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## Charter Hall

# Lot 103 Flagstone Logistics Estate, North Maclean

## Noise Impact Assessment

PLANS AND DOCUMENTS  
referred to in the PDA  
DEVELOPMENT APPROVAL

Approval no: DEV2025/1651

Date: 19 August 2025



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|---------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
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## Executive Summary

This Noise Impact Assessment has been prepared on behalf of CH Hydrangea Pty Ltd (Applicant) in support of a development application over part of the land at 4499-4651 Mount Lindesay Highway, North Maclean QLD 4280 and described as part of Lot 39 on SP33878. This PDA Development Application seeks approval for a Development Permit for a Material Change of Use for a Warehouse, Low Impact Industry, and Medium Impact Industry.

The proposed development will be located over approved Lot 103, approved by the Minister for Economic Development Queensland (MEDQ) as part of the PDA Development Approvals DEV2023/1466 and DEV2023/1446 issued on 11 October 2024 and 19 March 2025, respectively. The proposed development seeks to facilitate the establishment of a speculative warehouse and/or industrial facility that will operate 24 hours a day, 7 days a week.

Based on the designated criteria, noise generated by the development was assessed at the nearest applicable receptor locations. Noise generated by the development is predicted to comply with the assessment criteria with the implementation of practical noise management strategies. Compliance with the criteria outlined in Section 5 is predicted to be achieved based on the recommendations outlined in this report.

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## 1 Introduction

This Noise Impact Assessment has been prepared on behalf of CH Hydrangea Pty Ltd (Applicant) in support of a development application over part of the land at 4499-4651 Mount Lindesay Highway, North Maclean QLD 4280 and described as part of Lot 39 on SP33878. This PDA Development Application seeks approval for a Development Permit for a Material Change of Use for a Warehouse, Low Impact Industry, and Medium Impact Industry.

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The assessment consisted of the following:

- Description of the project location and the surrounding area,
- Description of proposed acceptable operations,
- Applicable noise criteria for the project,
- Predicted potential noise levels from the project at the nearest property boundaries,
- Assessment of predicted noise levels against the noise criteria, and
- Noise mitigation recommendations where required.

Results were assessed against the noise emission standards for the Protection of General Amenity from Schedule 6 of the Logan City Council Planning Scheme 2015 criteria.

## 2 Project Location and Surrounding Area

The proposal is to develop the site at Lot 103 for a warehouse with an approximate GFA of 12,310m<sup>2</sup> on a total site area of 21,692.5m<sup>2</sup>. The site is in the Greater Flagstone Priority Development Area and forms part of the Endorsed North Maclean Context Plan, with land surrounding the context plan area zoned primarily rural residential. The location of the project is shown in Figure 2-1 to Figure 2-3. The area can be classified as predominantly rural in nature.

