# ACOUSTIC REPORT

## FOR

# PROPOSED WEDDING VENUE

**13 January 2025**

**AES-890339-R01-1-13012025**

**Acoustic Engineering Solutions**
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# EXECUTIVE SUMMARY

Acoustic Engineering Solutions (AES) has been commissioned by Planning Horizons to undertake environmental noise assessment of proposed wedding venue at Hasluck Homestead (1 Hasluck Circuit North Dandalup). The wedding venue will operate for 2 to 3 days a week between 2pm and midnight. The aim of this assessment is to determine whether or not the proposed wedding venue would comply with the Environmental Protection (Noise) Regulations 1997 (the Regulations).

In September 2023 an acoustic model was developed to assess noise impact of the proposed wedding venue[1] based on the preliminary site plan. Recently the site plan has been refined and a new 10m X 20m shed with 5m X 20m alfresco area was constructed to be used specially for the wedding venue. The acoustic model has accordingly been updated to reflect the revised site plan and the new shed.

Seven worst-case operational scenarios are modelled:

Scenario 1 represents the worst-case operation of mechanical plant.
Scenario 2 represents the worst-case patron conversations.
Scenario 3 represents the short events of cheering.
Scenario 4 represents the day/evening-time live music.
Scenario 4A represents the night-time live music.
Scenario 5 represents the short events of delivery activities.
Scenario 6 represents the short events of car door closing.

The subject site is located in a rural area. Nine closest residences are selected for the detailed assessments of noise impact. Noise levels are predicted for the default "worst-case" meteorological conditions. The predicted worst-case noise levels are adjusted to account for their dominant characteristics and then assessed against the criteria set by the Regulations. The compliance assessment concludes that full compliance is achieved for the proposed wedding venue.

[1] Acoustic report for proposed wedding venue, AES Report (Report NO: AES-890339-R01-0-05092023), 5 September 2023.

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# 1.0 INTRODUCTION

Acoustic Engineering Solutions (AES) has been commissioned by Planning Horizons to undertake environmental noise impact assessment of a proposed wedding venue at Hasluck Homestead. The objective of the assessment is to determine whether or not the proposed wedding venue would comply with the Environmental Protection (Noise) Regulations 1997.

In September 2023 an acoustic model was developed to assess noise impact of the proposed wedding venue[2] based on the preliminary site plan. Recently the site plan has been refined and a new 10m X 20m shed with 5m X 20m alfresco area was constructed to be used specially for the wedding venue. The acoustic model has accordingly been updated to reflect the revised site plan and the new shed.

## 1.1 HASLUCK HOMESTEAD

Hasluck Homestead is located at 1 Hasluck Circuit North Dandalup. Figure 1 in APPENDIX A presents an aerial view of the subject site and surrounding area including nine closest residences.

Figure 2 in APPENDIX A presents the revised site layout. Driveway access is via Hasluck Circuit to the west. A new 10m X 20m shed with 5m X 20m alfresco area is built to the north-east of the dam, as shown in Figure 3. The new shed has:

- Colorbond roof and ceiling;
- Colorbond walls (outer skins);
- Bradford R2.5 insulation in the ceiling and wall cavities;
- 10mm standard plasterboards for internal walls and ceiling;
- Four sliding glass doors of 6.5mm Clear HUSH Laminated; and
- A personal (35mm timber) door.

No air-conditioning unit and wall/ceiling-mounted cooling/ventilation fans are installed for the shed, but industrial pedestal fans may be used if required.

Food is cooked off site and then trucked to the shed with beverages. The loading area is located to the southeast of the shed.

Wedding ceremony holds outdoors (in the alfresco area) by the dam during the day. Live music will play inside the shed. Food and drinks are served inside the shed.

The wedding venue is proposed to have a maximum capacity of 100 patrons and operates 2 to 3 days a week between 2pm and midnight.

Transportable toilets with AUT are located (close) to the east of the new shed. A car parking area of 50 bays is located at about 60m to the south-east of the new shed.

[2] Acoustic report for proposed wedding venue, AES Report (Report NO: AES-890339-R01-0-05092023), 5 September 2023.

# 2.0 NOISE CRITERIA

Noise management in Western Australia is implemented through the Environmental Protection (Noise) Regulations 1997 (the Regulations). The Regulations set noise limits which are the highest noise levels that can be received at noise-sensitive (residential), commercial and industrial premises. These noise limits are defined as 'assigned noise levels' at receiver locations. Regulation 7 requires that "noise emitted from any premises or public place when received at other premises must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind".

Table 2-1 presents the assigned noise levels at various premises.

**Table 2-1: Assigned noise levels in dB(A)**

| Type of Premises Receiving Noise | Time of Day | Assigned Noise Levels in dB(A)[3] | | |
|---|---|---|---|---|
| | | $L_{A10}$ | $L_{A1}$ | $L_{Amax}$ |
| Noise sensitive premises: highly sensitive area | 0700 to 1900 hours Monday to Saturday | 45 + Influencing factor | 55 + Influencing factor | 65 + Influencing factor |
| | 0900 to 1900 hours Sunday and public holidays | 40 + Influencing factor | 50 + Influencing factor | 65 + Influencing factor |
| | 1900 to 2200 hours all days | 40 + Influencing factor | 50 + Influencing factor | 55 + Influencing factor |
| | 2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays | 35 + Influencing factor | 45 + Influencing factor | 55 + Influencing factor |
| Noise sensitive premises: any area other than highly sensitive area | All hours | 60 | 75 | 80 |
| Commercial premises | All hours | 60 | 75 | 80 |

For highly noise sensitive premises, an "influencing factor" is incorporated into the assigned noise levels. The influencing factor depends on road classification and land use zonings within circles of 100 metres and 450 metres radius from the noise receiver locations.

[3] Assigned level $L_{A1}$ is the A-weighted noise level not to be exceeded for 1% of a delegated assessment period.
Assigned level $L_{A10}$ is the A-weighted noise level not to be exceeded for 10% of a delegated assessment period.
Assigned level $L_{Amax}$ is the A-weighted noise level not to be exceeded at any time.

## 2.1 CORRECTIONS FOR CHARACTERISTICS OF NOISE

Regulation 7 requires that that "noise emitted from any premises or public place when received at other premises must be free of:

(i) tonality;
(ii) impulsiveness; and
(iii) modulation.

when assessed under Regulation 9".

If the noise exhibits intrusive or dominant characteristics, i.e. if the noise is impulsive, tonal, or modulating, noise levels at noise-sensitive premises must be adjusted. Table 2-2 presents the adjustments incurred for noise exhibiting dominant characteristics. That is, if the noise is assessed as having tonal, modulating or impulsive characteristics, the measured or predicted noise levels have to be adjusted by the amounts given in Table 2-2. Then the adjusted noise levels must comply with the assigned noise levels. Regulation 9 sets out objective tests to assess whether the noise is taken to be free of these characteristics.

**Table 2-2: Adjustments for dominant noise characteristics**

| Adjustment where noise emission is not music. These adjustments are cumulative to a maximum of 15 dB. | | | Adjustment where noise emission is music | |
|---|---|---|---|---|
| Where tonality is present | Where Modulation is present | Where Impulsiveness is present | Where Impulsiveness is not present | Where Impulsiveness is present |
| +5 dB | +5 dB | +10 dB | +10 dB | +15 dB |

## 2.2 VEHICLE NOISE

Regulation 3(a) states that *nothing in these regulations applies to the following noise emissions —*

*(a) Noise emissions from the propulsion and braking systems of motor vehicles operating on a road.*

If it is open to public, a car park is considered to be a road and therefore vehicle noise (propulsion and braking) is not strictly assessed. However, noise from car door closing still requires assessment, as this does not form part of the propulsion or braking systems.

## 2.3 INFLUENCING FACTOR

The noise sensitive premises surrounding the subject site are residences. Nine closest residences are selected for the detailed assessment of noise impacts, as shown in Figure 1 in

APPENDIX A.

