# Noise Assessment

Proposed Restaurant Development
40 Myoora Road
Terrey Hills, NSW

Prepared for: H&E Architects
April 2025
MAC242173-02RP1V2

Muller Acoustic Consulting

# *Document Information*

# Noise Assessment

Proposed Restaurant Development

40 Myoora Road

Terrey Hills, NSW

**Prepared for:** H&E Architects

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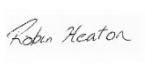
| MAC242173-02RP1V2 | 8 April 2025 | Robin Heaton |  | Oliver Muller |  |

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# 1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by H&E Architects to prepare a Noise Assessment (NA) to quantify emissions from the proposed licensed premises development to be located at 40 Myoora Road, Terrey Hills, NSW.

The NA has quantified potential operational and sleep disturbance noise emissions from the project and recommends reasonable and feasible noise controls where required.

The assessment has been undertaken in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- NSW Environment Protection Authority (EPA's), Approved Methods for the measurement and analysis of environmental noise in NSW, 2022;
- NSW Environment Protection Authority (EPA), Noise Guide for Local Government (NGLG), 2023;
- NSW Government (Liquor and Gaming), 24-Hour Economy Legislation (Vibrancy Reforms) Amendment Act 2023;
- Association of Australasian Acoustical Consultants (AAAC) Licensed Premises and Patron Noise Assessment Technical Guideline Version 3, April 2023 (Licensed Premises Guideline);
- NSW Department of Environment and Climate Change (DECCW) – NSW Interim Construction Noise Guideline (ICNG), July 2009
- Standards Australia AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures;
- International Standard ISO 9613:1993 - Acoustics - Attenuation of sound during propagation outdoors; and
- Association of Australasian Acoustical Consultants (AAAC) - Consultants Guideline for Report Writing, 2017.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

## 1.1 Assessment Methodology

In consideration of the relevant policies, guidance and responsible authorities, the following assessments have been completed to quantify project related noise emissions:

- **NPI Operational Noise Assessment** of project related noise emissions from the fixed and mobile plant, light vehicles, deliveries and waste collection associated with the operation of the project site;
- **(L&G NSW) Disturbance Assessment** of noise emissions from entertainment, patrons on the licensed premises relating to the likelihood of disturbance to the community in recognition to the requirements of the Liquor Act;
- **Cumulative Noise Assessment** pertaining to emissions from all significant project related noise sources (Combined Operational and Disturbance Assessment) on the licensed premises as guided by the methodologies in the NGLG and NPI relating to potential amenity impacts; and
- **Construction Noise Assessment** addressing noise associated with the project related construction activities in accordance with the ICNG assessment methodologies

**Table 1** outlines each assessment which has been completed, the applicable guidance relevant to the assessment, activities assessed, the responsible authority and the relevant report sections.

**Table 1 Applicable Acts, Policies and Guidance Relevant Assessment Methodologies**

| Assessment Type | Guidance Document | Relevant Noise Generating Activities | Responsible Authority | Report Sections |
|---|---|---|---|---|
| (NPI) Operational Noise Assessment & Maximum Noise Level Assessment | Noise Policy for Industry | Waste collection/Deliveries<br>Fixed or mobile mechanical plant<br>Onsite Light Vehicles | Council | Guidance **Section 3.1**<br>Assessment **Section 7.1 & 7.1.1** |
| Disturbance Assessment | Liquor Act 2007 | Licensed Premises<br>Amplified and live music, speakers, PA systems and entertainment activities.<br>Patron noise. | Liquor & Gaming NSW, NSW Police | Guidance **Section 3.2**<br>Assessment **Section 7.2** |
| Cumulative Assessment | Noise Guide for Local Government Noise Policy for Industry | All NPI and Liquor Act Noise generating activities | Council | Guidance **Section 3.3**<br>Assessment **Section 7.3** |
| Construction Assessment | Interim Construction Noise Guideline | Construction Related Activities | Council | Guidance **Section 3.4**<br>Assessment **Section 7.4** |

# 2 Project Description

## 2.1 Background

The project is to be located at 40 Myoora Road, Terrey Hills, NSW. The surrounding locality comprises of residential, commercial and industrial land uses.

The project is bound to the northwest by Myoora Road and southeast by Mona Vale Road, which carries approximately 42,000 vehicles per day. To southwest of the project site is a commercial premises with a commercial/industrial premises to the north. Additional commercial and industrial premises are located to the southeast of the project site. The nearest residential receivers to the project site are located to the northwest across Myoora Road and southeast facing onto Mona Vale Road.

The noise environment surrounding the project site is dominated by road traffic noise during the day period along with commercial and industrial noise from the surrounding premises and is dominated at during the evening and night by road traffic noise and wildlife noise.

The project includes the establishment of a restaurant development. The proposed operating hours of the project are 8am to 12am, seven days.

The development will compromise of three separate licensed restaurant venues with ancillary kitchens bars, outdoor dining areas, at grade and basement car parking, ancillary office premises and extensive landscaped open space including children's play equipment.

There is an outdoor stage adjacent to Restaurant 2 that will accommodate amplified music performance between 12pm to 10pm.

## 2.2 Proposed Activities & Operating Hours

There are several key activities associated with the project that have the potential to generate acoustic impacts on nearby receivers. **Table 2** provides a summary of operation noise sources and the assessment period in which they propose to occur.

**Table 2 Noise Generating Activities**

| Activity/Source | Period[1] | Operational |
|---|---|---|
| Patrons in Internal and External Dining Areas | Day | ✓ |
| | Evening | ✓ |
| | Night | ✓ |
| Children in Playground Area | Day | ✓ |
| | Evening | ✓ |
| | Night | ✓ |
| Outdoor Amplified Music Performance | Day | ✓ |
| | Evening | ✓ |
| | Night | X |
| Customer Light Vehicles in External and Basement Carpark | Day | ✓ |
| | Evening | ✓ |
| | Night | ✓ |
| Mechanical Plant | Day | ✓ |
| | Evening | ✓ |
| | Night | ✓ |
| Consumable Deliveries / Waste Collection | Day | ✓ |
| | Evening | ✓ |
| | Night | ✓ |

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

### 2.2.1 Receiver Review

A review of residential receivers in close proximity to the operation has been completed and are summarised in **Table 3.** Receiver heights were set at various heights representative of the surrounding receiver buildings. **Figure 1** provides a locality plan showing the position of these receivers in relation to the operation.

**Table 3 Receiver Locations**

| Receiver | Description | Receiver Height | Coordinates (MGA56) | |
|---|---|---|---|---|
| | | | Easting | Northing |
| R01 | Residential | 1.5/4m | 335021 | 6270845 |
| R02 | Residential | 1.5/4m | 335110 | 6270536 |
| R03 | Residential | 1.5m | 334914 | 6270706 |
| R04 | Residential | 1.5m | 334926 | 6270780 |
| C01 | Commercial | 1.5m | 334980 | 6270819 |
| C02 | Commercial | 1.5m | 335081 | 6270730 |
| C03 | Commercial | 1.5m | 335135 | 6270567 |
| C04 | Commercial | 1.5/4m | 335051 | 6270658 |
| C05 | Commercial | 1.5m | 334986 | 6270674 |
| I01 | Industrial | 1.5m | 335265 | 6270523 |


FIGURE 1

Locality Plan

MAC242173-02

40 Myoora Road,

Terrey Hills, NSW

## KEY

- Receiver Location
- Attended Noise Monitoring Assessment
- Unattended Logger
- Boundary

0 20 40 60 80 m

N

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# 3 Noise Policy and Guidelines

## 3.1 Noise Policy for Industry

The EPA released the Noise Policy for Industry (NPI) in October 2017 which provides a process for establishing noise criteria for consents and licenses enabling the EPA to regulate noise emissions from scheduled premises under the Protection of the Environment Operations Act 1997. The objectives of the NPI are to:

- provide noise criteria that is used to assess the change in both short term and long-term noise levels;
- provide a clear and consistent framework for assessing environmental noise impacts from industrial premises and industrial development proposals;
- promote the use of best-practice noise mitigation measures that are feasible and reasonable where potential impacts have been identified; and
- support a process to guide the determination of achievable noise limits for planning approvals and/or licences, considering the matters that must be considered under the relevant legislation (such as the economic and social benefits and impacts of industrial development).

The policy sets out a process for industrial noise management involving the following key steps:

1. Determine the Project Noise Trigger Levels (PNTLs) (ie criteria) for a development. These are the levels (criteria), above which noise management measures are required to be considered. They are derived by considering two factors: shorter-term intrusiveness due to changes in the noise environment; and maintaining the noise amenity of an area.
2. Predict or measure the noise levels produced by the development with regard to the presence of annoying noise characteristics and meteorological effects such as temperature inversions and wind.
3. Compare the predicted or measured noise level with the PNTL, assessing impacts and the need for noise mitigation and management measures.
4. Consider residual noise impacts - that is, where noise levels exceed the PNTLs after the application of feasible and reasonable noise mitigation measures. This may involve balancing economic, social and environmental costs and benefits from the proposed development against the noise impacts, including consultation with the affected community where impacts are expected to be significant.
5. Set statutory compliance levels that reflect the best achievable and agreed noise limits for the development.
6. Monitor and report environmental noise levels from the development.

### 3.1.1 Project Noise Trigger Levels (PNTL)

The policy sets out the procedure to determine the PNTLs relevant to an industrial development. The PNTL is the lower (ie, the more stringent) of the **Project Intrusiveness Noise Level** (PINL) and **Project Amenity Noise Level** (PANL) determined in accordance with Section 2.3 and Section 2.4 of the NPI.

### 3.1.2 Rating Background Level (RBL)

The Rating Background Level (RBL) is a parameter determined from noise monitoring and is used for assessment purposes. As per the NPI, the RBL is an overall single figure background level representing each assessment period (day, evening and night) over the noise monitoring period. The measured RBLs relevant to the project are contained in **Section 4.1**.

### 3.1.3 Project Intrusiveness Noise Level (PINL)

The PINL ($LA_{eq(15min)}$) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels need to be measured.

Background noise levels need to be determined before intrusive noise can be assessed. The NPI states that background noise levels to be measured are those that are present at the time of the noise assessment and without the subject development operating. It is note that the exception is where the premises has been operating for a significant period of time and is considered a normal part of the acoustic environment; it may be included in the background noise assessment under the following circumstances:

- the development must have been operating for a period in excess of 10 years in the assessment period/s being considered and is considered a normal part of the acoustic environment; and,
- the development must be operating in accordance with noise limits and requirements imposed in a consent or licence and/or be applying best practice.

Where a project intrusiveness noise level has been derived in this way, the derived level applies for a period of 10 years to avoid continuous incremental increases in intrusiveness noise levels. This approach is consistent with the purpose of the intrusiveness noise level to limit significant change in the acoustic environment. The purpose of the project amenity noise level is to moderate against background noise creep.

### 3.1.4 Project Amenity Noise Level (PANL)

The PANL is relevant to a specific land use or locality. To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended amenity noise levels specified in Table 2.2 (of the NPI). The NPI defines two categories of amenity noise levels:

- **Amenity Noise Levels (ANL)** – are determined considering all current and future industrial noise within a receiver area; and
- **Project Amenity Noise Level (PANL)** – is the recommended level for a receiver area, specifically focusing the project being assessed.

Additionally, Section 2.4 of the NPI states: "to ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows":

**PANL** for new industrial developments = recommended **ANL** minus 5dBA.

The following exceptions apply when deriving the PANL:

- areas with high traffic noise levels;
- proposed developments in major industrial clusters;
- existing industrial noise and cumulative industrial noise effects; and
- greenfield sites.

The NPI states with respect to high traffic noise areas:

*The level of transport noise, road traffic noise in particular, may be high enough to make noise from an industrial source effectively inaudible, even though the LAeq noise level from that industrial noise source may exceed the project amenity noise level. In such cases the project amenity noise level may be derived from the LAeq, period(traffic) minus 15 dB(A).*

Where relevant this assessment has considered influences of traffic with respect to amenity noise levels (ie areas where existing traffic noise levels are 10dB greater than the recommended amenity noise level).

Furthermore, Section 2.4 of the NPI states "*where the project amenity noise level applies and it can be met, no additional consideration of cumulative industrial noise is required.* "

The recommended amenity noise levels as per Table 2.2 of the NPI are reproduced in **Table 4**.

| Table 4 Amenity Noise Levels | | | |
|---|---|---|---|
| Receiver Type | Noise Amenity Area | Time of day | Recommended amenity noise level dB LAeq(period) |
| Residential | Rural | Day | 50 |
| | | Evening | 45 |
| | | Night | 40 |
| | Suburban | Day | 55 |
| | | Evening | 45 |
| | | Night | 40 |
| | Urban | Day | 60 |
| | | Evening | 50 |
| | | Night | 45 |
| Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks. | See column 4 | See column 4 | 5dB above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day |
| School Classroom | All | Noisiest 1-hour period when in use | 35 (internal) 45 (external) |
| Hospital ward | | | |
| - internal | All | Noisiest 1-hour | 35 |
| - external | All | Noisiest 1-hour | 50 |
| Place of worship - internal | All | When in use | 40 |
| Passive Recreation | All | When in use | 50 |
| Active Recreation | All | When in use | 55 |
| Commercial premises | All | When in use | 65 |
| Industrial | All | When in use | 70 |

Notes: The recommended amenity noise levels refer only to noise from industrial noise sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated.

Types of receivers are defined as rural residential; suburban residential; urban residential; industrial interface; commercial; industrial – see Table 2.3 and Section 2.7 of the NPI.

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

### 3.1.5 Maximum Noise Assessment Trigger Levels

The potential for sleep disturbance from maximum noise level events from a project during the night-time period needs to be considered. The NPI considers sleep disturbance to be both awakenings and disturbance to sleep stages.

Where night-time noise levels from a development/premises at a residential location exceed the following criteria, a detailed maximum noise level event assessment should be undertaken:

- $L_{Aeq(15min)}$ 40dB or the prevailing RBL plus 5dBA, whichever is the greater, and/or
- $L_{Amax}$ 52dB or the prevailing RBL plus 15dBA, whichever is the greater.

A detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Other factors that may be important in assessing the impacts on sleep disturbance include:

- how often the events would occur;
- the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the development;
- whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods); and
- current understanding of effects of maximum noise level events at night.

## 3.2 Noise Guide for Local Government (Disturbance)

The NSW Environment Protection Authority's (EPA) Noise Guide for Local Government (NGLG) published in January 2023 prior to the enactment of the Vibrancy Reforms, states that "*three NSW public authorities have principal responsibility for regulating noise emitted by music venues: councils, the NSW Police Force, and Liquor and Gaming NSW (the State Government agency responsible for liquor licensing):*

*Council is the ARA for noise from musical instruments and amplified music that affects a residential neighbourhood unless the noise source is:*

- used on premises or for activities that require an EPA licence or for which the EPA is declared the ARA, or
- part of activities carried on by the State or a public authority or an authorised network operator (see POEO Act, section 6). "

The NGLG goes on to say – *"Liquor and Gaming NSW has a role in managing noise from licensed premises such as pubs, clubs and hotels (for loud music or patron noise). Following disturbance complaints, Liquor and Gaming NSW can impose noise conditions on licences in order to reduce noise impacts. Liquor and Gaming NSW is best positioned to investigate and respond to complaints about music and patron noise emitted from premises licensed under the Liquor Act.*"

The role of Liquor & Gaming NSW (L&G NSW) was further defined on the introduction of the NSW vibrancy reforms on 1 July 2024, as discussed in Section 3.3.

## 3.3 24-Hour Economy Legislation (Vibrancy Reforms) Amendment Act, 2023 (Cumulative)

The 24-Hour Economy Legislation (Vibrancy Reforms) Amendment Act, 2023, introduced by the New South Wales (NSW) Government, seeks to streamline and simplify regulations pertaining to noise, planning, and liquor licensing. The objective of the Vibrancy Reforms is to enhance the entertainment, economic, and creative potential of venues, particularly during night-time hours.

The Vibrancy Reforms designates Liquor & Gaming NSW as the lead regulator of entertainment and sound-related complaints for all licensed premises under the Liquor Act, 2007. Consequently, noise-related conditions specified in development consents and 'offensive noise pollution' laws will no longer be applicable when regulated by the Liquor Act, 2007.

To facilitate the effective execution of these reforms, Liquor & Gaming NSW will undergo amendments to the following relevant legislation:

- Gaming and Liquor Administration Act, 2007, No. 91;
- Liquor Act, 2007, No. 90;
- Liquor Regulation Act, 2018;
- Environmental Planning and Assessment Act, 1979, No. 203;
- Environmental Planning and Assessment Regulation, 2021;
- Local Government Act ,1993, No. 30; and
- Protection of the Environment Operations (General) Regulation, 2022.

For local government, the most relevant amendments are those in the EP&A Act; EP&A Regulation; and the PoEO Regulation, which rescinds development consent conditions relating to noise generated from licensed premises, trading hours of licensed premises and exempts licensed venues from noise pollution provisions contained in the PoEO Act including offensive noise laws.

Local councils are no longer the Appropriate Regulatory Authority (ARA) relating to matters of noise emitted from a licensed premises. This is affirmed in the NGLG which states "*The Liquor, Gaming and Racing Division of the Department of Customer Service administers the operation of liquor-licensed premises under the Liquor Act 2007, including handling noise complaints and setting noise conditions on licences.*"

Since the introduction of the Vibrancy Reforms on 1 July 2024, Liquor & Gaming NSW (L&G NSW) are the lead regulator in managing noise (disturbance) from licensed premises. As the regulator, L&G NSW have adopted a risk-based approach to disturbance noise issues from licensed premises. L&G NSW deal with noise complaints and statutory disturbance complaints relating to entertainment sound associated with licensed venues; lodged under the Liquor Act 2007.

Noise complaints and statutory disturbance complaints that L&G NSW **will consider** / include (noise related) matters relating to:

- Amplified and live music coming from the licensed premises;
- Use of speakers and PA systems for announcements;
- Other forms of entertainment, such as, karaoke, trivia, bingo, comedy and raffles;
- Patron noise coming from the licensed venue, including noise from patrons entering and exiting, talking, singing to music; and
- Patron behaviour when leaving a venue, including anti-social behaviour, yelling or swearing.

Noise complaints and statutory disturbance complaints that L&G NSW **will not consider** / include (noise related) matters relating to:

- Noise from waste disposal and collection, including recycling material;
- Noise from delivery services, such as food and liquor supplies, including loading and unloading operations;
- Mechanical and industrial noise including ventilation, air conditioners, kitchen exhaust fan systems and refrigeration units; and
- Noise from construction works.

L&G NSW suggest that a cumulative noise impact assessment of all noise sources at the premises be conducted to provide an indication of the potential for disturbance to community.

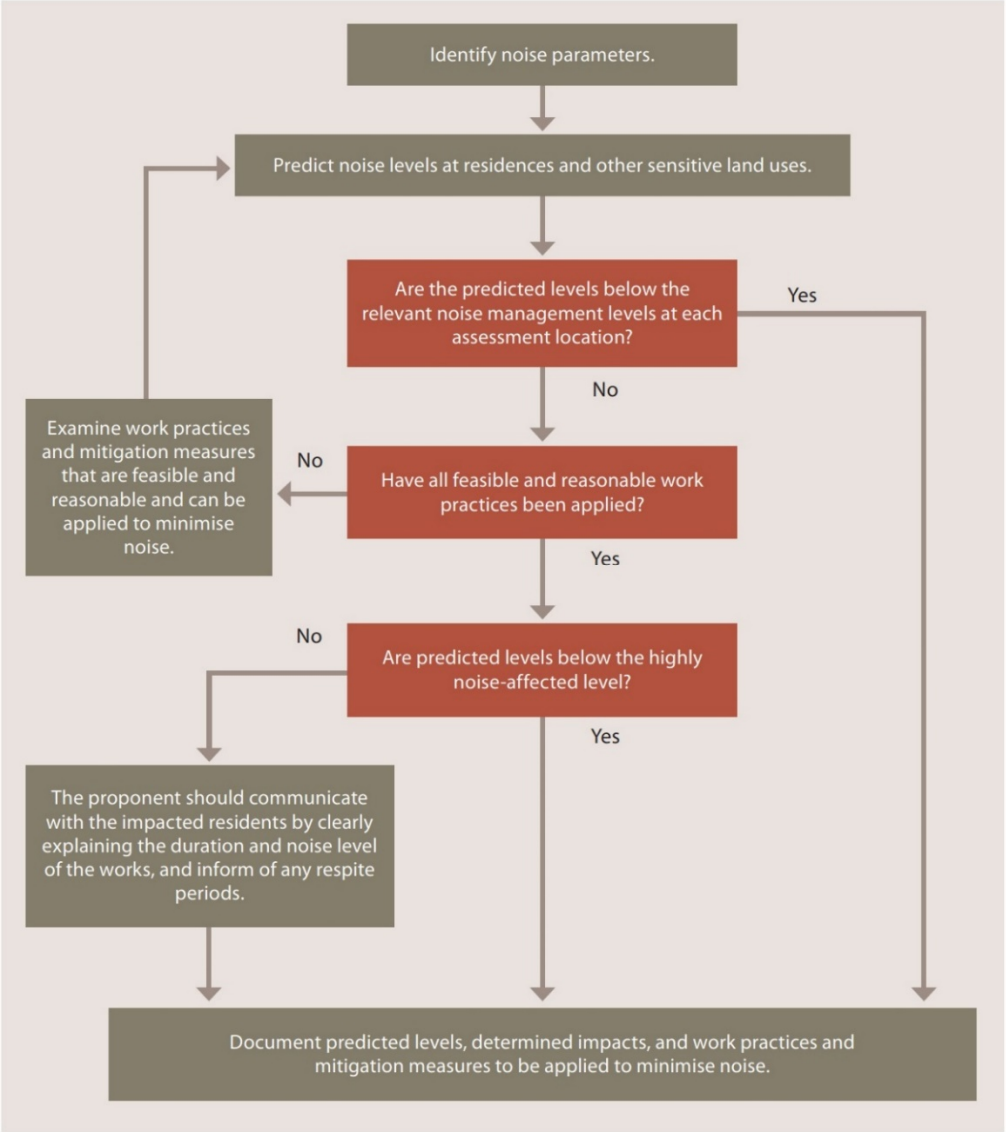
## 3.4 Interim Construction Noise Guideline

The ICNG sets out procedures to identify and address the impacts of construction noise on residences and other sensitive land uses. This section provides a summary of noise objectives that are applicable to the assessment. The ICNG provides two methodologies for the assessment of construction noise emissions:

- Quantitative, which is suited to major construction projects with typical durations of more than three weeks; and
- Qualitative, which is suited to short term infrastructure maintenance (< three weeks).

