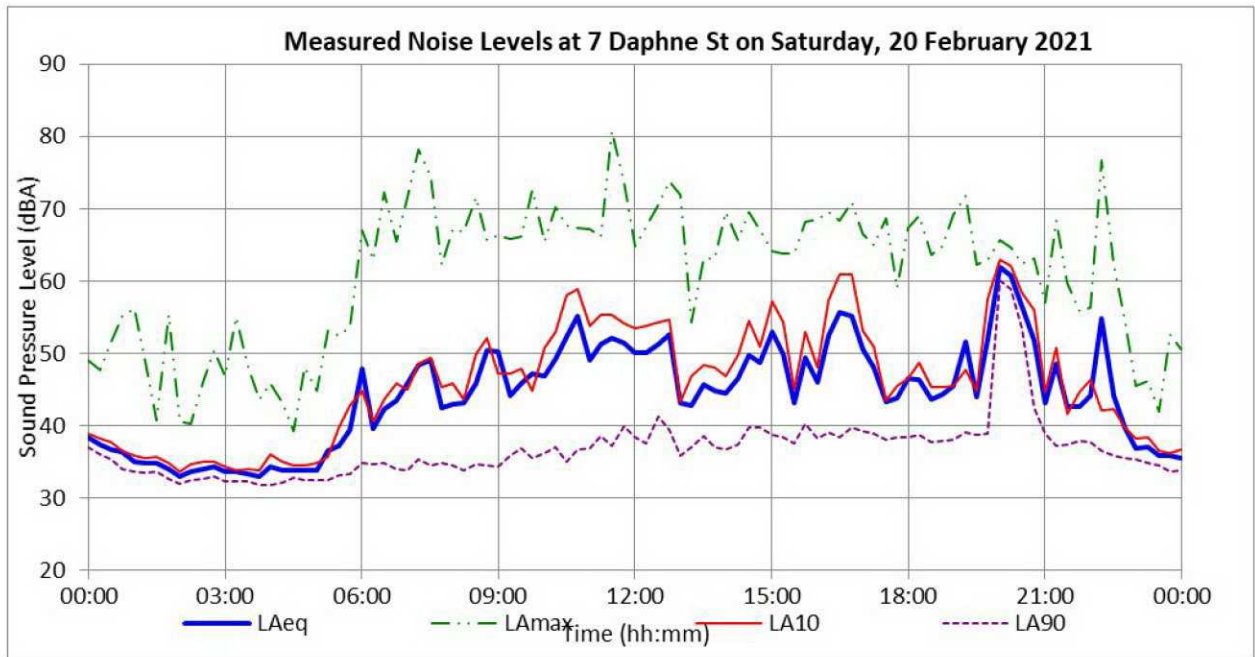
The assessment compares and contrasts the acoustic characteristics associated with the current and proposed uses, determines qualitative outcomes and provides comments on conceptual acoustic considerations for future development, should the sought change be approved.

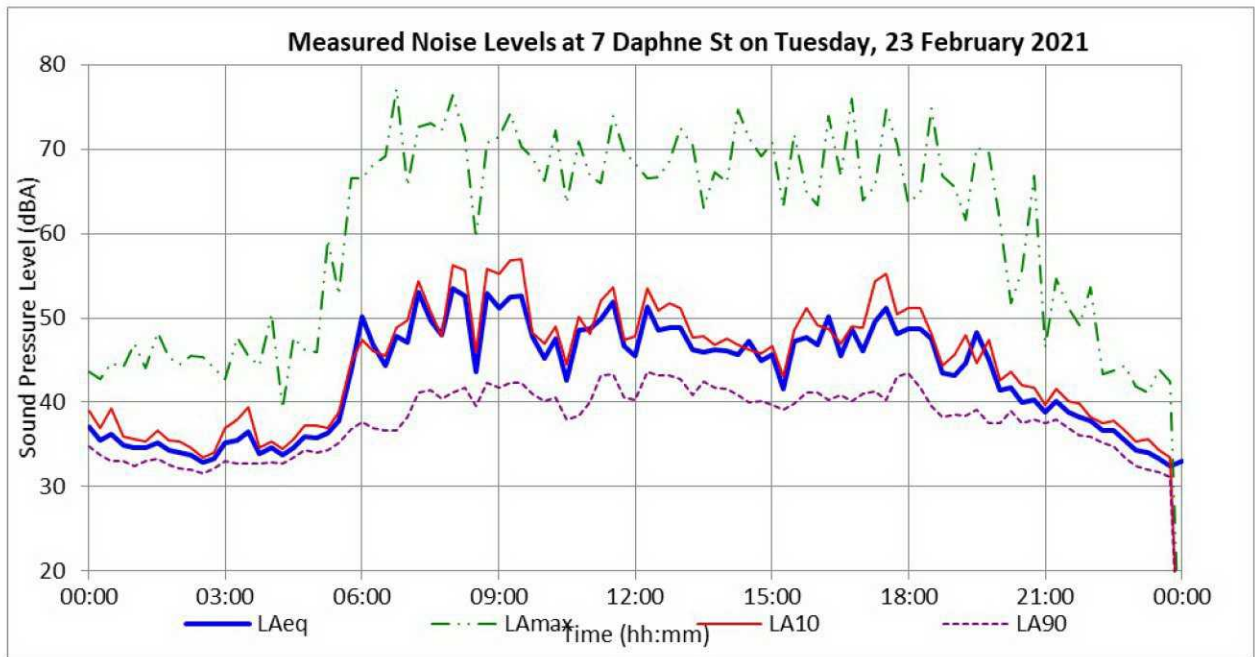
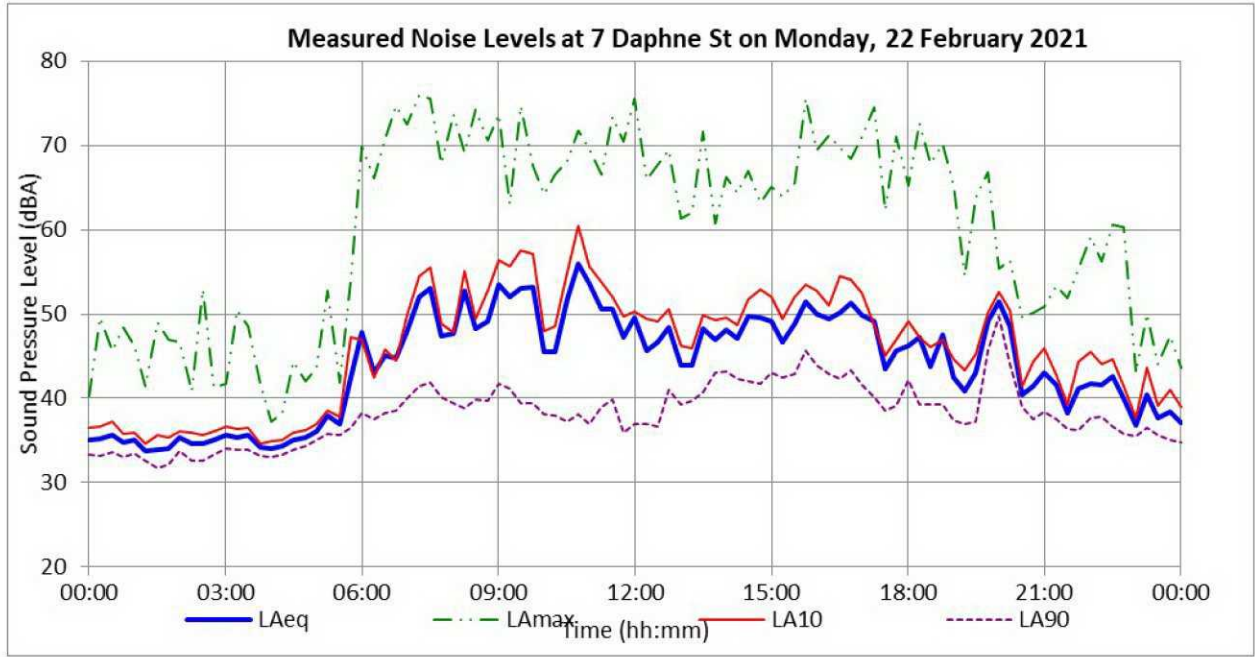
The allowable uses under an RE1 Public Recreation zoning appear to be consistent with the site location. It is notable that an RE1 Zone, being Maze Park, is located very close to the site, within a residential area. Following rezoning, any future development proposal would still need to be assessed for noise impacts and mitigation measures applied if required.