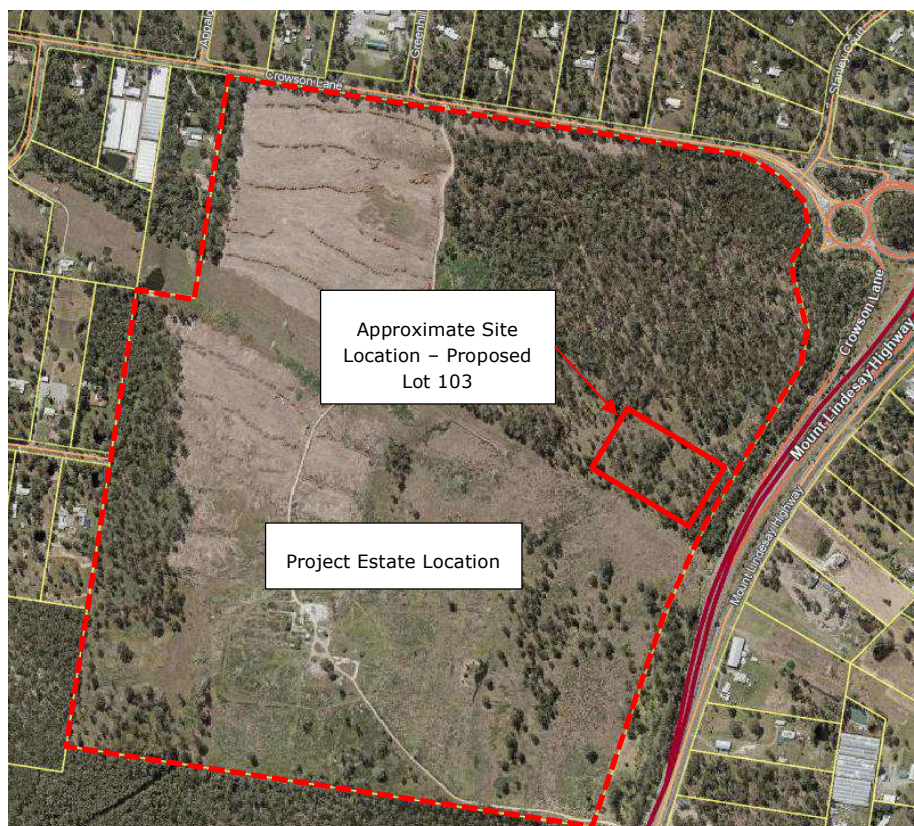


Figure 2-1 – Project Location



Figure 2-2 - Site Location and Surrounding Zoning

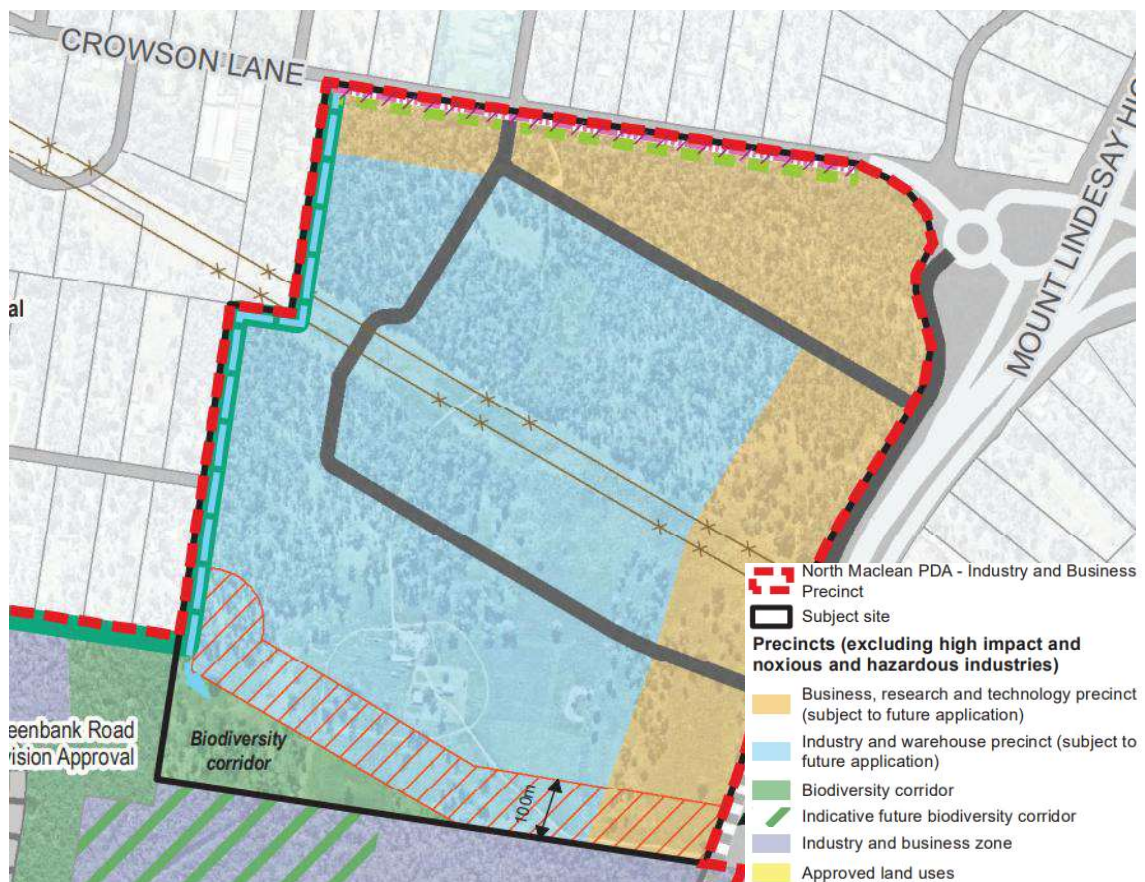


Figure 2-3 - Site Location and Proposed Precinct Zoning

The Endorsed North Maclean Context Plan indicates future precincts within the site, displayed in Figure 2-3.