The qualitative assessment methodology is a more simplified approach that relies on noise management strategies. This NA has adopted a quantitative assessment approach which is summarised in **Figure 2.** The quantitative approach includes identification of potentially affected receivers, derivation of the construction noise management levels, quantification of potential noise impact at receivers via predictive modelling and, provides management and mitigation recommendations.

Figure 2 Quantitative Assessment Processes for Assessing and Managing Construction Noise




Source: Department of Environment and Climate Change, 2009.

### 3.4.1 Standard Hours for Construction

Table 5 presents the ICNG recommended standard hours for construction works.

Table 5 Recommended Standard Hours for Construction

| Daytime | Construction Hours |
|---|---|
| Monday to Friday | 7am to 6pm |
| Saturdays | 8am to 1pm |
| Sundays or Public Holidays | No construction |

These recommended hours do not apply in the event of direction from police, or other relevant authorities, for safety reasons or where required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm. Construction activities are anticipated to be undertaken during standard construction hours.

### 3.4.2 Construction Noise Management Levels

Section 4 of the ICNG details the quantitative assessment method involving predicting noise levels and comparing them with the Noise Management Level (NML) and are important indicators of the potential level of construction noise impact. **Table 6** reproduces the ICNG Noise Management Level (NML) for residential receivers. The NML is determined by adding 10dB (standard hours) or 5dB for Out of Hours (OOH) to the Rating Background Level (RBL) for each specific assessment period.

**Table 6 Noise Management Levels**

| Time of Day | Management Level LAeq(15min)[1] | How to Apply |
|---|---|---|
| Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or public holidays. | Noise affected RBL + 10dB | The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured LAeq(15min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of work to be carried out, the expected noise levels and duration, as well as contact details. |
| | Highly Noise Affected 75dBA (HNA) | The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account times identified by the community when they are less sensitive to noise such as before and after school for work near schools, or mid-morning or mid-afternoon for work near residences; and if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times. |
| Outside recommended standard hours. | Noise affected RBL + 5dB | A strong justification would typically be required for work outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5dBA above the noise affected level, the proponent should negotiate with the community. For guidance on negotiating agreements see Section 7.2.2 of the ICNG. |

Note 1: The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the construction noise management levels for noise assessment purposes and is the median of the ABL's.

### 3.4.3 Minimising Construction Noise

The ICNG outlines noise management and mitigation measures to minimise the noise impacts from construction activities on nearby sensitive receivers. Adopting the standard mitigation measures may result in an attenuation of up to 10dBA where space requirements place limitations on the attenuation options. Examples of standard mitigation measures are reproduced in **Table 7**, which may be adopted for the operation.

**Table 7 Standard Mitigation Measures**

| | Action Required | Details |
|---|---|---|
| Management Measures | Implement community consultation or notification measures | Notification detailing work activities, dates, and hours, impacts and mitigation measures, indication of work schedule over the night-time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required. Please contact Roads and Maritime Communication and Stakeholder Engagement for guidance:<br>- website (If required);<br>- contact telephone number for community;<br>- email distribution list (if required); and/or<br>- community drop-in session (if required by approval conditions). |
| | Site Inductions | All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include:<br>- all relevant project specific and standard noise and vibration mitigation measures;<br>- relevant licence and approval conditions;<br>- permissible hours of work;<br>- any limitations on noise generating activities;<br>- location of nearest sensitive receivers;<br>- construction employee parking areas;<br>- designated loading/unloading areas and procedures;<br>- site opening/closing times (including deliveries); and<br>- environmental incident procedures. |
| Site Controls | Minimise disturbance arising from delivery of goods to sites | Loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers.<br>Select site access points and roads as far as possible away from sensitive receivers.<br>Dedicated loading/unloading areas to be shielded if close to sensitive receivers.<br>Delivery vehicles to be fitted with straps rather than chains for unloading, wherever possible.<br>Avoid or minimise these out of hours movements where possible. |
| Path Controls | Shield stationary noise sources | Stationary noise sources should be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained. Appendix D of AS2436:2010 lists materials suitable for shielding. |
| | Shield sensitive receivers from noise activities | Use structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when situating plant. |

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# 4 Existing Environment

## 4.1 Unattended Noise Monitoring

To quantify the existing background noise environment of the area, unattended noise monitoring was conducted at one location representative of the ambient environment surrounding the project site. The selected monitoring location is shown in **Figure 1** (L1) and is considered representative of surrounding residential receivers as per Fact Sheet B1.1 of the NPI. The unattended noise survey was conducted in general accordance with the procedures described in Standards Australia AS 1055:2018, "Acoustics – Description and Measurement of Environmental Noise".

The measurements were carried out using one Svantek 977 noise analyser from Thursday 30 May 2024 to Tuesday 11 July 2024. All acoustic instrumentation used carries appropriate and current NATA (or manufacturer) calibration certificates with records of all calibrations maintained by MAC as per Approved Methods for the measurement and analysis of environmental noise in NSW (EPA, 2022) and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

Observations on-site identified the surrounding locality was typical of an urban environment, with road and rail traffic, commercial noise and wildlife noise audible.

Data affected by adverse meteorological conditions have been excluded from the results in accordance with methodologies provided in Fact Sheet A4 of the NPI. Residential receivers situated in the surrounding area have been classified under the EPA's urban amenity category. This criteria is used in conjunction with the intrusiveness criteria to determine the limiting criteria. The summary results of long-term unattended noise monitoring are provided in **Table 8**. The measured daily ABLs for the background monitoring are provided in **Table C26** in **Appendix C** along with the daily noise monitoring charts.

**Table 8 Background Noise Monitoring Summary**

| Location | Measured background noise level, RBL, dBA | | | Measured $L_{Aeq}$, dBA | | |
|---|---|---|---|---|---|---|
| | Day<br>7am to 6pm | Evening<br>6pm to 10pm | Night<br>10pm to 7am | Day<br>7am to 6pm | Evening<br>6pm to 10pm | Night<br>10pm to 7am |
| L1 | 45 | 40 | 33 | 62 | 46 | 49 |

Note: Excludes periods of wind or rain affected data. Meteorological data obtained from the Bureau of Meteorology weather station Terrey Hills AWS 33.69 S 151.22E 199m AMSL.

## 4.2 Attended Noise Monitoring

To supplement the unattended noise assessment and to quantify the changes in ambient noise in the community surrounding the operation, one 15 minute attended measurement was completed.

The attended noise survey was conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics – Description and Measurement of Environmental Noise".

The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA. All equipment carries appropriate and current NATA (or manufacturer) calibration certificates with records of all calibrations maintained by MAC as per the EPA's Approved Methods for the measurement and analysis of environmental noise in NSW (EPA, 2022).

The attended noise monitoring was conducted using one Svantek 971 noise analyser at the site (see **Figure 1**) on Thursday 30 May 2024 to quantify ambient background noise levels

The attended measurement was completed during calm and clear meteorological conditions and confirmed that ambient traffic and commercial noise dominated the surrounding environment. The results of the short-term noise measurement and observations are summarised in **Table 9**.

**Table 9 Operator-Attended Noise Survey Results**

| Location | Time (hrs)[1] | Descriptor (dBA re 20 µPa) | | | Meteorology | Description and SPL, dBA |
|---|---|---|---|---|---|---|
| | | $L_{Amax}$ | $L_{Aeq}$ | $L_{A90}$ | | |
| A1 | 11:58 | 83 | 66 | 45 | WD: N<br>WS: 2.5m/s<br>Rain: Nil | Birds 50-83<br>Aircraft 45-52<br>Excavator at Commercial Premises 54-63<br>Traffic 40-50 |

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

# 5 Assessment Criteria

## 5.1 Operational Noise Trigger Levels (Criteria)

This section outlines the determination of PNTLs and Maximum Noise Assessment Trigger Levels in accordance with NPI methodology.

### 5.1.1 Intrusiveness Noise Levels

The PINL for the project are presented in **Table 10** and have been determined based on the RBL +5dBA and only apply to residential receivers.

**Table 10 Project Intrusiveness Noise Levels**

| Location | Receiver Type | Period[1] | Measured RBL dB $LA_{90}$ | PINL dB $LA_{eq(15min)}$ |
|---|---|---|---|---|
| L1 | Residential | Day | 45 | 50 |
| | | Evening | 40 | 45 |
| | | Night | 33 | 38 |

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

### 5.1.2 Determination of NPI Residential Receiver Amenity Category

Classification of residential receivers in the surrounding area have been determined by review of the measured RBLs and a tally of the features for each category described in Table 2.3 of the NPI. The overall tally of features and resulting classifications are provided in **Table 11**. The detailed assessment of receiver categories is provided in **Appendix D.** This classification is used in conjunction with the intrusiveness criteria to determine the limiting criteria.

**Table 11 Determination of NPI Residential Receiver Category**

| Receiver/Location/Catchment | Rural | Suburban | Urban |
|---|---|---|---|
| L1 | 0 | 1 | 8 |

Observations at locations in the surrounding locality support the assessment of the receiver as an urban residential category.

### 5.1.3 Amenity Noise Levels and Project Amenity Noise Levels

The PANL for residential receivers and other receiver types (ie non-residential) potentially affected by the project are presented in **Table 12.**

**Table 12 Amenity Noise Levels and Project Amenity Noise Levels**

| Receiver Type | Noise Amenity Area | Assessment Period[1] | NPI Recommended ANL dB $LA_{eq(period)}$ | ANL dB $LA_{eq(period)}$[2] | PANL dB $LA_{eq(15min)}$[3] |
|---|---|---|---|---|---|
| Residential | Urban | Day | 60 | 55 | 58 |
| | | Evening | 50 | 45 | 48 |
| | | Night | 45 | 40 | 43 |
| Commercial | All | When in use | 65 | 60 | 63 |
| Industrial | All | When in use | 70 | 65 | 68 |

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Project Amenity Noise Level equals the Amenity Noise Level -5dB as there is other industry in the area.

Note 3: Includes a +3dB adjustment to the amenity period level to convert to a 15-minute assessment period as per Section 2.2 of the NPI.

### 5.1.4 Project Noise Trigger Levels

The PNTL are the lower of either the PINL or the PANL. **Table 13** presents the derivation of the PNTLs in accordance with the methodologies outlined in the NPI.

**Table 13 Project Noise Trigger Levels**

| Receiver Type | Noise Amenity Area | Assessment Period[1] | PINL dB $LA_{eq(15min)}$ | PANL dB $LA_{eq(15min)}$ | PNTL dB $LA_{eq(15min)}$ |
|---|---|---|---|---|---|
| Residential | Urban | Day | 50 | 58 | 50 |
| | | Evening | 45 | 48 | 45 |
| | | Night | 38 | 43 | 38 |
| Commercial | All | When in Use | N/A | 63 | 63 |
| Industrial | All | When in Use | N/A | 68 | 68 |

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

### 5.1.5 Maximum Noise Trigger Levels

The maximum noise trigger levels shown in **Table 14** are based on night time RBLs and trigger levels as per Section 2.5 of the NPI. The trigger levels will be applied to transient noise events that have the potential to cause sleep disturbance.

**Table 14 Maximum Noise Trigger Levels (Night)**

| Residential Receivers | | | |
|---|---|---|---|
| $LA_{eq(15min)}$ | | $LA_{max}$ | |
| 40dB $LA_{eq(15min)}$ or RBL + 5dB | | 52dB $LA_{max}$ or RBL + 15dB | |
| Trigger | 40 | Trigger | 52 |
| RBL +5dB | 38 | RBL +15dB | 48 |
| **Highest** | **38** | **Highest** | **52** |

Note: Monday to Saturday; Night 10pm to 7am. On Sundays and Public Holidays Night 10pm to 8am

Note: NPI identifies that maximum of the two values is to be adopted which is shown in bold font.

## 5.2 L&G NSW Disturbance Assessment Criteria

To assess the potential for noise disturbance to the community, an assessment of emissions from performance/entertainment and patrons within the licensed premises has been completed and has been adopted in general accordance with the EPA's method for determining the significance of residual noise impacts. The level of disturbance has been established firstly by deriving an appropriate disturbance criteria based on the background level ($LA_{90}$)+ 5dBA methodology (as per Section 2.3 of the NPI).

**Table 15** presents the Disturbance Criteria.

**Table 15 Disturbance Assessment Criteria**

| Location | Measured background noise level RBL, dB $LA_{90}$ | | | Disturbance Criteria dB $LA_{eq(15min)}$ (Background +5dB) | | |
|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night |
| L01 | 45 | 40 | 33 | 50 | 45 | 38 |

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Secondly, performance/entertainment and patrons noise emissions are subtracted from the Disturbance Criteria to establish the potential level for disturbance (**Table 16**). The greater the difference, the greater the likelihood of disturbance.

**Table 16 Potential for Disturbance and Significance of the Noise Emissions from the Project[1]**

| Predicted Noise Level Minus Disturbance Criteria, dB $LA_{eq(15min)}$ | Potential for Disturbance |
|---|---|
| ≤ 2dBA | Negligible |
| ≥ 3 but ≤ 5dBA | Marginal[2] / Moderate[3] |
| >5dBA | Moderate[4] / Significant |

Note 1: Based off the Significance of Residual Noise Impacts from Table 4.1 of the NPI.

Note 2: If predicted noise level is less than the ambient LAeq (see **Table 17**).

Note 3: If predicted noise level is greater than the ambient LAeq (see **Table 17**).

Note 4: If predicted noise level is less or equal to the ambient LAeq (see **Table 17**).

## 5.3 Cumulative Noise Assessment Criteria

In consideration of these amendments resulting from the Vibrancy Reforms, a semi quantitative noise impact assessment has been conducted in lieu of (previously used) formalised criteria with reference to the methods and noise descriptors described / defined in the NPI and NGLG. To quantify the potential for the project to disrupt the quiet and good order of the surrounding area, noise emissions from cumulative whole site operation (entertainment and operations) are assessed against the existing ambient noise levels. The existing LAeq noise levels are reproduced in **Table 17**.

**Table 17 Existing Ambient Noise Levels**

| Monitoring Location | Measured Existing Ambient Noise Level dB LAeq | | |
|---|---|---|---|
| | Day | Evening | Night |
| L1 | 62 | 46 | 49 |

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

## 5.4 Construction Noise Management Levels

The Noise Management Levels (NMLs) for standard construction hours are presented in **Table 18**.

**Table 18 Construction Noise Management Levels**

| Catchment (No) Receiver ID | Assessment Period[1] | Adopted RBL dB $LA_{90}$ | NML dB $LA_{eq(15min)}$ |
|---|---|---|---|
| Residential | Standard Hours | 45 | 55 (RBL+10dBA) |
| Commercial Premises | When in use | N/A | 70 (external) |
| Industrial Premises | When in use | N/A | 75 (external) |

Note 1: Refer to Table 5 for Standard Recommended Hours for Construction.

# 6 Modelling Methodology

A computer model was developed to quantify project noise emissions to neighbouring receivers using DGMR (iNoise, Version 2024.3) noise modelling software. iNoise is an intuitive and quality assured software for industrial noise calculations in the environment. 3D noise modelling is considered industry best practice for assessing noise emissions from projects.

The model incorporated a three-dimensional digital terrain map giving all relevant topographic information used in the modelling process. Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers. Where relevant, modifying factors in accordance with Fact Sheet C of the NPI have been applied to calculations.

The model calculation method used to predict noise levels was in accordance with ISO 9613:1 and ISO 9613:2 including corrections for meteorological conditions using CONCAWE[1]. The ISO 9613 standards are the most used noise prediction method worldwide. Many countries refer to ISO 9613 in their noise legislation. However, the ISO 9613 standard does not contain guidelines for quality assured software implementation, which leads to differences between applications in calculated results. In 2015 this changed with the release of ISO/TR 17534-3. This quality standard gives clear recommendations for interpreting the ISO 9613 method. iNoise fully supports these recommendations. The models and results for the 19 test cases are included in the software.

## 6.1 Mitigation Included in Design and Noise Control Recommendations

The noise model incorporated the following recommendations and noise controls:

- the project is constructed as per the site design and plans (as presented in **Appendix B**) which includes the barrier attenuation provided by the operation buildings orientation;
- the Restaurant 1 and Restaurant 2 mechanical AC and refrigeration plant are located on rooftop of the building above the loading bay coral area;
- a total of 135 people are assumed to occupy the internal area of Restaurant 1;
- a total of 120 people are assumed to occupy the internal area of Restaurant 2;
- a total of 185 people are assumed to occupy the external Restaurant 1 dining area;
- a total of 55 people are assumed to occupy the external Restaurant 2 dining area;
- a total of 100 people are assumed to occupy the external Restaurant 3 dining area; and
- all glazing is a minimum of 6mm in thickness.

[1] Report no. 4/18, "the propagation of noise from petroleum and petrochemical complexes to neighbouring communities", Prepared by C.J. Manning, M.Sc., M.I.O.A. Acoustic Technology Limited (Ref.AT 931), CONCAWE, Den Haag May 1981

## 6.2 Modelled Sound Power Levels

The sound power data for the project were referenced from MAC noise source database for similar developments. The sound power levels for noise sources adopted in this assessment are summarised in **Table 19.**

**Table 19 Acoustically Significant Sources – Sound Power Levels (*re $10^{-12}$ Watts*)**

| Item and number modelled per 15 minutes | Individual Sound Power Level, dB $LA_{eq(15min)}$ | Total Source Sound Power Level, dB $LA_{eq(15min)}$ | Source Height[1] |
|---|---|---|---|
| **Operation** | | | |
| Refrigeration Condenser (x4) | 75 | 80 | 0.5m |
| External carpark vehicle start up and drive off (x60)[2] | 81 | 91 | 0.5m |
| Rooftop Air Conditioning Units (x9) | 81 | 91 | 1.6m |
| Roof Top Kitchen Exhaust Fan (x4) | 75 | 81 | 0.5m |
| Rooftop Toilet Exhaust Fan (x3) | 75 | 80 | 0.5m |
| Rooftop Extractor Fans (x5) | 75 | 82 | 0.5m |
| Customers vehicles travelling through carpark (50 cars per 15-min) | 81 | 90 | 0.5m |
| Customers vehicles entering or exiting underground Carpark through Ground floor Carpark (85 cars per 15-min) | 81 | 92 | 0.5m |
| Delivery Truck (x1) | 92 | 92 | 1.0m |
| **Sleep disturbance assessment ($LA_{max}$), Night-time periods (10pm to 7am)** | | | |
| Car Door Slam | 85 | | 0.5m |
| Delivery Impact | 104 | | 1.0m |
| **Disturbance Assessment** | | | |
| Patrons internally in Restaurant 1 (x135) | 68 | 86 | 1.0m |
| Patrons internally in Restaurant 2 (x119) | 68 | 86 | 1.0m |
| Patrons in Restaurant Outdoor Dining Area (x185)[3] | 68 | 91 | 1.0m |
| Patrons in Restaurant 2 Outdoor Dining Area (x55)[3] | 68 | 85 | 1.0m |
| Patrons in Restaurant 3 Outdoor Dining Area (x100)[3] | 68 | 88 | 1.0m |
| Child in Playground (x40) | 70 | 92 | 1.0m |
| **Cumulative Assessment** | | | |
| Refrigeration Condenser (x4) | 75 | 80 | 0.5m |
| External carpark vehicle start up and drive off (x60)[2] | 81 | 91 | 0.5m |
| Rooftop Air Conditioning Units (x9) | 81 | 91 | 1.6m |
| Roof Top Kitchen Exhaust Fan (x4) | 75 | 81 | 0.5m |
| Rooftop Toilet Exhaust Fan (x3) | 75 | 80 | 0.5m |

| Table 19 Acoustically Significant Sources – Sound Power Levels (*re $10^{-12}$ Watts*) | | | |
|---|---|---|---|
| Item and number modelled per 15 minutes | Individual Sound Power Level, dB $LA_{eq(15min)}$ | Total Source Sound Power Level, dB $LA_{eq(15min)}$ | Source Height[1] |
| Rooftop Extractor Fans (x5) | 75 | 82 | 0.5m |
| Customers vehicles travelling through carpark (50 cars per 15-min) | 81 | 90 | 0.5m |
| Customers vehicles entering or exiting underground Carpark through Ground floor Carpark (85 cars per 15-min) | 81 | 92 | 0.5m |
| Delivery Truck (x1) | 92 | 92 | 1.0m |
| Patrons internally in Restaurant 1 (x135) | 68 | 86 | 1.0m |
| Patrons internally in Restaurant 2 (x119) | 68 | 86 | 1.0m |
| Patrons in Restaurant 1 Outdoor Dining Area (x185)[3] | 68 | 91 | 1.0m |
| Patrons in Restaurant 1 Outdoor Dining Terrace (x55)[3] | 68 | 85 | 1.0m |
| Patrons in Restaurant 3 Outdoor Dining Area (x100)[3] | 68 | 88 | 1.0m |
| Child in Playground (x40) | 70 | 92 | 1.0m |
| **Construction Assessment** | | | |
| Combined Construction Fleet | | 108 | 1.5m |

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# 7 Noise Assessment Results

This assessment has quantified operational noise levels at the nearest receivers.

## 7.1 Operational Noise Assessment

Noise predictions from all sources excluding deliveries and waste collection have been quantified at surrounding residential receivers to the operation site and are presented in **Table 20**. Noise levels from are predicted to satisfy the relevant NPI noise criteria at all receivers during all assessment periods.