Influencing factor varies from residence to residence depending on the surrounding land use. Traffic flows on roads in the vicinity of the selected receivers are insufficient for any of the roads to be classified as either major or secondary roads. No commercial and industrial zones are presented in the vicinity (within 450m in radius) of the selected residences. Therefore, the influencing factors are zeros for all of the selected residences.

# 3.0 NOISE MODELLING

## 3.1 METHODOLOGY

An acoustic model has been developed using SoundPlan v8.0 program and the ISO 9613 prediction algorithms are selected for this study. The acoustic model is used to predict noise levels at the selected receiver locations and generate noise level contours for the area surrounding the subject site.

The acoustic model does not include noise emissions from any sources other than from the subject site. Therefore, noise emissions from neighbouring premises, aircraft, road traffic, birds, dog barking, etc are excluded from the modelling.

## 3.2 INPUT DATA

### 3.2.1 Topography

The ground elevation contours of the subject site and surrounding area were obtained from Landgate. The dam is assumed to be reflective while the other area is absorptive.

The new shed onsite is digitised into the acoustic model. No other buildings and sheds are considered.

### 3.2.2 Noise Sensitive Premises

Nine closest residences are selected for the detailed assessment of noise impacts, as shown in Figure 1 in APPENDIX A. All of them are the ground receivers (1.5m above the ground).

The locations of R2 to R4 are different from the previous acoustic report[2] where R2 and R4 were incorrectly located at shed locations. R3 is a newly built house and more closer to the subject site.

### 3.2.3 Source Sound Power Levels

Table 3-1 presents the sources sound power levels. The sound power levels of mechanical plant are obtained from the AES database measured for similar equipment. The sound power level of a patron conversation with raised voice after a few drinks is calculated based on the assumption of raised voice[4]. The sound power level of a patron cheering is calculated based on the loud voice[4]. The sound power level of live music is the maximum allowable level for achieving compliance with the Regulations. The sound power level of car door closing is a $L_{Amax}$ level.

[4] Lazarus, H 1986, "Prediction of verbal communication in noise – a review: Part 1", *Applied Acoustics*, vol. 19, pp. 439-464.

**Table 3-1: Source sound power levels.**

| Equipment | Overall Sound Power Levels in dB(A) |
|---|---|
| **Toilet Vent** | 62 |
| **Industrial Pedestal Fan** | 86 |
| **Patron Conversation with Raised Voice** | 74 |
| **Patron Cheering** | 80 |
| **Refrigeration Unit of Delivery Truck** | 88 |
| **Live Music** | 94 |
| **Vehicle Door Closing $L_{Amax}$** | 88 |

## 3.3 METEOROLOGY

SoundPlan calculates noise levels for defined meteorological conditions. In particular, temperature, relative humidity, wind speed and direction data are required as input to the model. For this study the default "worst-case" meteorological conditions[5] are assumed, as shown in Table 3-2.

**Table 3-2: Worst-case meteorological conditions.**

| Time of day | Temperature Celsius | Relative Humidity | Wind speed | Wind Direction |
|---|---|---|---|---|
| **Day (0700 --- 1900)** | $20^0$ Celsius | 50% | ≤5 m/s | All |
| **Evening (1900 --- 2200)** | $15^0$ Celsius | 50% | ≤5 m/s | All |
| **Night (1900 --- 2200)** | $15^0$ Celsius | 50% | ≤5 m/s | All |

## 3.4 NOISE MODELLING SCENARIOS

Planning Horizons advised:

[5] Guideline: Assessment of Environmental Noise Emissions, Draft for Consultation, May 2021.

- The wedding venue operates 2 to 3 days a week between 2pm and midnight.
- The maximum capacity is 100.
- A new 10m X 20m shed with 5m X 20m alfresco area was built to the north-east of the dam, as shown in Figure 3 in APPENDIX A.
- The new shed has 4 sliding glass doors of 6.5mm Clear HUSH Laminated and a personal (35mm timber) door. All of the doors are open during the day and evening but closed during the night (after 10 pm) if live music plays.
- No air-conditioner, cooling and ventilation fans are installed for the shed, but industrial pedestal fans may be used if required.
- Food is cooked off site and then trucked to the site with beverages.
- Food and drinks are to be served inside the shed.
- Transportable toilets with AUT are located (close) to the east of the new shed.
- Wedding ceremony holds outdoors (in the alfresco area) by the dam during the day.
- Live music will play inside the shed.
- Truck deliveries occur before 2pm for food and beverages. During the unloading, the engine of delivery truck is switched off.
- Car park bays are available onsite. Site is accessed via Hasluck Road.

Based on the provided information, seven worst-case operational scenarios are modelled as followings:

Scenario 1: All of the mechanical plant onsite operate simultaneously:

- Two toilet vents; and
- Four industrial pedestal fans inside the shed.

Scenario 2: 40% of the 100 patrons (maximum capacity) converse simultaneously in raised-voices. For the worst-case conversations,

- 30% of conversations (12) are assumed to be inside the shed; and
- 70% of conversations (28) happen outdoors (in the alfresco area and close surrounding).

Scenario 3: All of (100) patrons are cheering simultaneously outdoors (in the alfresco area and close surrounding) following the announcement of the completion of the ceremony, signing the register, conclusion of each speech, cutting the cake etc. This scenario represents short events.

Scenario 4: Live (DJ) music plays inside the shed with all shed doors open. This scenario is for the day and the evening (before 10pm).

Scenario 4A: Live (DJ) music plays inside the shed with all shed doors closed. This scenario is for the night (after 10pm).

Scenario 5: Scenario 1 plus the operation of refrigeration unit of delivery vehicle in the loading area when delivering foods. The engine of delivery vehicle is assumed to be switched off.

Scenario 6: A car door is closed at the car-parking area. This scenario represents very short events.

For scenarios 1, 2, 4 and 5, all of the shed doors are assumed to be fully open. But for scenario 4A, all of the shed doors are assumed to be fully closed.

For scenarios 1 to 5, the worst-case (extreme) conditions are assumed:

- Four industrial pedestal fans are assumed to operate inside the shed. Normally they are NOT operated.
- 40% of patrons are assumed to talk simultaneously in raised voices.
- Everybody cheers simultaneously in loud voice outdoors.
- Live DJ music spectrum is assumed. DJ music has higher low-frequency components compared with other types of live music.

Scenario 3 does not happen during the night.

The delivery truck engine is switched off during its unloading but its refrigeration unit operates. Scenario 5 is a day-time scenario and assumed that the delivery occurs during the worst-case operation of onsite mechanical plant. As advised, unloading a food truck take within <20 minutes. Scenario 5 lasts less than 10% of any 4-hour period during the day only.

For scenario 6, car-door closing is modelled as a point source. The barrier effect of car bodies in the surrounding area is not considered in the model and the predicted noise levels will be higher than the actual levels in the car body shadow areas.

# 4.0 MODELLING RESULTS

## 4.1 POINT MODELLING RESULTS

Table 4-1 presents the predicted worst-case A-weighted noise levels. Scenario 3 does not happen during the night and scenario 5 is a day-time scenario. For scenarios 1 to 4 and 6, the predicted evening/night-time noise levels are at similar levels as the predicted day-time noise levels at the selected residences. For scenario 6, the predicted noise levels are in $L_{AMax}$ levels. The highest noise level is predicted at R3 for all of the scenarios.