## 3 Proposed Operations

The proposed development will consist of a single warehouse and associated office, dock office, car park and hardstand. The facility is proposed to operate 24 hours, 7 days a week. The proposed site layout has been provided and is shown below in Figure 3-1. Figure 2-3 shows the zoning of the site and surrounding area.



Figure 3-1 - Layout of the Project Facility

## 4 Noise Monitoring

### 4.1 Previous Background Noise Monitoring Survey

Noise monitoring of the surrounding environment was captured in a preliminary assessment of the master plan estate. The noise monitoring was conducted by Acoustics RB Pty Ltd (report ref: RB/22-1390.M01 dated 13<sup>th</sup> July 2022) between the 21<sup>st</sup> and 26<sup>th</sup> of June 2022, in the location shown in Figure 4-1.



Figure 4-1 - Previous Acoustics RB Noise Monitoring Location (Approx.)

The raw data from the noise monitoring was obtained from Charter Hall and processed in preparation for establishment with the appropriate criteria detailed in Section 5. The results processed by Vipac are shown in Table 4-1.

Table 4-1 - Monitoring Location Noise Levels

| Dates        | L <sub>Aeq</sub> |         |       | L <sub>A10</sub> |         |       | RBL |         |       | L <sub>A90</sub> |           |           |
|--------------|------------------|---------|-------|------------------|---------|-------|-----|---------|-------|------------------|-----------|-----------|
|              | Day              | Evening | Night | Day              | Evening | Night | Day | Evening | Night | Day              | Evening   | Night     |
| 21/06/2022   | 48               | 44      | 45    | 50               | 47      | 47    | -   | 33      | 28    | 40               | 37        | 40        |
| 22/06/2022   | 48               | 45      | 45    | 51               | 48      | 47    | 36  | 33      | 29    | 42               | 37        | 41        |
| 23/06/2022   | 50               | 45      | 45    | 52               | 48      | 47    | 35  | 35      | 28    | 42               | 37        | 40        |
| 24/06/2022   | 49               | 50      | -     | 51               | 53      | -     | 37  | -       | -     | 43               | 45        | -         |
| <b>Total</b> | 49               | 46      | 45    | 51               | 49      | 47    | 36  | 33      | 28    | <b>42</b>        | <b>41</b> | <b>40</b> |

## 5 Criteria

### 5.1 EDQ

It is acknowledged that EDQ does not stipulate a specific noise criteria. In absence of this, this report will assess the proposed development against the criteria stated for the local government area the site is situated in – Logan City Council.

### 5.2 Logan City Council Planning Scheme

Schedule SC6.2.3 'Environmental Management' in the Logan City Council Planning Scheme 2015 stipulates noise emission standards for the protection of residential and general amenity. Table 3.2.1.1 – Noise emission standards for the protection of residential amenity stipulates the applicable criteria for the development and has been reproduced in Table 5-1. Table 3.2.1.2 – Noise emission standards for the protection of general amenity has been reproduced in Table 5-2.

Table 5-1 - Noise Emission Standards for the Protection of Residential Amenity

| Noise level at the boundary of premises |                              |                                                                                               |                                                                                               |
|-----------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Noise type                              | Time period                  | Monday to Saturday                                                                            | Sunday and public holidays                                                                    |
| Non-steady sound*                       | Day<br>7:00am – 6:00pm       | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$                                    | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$                                    |
|                                         | Evening<br>6:00pm to 10:00pm | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$                                    | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$                                    |
|                                         | Night<br>10:00 – 7:00am      | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 0 \text{ dB(A)}$ and $L_{Amax} \leq 60\text{dB(A)}$ | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 0 \text{ dB(A)}$ and $L_{Amax} \leq 60\text{dB(A)}$ |
| Continuous noise*                       | Anytime                      | $L_{A90,T} \text{ plus } 0 \text{ dB(A)}$                                                     | $L_{A90,T} \text{ plus } 0 \text{ dB(A)}$                                                     |

\*As defined in AS1055.1 – 1997 Acoustics – Description and measurement of environmental noise.