**Table 20 Operational Noise Predictions Excluding Deliveries or Waste Collection**

**Residential Receivers**

| Rec | Predicted Noise Level dB $L_{Aeq(15min)}$ | | | PNTL dB $L_{Aeq(15min)}$ | | | Compliant |
|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | |
| R01 | 38 | 38 | 38 | 50 | 45 | 38 | ✓ |
| R02 | 35 | 35 | 35 | 50 | 45 | 38 | ✓ |
| R03 | 38 | 38 | 38 | 50 | 45 | 38 | ✓ |
| R04 | 38 | 38 | 38 | 50 | 45 | 38 | ✓ |

**Other Receivers**

| Rec | Period | Predicted Noise Level dB $L_{Aeq(15min)}$ | PNTL dB $L_{Aeq(15min)}$ | Compliant |
|---|---|---|---|---|
| C01 | When in use | 39 | 63 | ✓ |
| C02 | When in use | 42 | 63 | ✓ |
| C03 | When in use | 36 | 63 | ✓ |
| C04 | When in use | 52 | 63 | ✓ |
| C05 | When in use | 44 | 63 | ✓ |
| I01 | When in use | <35 | 68 | ✓ |

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

Heavy vehicle deliveries and waste collection are expected to be undertaken once per day, during the day, evening or night periods. Deliveries or waste collection usually take several minutes, but to present a conservative assessment, it has been assumed that it would take up to 15 minutes to complete. Fact Sheet C of the NPI allows for exceedance of the PNTL or adjustment of the PNTL for short term single events that may occur in any 24-hour period. Table C3 of the NPI allows an adjustment to the PNTL of +7dB for the daytime and evening periods and +2dB during the night period, when the event is expected to occur. **Table 21** presents results of the noise modelling for operations with heavy vehicle goods deliveries.

**Table 21 Operational Noise Predictions Including Consumable Deliveries/Waste Collection**

**Residential Receivers**

| Rec | Predicted Noise Level dB $LA_{eq(15min)}$ | | | PNTL dB $LA_{eq(15min)}$ | | | Compliant |
|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | |
| R01 | 38 | 38 | 38 | 57 | 52 | 40 | ✓ |
| R02 | 35 | 35 | 35 | 57 | 52 | 40 | ✓ |
| R03 | 39 | 39 | 39 | 57 | 52 | 40 | ✓ |
| R04 | 38 | 38 | 38 | 57 | 52 | 40 | ✓ |

**Other Receivers**

| Rec | Period | Predicted Noise Level dB $LA_{eq(15min)}$ | PNTL dB $LA_{eq(15min)}$ | Compliant |
|---|---|---|---|---|
| C01 | When in use | 40 | 70 | ✓ |
| C02 | When in use | 42 | 70 | ✓ |
| C03 | When in use | 39 | 70 | ✓ |
| C04 | When in use | 57 | 70 | ✓ |
| C05 | When in use | 47 | 70 | ✓ |
| I01 | When in use | <35 | 75 | ✓ |

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

### 7.1.1 Maximum Noise Level Assessment

In assessing maximum noise events, typical $L_{Amax}$ noise levels from transient events were assessed at the nearest residential receivers. For the sleep disturbance assessment, a sound power level of 87dBA for a door slam and 104dBA for delivery impact were adopted for maximum noise level ($L_{Amax}$) events during the night period. Predicted noise levels from $L_{Amax}$ events for assessed receivers are presented in **Table 22.** Results identify that the maximum noise trigger levels will be satisfied for all assessed receivers.

**Table 22 Maximum Noise Level Assessment (Night)[1]**

| Receiver | Predicted Noise Level dB LAmax | | | | Maximum Trigger Levels dB LAmax | Compliant |
|---|---|---|---|---|---|---|
| | Door Slam Northeastern Space | Door Slam Northeastern Space | Delivery/ Waste Collection Impact | Outdoor Dining Courtyard Door Slam | | |
| R01 | 36 | <35 | <35 | <35 | 52 | ✓ |
| R02 | <35 | 36 | <35 | <35 | 52 | ✓ |
| R03 | 39 | 43 | <35 | <35 | 52 | ✓ |
| R04 | 39 | 39 | <35 | <35 | 52 | ✓ |

Note 1: Monday to Saturday; Night 10pm to 7am. On Sundays and Public Holidays Night 10pm to 8am.

## 7.2 Disturbance Assessment Results

Results of the disturbance assessment addressing patron noise and music performance occurring at the project site following the implementation of noise controls and assumptions in **Section 6.1** are presented in **Table 23**. It is assumed that entertainment and patron noise may continue post 10pm therefore predicted noise levels are compared against the most conservative night criteria.

**Table 23 L&G Disturbance Assessment Results**

| Receiver | Predicted Noise Level dB $L_{Aeq(15min)}$ | Nighttime Disturbance Criteria dB $L_{Aeq(15min)}$ | Predicted Noise Level Minus Disturbance Criteria dB $L_{Aeq(15min)}$ | Characterisation of impacts |
|---|---|---|---|---|
| R01 | 37 | 38 | <0dB | Negligible |
| R02 | <35 | 38 | <0dB | Negligible |
| R03 | 36 | 38 | <0dB | Negligible |
| R04 | 36 | 38 | <0dB | Negligible |

Predicted noise levels were calculated to be below the Disturbance Criteria and therefore impacts are negligible.

## 7.3 Cumulative Assessment Results

Results of the cumulative scenario assessing vehicles, patrons and venue entertainment occurring externally at the project site during the most conservative night period and inclusive of the noise controls and assumptions in **Section 5.2** are presented in **Table 24**.

**Table 24 Cumulative Assessment Results**

| | Predictive Levels | | | |
|---|---|---|---|---|
| Receiver | Predicted Noise Level dB LAeq(15min) | Existing Ambient Noise Level dB LAeq(night)[1] | Total Noise Level dB LAeq(15min) | Increase dB |
| R01 | 41 | 49 | 50 | 1dB |
| R02 | 36 | 49 | 49 | <0dB |
| R03 | 40 | 49 | 50 | 1dB |
| R04 | 40 | 49 | 50 | 1dB |

Results of the predictive noise modelling show that noise levels associated with the project are significantly below existing night time ambient noise levels. Therefore, noise emissions from the project are unlikely to increase the existing ambient noise levels by a level that can be perceived by the human ear and have a negligible influence on the existing acoustic environment. Notwithstanding this, management controls in **Section 8** should be considered and implemented where necessary.

## 7.4 Construction Noise Assessment

**Table 25** presents the results of modelled construction noise emissions taking into account the additional 10dB attenuation provided by standard mitigation measures. Predictions identify that emissions from construction would remain below the Construction NMLs at all the assessed receivers with the inclusion of standard mitigation measures.

**Table 25 Construction Noise Levels – All Receivers**

| Rec | Period[1] | Predicted Noise Level dB LAeq(15min) | Management Level dB LAeq(15min) | Compliant |
|---|---|---|---|---|
| R01 | Day | 54 | 55 | ✓ |
| R02 | Day | 54 | 55 | ✓ |
| R03 | Day | 44 | 55 | ✓ |
| R04 | Day | 49 | 55 | ✓ |
| C01 | Day | 49 | 70 | ✓ |
| C02 | Day | 53 | 70 | ✓ |
| C03 | Day | 55 | 70 | ✓ |
| C04 | Day | 57 | 70 | ✓ |
| C05 | Day | 45 | 70 | ✓ |
| I01 | Day | 60 | 75 | ✓ |

Note 1: See Table 4 of this report for Recommended Standard Hours for Construction.

# 8 Licensed Premises Noise Mitigation and Management Measures

The results of the licensed premises assessment identify that levels are below the adopted disturbance threshold level at surrounding residential receivers to the project. Notwithstanding, to further protect the quiet and good order of neighbourhood, it is recommended that noise management and mitigation measures be adopted where possible.

## 8.1 Practical Tips to Manage Noise Emissions[2]

- Remind patrons leaving your venue to do so quickly and quietly to mitigate instances of anti-social behaviour and install signage at all egress points requesting patrons leaving your venue do so quickly and quietly (e.g. no loitering);
- Encourage the gradual dispersal of patrons leaving your venue to assist in crowd control (e.g. by closing certain areas of your venue or reducing the level/volume of entertainment or music during the later part of the trading period);
- Where required utilise security to assist in patron egress and management to ensure patrons leaving your venue do not loiter in the immediate vicinity and cause disturbance to the neighbourhood;
- Actively promote and display information about nearby public transport services that are available, or ride share pick up/drop off zones;
- Establish an internal complaint handling process, including maintaining a register of disturbance complaints received and any steps or actions taken to address them;
- Provide a contact number and link on your venue's website for enquiries and complaints, and ensure the number is actively monitored;
- Set clear expectations and communicate operating procedures with staff members, including procedures relating to the provision of entertainment and noise mitigation controls. These internal policies and procedures can be set out in a Plan of Management;
- Train staff in handling incoming calls or complaints regarding noise, including during times where a licensee may not be on duty;
- Notify local residents of upcoming entertainment and live music events through your venue's website and/or via letter drop;
- Initiate community meetings to discuss any disturbance issues and build good relationships with your local community;

[2] Source: Sound Management Guidance for licensed venue operators, NSW Government, 2024.

- Attend local liquor accord meetings; and
- Monitor responsible service of alcohol practices at your venue. These strategies may also be included in a Plan of Management.

## 8.2 Acoustic Guidance and Mitigation Strategies[3]

- Consider the type of entertainment provided, and the frequency and timing of any entertainment programming hosted at your venue;
- Consider the placement of amplifiers, speakers, band instruments, or stage set up within your venue and be mindful of locating such equipment near windows and doors or on surfaces through which sound or vibration may travel into adjoining residences or businesses;
- Consider re-directing the angle of speakers to minimise noise leakage from your venue and reverberation impacts;
- Conduct regular perimeter checks and monitor sound levels at the boundary of your venue and any neighbouring residences;
- Consider lowering the volume of any amplified speakers or PA system in use at your venue, particularly during later trading periods;
- Consider closing doors and windows when amplified music and entertainment is hosted at your venue, particularly those facing residential areas and during late trading periods;
- Limit the use of speakers or hosting amplified entertainment in outdoor areas after certain times or during late trading periods;
- Engage an accredited acoustic engineer to undertake acoustic testing at your venue and consider implementing any acoustic recommendations, if appropriate;
- Consider installing soundproofing and sound attenuation materials at your venue, such as sound absorbing insulation within walls, floors and ceiling, double-glazing windows, installing sound dampening curtains or acoustic seals on windows and doors; and
- Prepare and adopt a noise management plan.

[3] Source: Sound Management Guidance for licensed venue operators, NSW Government, 2024.

# 9 Discussion and Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Assessment (NA) to quantify emissions from the proposed restaurant development to be located at 40 Myoora Road, Terrey Hills, NSW.

The assessment has quantified potential operation emissions pertaining to operational sources, such as customer generated noise, including light vehicles and mechanical plant operations for the project.

The results of the NA demonstrate that noise emissions from the operation would satisfy the relevant PNTLs at all assessed receivers for all assessment periods once noise controls for the project are implemented (see Section 6.1):

- the project is constructed as per the site design and plans (as presented in Appendix B) which includes the barrier attenuation provided by the operation buildings orientation;
- the Restaurant 1 and Restaurant 2 mechanical AC and refrigeration plant are located on rooftop of the building above the loading bay coral area;
- a total of 135 people are assumed to occupy the internal area of Restaurant 1;
- a total of 120 people are assumed to occupy the internal area of Restaurant 2;
- a total of 185 people are assumed to occupy the external Restaurant 1 dining area;
- a total of 55 people are assumed to occupy the external Restaurant 2 dining area;
- a total of 100 people are assumed to occupy the external Restaurant 3 dining area; and
- all glazing is a minimum of 6mm in thickness.

The results of the Operational and Maximum Noise Level Assessments demonstrate that noise emissions from the project would satisfy the relevant PNTLs at all assessed receivers for all assessment periods.

Sources considered as part of the disturbance assessment included patron noise and entertainment noise. Noise emissions associated with these sources are predicted to have negligible disturbance on the surrounding noise environment.

Sources for the cumulative noise assessment including mechanical plant, onsite light vehicles, patron noise and live entertainment that are predicted to are not expected to influence existing ambient noise environment by a level that can be perceived by the human ear.

Notwithstanding, it is recommended that the project consider management controls within Section 8 to manage potential disturbances on surrounding residential receivers.

Modelled noise emissions from construction activities identify that predicted noise emissions will remain below the applicable construction management levels at all receivers taking into account the standard mitigation measures (see Table 7).

In summary, the Noise Assessment supports the Development Application for the project incorporating the recommendations and controls outlined in this report.

# Appendix A – Glossary of Terms

A number of technical terms have been used in this report and are explained in **Table A1**.

**Table A1 Glossary of Acoustical Terms**

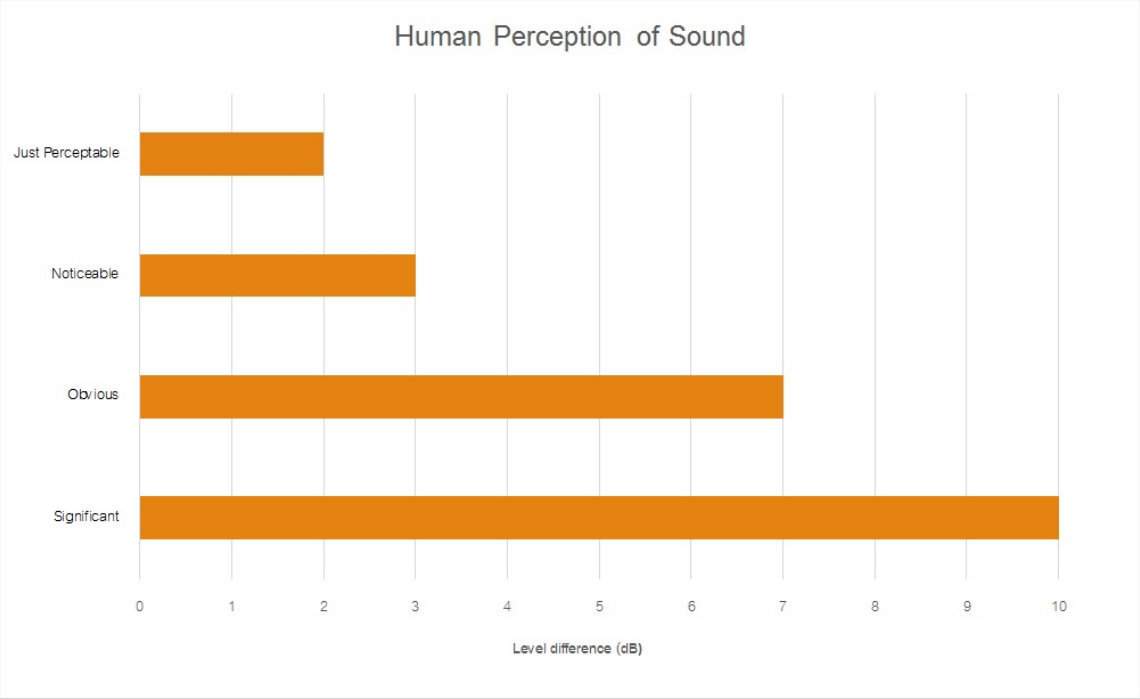
| Term | Description |
|---|---|
| 1/3 Octave | Single octave bands divided into three parts |
| Octave | A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit. |
| ABL | Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured L90 statistical noise levels. |
| Ambient Noise | The total noise associated with a given environment. Typically, a composite of sounds from all sources located both near and far where no particular sound is dominant. |
| A Weighting | A standard weighting of the audible frequencies designed to reflect the response of the human ear to sound. |
| Background Noise | The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is usually represented by the LA90 descriptor |
| dBA | Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear. |
| dB(Z), dB(L) | Decibels Z-weighted or decibels Linear (unweighted). |
| Extraneous Noise | Sound resulting from activities that are not typical of the area. |
| Hertz (Hz) | The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz. |
| LA10 | A sound level which is exceeded 10% of the time. |
| LA90 | Commonly referred to as the background noise, this is the level exceeded 90% of the time. |
| LAeq | Represents the average noise energy or equivalent sound pressure level over a given period. |
| LAmax | The maximum sound pressure level received at the microphone during a measuring interval. |
| Masking | The phenomenon of one sound interfering with the perception of another sound.<br>For example, the interference of traffic noise with use of a public telephone on a busy street. |
| RBL | The Rating Background Level (RBL) as defined in the NPI, is an overall single figure representing the background level for each assessment period over the whole monitoring period. The RBL, as defined is the median of ABL values over the whole monitoring period. |
| Sound power level (Lw or SWL) | This is a measure of the total power radiated by a source in the form of sound and is given by 10.log10 (W/Wo). Where W is the sound power in watts to the reference level of $10^{-12}$ watts. |
| Sound pressure level (Lp or SPL) | the level of sound pressure; as measured at a distance by a standard sound level meter. This differs from Lw in that it is the sound level at a receiver position as opposed to the sound 'intensity' of the source. |

**Table A2** provides a list of common noise sources and their typical sound level.

**Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA**

| Source | Typical Sound Pressure Level |
|---|---|
| Threshold of pain | 140 |
| Jet engine | 130 |
| Hydraulic hammer | 120 |
| Chainsaw | 110 |
| Industrial workshop | 100 |
| Lawn-mower (operator position) | 90 |
| Heavy traffic (footpath) | 80 |
| Elevated speech | 70 |
| Typical conversation | 60 |
| Ambient suburban environment | 40 |
| Ambient rural environment | 30 |
| Bedroom (night with windows closed) | 20 |
| Threshold of hearing | 0 |

**Figure A1** – Human Perception of Sound



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# Appendix B – Site Plans

# 40 Myoora Road

## 40 Myoora Road, Terrey Hills NSW 2084

## Gardoxi P/L (Norwest)

## For Development Approval

**Drawing List - Development Application**

| Status | Sheet Number | RTVRev | RTVRev Date | Sheet Name |
|---|---|---|---|---|
| AD | DA1-0000 | 16 | 28/02/25 | Title Sheet & Drawing List |
| AD | DA1-0110 | 05 | 28/02/25 | Materials Palette |
| AD | DA1-0200 | 05 | 28/02/25 | General Notes & Abbreviations - Sheet 01 |
| AD | DA1-0201 | 05 | 28/02/25 | Keynotes |
| AD | DA1-0400 | 05 | 28/02/25 | Existing Location Plan |
| AD | DA1-0401 | 11 | 28/02/25 | Existing Site Analysis Plan |
| AD | DA1-0410 | 11 | 28/02/25 | Site Plan - Existing & Demolition |
| AD | DA1-0500 | 14 | 28/02/25 | Site Plan - Proposed |
| AD | DA1-1010 | 15 | 28/02/25 | General Arrangement Plan - Myoora Road Venue Entry & Basement |
| AD | DA1-1013 | 14 | 28/02/25 | General Arrangement Plan - Restaurant |
| AD | DA1-1023 | 14 | 28/02/25 | General Arrangement Plan - Roof |
| AD | DA1-1024 | 05 | 28/02/25 | General Arrangement Plan - Landscaped Open Area & Mona Vale Road |
| AD | DA1-1100 | 03 | 28/02/25 | Seating Plan - Restaurant |
| AD | DA1-1200 | 05 | 28/02/25 | General Notes - Food Premises |
| AD | DA1-1201 | 05 | 28/02/25 | Detail Plan - Restaurant |
| AD | DA1-3100 | 11 | 28/02/25 | Streetscape Elevations - Proposed |
| AD | DA1-4100 | 13 | 28/02/25 | Site Sections - Proposed - Sheet 01 |
| AD | DA1-4101 | 13 | 28/02/25 | Site Sections - Proposed - Sheet 02 |
| AD | DA1-4102 | 12 | 28/02/25 | Site Sections - Proposed - Sheet 03 |
| AD | DA1-4110 | 13 | 28/02/25 | North West - Proposed Sections - Sheet 01 |
| AD | DA1-4111 | 13 | 28/02/25 | North West - Proposed Sections - Sheet 02 |
| AD | DA1-4112 | 12 | 28/02/25 | North West - Proposed Sections - Sheet 03 |
| AD | DA1-4120 | 13 | 28/02/25 | South East - Proposed Sections - Sheet 01 |
| AD | DA1-4121 | 13 | 28/02/25 | South East - Proposed Sections - Sheet 02 |
| AD | DA1-4122 | 12 | 28/02/25 | South East - Proposed Sections - Sheet 03 |
| AD | DA1-4130 | 12 | 28/02/25 | Building Sections - Sheet 01 |
| AD | DA1-9000 | 12 | 28/02/25 | Area Plan & Schedule - Proposed |
| AD | DA1-9010 | 12 | 28/02/25 | Site Cover Plan & Schedule - Proposed |
| AD | DA1-9020 | 06 | 28/02/25 | Gross Floor Area Plan & Schedule - Proposed |
| AD | DA1-9030 | 05 | 28/02/25 | Fire Compartmentation - Proposed |
| AD | DA1-9200 | 08 | 28/02/25 | Shadow Diagrams - Winter 21st June 9am |
| AD | DA1-9201 | 08 | 28/02/25 | Shadow Diagrams - Winter 21st June 12pm |
| AD | DA1-9202 | 08 | 28/02/25 | Shadow Diagrams - Winter 21st June 3pm |
| AD | DA1-9203 | 08 | 28/02/25 | Shadow Diagrams - Summer 21st December 9am |
| AD | DA1-9204 | 08 | 28/02/25 | Shadow Diagrams - Summer 21st December 12pm |
| AD | DA1-9205 | 08 | 28/02/25 | Shadow Diagrams - Summer 21st December 3pm |

| | | |
|---|---|---|
| 16 | 28.02.25 | Issue For Information |
| 15 | 21.02.25 | Issue for Information |
| 14 | 14.02.25 | Issue for Information |
| 13 | 01.10.24 | For Development Approval |
| 12 | 03.09.24 | For Development Approval |
| 11 | 14.08.24 | Issue for Information |
| 10 | 26.07.24 | Issue for Information |
| 09 | 21.05.24 | Issue for Information: Design and Sustainability Advisory Panel |
| 08 | 03.05.24 | Issued for Landscape Coordination |
| 07 | 02.04.24 | Issue for Information: Pre-DA Meeting |

| Rev | Date | Amendments |
|---|---|---|


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Humphrey & Edwards Pty Ltd | ABN 89056636227
Nominated Architect: Glenn Cunnington #6415


**For Development Approval**

| | | | |
|---|---|---|---|
| Scale @ A1 | | Drawn by | Checked by |
| Scale @ A3 | | | |
| Project Start Date | **Issue Date** | Sheet Issue Date | **28/02/25** |
| Project # | **2725** | | |
| Drawing # | **DA1-0000** | Rev | **16** |

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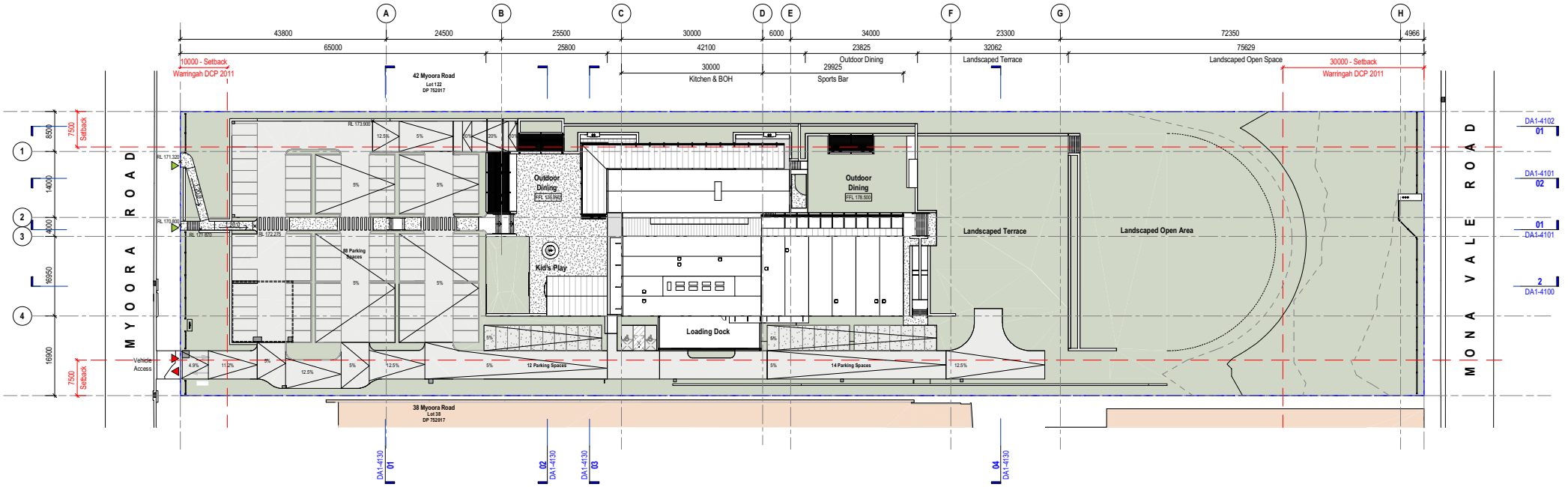


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- Neighbouring Residential Buildings
- Subject to final layout this area is to comply with Australian Standard 4674-2004; Design, construction and fit out of food premises. Refer to DA1-1200.