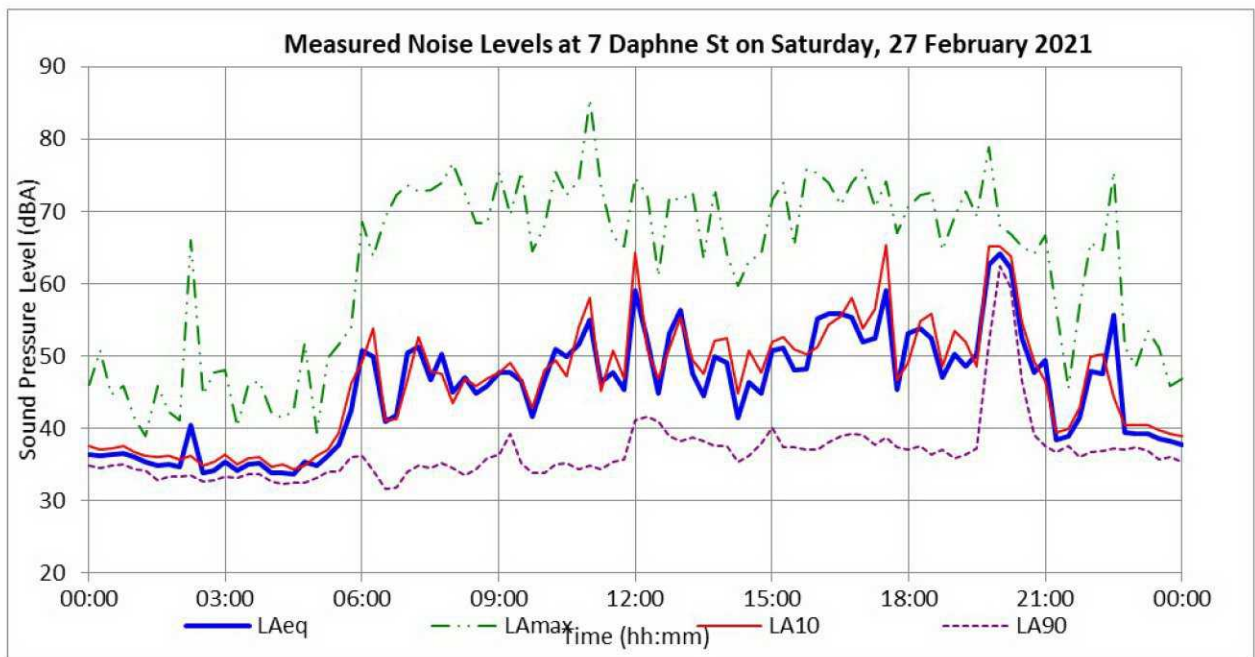
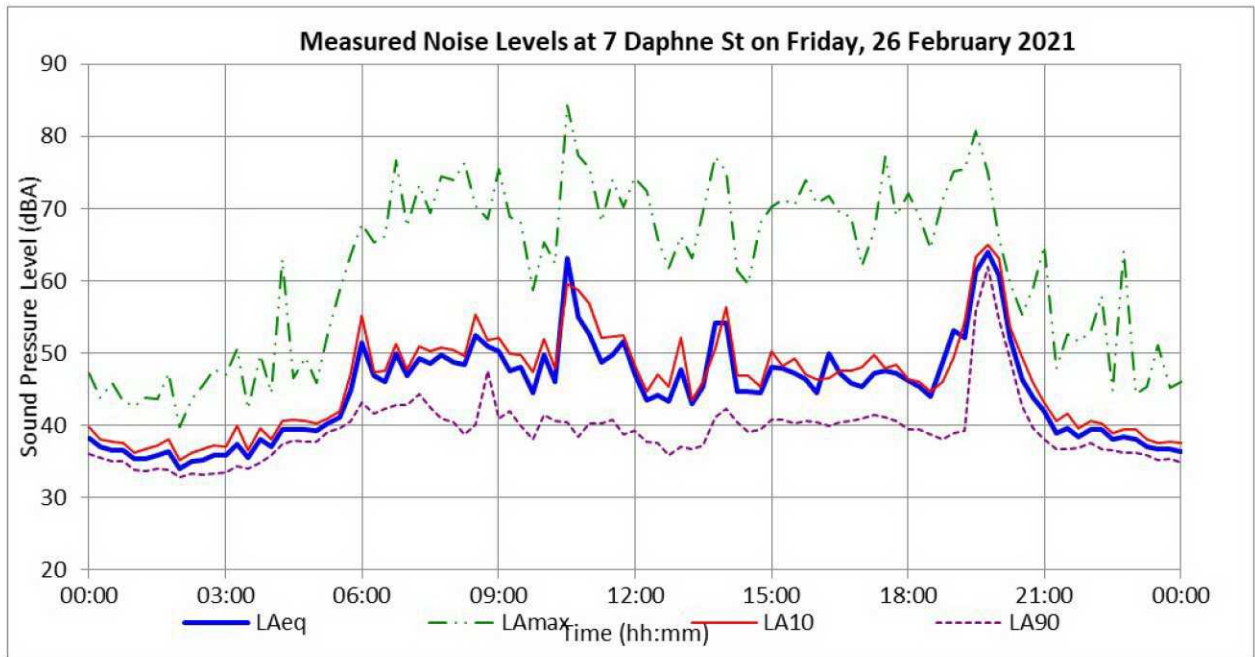