Note – Adjustments for tonality and impulsiveness to be included in accordance with AS1055.1 – 1997 Acoustics – Description and measurement of environmental noise.

Table 5-2 - Noise Emission Standards for the Protection of General Amenity

| Noise level at the boundary of premises |                              |                                                                                               |                                                                                               |
|-----------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Noise type                              | Time period                  | Monday to Saturday                                                                            | Sunday and public holidays                                                                    |
| Non-steady sound*                       | Day<br>7:00am – 6:00pm       | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 10 \text{ dB(A)}$                                   | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$                                    |
|                                         | Evening<br>6:00pm to 10:00pm | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 10 \text{ dB(A)}$                                   | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$                                    |
|                                         | Night<br>10:00 – 7:00am      | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$ and $L_{Amax} \leq 80\text{dB(A)}$ | $L_{Aeq,adj,T} \leq L_{A90} \text{ plus } 5 \text{ dB(A)}$ and $L_{Amax} \leq 60\text{dB(A)}$ |
| Continuous noise*                       | Anytime                      | $L_{A90,T} \text{ plus } 5 \text{ dB(A)}$                                                     | $L_{A90,T} \text{ plus } 5 \text{ dB(A)}$                                                     |

\*As defined in AS1055.1 – 1997 Acoustics – Description and measurement of environmental noise.

Note – Adjustments for tonality and impulsiveness to be included in accordance with AS1055.1 – 1997 Acoustics – Description and measurement of environmental noise.

Given the closest receptors are in residentially zoned properties, if the residential criteria can be achieved at these receptors, then all other receptors (residential or otherwise) are predicted to comply with the residential **and** general amenity criteria.

The noise levels from Table 4-1 have been used to determine the project noise criteria which has been tabulated in Table 5-3.

Table 5-3 – LCC Project Noise Criteria

| Noise Type       | Time period                  | Monday to Sunday inc. Public Holidays $L_{Aeq}$ dB(A)* |
|------------------|------------------------------|--------------------------------------------------------|
| Non-steady sound | Day<br>7:00am – 6:00pm       | 47 dB(A)                                               |
|                  | Evening<br>6:00pm to 10:00pm | 46 dB(A)                                               |
|                  | Night<br>10:00 – 7:00am      | 40 dB(A) and $L_{Amax} \leq 60dB(A)$                   |
| Continuous noise | Day<br>7:00am – 6:00pm       | 42 dB(A)                                               |
|                  | Evening<br>6:00pm to 10:00pm | 41 dB(A)                                               |
|                  | Night<br>10:00 – 7:00am      | 40 dB(A)                                               |

\*The criteria for residential amenity is the same for Monday-Saturday and Sundays including public holidays.

## 6 Noise Level Prediction

### 6.1 Noise Sensitive Receptors

This assessment will focus on the nearest sensitive receptors outlined below and shown in Figure 6-1. It is acknowledged that while the LCC Planning Scheme Policy requires demonstration of compliance at the nearest adjoining premises (i.e. premises that share a common boundary, including premises that meet at a single point on a common boundary), only one boundary is shared with an adjoining premises (future use). For the purposes of a conservative EDQ/LCC assessment, the assessment will include assessment at all site boundaries (i.e. north, east and west).