**Table 4-1: Predicted worst-case noise levels in dB(A).**

| Receivers | S1 | | S2 | | S3 | | S4 | | S4A | S5 | S6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Night | Day | Night | Day | Evening | Day | Evening | Night | Day | Day | Night |
| R1 | 13.7 | 13.5 | 17.6 | 17.5 | 29.6 | 29.5 | 16.1 | 16.1 | 4.7 | 16.3 | 21.5 | 21.5 |
| R2 | 22.1 | 21.9 | 23.7 | 23.7 | 36.1 | 36.0 | 24.6 | 24.5 | 4.6 | 26.5 | 20.2 | 20.2 |
| R3 | 26.7 | 26.6 | 29.2 | 29.1 | 40.8 | 40.6 | 29.3 | 29.3 | 8.4 | 30.8 | 24.2 | 24.2 |
| R4 | 21.2 | 21.1 | 23.7 | 23.7 | 34.1 | 34.0 | 24.0 | 23.9 | 3.3 | 25.3 | 20.2 | 20.2 |
| R5 | 20.6 | 20.5 | 21.2 | 21.2 | 32.9 | 32.8 | 23.0 | 22.9 | 2.5 | 25.9 | 22.2 | 22.2 |
| R6 | 17.0 | 16.8 | 16.0 | 16.0 | 27.4 | 27.3 | 19.3 | 19.3 | 0.0 | 22.3 | 19.5 | 19.5 |
| R7 | 16.2 | 16.1 | 17.6 | 17.5 | 29.6 | 29.5 | 18.6 | 18.6 | 2.0 | 24.5 | 23.3 | 23.2 |
| R8 | 16.6 | 16.5 | 16.8 | 16.8 | 28.3 | 28.2 | 18.9 | 18.9 | 2.6 | 25.4 | 23.6 | 23.6 |
| R9 | 16.0 | 15.9 | 15.4 | 15.4 | 26.5 | 26.4 | 18.3 | 18.3 | 2.2 | 24.8 | 22.4 | 22.4 |

## 4.2 NOISE CONTOURS

Figure 4 to Figure 10 in APPENDIX B present the worst-case noise level contours at 1.5m above the ground. These noise contours represent the worst-case noise propagation envelopes, i.e., worst-case propagation in all directions simultaneously.

Since the predicted day and evening/night-time noise levels are at similar levels, the noise contours in Figure 4 to Figure 7 and Figure 10 represent the worst-case day, evening and night-time noise propagation envelopes.

Figure 10 presents the noise level $L_{AMax}$ contours.

# 5.0 COMPLIANCE ASSESSMENT

## 5.1 TONALITY ADJUSTMENT

According to Table 2-2, the predicted noise levels shown in Table 4-1 should be adjusted by:

- 5 dB if the noise received exhibits tonality; or
- 10 dB if the noise received is music; or
- 10 dB if the noise received exhibits impulsiveness.

Mechanical plant may radiate tonal components while patron conversations and cheering do not exhibit any dominant characteristics. Therefore, a 5dB tonality adjustment applies to the predicted noise levels for scenarios 1 and 5. No adjustment is required for the predicted noise levels in scenarios 2 and 3.

Scenarios 4 and 4A consider live music only. Therefore, a 10 adjustment applies to the predicted music levels.

Scenario 6 considers the car-door closing noise only. Car-door closing noise may exhibit implusiveness and a 10dB adjustment applies to the predicted noise levels for scenario 6.

Table 5-1 presents the adjusted worst-case A-weighted noise levels. The adjusted noise levels are expressed in ***Bold Italic***.

**Table 5-1: Adjusted worst-case noise levels in dB(A).**

| Receivers | S1 | | S2 | | S3 | | S4 | | S4A | S5 | S6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Night | Day | Night | Day | Evening | Day | Evening | Night | Day | Day | Night |
| R1 | ***18.7*** | ***18.5*** | 17.6 | 17.5 | 29.6 | 29.5 | ***26.1*** | ***26.1*** | ***14.7*** | ***21.3*** | ***31.5*** | ***31.5*** |
| R2 | ***27.1*** | ***26.9*** | 23.7 | 23.7 | 36.1 | 36.0 | ***34.6*** | ***34.5*** | ***14.6*** | ***31.5*** | ***30.2*** | ***30.2*** |
| R3 | ***31.7*** | ***31.6*** | 29.2 | 29.1 | 40.8 | 40.6 | ***39.3*** | ***39.3*** | ***18.4*** | ***35.8*** | ***34.2*** | ***34.2*** |
| R4 | ***26.2*** | ***26.1*** | 23.7 | 23.7 | 34.1 | 34.0 | ***34.0*** | ***33.9*** | ***13.3*** | ***30.3*** | ***30.2*** | ***30.2*** |
| R5 | ***25.6*** | ***25.5*** | 21.2 | 21.2 | 32.9 | 32.8 | ***33.0*** | ***32.9*** | ***12.5*** | ***30.9*** | ***32.2*** | ***32.2*** |
| R6 | ***22.0*** | ***21.8*** | 16.0 | 16.0 | 27.4 | 27.3 | ***29.3*** | ***29.3*** | ***10.0*** | ***27.3*** | ***29.5*** | ***29.5*** |
| R7 | ***21.2*** | ***21.1*** | 17.6 | 17.5 | 29.6 | 29.5 | ***28.6*** | ***28.6*** | ***12.0*** | ***29.5*** | ***33.3*** | ***33.2*** |

| Receivers | S1 | | S2 | | S3 | | S4 | | S4A | S5 | S6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Night | Day | Night | Day | Evening | Day | Evening | Night | Day | Day | Night |
| R8 | ***21.6*** | ***21.5*** | 16.8 | 16.8 | 28.3 | 28.2 | ***28.9*** | ***28.9*** | ***12.6*** | ***30.4*** | ***33.6*** | ***33.6*** |
| R9 | ***21.0*** | ***20.9*** | 15.4 | 15.4 | 26.5 | 26.4 | ***28.3*** | ***28.3*** | ***12.2*** | ***29.8*** | ***32.4*** | ***32.4*** |

## 5.2 COMPLIANCE ASSESSMENT

Scenarios 1, 2, 4 and 4A generate continuous noise emissions and their noise emissions should be assessed against the assigned noise levels $L_{A10}$. As indicated in section 3.4, scenarios 3 and 5 represent short events (occurring in much less than 10% time of any 4-hour periods). Therefore, the assigned noise levels $L_{A1}$ apply.

Car door closing is a very short event. The noise emission from a car door closing is predicted in $L_{Amax}$ level and the assigned noise levels $L_{Amax}$ apply to scenario 6.

Food deliveries happen during the day only. Therefore, scenario 5 is not assessed for the evening and the night. Scenario 3 does not happen during the night and it will not be assessed for the night.

## 5.3 THE DAY

Table 2-1 shows that the assigned noise levels for the day of Sunday and public holidays are not greater than these of Monday to Saturday. The day-time compliance on Sunday and public holidays will guarantee the day-time compliance on Monday to Saturday.

Table 5-2 presents the day-time compliance assessments for Sunday and public holidays. It is shown that all of the adjusted noise levels are lower than the assigned noise levels at all of the closest residences. This demonstrates that the day-time compliance is achieved.

**Table 5-2: Day-time compliance assessment.**

| Receivers | Noise Limits $L_{A10}$ in dB(A) | Adjusted Noise Levels in dB(A) | | | Noise Limits $L_{A1}$ in dB(A) | Adjusted Noise Levels in dB(A) | | Noise Limits $L_{Amax}$ in dB(A) | $L_{Amax}$ in dB(A) |
|---|---|---|---|---|---|---|---|---|---|
| | | S1 | S2 | S4 | | S3 | S5 | | S6 |
| R1 | 40 | 18.7 | 17.6 | 26.1 | 50 | 29.6 | 21.3 | 65 | 31.5 |
| R2 | 40 | 27.1 | 23.7 | 34.6 | 50 | 36.1 | 31.5 | 65 | 30.2 |

| Receivers | Noise Limits $L_{A10}$ in dB(A) | Adjusted Noise Levels in dB(A) | | | Noise Limits $L_{A1}$ in dB(A) | Adjusted Noise Levels in dB(A) | | Noise Limits $L_{Amax}$ in dB(A) | $L_{Amax}$ in dB(A) |
|---|---|---|---|---|---|---|---|---|---|
| | | S1 | S2 | S4 | | S3 | S5 | | S6 |
| R3 | 40 | 31.7 | 29.2 | 39.3 | 50 | 40.8 | 35.8 | 65 | 34.2 |
| R4 | 40 | 26.2 | 23.7 | 34.0 | 50 | 34.1 | 30.3 | 65 | 30.2 |
| R5 | 40 | 25.6 | 21.2 | 33.0 | 50 | 32.9 | 30.9 | 65 | 32.2 |
| R6 | 40 | 22.0 | 16.0 | 29.3 | 50 | 27.4 | 27.3 | 65 | 29.5 |
| R7 | 40 | 21.2 | 17.6 | 28.6 | 50 | 29.6 | 29.5 | 65 | 33.3 |
| R8 | 40 | 21.6 | 16.8 | 28.9 | 50 | 28.3 | 30.4 | 65 | 33.6 |
| R9 | 40 | 21.0 | 15.4 | 28.3 | 50 | 26.5 | 29.8 | 65 | 32.4 |

## 5.4 THE EVENING

Table 5-3 presents the evening-time compliance assessments. It is shown that all of the adjusted noise levels are lower than the assigned noise levels at all of the closest residences. This demonstrates that the evening-time compliance is achieved.