APPENDIX A ENVIRONMENTAL NOISE LOGGER SURVEY

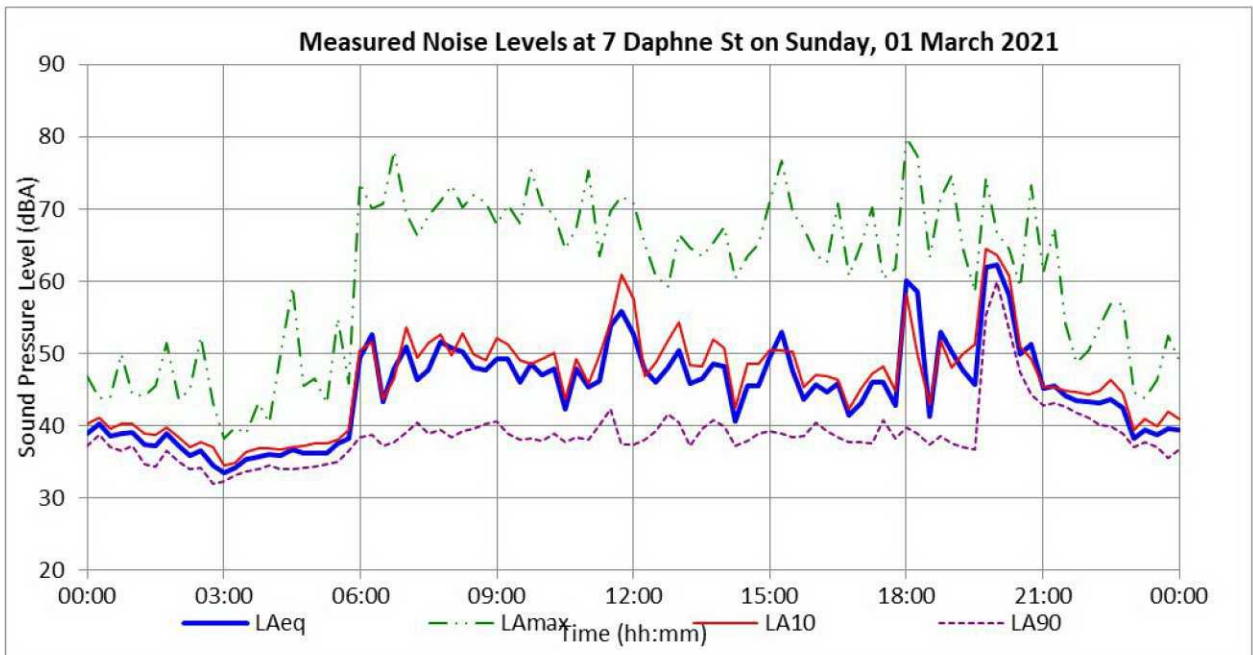