**For Development Approval**



| Rev | Date | Amendments |
|---|---|---|
| 01 | 28.09.23 | Preliminary Issue for Information |
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Nominated Architect: Glenn Cunnington #6415


Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**Site Plan - Proposed**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:400 | Drawn by | Checked by |
| Scale @ A3 | 1:800 | | |
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| Project # | 2725 | | |
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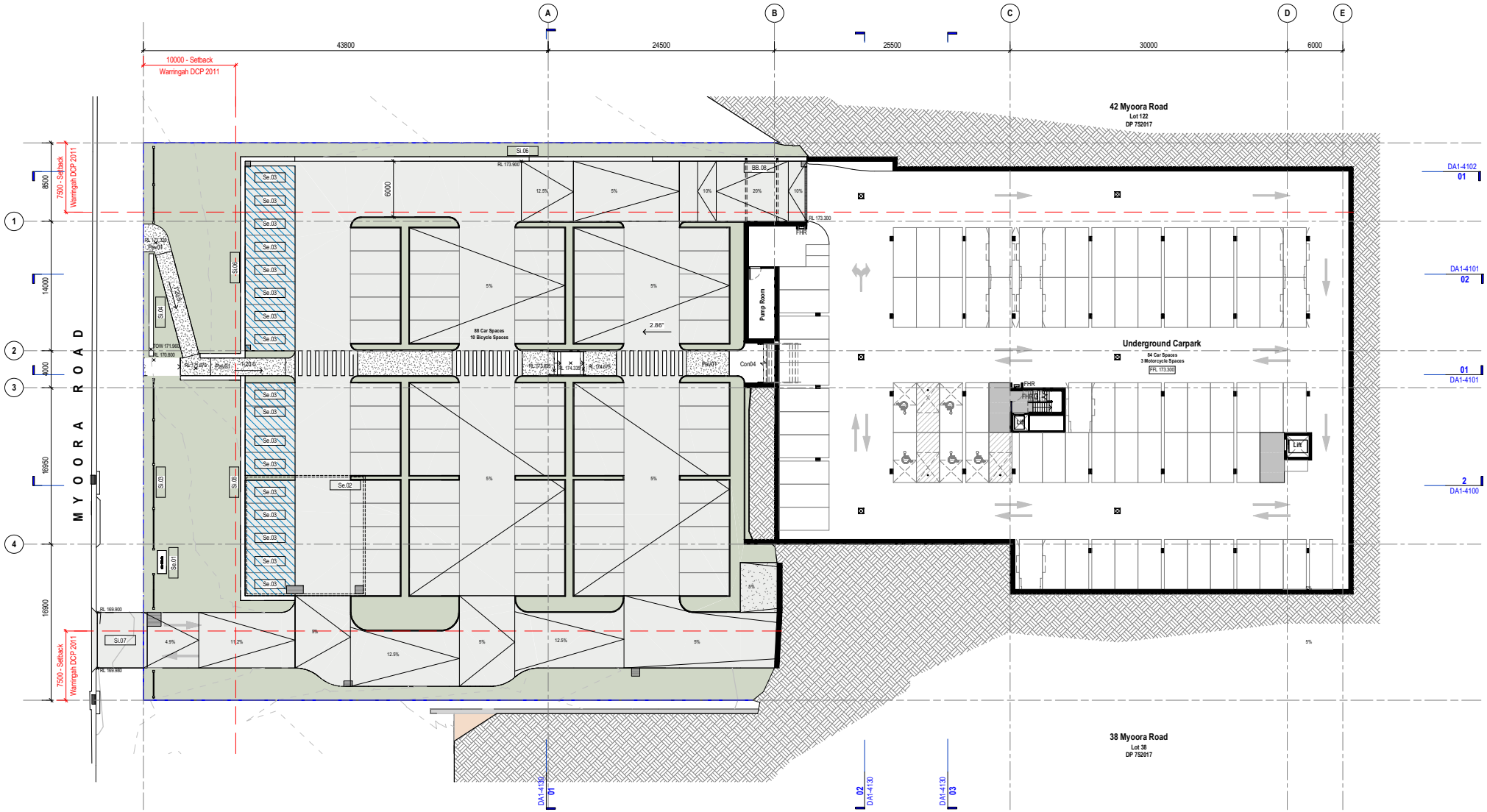


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**For Development Approval**

### General Notes



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| 04 | 27.10.23 | Issue for Information |
| 05 | 31.10.23 | Issue for Information |
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| 07 | 02.04.24 | Issue for Information: Pre-DA Meeting |
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Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**General Arrangement Plan - Myoora Road Venue Entry & Basement**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
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| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
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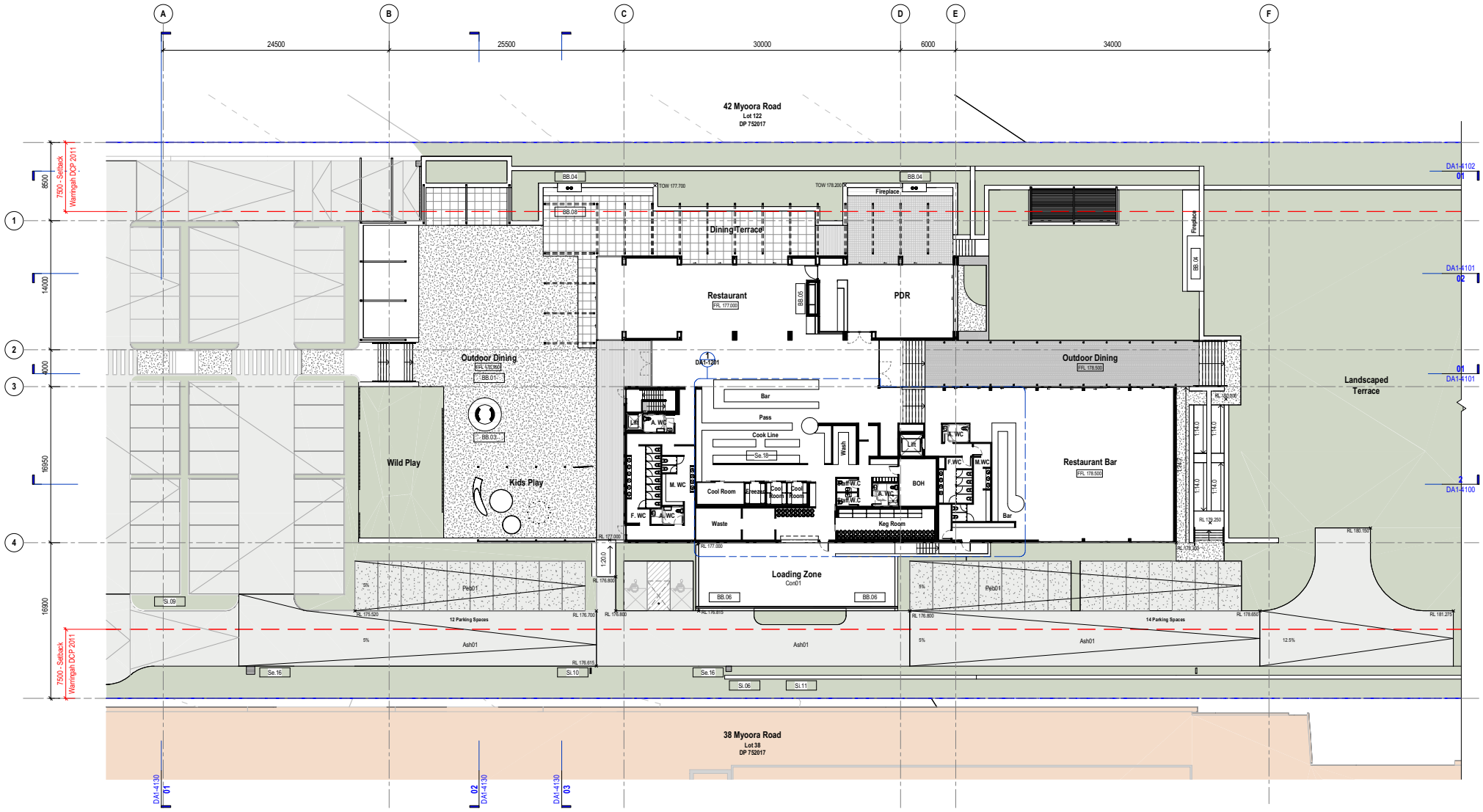


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**For Development Approval**

### General Notes



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| 14 | 28.02.25 | Issue For Information |

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Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**General Arrangement Plan - Restaurant**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
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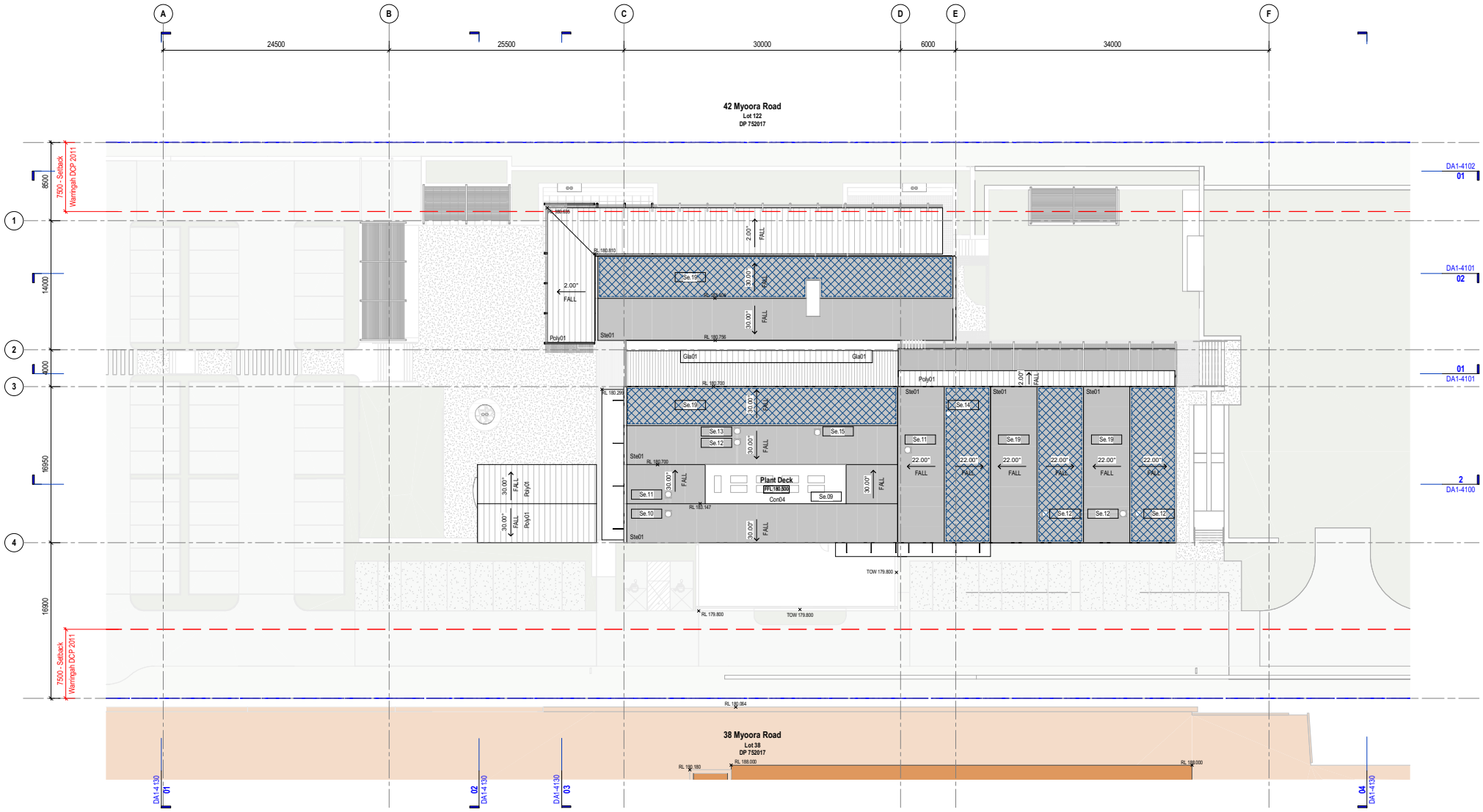


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**For Development Approval**

### General Notes



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|---|---|---|
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| 03 | 27.10.23 | Issue for Information |
| 04 | 31.10.23 | Issue for Information |
| 05 | 19.03.24 | Consultant Issue |
| 06 | 02.04.24 | Issue for Information: Pre-DA Meeting |
| 07 | 03.05.24 | Issued for Landscape Coordination |
| 08 | 21.05.24 | Issue for Information: Design and Sustainability Advisory Panel |

| Rev | Date | Amendments |
|---|---|---|
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Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**General Arrangement Plan - Roof**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
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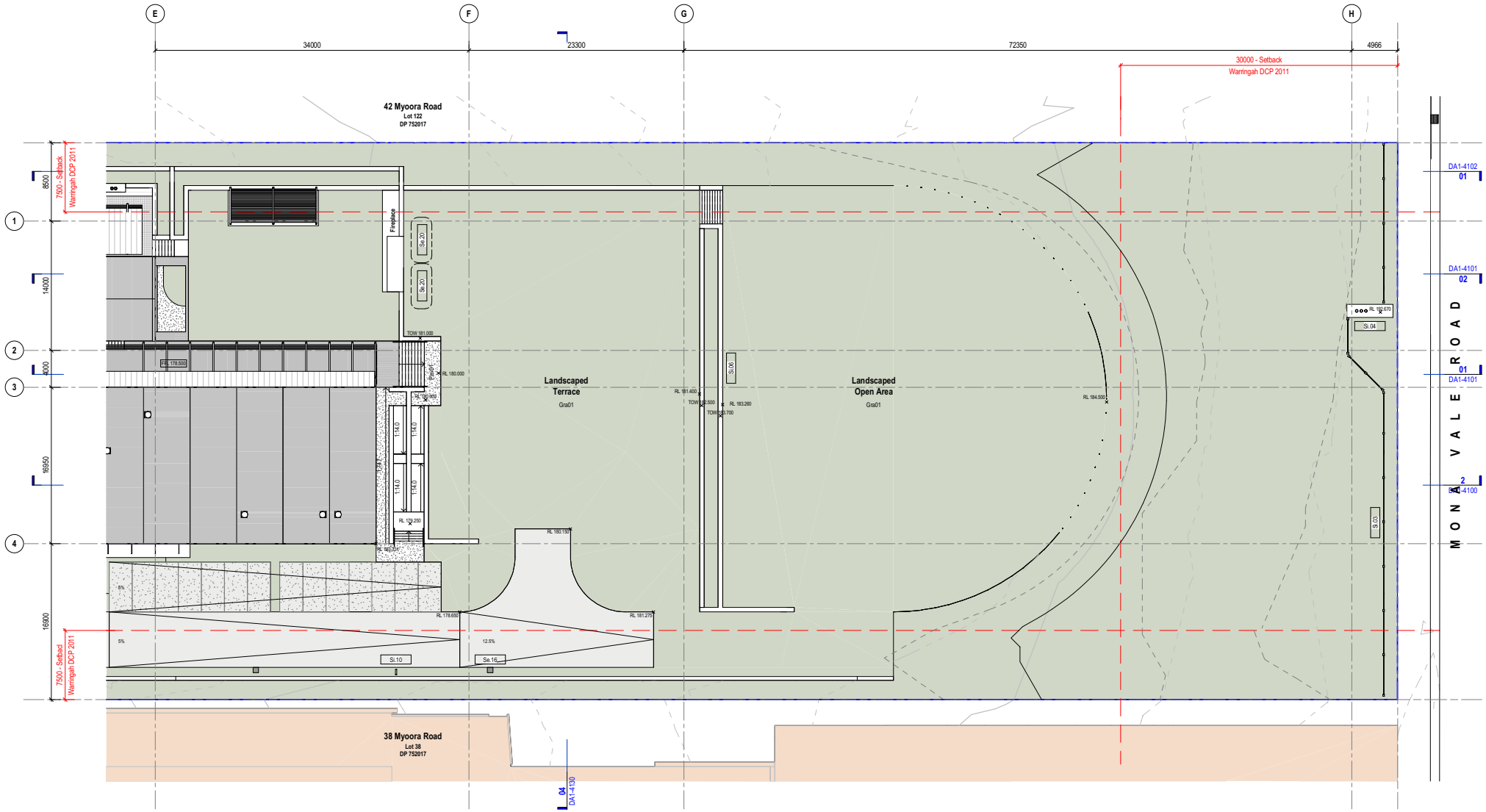


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### General Notes



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| 04 | 21.02.25 | Issue for Information |
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| Rev | Date | Amendments |
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Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**General Arrangement Plan - Landscaped Open Area & Mona Vale Road**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
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| Project # | 2725 | | |
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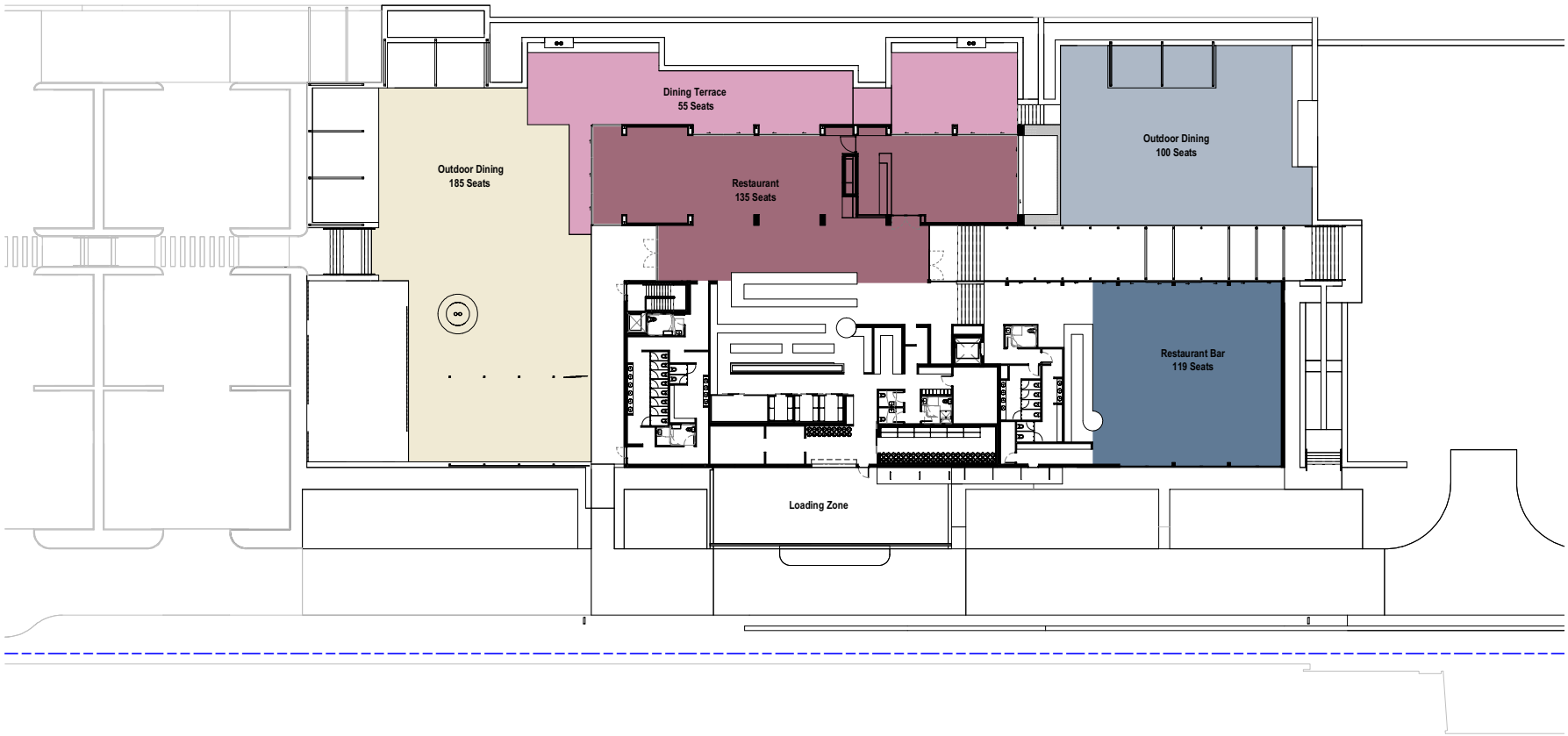