**Table 5-3: Evening-time compliance assessment.**

| Receivers | Noise Limits $L_{A10}$ in dB(A) | Adjusted Levels in dB(A) | | | Noise Limits $L_{A1}$ in dB(A) | Adjusted in dB(A) | Noise Limits $L_{Amax}$ in dB(A) | $L_{Amax}$ in dB(A) |
|---|---|---|---|---|---|---|---|---|
| | | S1 | S2 | S4 | | S3 | | S6 |
| R1 | 40 | 18.5 | 17.5 | 26.1 | 50 | 29.5 | 55 | 31.5 |
| R2 | 40 | 26.9 | 23.7 | 34.5 | 50 | 36.0 | 55 | 30.2 |
| R3 | 40 | 31.6 | 29.1 | 39.3 | 50 | 40.6 | 55 | 34.2 |
| R4 | 40 | 26.1 | 23.7 | 33.9 | 50 | 34.0 | 55 | 30.2 |
| R5 | 40 | 25.5 | 21.2 | 32.9 | 50 | 32.8 | 55 | 32.2 |

| Receivers | Noise Limits $L_{A10}$ in dB(A) | Adjusted Levels in dB(A) | | | Noise Limits $L_{A1}$ in dB(A) | Adjusted in dB(A) | Noise Limits $L_{Amax}$ in dB(A) | $L_{Amax}$ in dB(A) |
|---|---|---|---|---|---|---|---|---|
| | | S1 | S2 | S4 | | S3 | | S6 |
| R6 | 40 | 21.8 | 16.0 | 29.3 | 50 | 27.3 | 55 | 29.5 |
| R7 | 40 | 21.1 | 17.5 | 28.6 | 50 | 29.5 | 55 | 33.2 |
| R8 | 40 | 21.5 | 16.8 | 28.9 | 50 | 28.2 | 55 | 33.6 |
| R9 | 40 | 20.9 | 15.4 | 28.3 | 50 | 26.4 | 55 | 32.4 |

## 5.5 THE NIGHT

Table 5-4 presents the night-time compliance assessments. It is shown that all of the adjusted noise levels are much lower than the assigned noise levels at all of the closest residences. This demonstrates that the night-time compliance is achieved.

**Table 5-4: Night-time compliance assessment.**

| Receivers | Assigned Noise Levels $L_{A10}$ in dB(A) | Adjusted Noise Levels in dB(A) | | | Assigned Noise Levels $L_{Amax}$ in dB(A) | $L_{Amax}$ in dB(A) |
|---|---|---|---|---|---|---|
| | | S1 | S2 | S4A | | S6 |
| R1 | 35 | 18.5 | 17.5 | 14.7 | 55 | 31.5 |
| R2 | 35 | 26.9 | 23.7 | 14.6 | 55 | 30.2 |
| R3 | 35 | 31.6 | 29.1 | 18.4 | 55 | 34.2 |
| R4 | 35 | 26.1 | 23.7 | 13.3 | 55 | 30.2 |
| R5 | 35 | 25.5 | 21.2 | 12.5 | 55 | 32.2 |
| R6 | 35 | 21.8 | 16.0 | 10.0 | 55 | 29.5 |
| R7 | 35 | 21.1 | 17.5 | 12.0 | 55 | 33.2 |
| R8 | 35 | 21.5 | 16.8 | 12.6 | 55 | 33.6 |

| Receivers | Assigned Noise Levels $L_{A10}$ in dB(A) | Adjusted Noise Levels in dB(A) | | | Assigned Noise Levels $L_{Amax}$ in dB(A) | $L_{Amax}$ in dB(A) |
|---|---|---|---|---|---|---|
| | | S1 | S2 | S4A | | S6 |
| **R9** | 35 | 20.9 | 15.4 | 12.2 | 55 | 32.4 |

The above assessments conclude that full compliance is achieved for the proposed wedding venue.