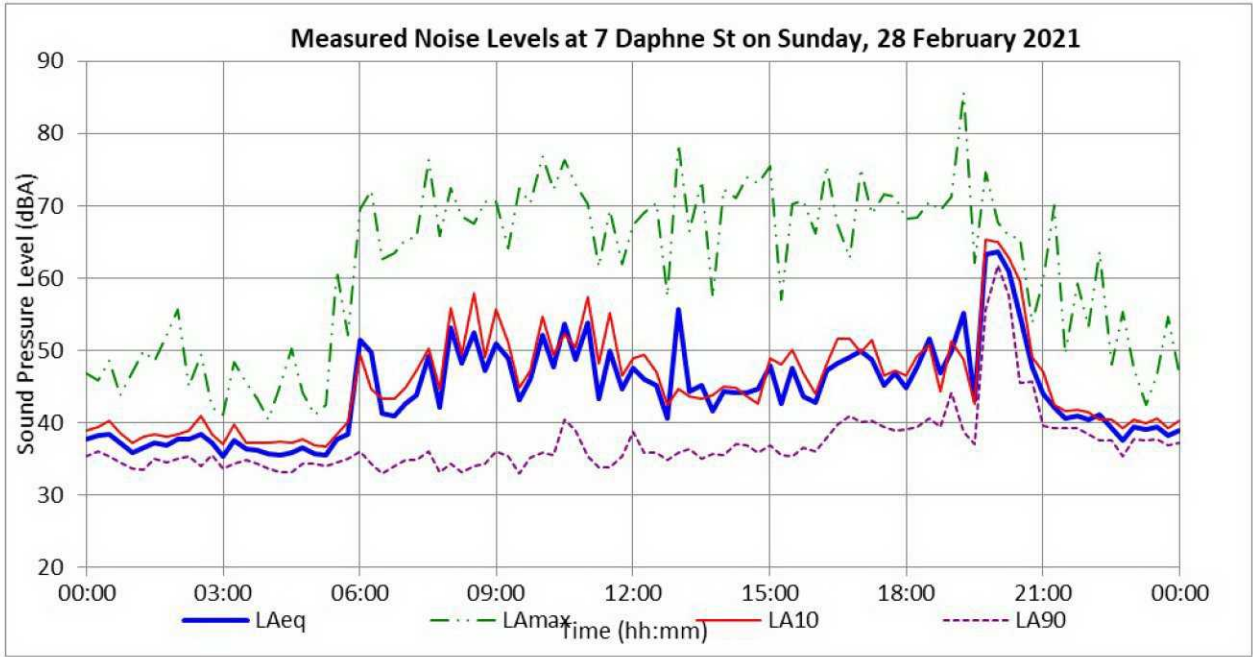
A1 Position 1 Summary

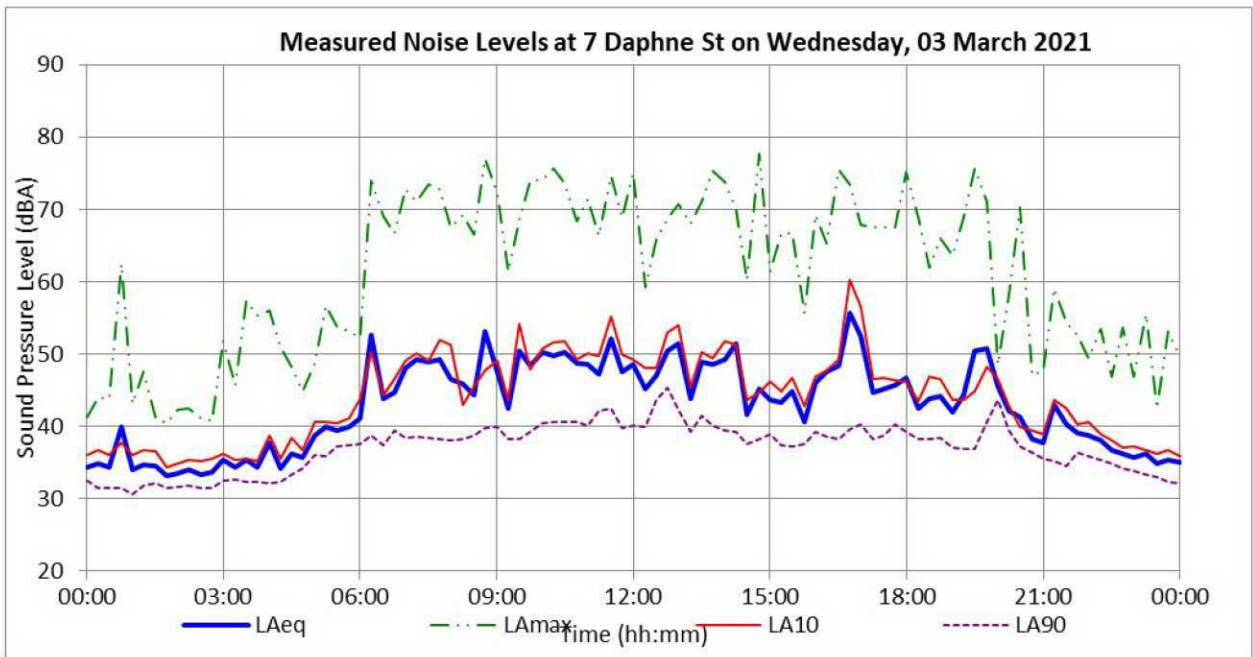