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**For Development Approval**

### General Notes



| Rev | Date | Amendments |
|---|---|---|
| 01 | 01.10.24 | For Development Approval |
| 02 | 21.02.25 | Issue for Information |
| 03 | 28.02.25 | Issue For Information |

| Rev | Date | Amendments |
|---|---|---|

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Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**Seating Plan - Restaurant**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
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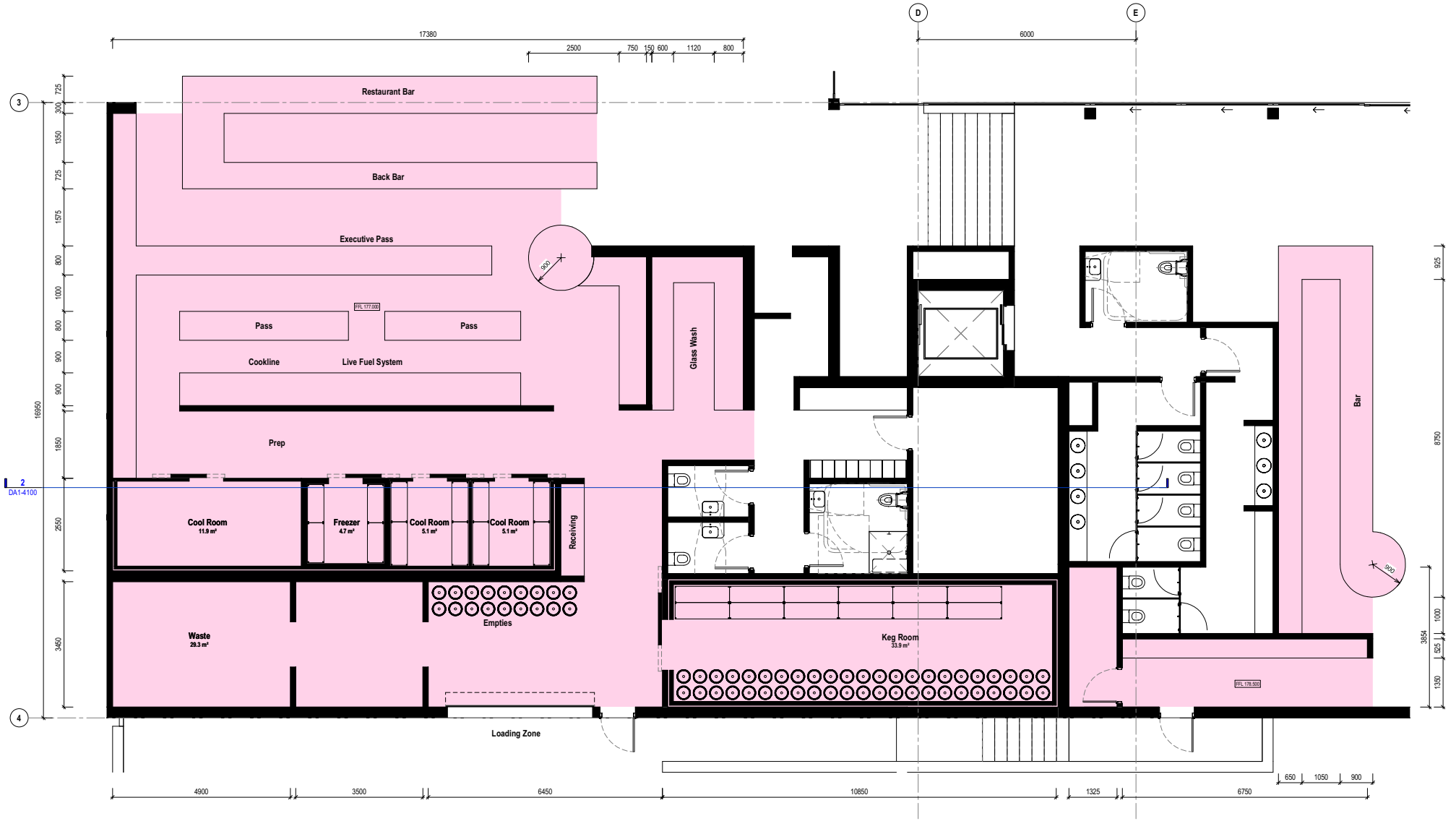


1 Detail Plan - Restaurant & Bar - Kitchen & Bar

DA1-1013

## DA Legend

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### General Notes



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Nominated Architect: Glenn Cunnington #6415

Project
40 Myoora Road

Client
Gardoxi P/L (Norwest)

Location
40 Myoora Road, Terrey Hills NSW 2084

Drawing
Detail Plan - Restaurant

| | | | |
|---|---|---|---|
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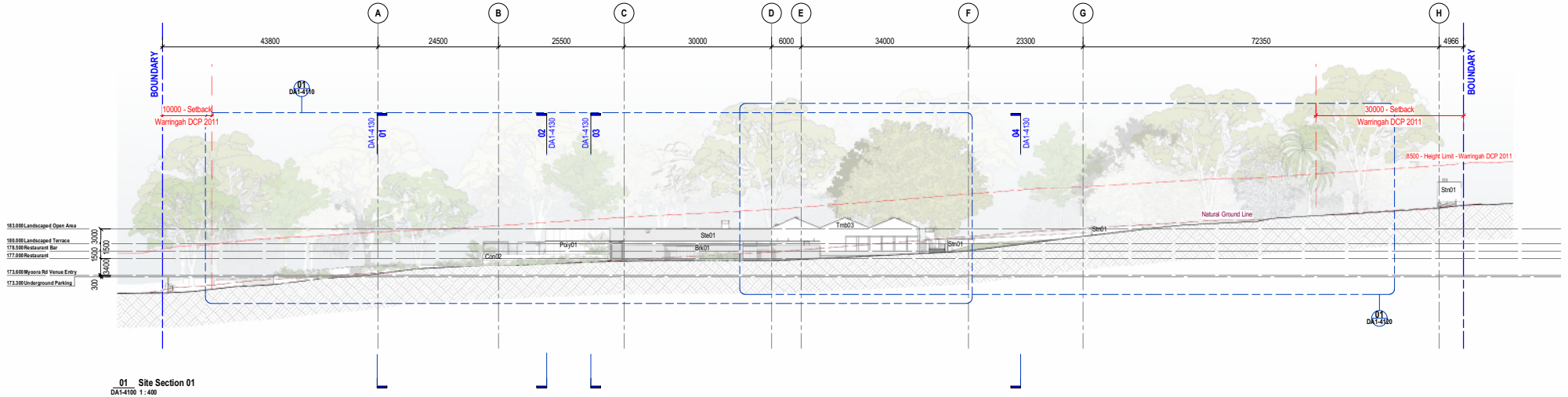
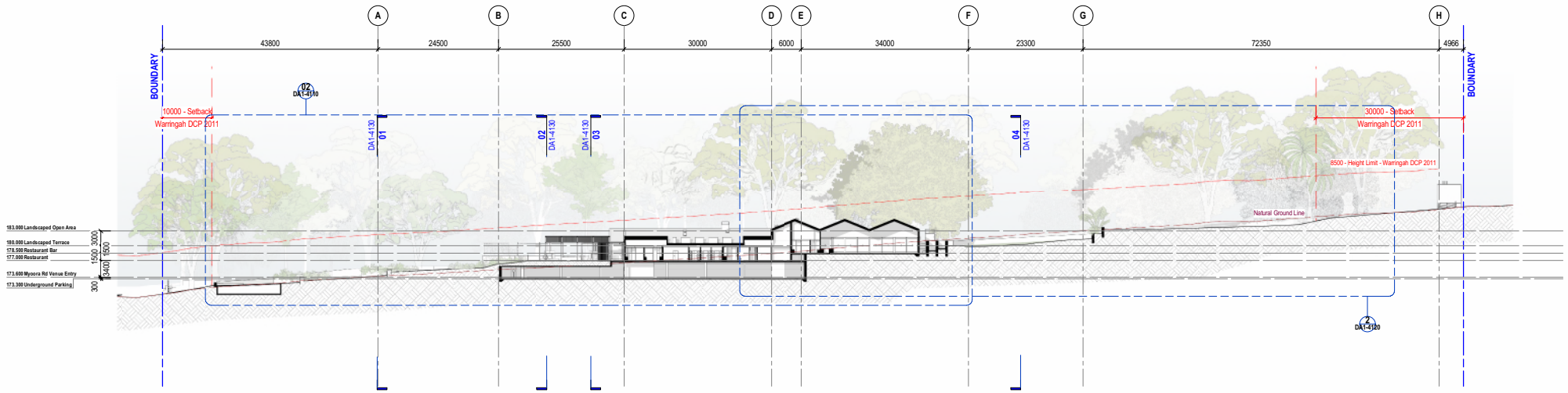



01 Site Section 01
DA1-4100 1 : 400




2 Site Section 02
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**For Development Approval**

### General Notes



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Nominated Architect: Glenn Cunnington #6415

Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**Site Sections - Proposed - Sheet 01**

| | | | |
|---|---|---|---|
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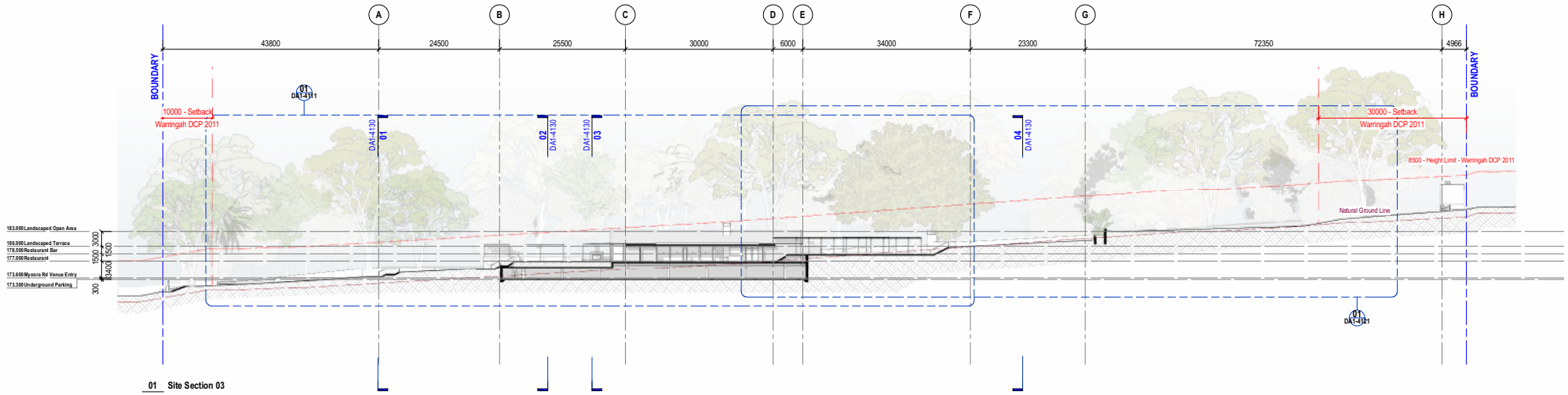
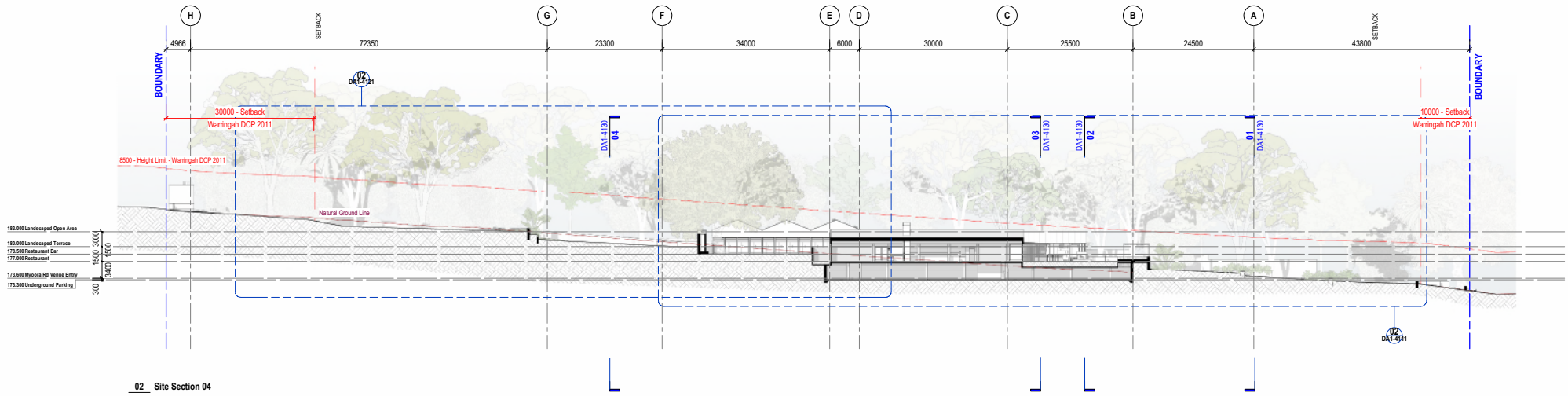
| Project # | 2725 | | |
| Drawing # | DA1-4100 | Rev | 13 |

28/02/2025 3:26:37 PM




**01 Site Section 03**
DA1-0500




**02 Site Section 04**
DA1-0500

## DA Legend

UNO the general extent and location of alterations or additions, including demolition is indicated accordingly:

- Proposed new building fabric
- Area of proposed demolition
- Neighbouring Light Industrial Buildings
- Neighbouring Residential Buildings
- Subject to final layout this area is to comply with Australian Standard 4674-2004; Design, construction and fit out of food premises. Refer to DA1-1200.

**For Development Approval**

### General Notes



| Rev | Date | Amendments |
|---|---|---|
| 01 | 28.09.23 | Preliminary Issue for Information |
| 02 | 16.10.23 | Issue for Information |
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| 04 | 31.10.23 | Issue for Information |
| 05 | 19.03.24 | Consultant Issue |
| 06 | 02.04.24 | Issue for Information: Pre-DA Meeting |
| 07 | 03.05.24 | Issued for Landscape Coordination |
| 08 | 21.05.24 | Issue for Information: Design and Sustainability Advisory Panel |

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|---|---|---|
| 09 | 26.07.24 | Issue for Information |
| 10 | 14.08.24 | Issue for Information |
| 11 | 03.09.24 | For Development Approval |
| 12 | 21.02.25 | Issue for Information |
| 13 | 28.02.25 | Issue For Information |

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Nominated Architect: Glenn Cunnington #6415

Project
**40 Myoora Road**

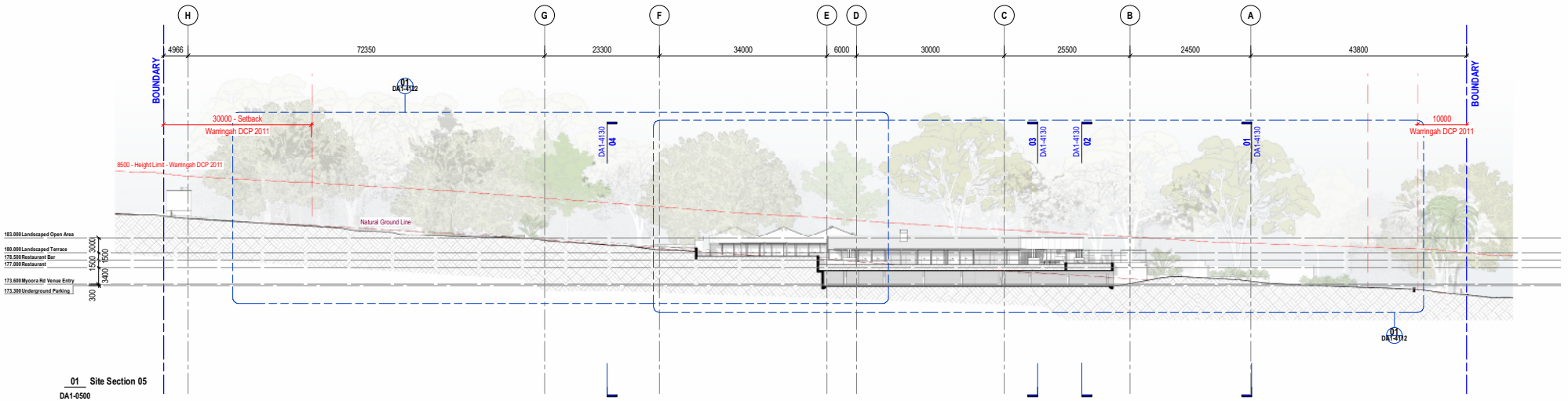
Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**Site Sections - Proposed - Sheet 02**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:400 | Drawn by | Checked by |
| Scale @ A3 | 1:800 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
| Drawing # | DA1-4101 | Rev | 13 |

28/02/2025 3:30:50 PM




**01 Site Section 05**
DA1-0500

## DA Legend

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- Proposed new building fabric
- Area of proposed demolition
- Neighbouring Light Industrial Buildings
- Neighbouring Residential Buildings
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**For Development Approval**

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|---|---|---|
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| 03 | 31.10.23 | Issue for Information |
| 04 | 19.03.24 | Consultant Issue |
| 05 | 02.04.24 | Issue for Information: Pre-DA Meeting |
| 06 | 03.05.24 | Issued for Landscape Coordination |
| 07 | 21.05.24 | Issue for Information: Design and Sustainability Advisory Panel |
| 08 | 26.07.24 | Issue for Information |

| Rev | Date | Amendments |
|---|---|---|
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Nominated Architect: Glenn Cunnington #6415

Project
**40 Myoora Road**

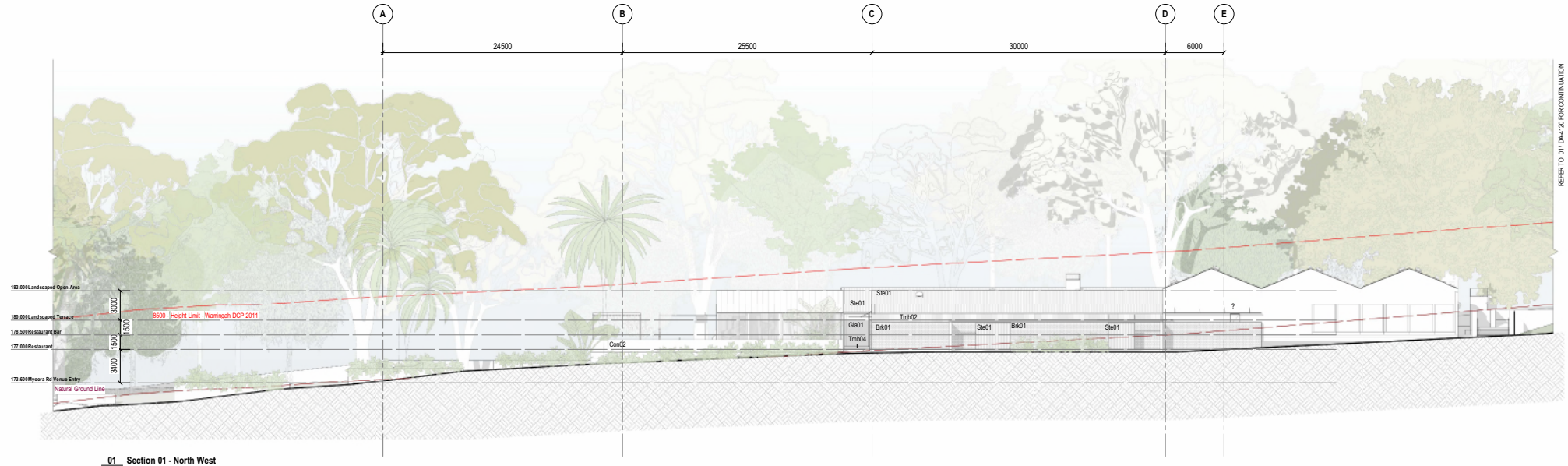
Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