# APPENDIX A AERIAL VIEW

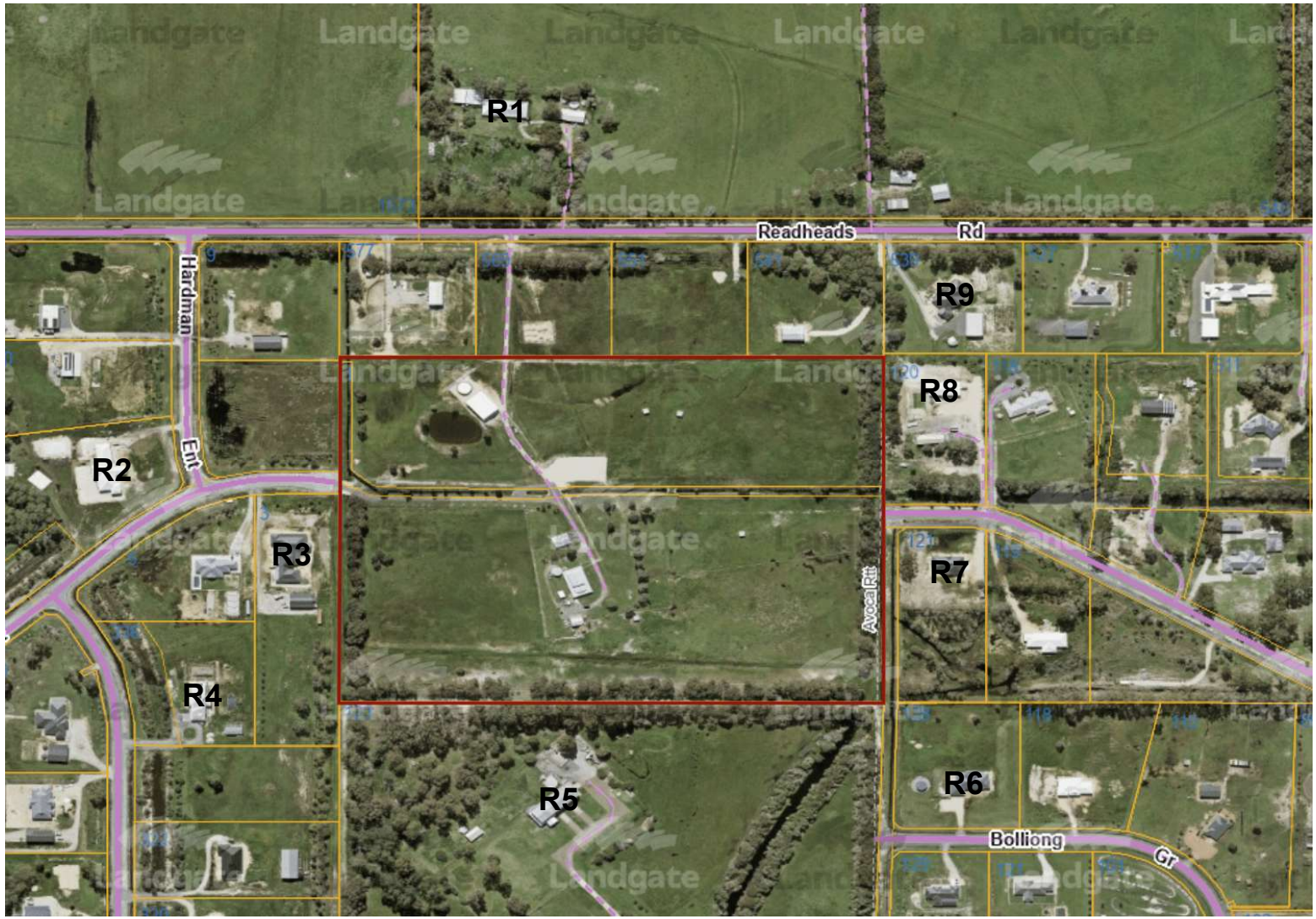


**Figure 1: Aerial view of the subject site and surrounding area.**

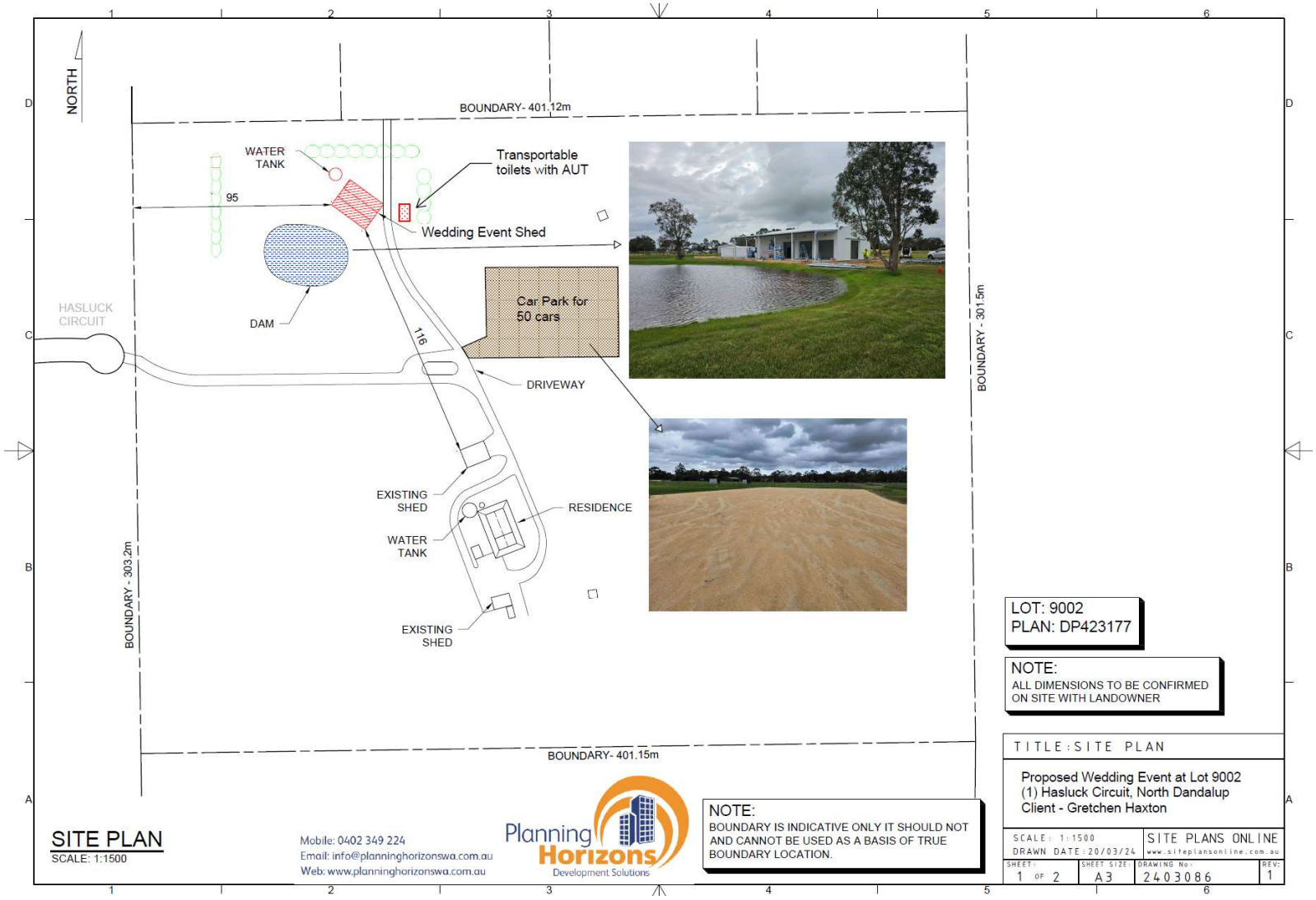


**Figure 2: Site plan.**

**Figure 3: Photo of the new shed.