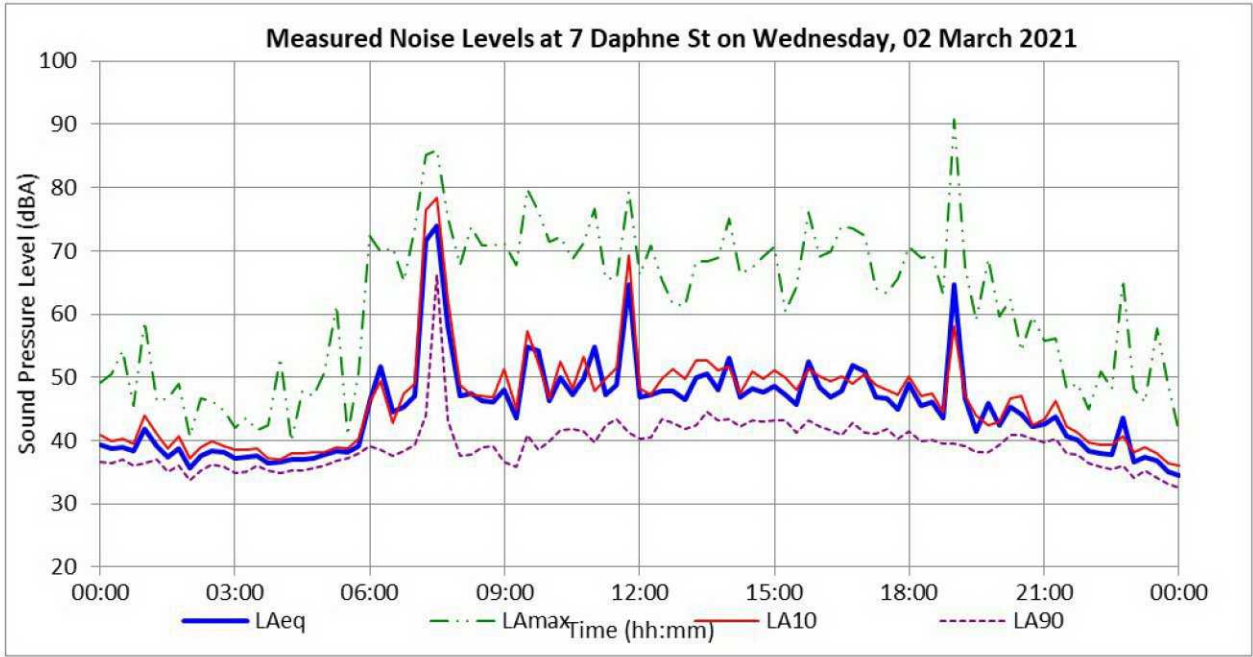












A2 Position 2 Summary