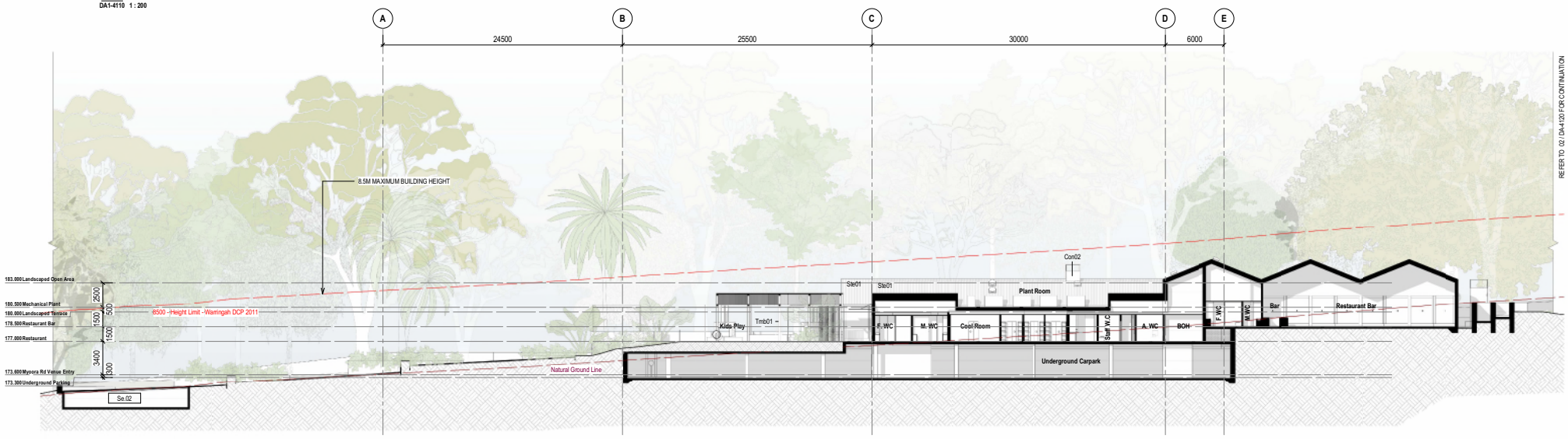
Drawing
**Site Sections - Proposed - Sheet 03**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:400 | Drawn by | Checked by |
| Scale @ A3 | 1:800 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
| Drawing # | DA1-4102 | Rev | 12 |

28/02/2025 3:34:19 PM




**01 Section 01 - North West**
DA1-4110 1 : 200




**02 Section 01 - North West**
DA1-4110 1 : 200

## DA Legend

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**For Development Approval**

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Nominated Architect: Glenn Cunnington #6415

Project
**40 Myoora Road**

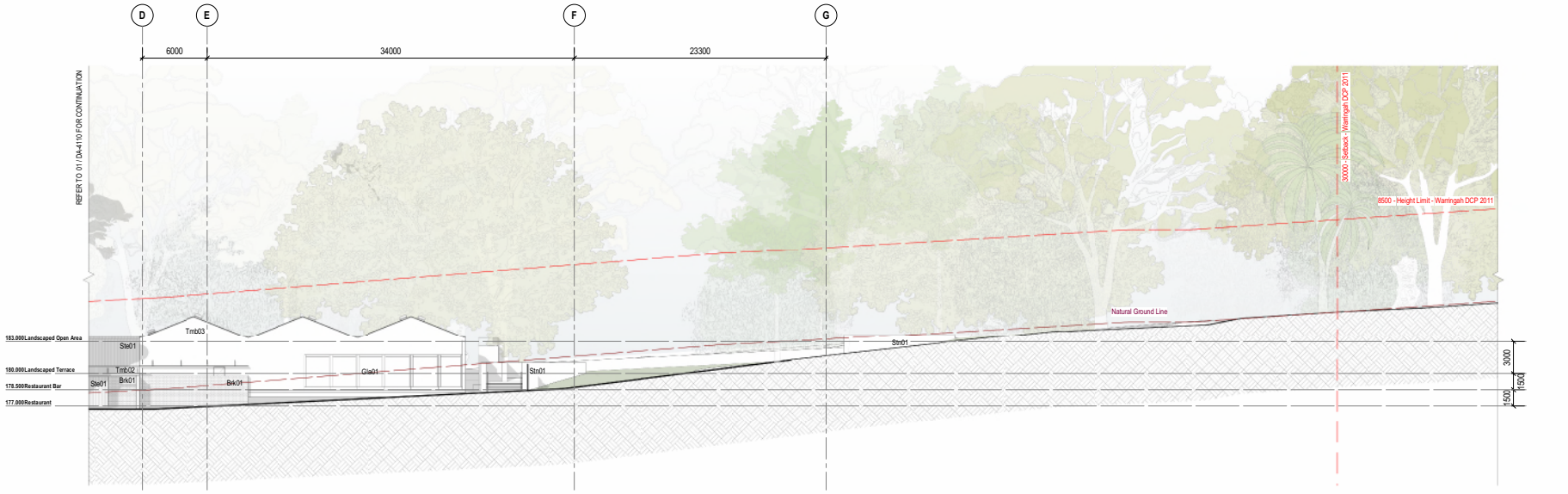
Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

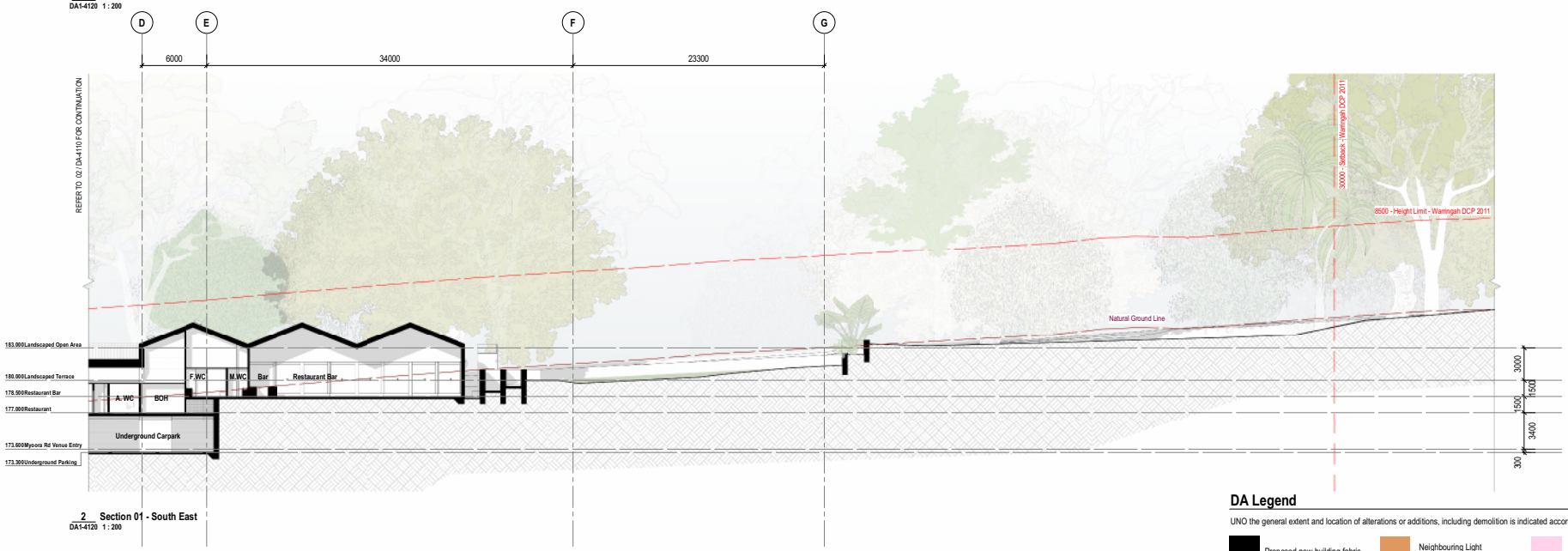
Drawing
**North West - Proposed Sections - Sheet 01**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
| Drawing # | DA1-4110 | Rev | 13 |

28/02/2025 3:38:34 PM




01 Section 01 - South East
DA1-4120 1 : 200




2 Section 01 - South East
DA1-4120 1 : 200

## DA Legend

UNO the general extent and location of alterations or additions, including demolition is indicated accordingly:

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**For Development Approval**

### General Notes



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Nominated Architect: Glenn Cunnington #6415

Project
**40 Myoora Road**

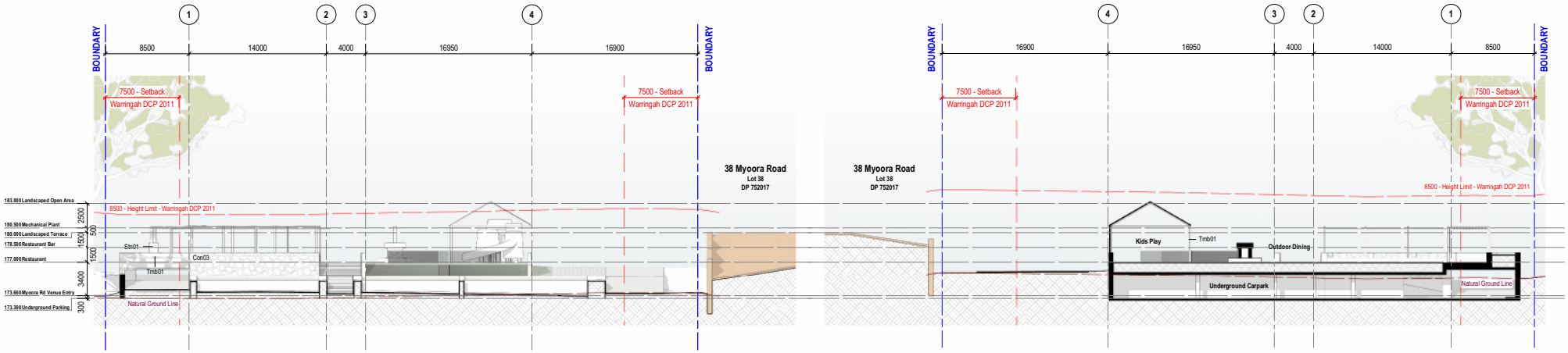
Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**South East - Proposed Sections - Sheet 01**

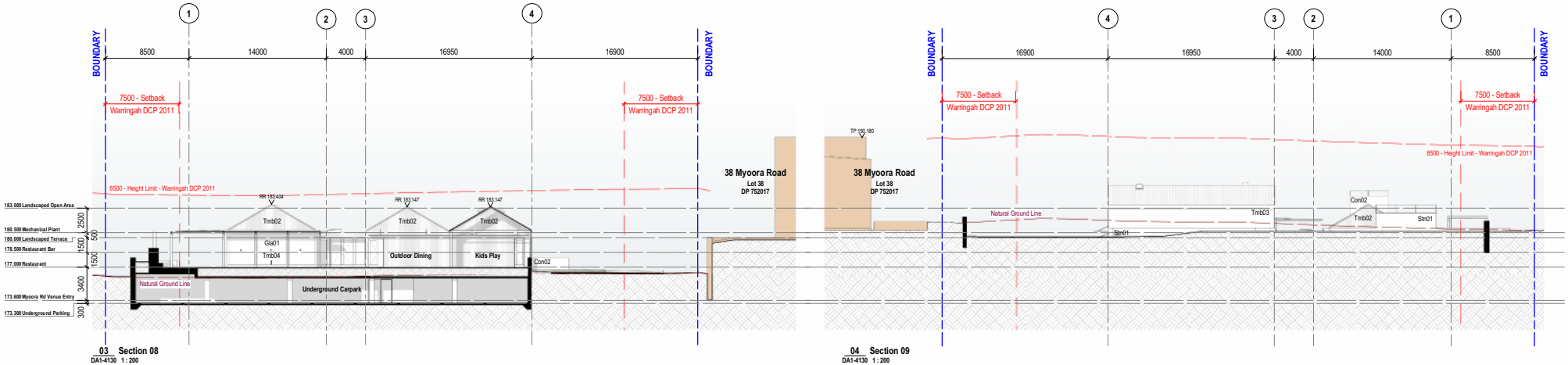
| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
| Drawing # | DA1-4120 | Rev | 13 |

28/02/2025 3:47:38 PM




01 Section 06
DA1-4130 1 : 200

02 Section 07
DA1-4130 1 : 200




03 Section 08
DA1-4130 1 : 200

04 Section 09
DA1-4130 1 : 200

**General Notes**



| Rev | Date | Amendments |
|---|---|---|
| 01 | 16.10.23 | Issue for Information |
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Nominated Architect: Glenn Cunnington #6415

Project
**40 Myoora Road**

Client
**Gardoxi P/L (Norwest)**

Location
**40 Myoora Road, Terrey Hills NSW 2084**

Drawing
**Building Sections - Sheet 01**

**For Development Approval**

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 28/02/25 |
| Project # | 2725 | | |
| Drawing # | DA1-4130 | Rev | 12 |

28/02/2025 3:53:30 PM

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# Appendix C – Noise Monitoring Charts

## Table C26 Background Noise Monitoring Summary – Unattended Noise Monitoring (L1)

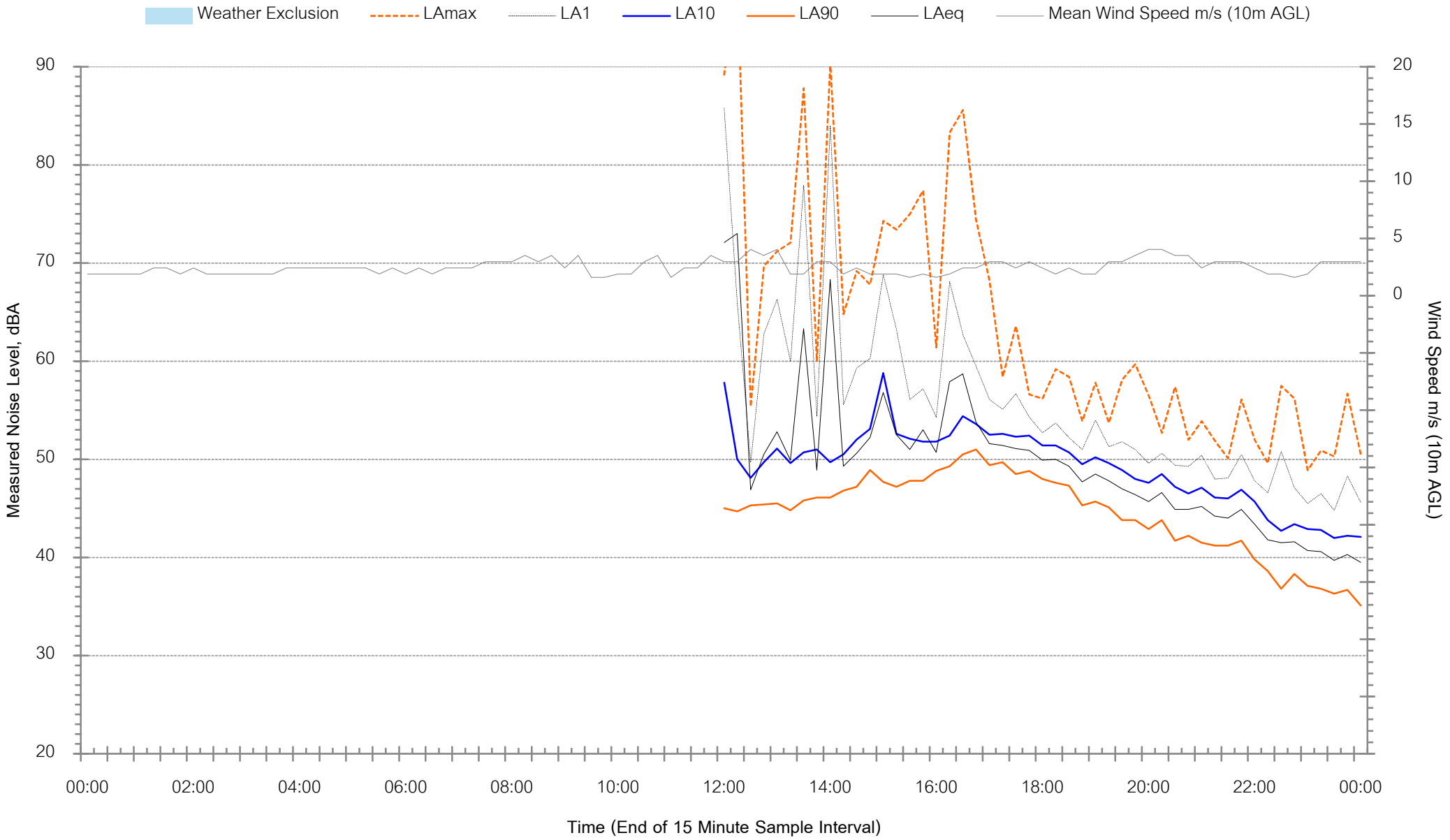
| Date | Measured Background Noise Level ($L_{A90}$) dB ABL[1] | | | Measured dB $L_{Aeq(period)}$ | | |
|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night |
| Thursday 30 May 2024 | -[2] | 41 | 33 | -[2] | 47 | 49 |
| Friday 31 May 2024 | 46 | 40 | | 59 | 44 | -[2] |
| Saturday 1 June 2024 | -[2] | -[2] | -[2] | -[2] | -[2] | -[2] |
| Sunday 2 June 2024 | 45 | 36 | 33 | 62 | 45 | 46 |
| Monday 3 June 2024 | 44 | 40 | 36 | 61 | 45 | 50 |
| Tuesday 4 June 2024 | 44 | 40 | 32 | 65 | 47 | 45 |
| Wednesday 5 June 2024 | 45 | 38 | 32 | 66 | 45 | 53 |
| Thursday 6 June 2024 | -[2] | -[2] | -[2] | -[2] | -[2] | -[2] |
| Friday 7 June 2024 | 44 | 38 | -[2] | 60 | 44 | -[2] |
| Saturday 8 June 2024 | 45 | 40 | 33 | 61 | 46 | 47 |
| Sunday 9 June 2024 | 43 | 38 | -[2] | 58 | 46 | -[2] |
| Monday 10 June 2024 | 45 | 40 | 32 | 57 | 46 | 50 |
| Tuesday 11 June 2024 | -[2] | -[2] | -[2] | -[2] | -[2] | -[2] |
| RBL / Leq Overall | 45 | 40 | 33 | 62 | 46 | 49 |

Note 1: Assessment background level (ABL) – the single-figure background level representing each assessment period day, evening and night as per NPI Fact Sheet A.

Note 2: Measurement removed due to adverse weather as per NPI Fact Sheet A.