**

# APPENDIX B NOISE CONTOURS

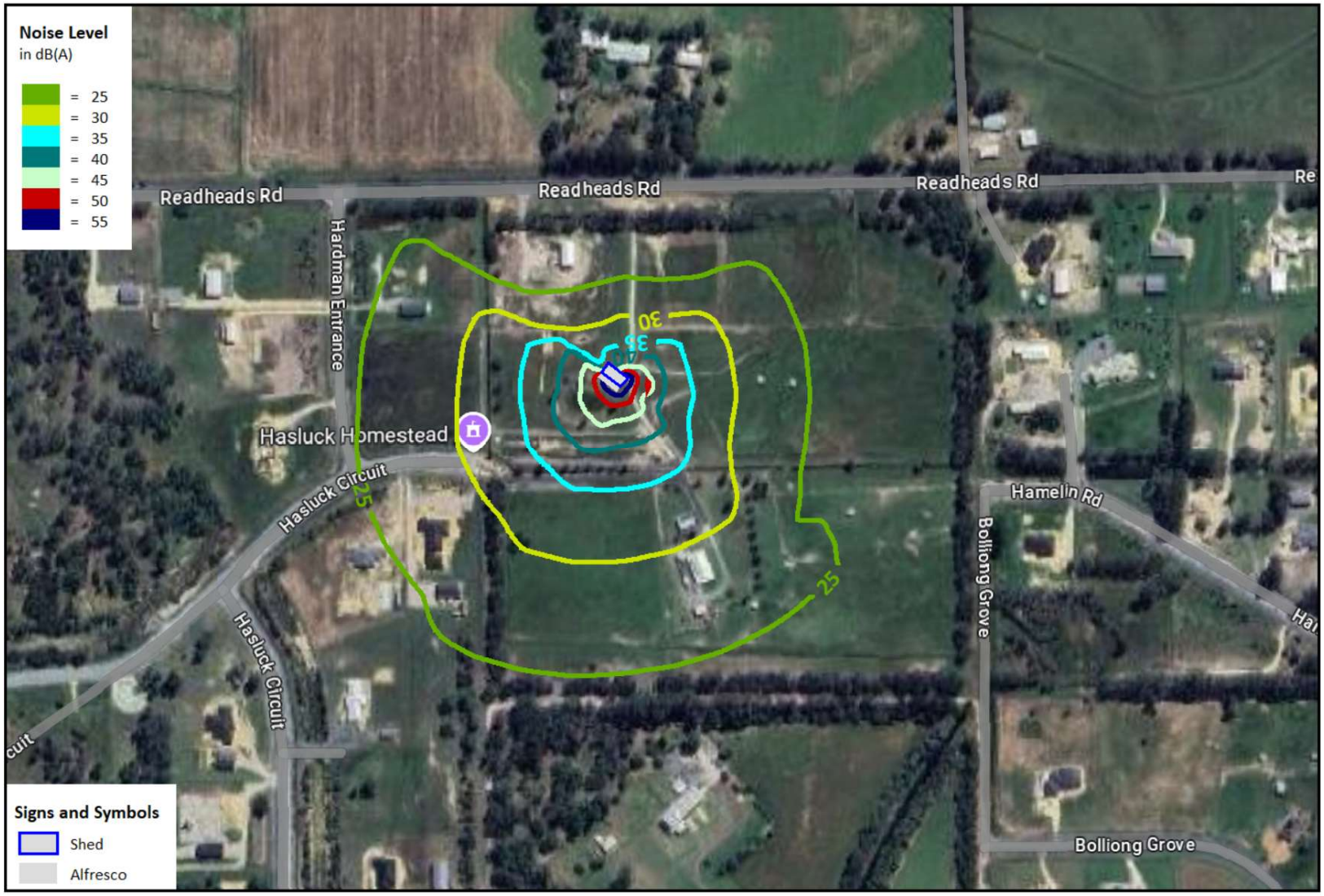


**Figure 4: Worst-case noise level contours for scenario 1.**

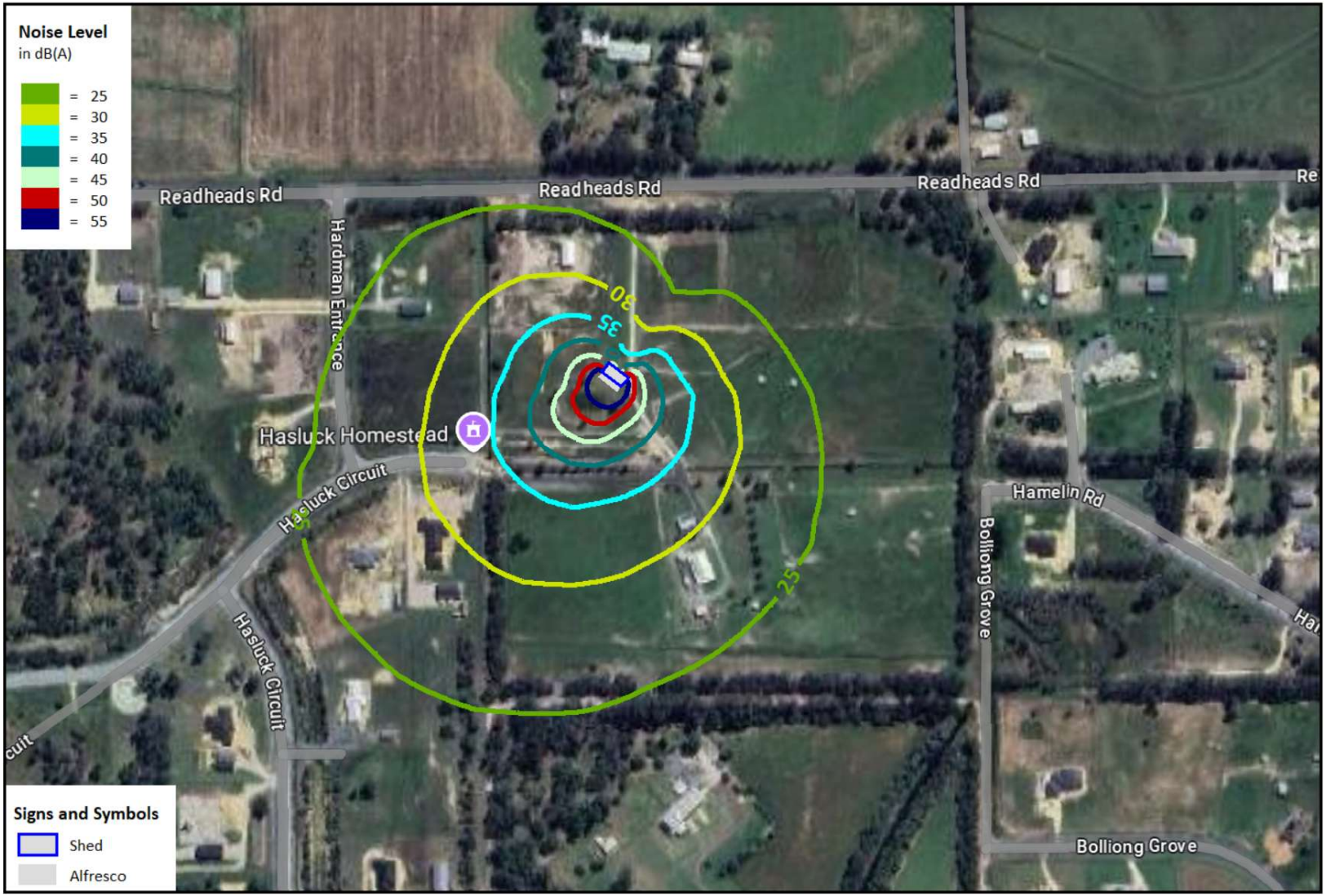


**Figure 5: Worst-case noise level contours for scenario 2.**

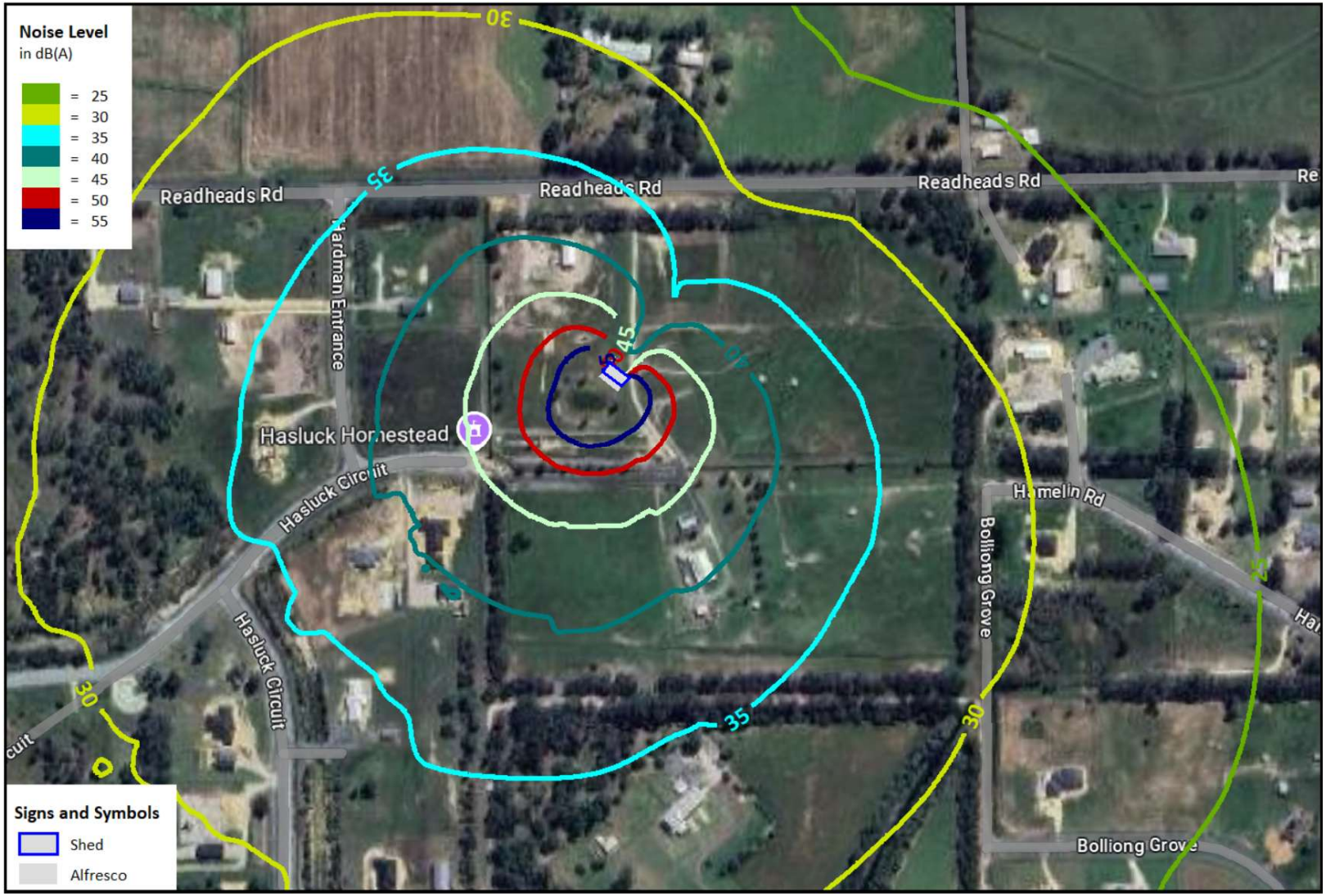