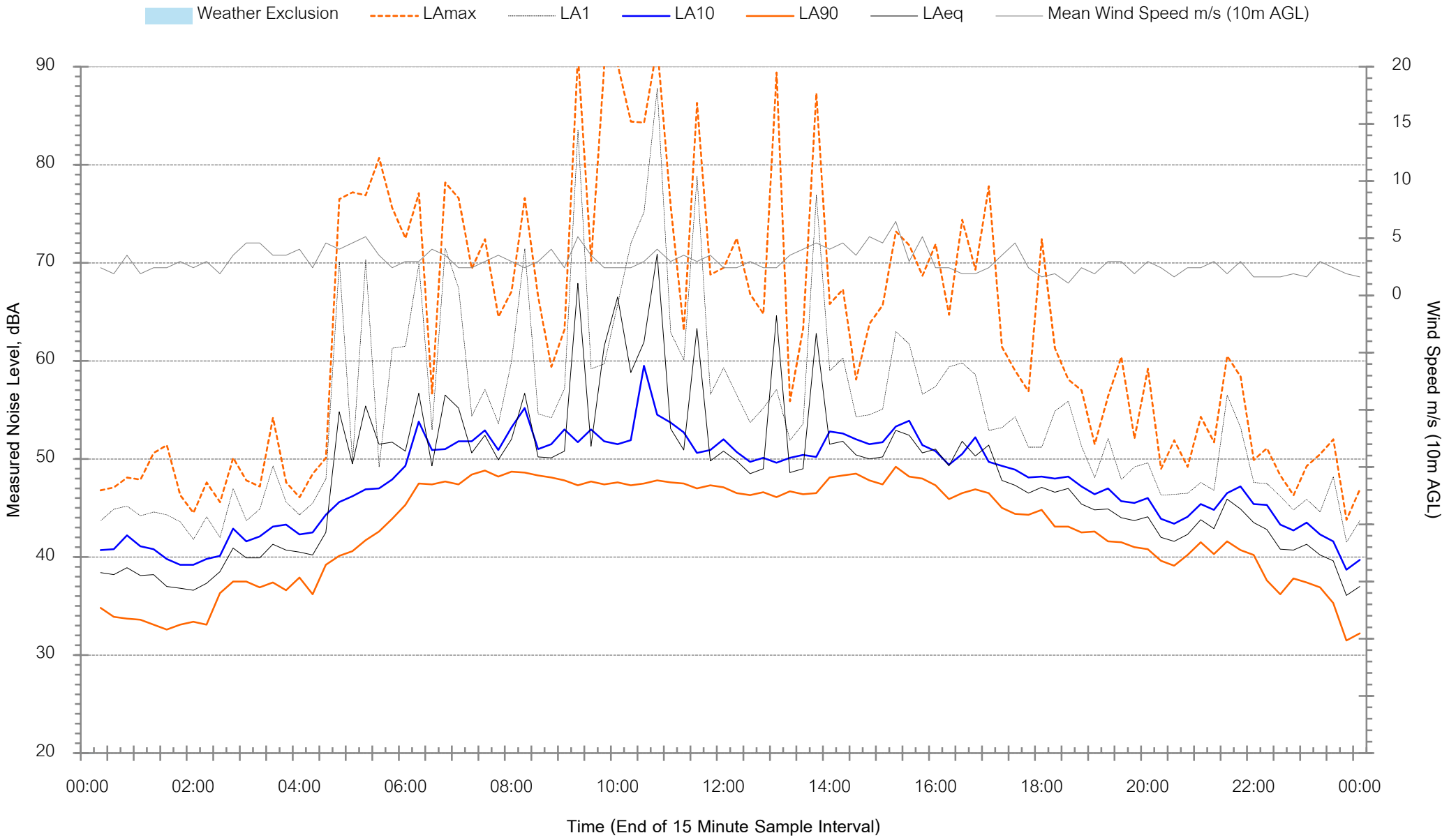
# Background Noise Levels

## IPD Terrey Hills, NSW - Thursday 30 May 2024



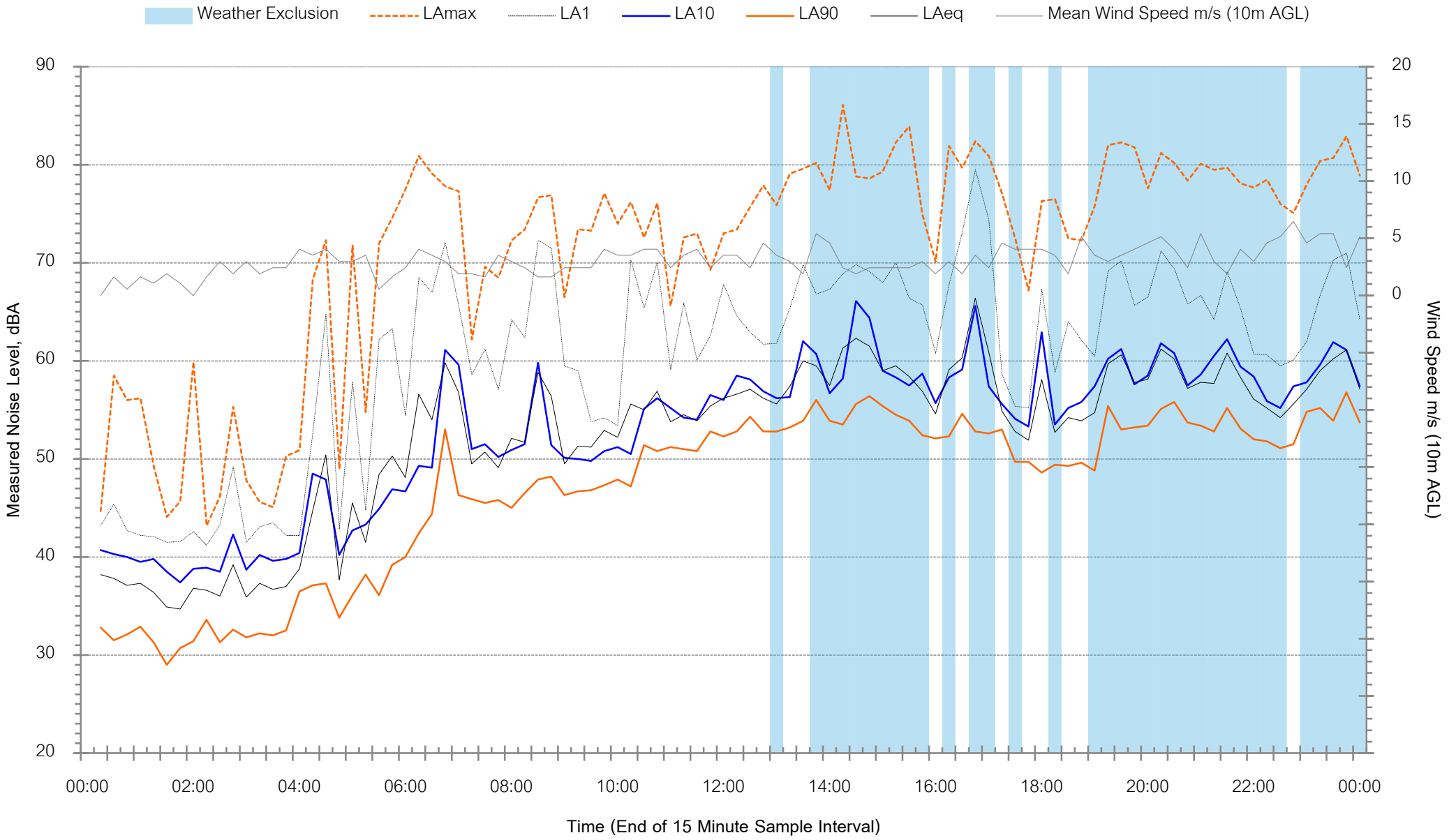
# Background Noise Levels

## IPD Terrey Hills, NSW - Friday 31 May 2024



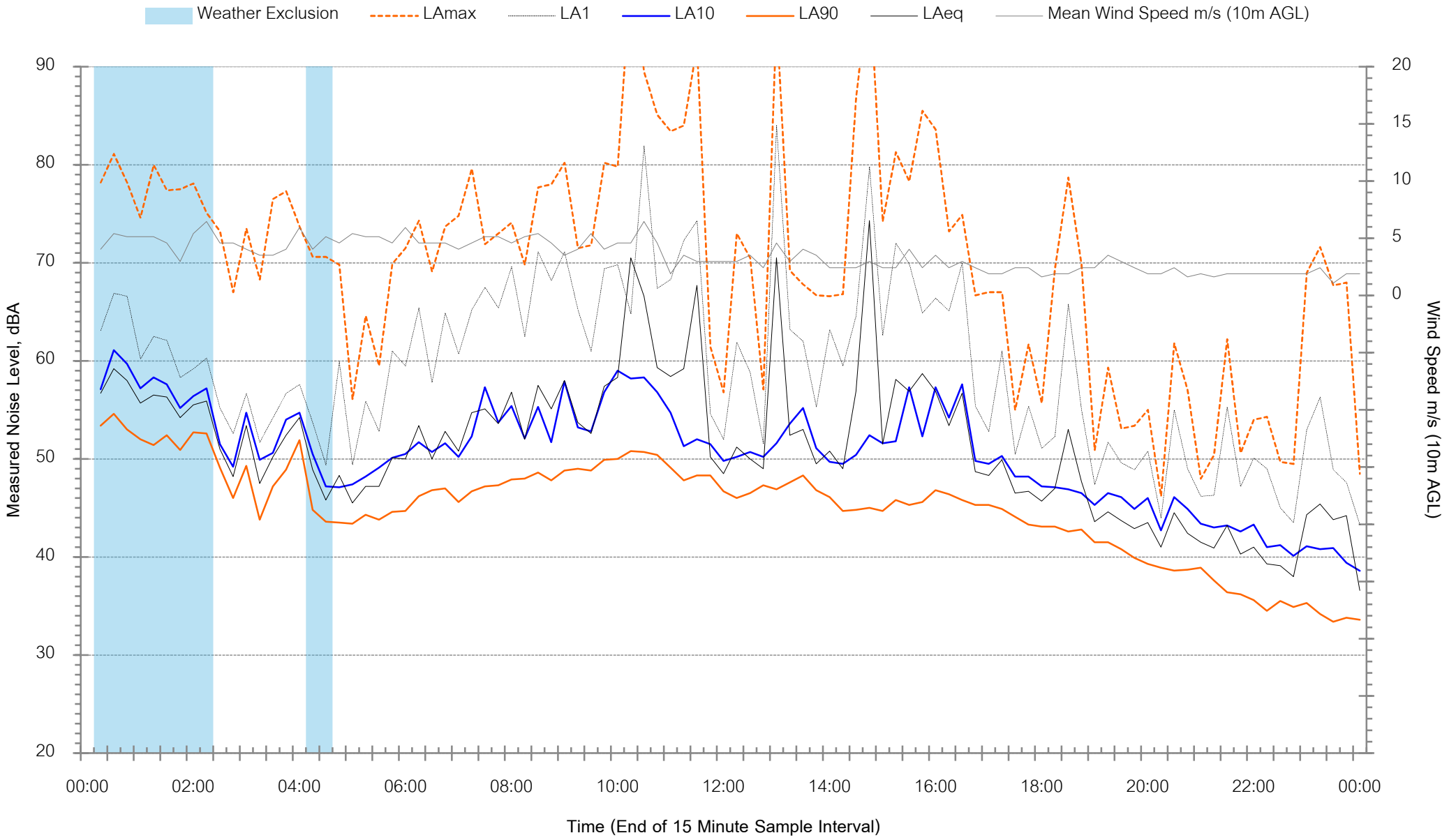
# Background Noise Levels

## IPD Terrey Hills, NSW - Saturday 1 June 2024



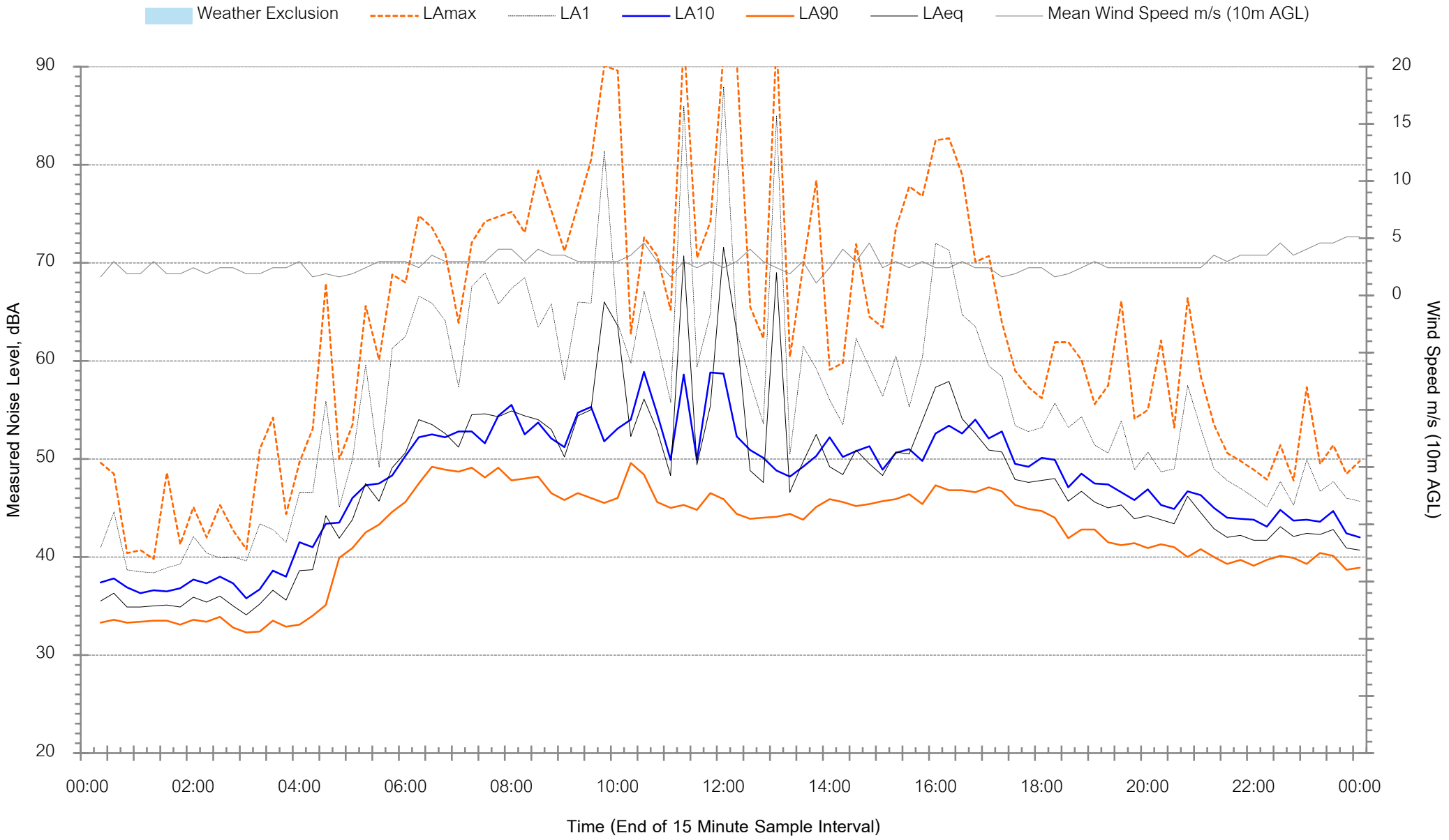
# Background Noise Levels

## IPD Terrey Hills, NSW - Sunday 2 June 2024



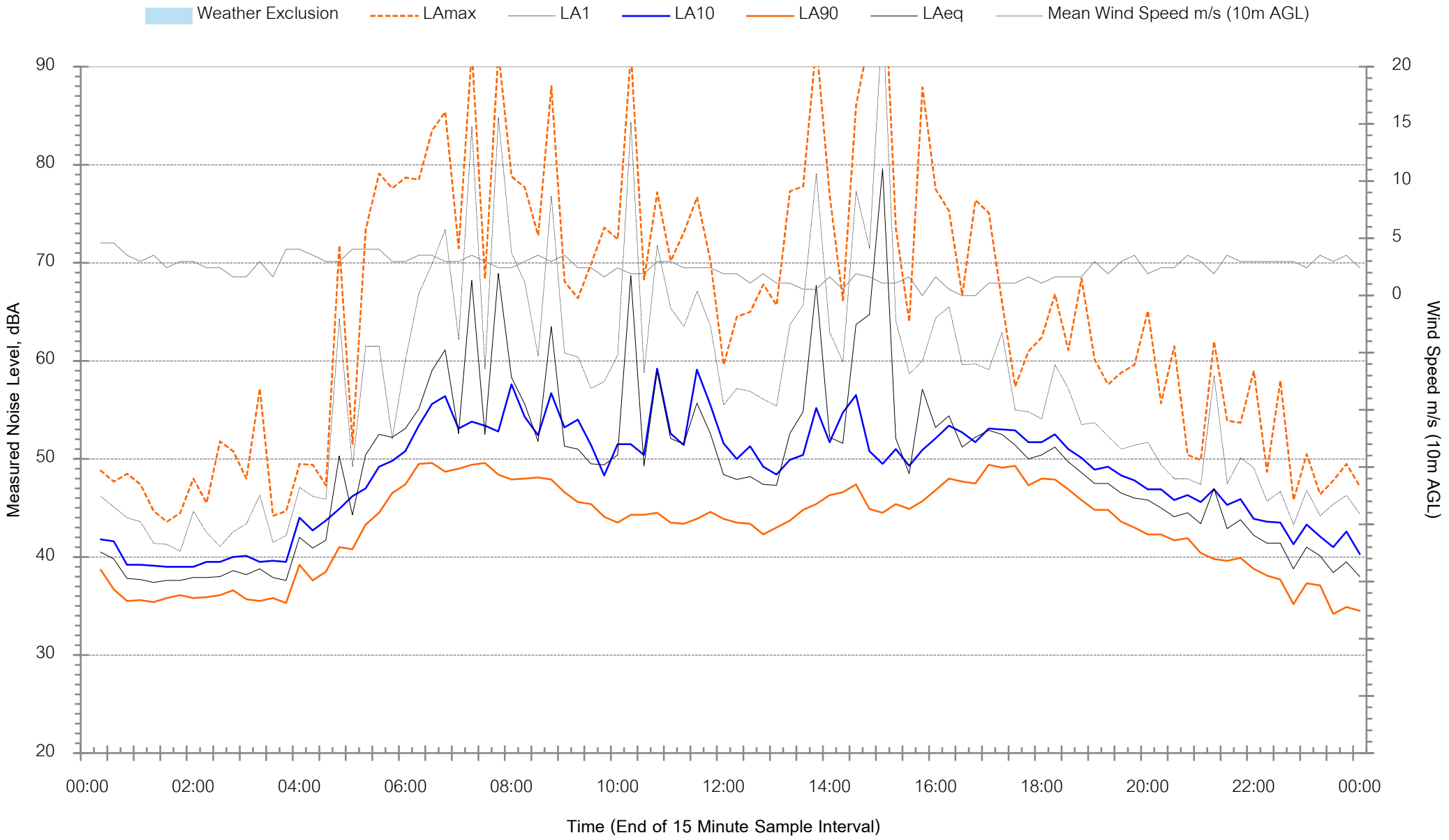
# Background Noise Levels

## IPD Terrey Hills, NSW - Monday 3 June 2024



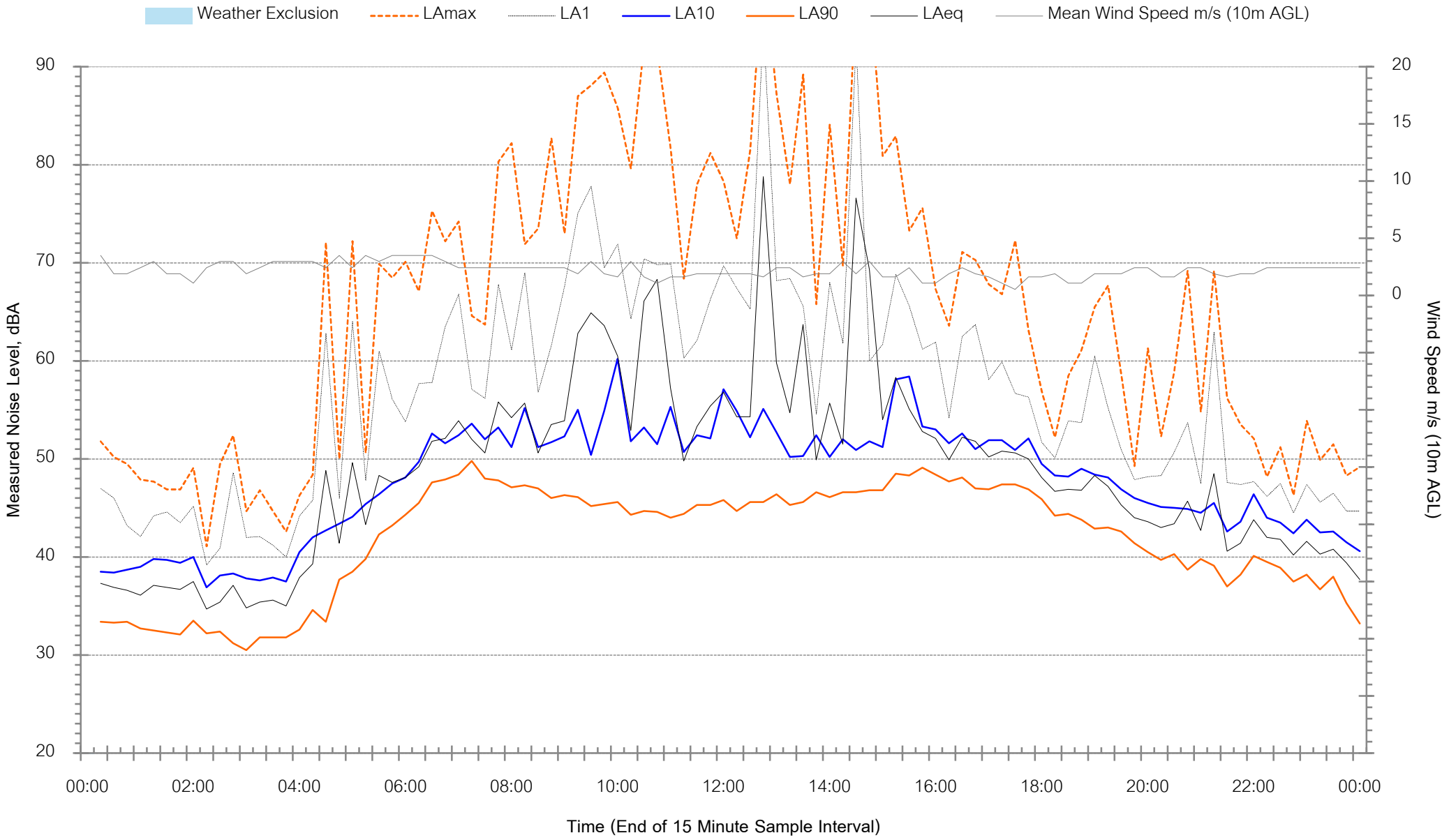
# Background Noise Levels

## IPD Terrey Hills, NSW - Tuesday 4 June 2024



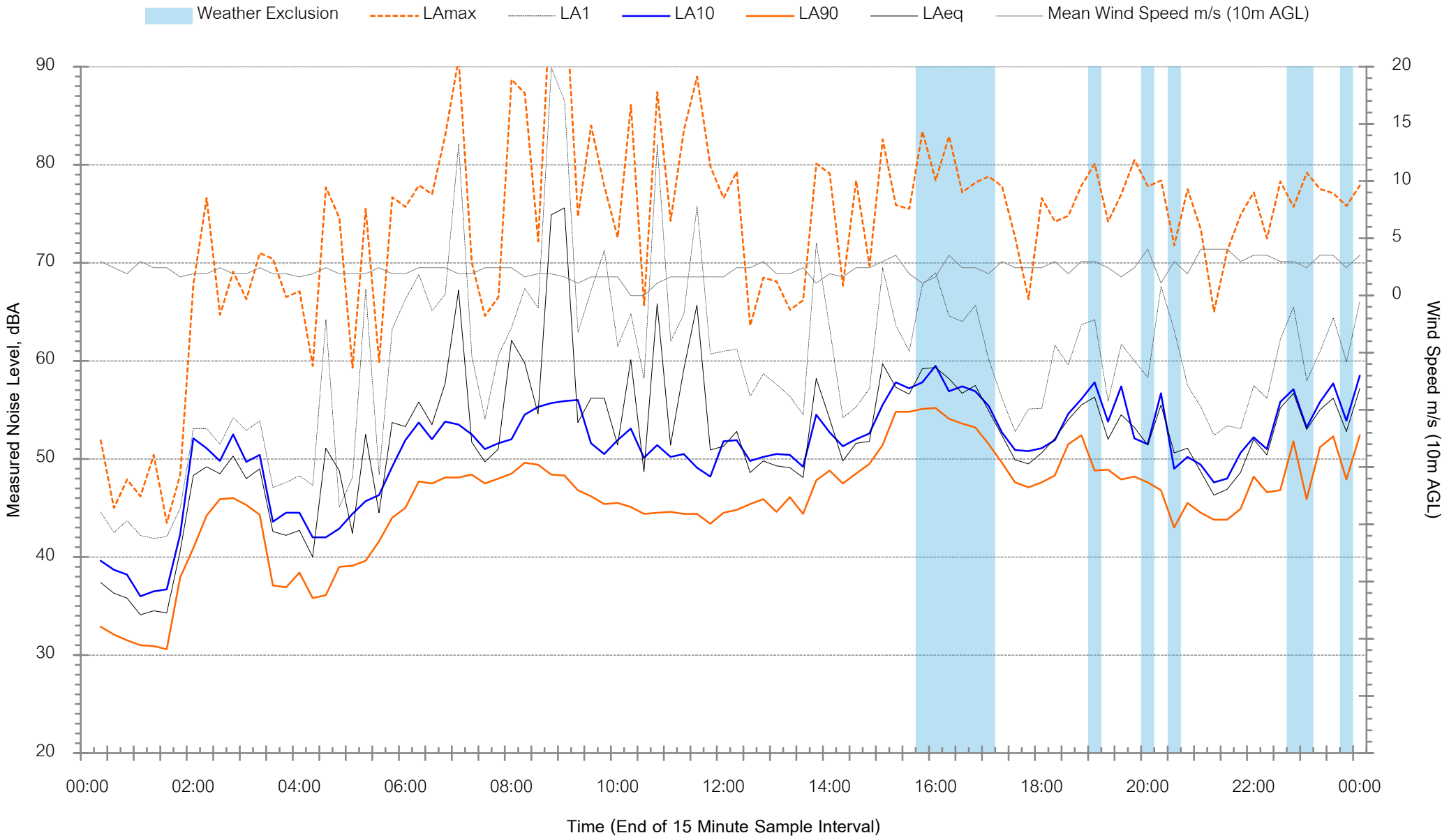
# Background Noise Levels

## IPD Terrey Hills, NSW - Wednesday 5 June 2024



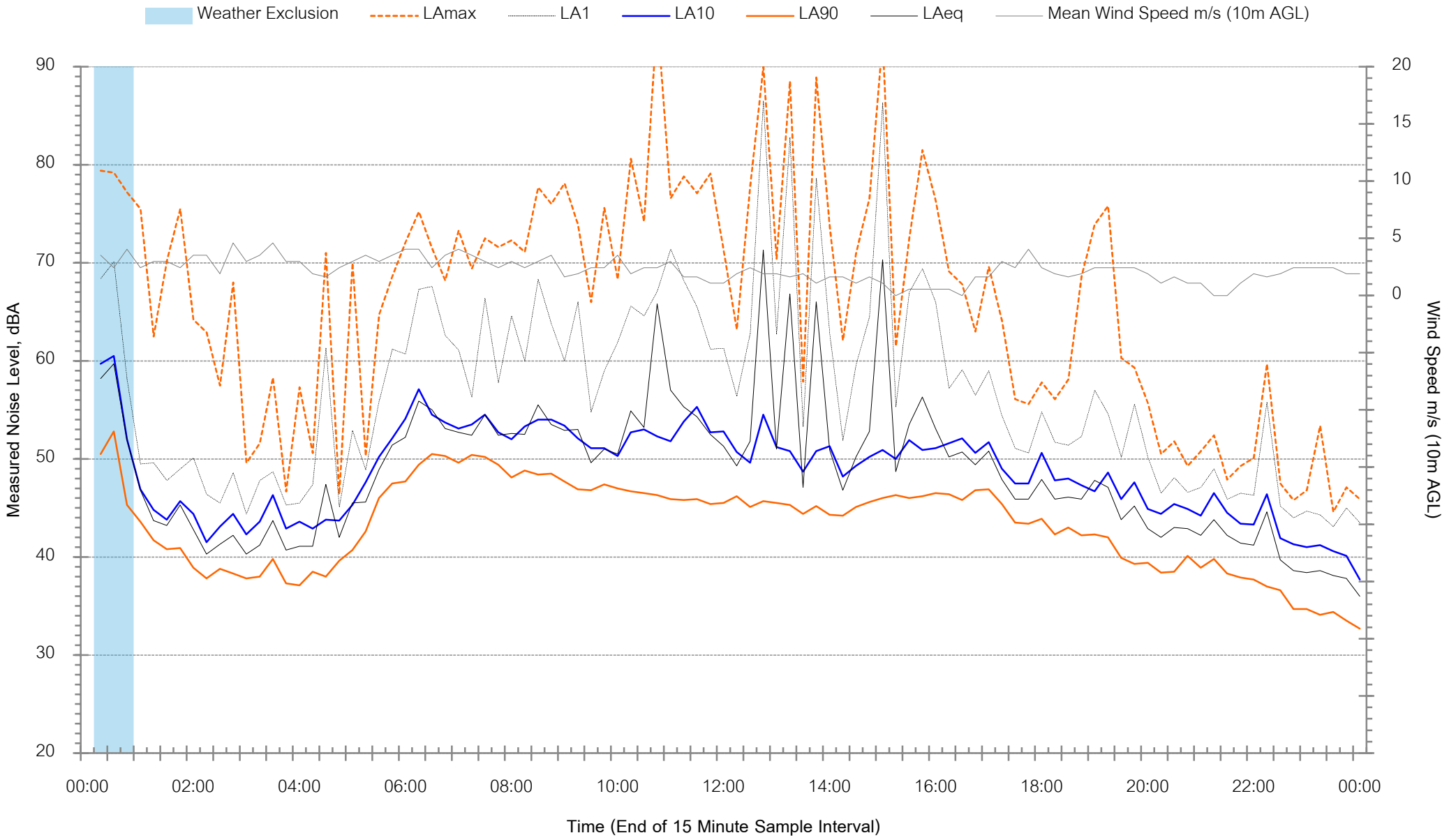
# Background Noise Levels

## IPD Terrey Hills, NSW - Thursday 6 June 2024



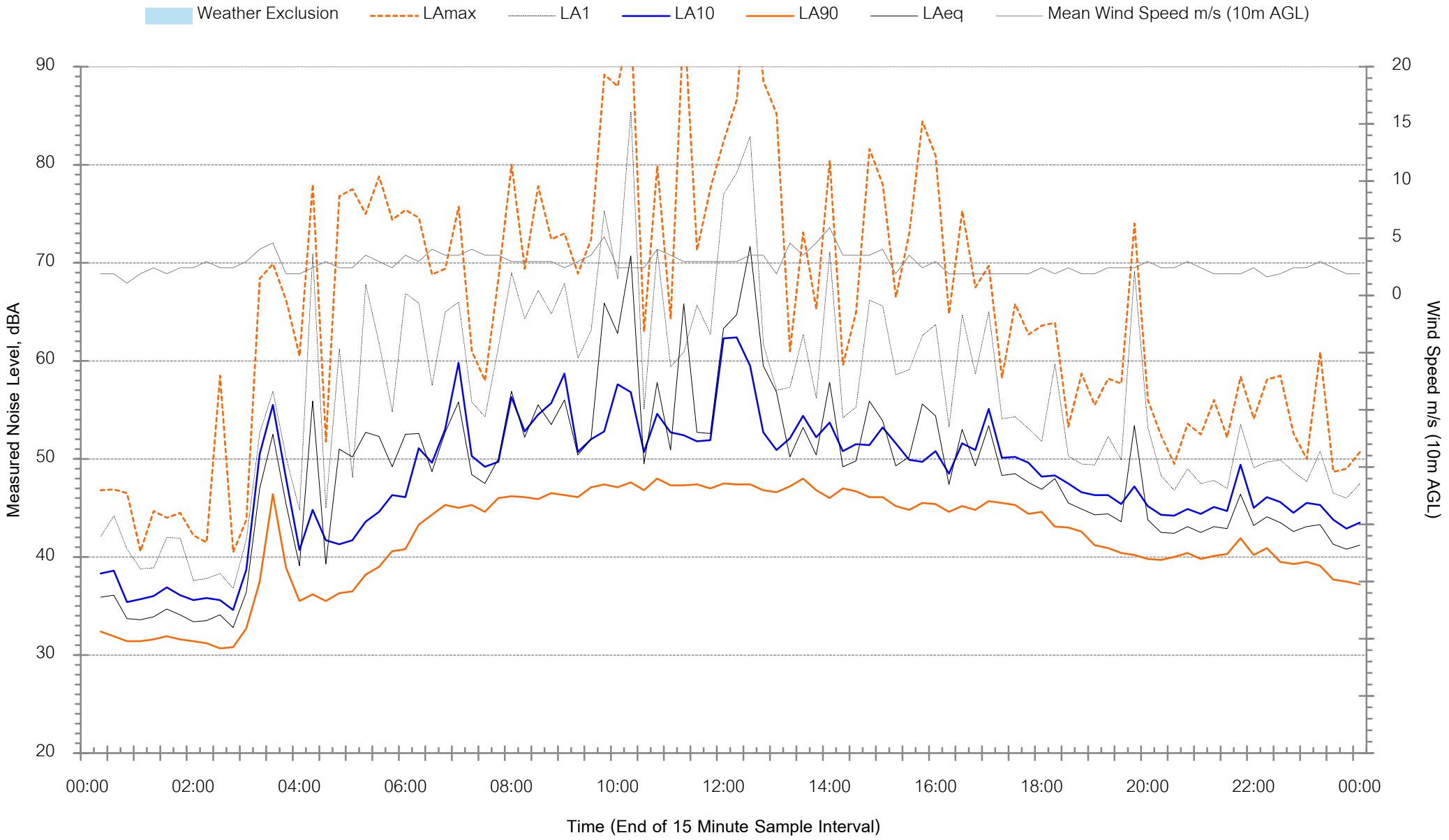
# Background Noise Levels

## IPD Terrey Hills, NSW - Friday 7 June 2024



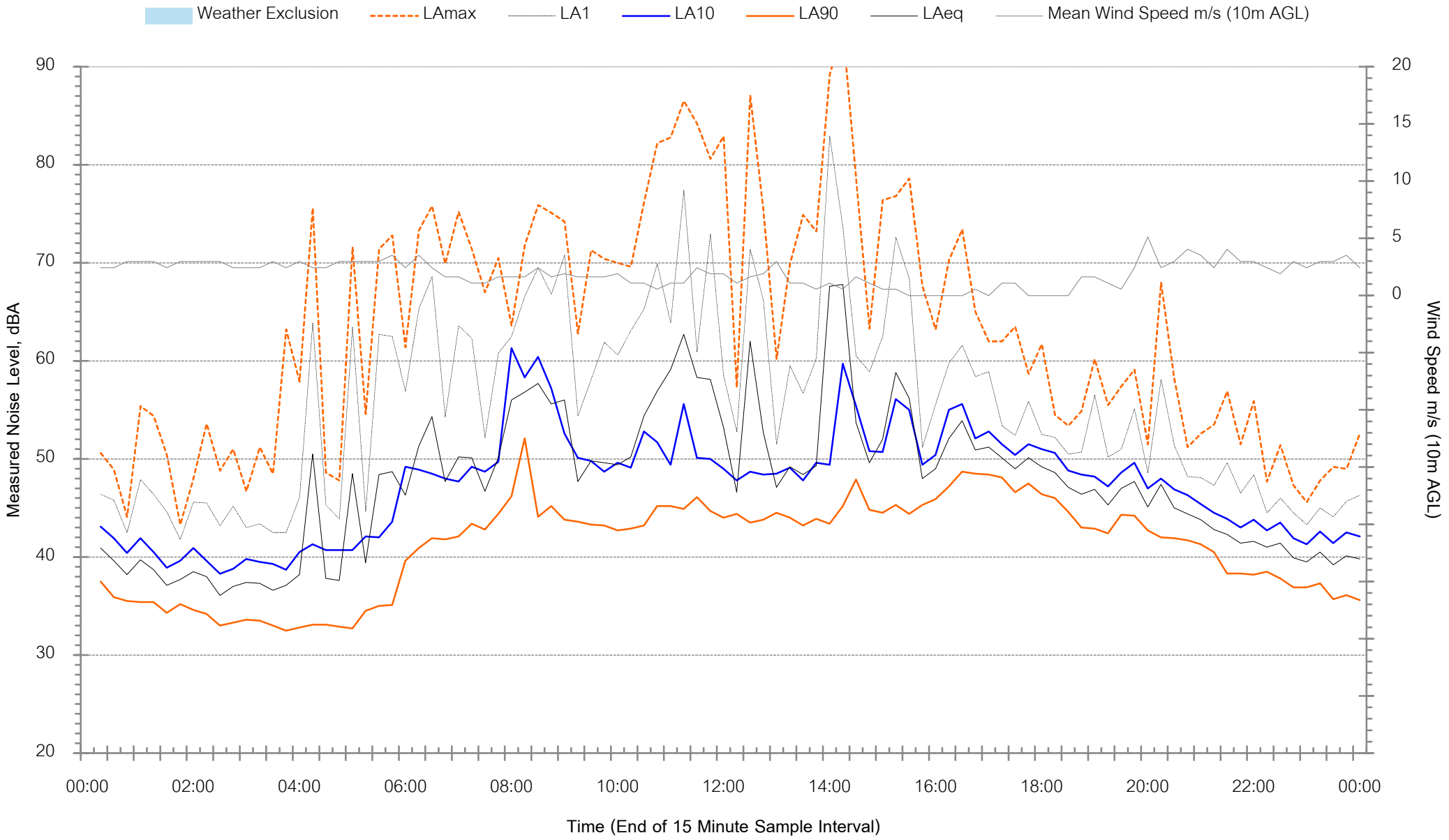
# Background Noise Levels

## IPD Terrey Hills, NSW - Saturday 8 June 2024



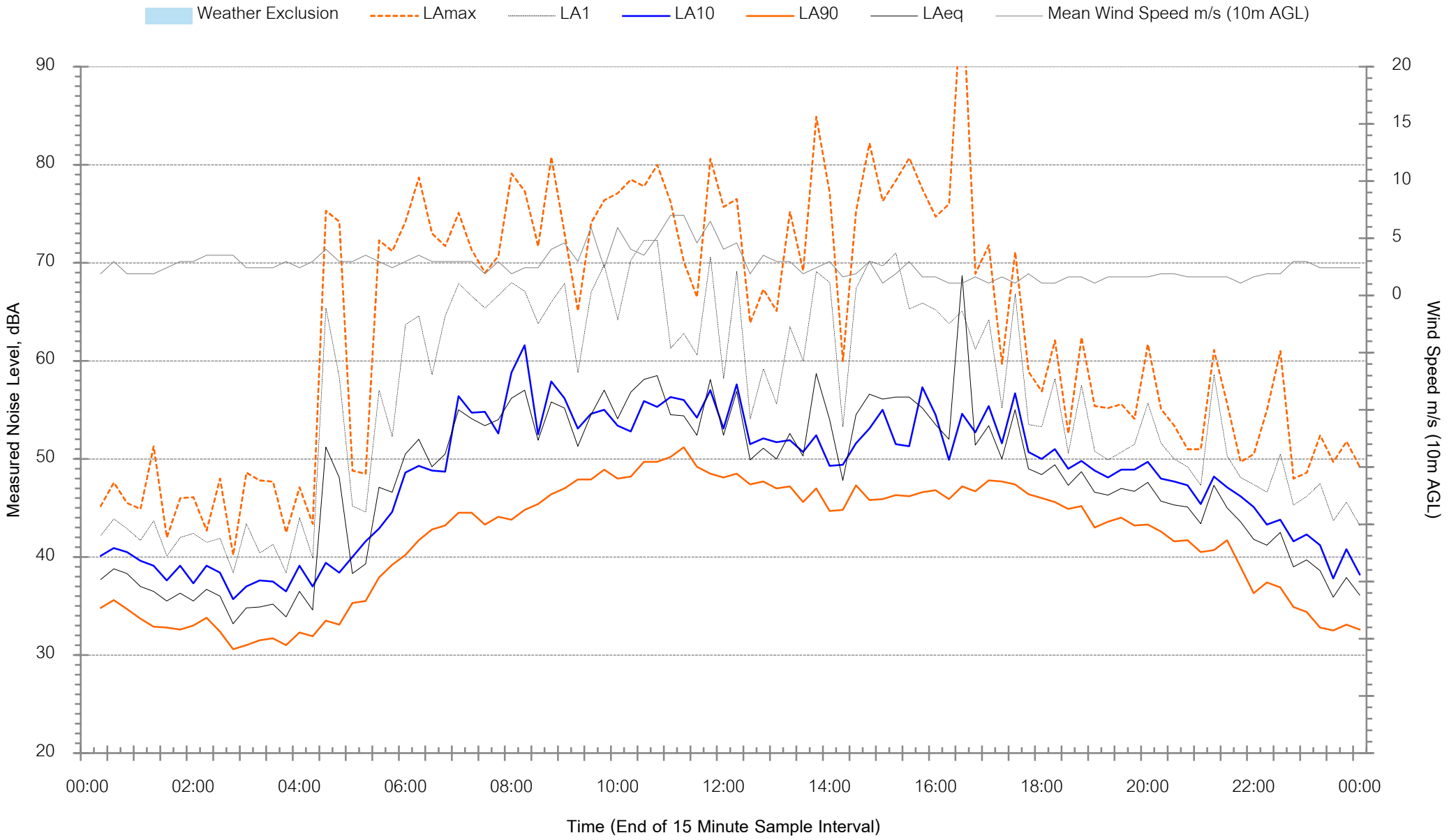
# Background Noise Levels

## IPD Terrey Hills, NSW - Sunday 9 June 2024



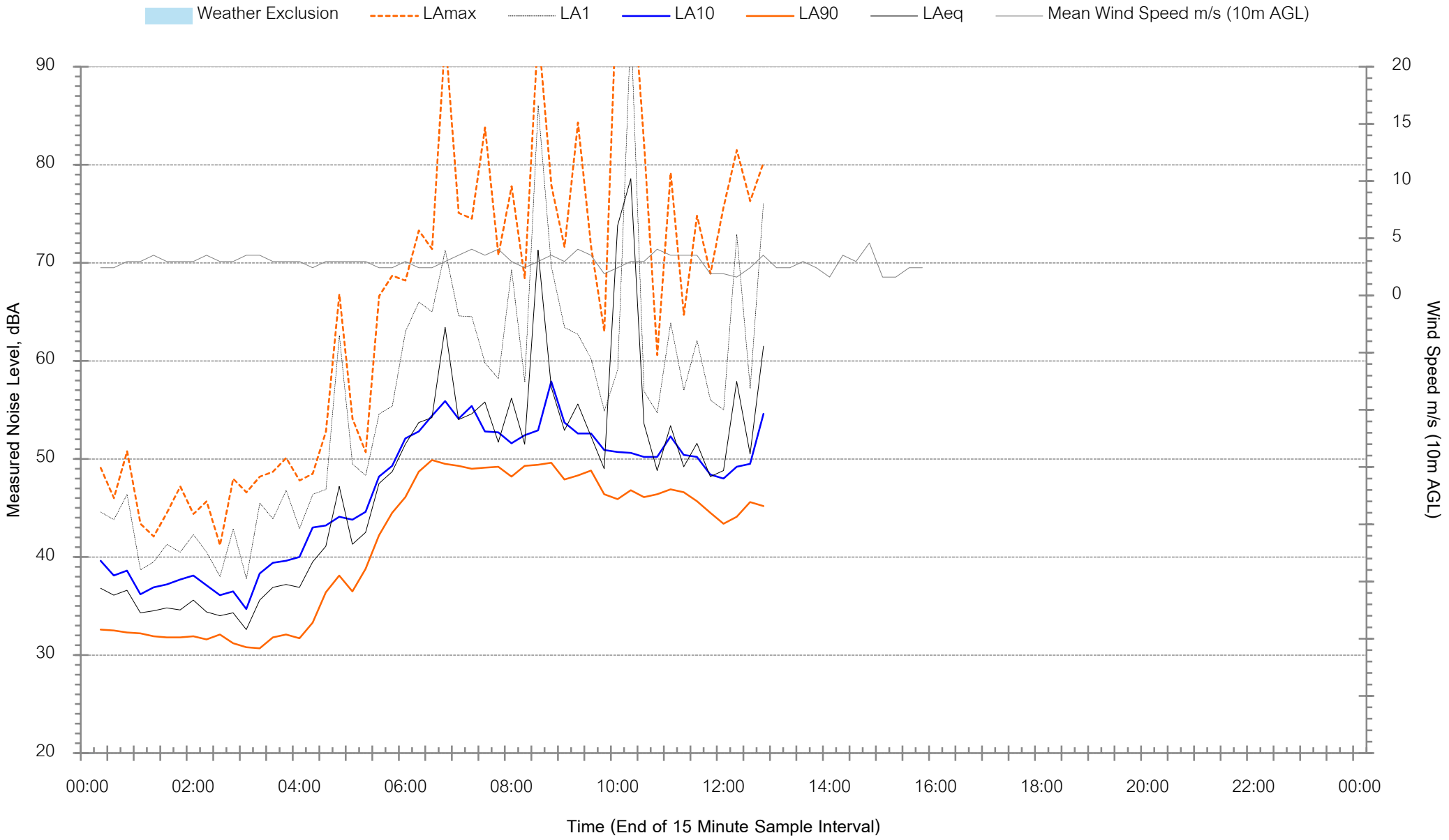
# Background Noise Levels

## IPD Terrey Hills, NSW - Monday 10 June 2024



# Background Noise Levels

## IPD Terrey Hills, NSW - Tuesday 11 June 2024



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# Appendix D – Determination of NPI

# Receiver Category

## Table D25 - Determination of NPI Residential Receiver Category

| Location/ Catchment | Period | Measured RBL dB $L_{A90(period)}$ | Land Use Zone: RU1, RU2, RU4, R5, E4 (Rural) | Land Use Zone: RU5, RU6, R2, R3, R4, E2, E3 (Suburban) | Land Use Zone: R1, R4, B1, B2, B4 (Urban) | Land Use Zone: Others (Commercial, Industrial) | Typical Existing Background Noise Levels Table 2.3 NPI: RURAL Daytime <40 Eve <35 Night <30 | SUBURBAN Daytime <45 Eve <40 Night <35 | URBAN Daytime >45 Eve >40 Night >35 | Rural Residential - an area with an acoustical environment that: is dominated by natural sounds. | having little or no road traffic noise | generally characterised by low background noise levels. | Settlement patterns would be typically sparse | Suburban Residential - an area that has: local traffic with characteristically intermittent traffic flows | or with some limited commerce or industry. | evening ambient noise levels defined by the natural environment and human activity. | Urban Residential- an area with an acoustical environment that: is dominated by 'urban hum' or industrial source noise | has through-traffic with characteristically heavy and continuous traffic flows during peak . . | is near commercial districts or industrial districts | has any combination of the above |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location 1 | Day | 45 | | | | ✓ | | | ✓ | | | | | | | | | ✓ | ✓ | |
| | Evening | 40 | | | | ✓ | | | ✓ | | | | | | | | | ✓ | ✓ | |
| | Night | 33 | | | | ✓ | | ✓ | | | | | | | | | | ✓ | ✓ | |

where urban hum means the aggregate sound of many unidentifiable, mostly traffic and/or industrial related sound sources

### Assessment

| Location | Rural | Suburban | Urban | Rural - RBL | Suburban - RBL | Urban - RBL | Rural - Description | | | | Suburban - Description | | | Urban - Description | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location 1 | 0 | 1 | **8** | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 |

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Muller Acoustic Consulting