**Figure 6: Worst-case noise level contours for scenario 3.**

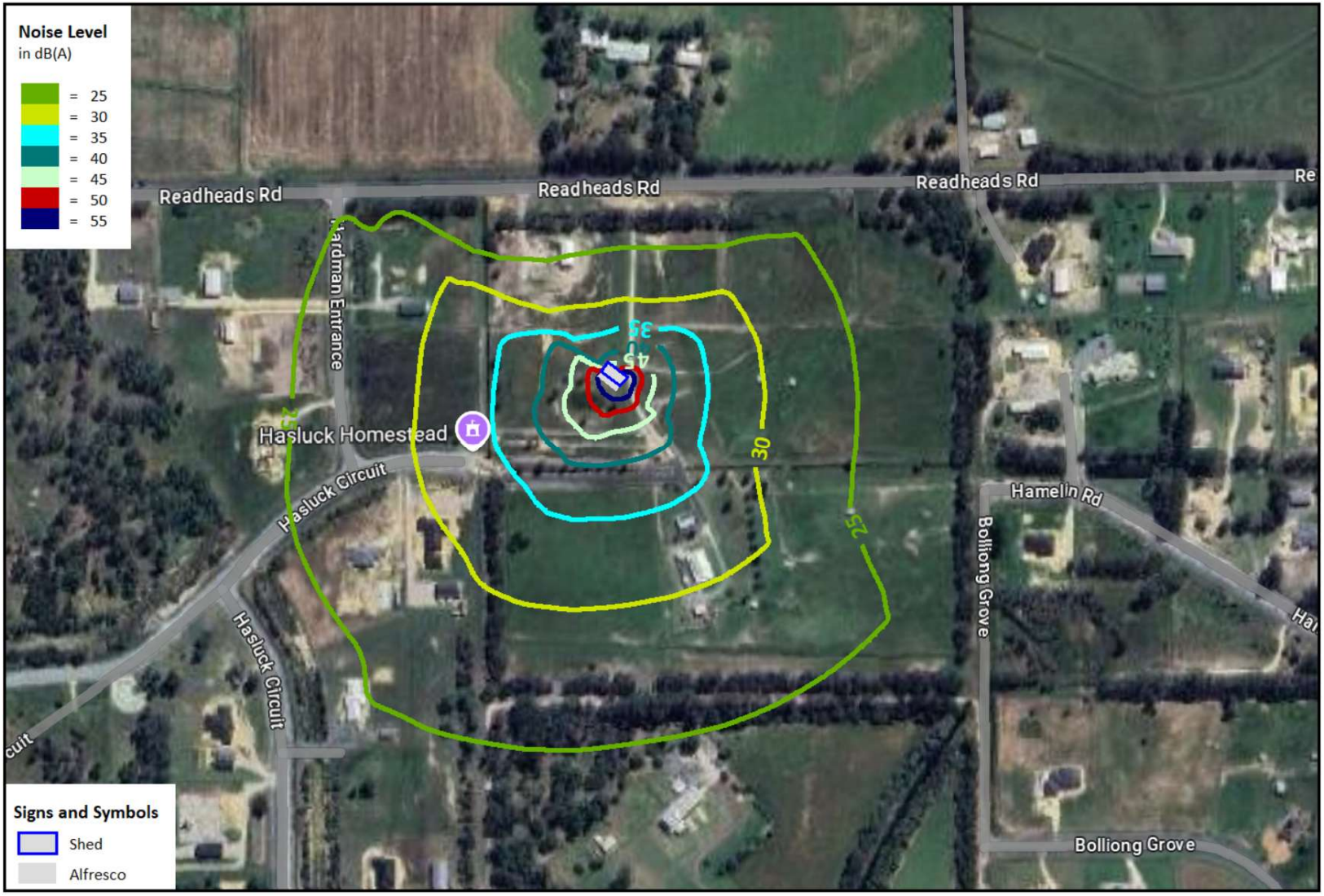


**Figure 7: Worst-case day/evening-time music level contours for scenario 4.**

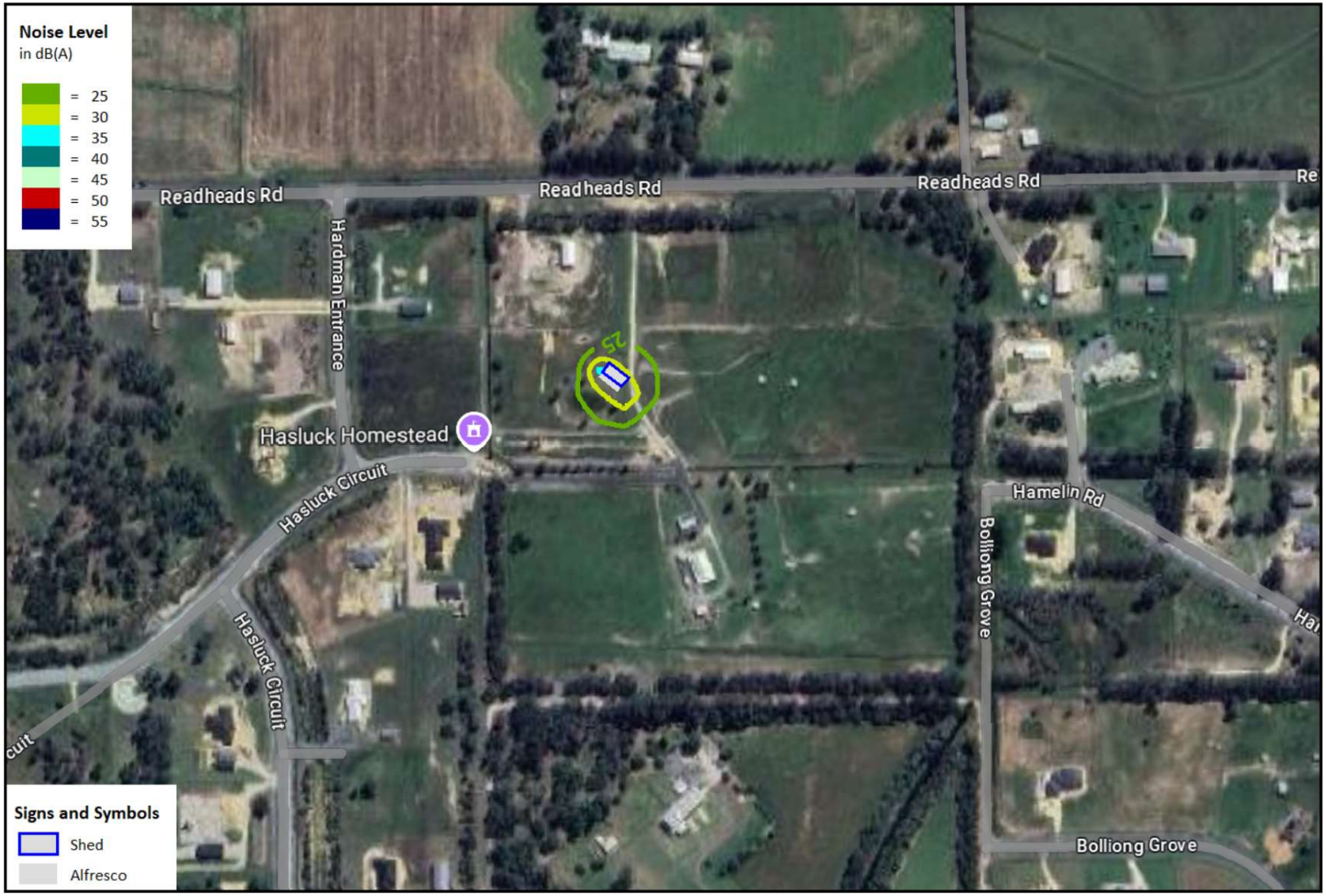


**Figure 8: Worst-case night-time music level contours for scenario 4A.**

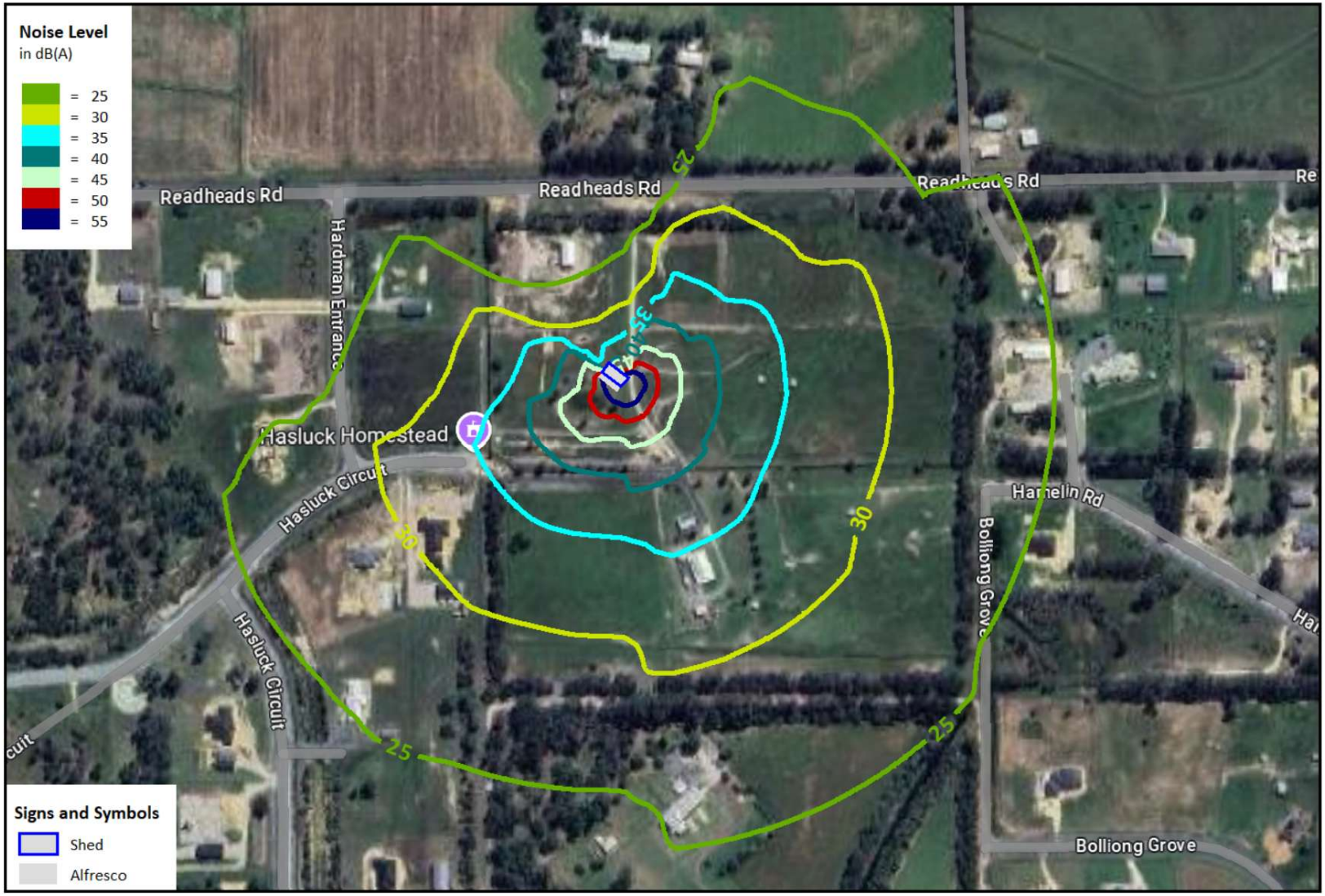


**Figure 9: Worst-case day-time noise level contours for scenario 5.**

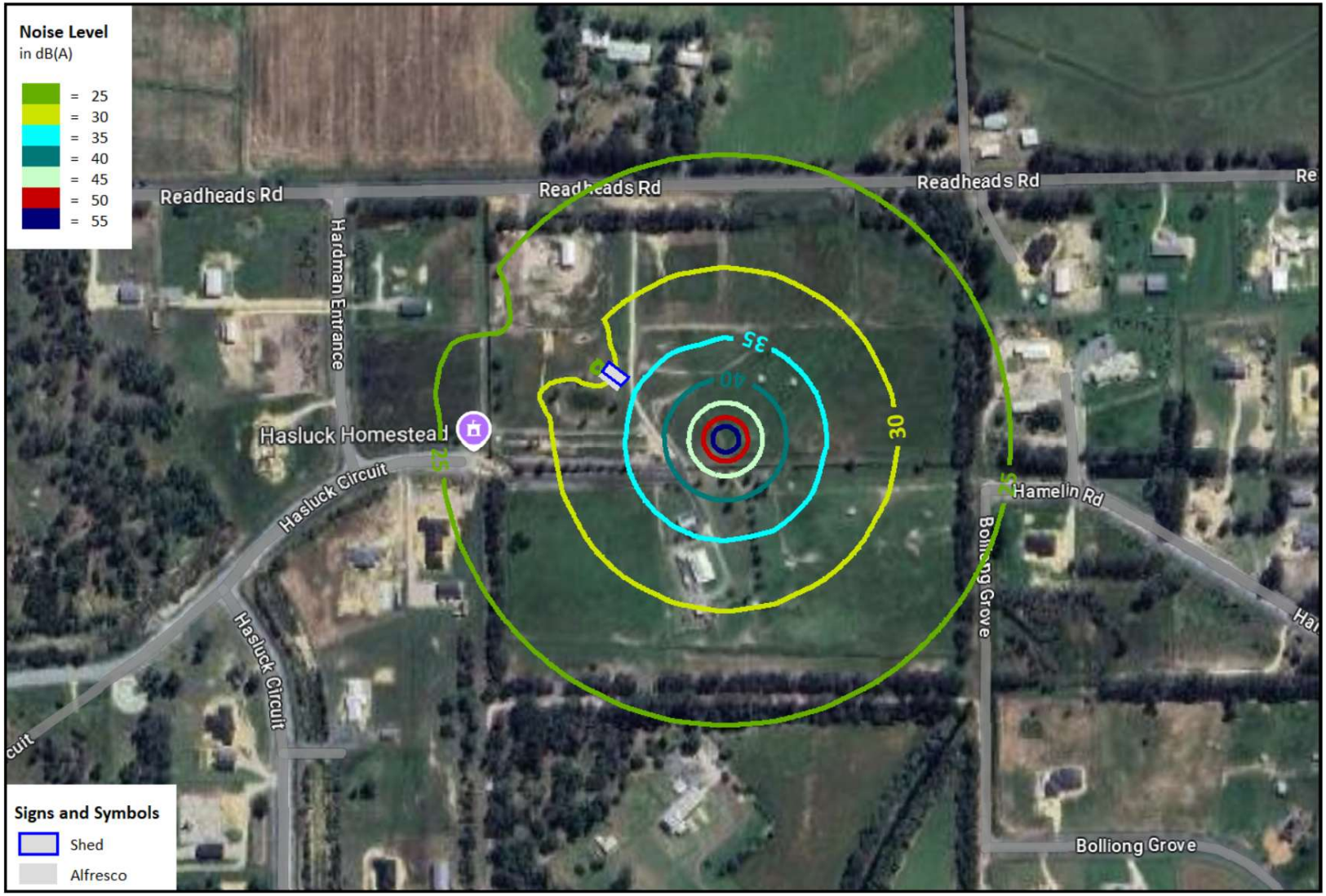


**Figure 10: Worst-case noise level $L_{Amax}$ contours for scenario 6.**