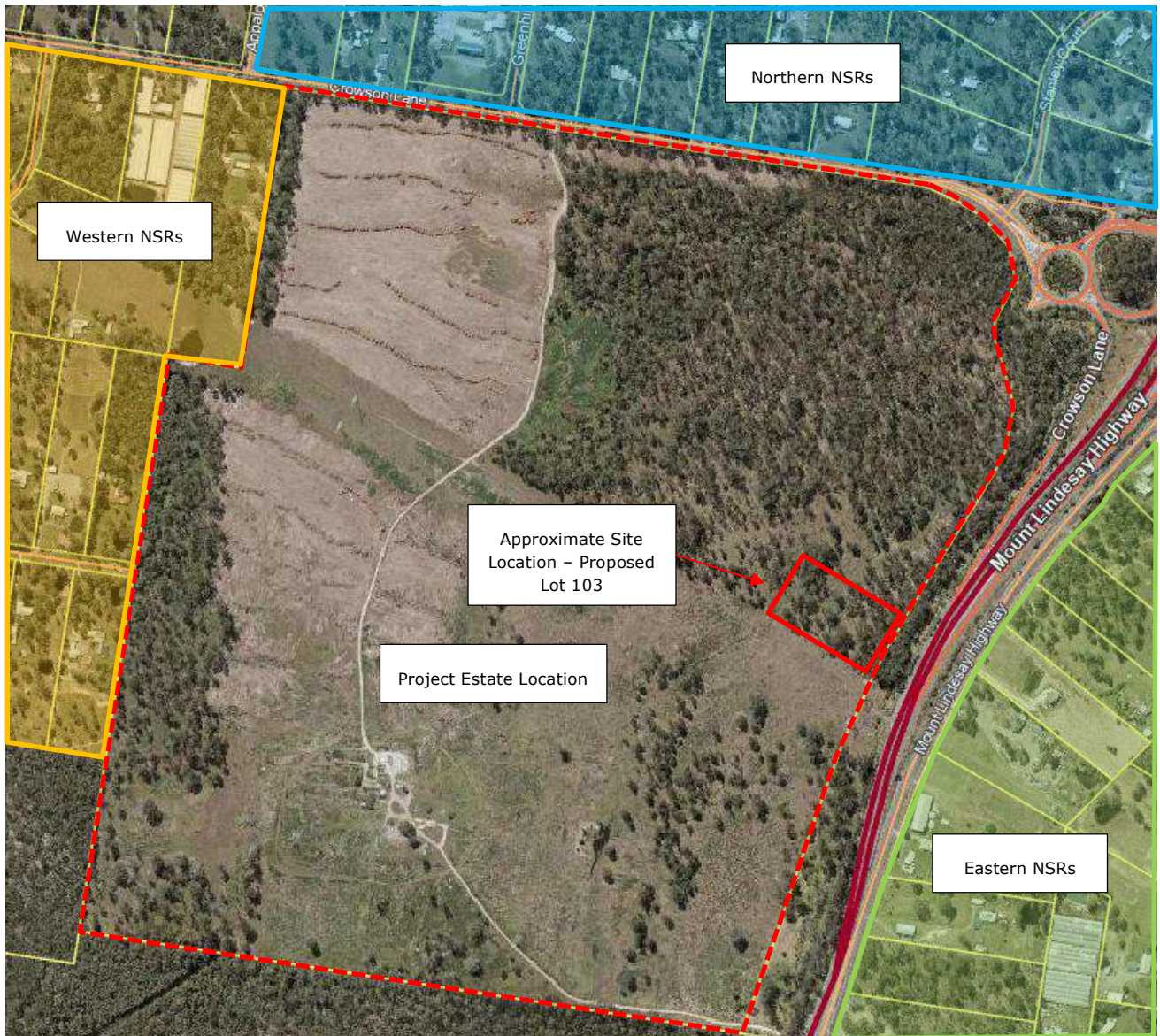


Figure 6-1 - Noise Sensitive Receptors

- Eastern NSRs:
  - 4524-4622 Mount Lindsay Highway.
- Northern NSRs:
  - 1-23 Stanley Court.
  - 61-109 Crowson Lane.
- Western NSRs:
  - 142-152 Crowson Lane.

## 6.2 Methodology and Assumptions

Noise modelling has been undertaken using the SoundPLAN 8.2 computational noise modelling software package. Vipac have undertaken numerous noise modelling and impact assessments previously using SoundPLAN for a range of projects, including infrastructure developments and industrial projects.

ISO 9613 has been used as the calculation methodology within the SoundPLAN noise model. ISO 9613 is an extensively used methodology around the world since it was published in 1996. Using this methodology within computer based noise modelling programs allows for precise calculations accounted for multiple sound transmission paths, reflections, screening/shielding, etc. Weather conditions which promote noise propagation (i.e. source to receptor wind directions) from part of the ISO 9613 methodology. Source to receptor winds however will not always occur, therefore prediction noise emissions during these conditions can be considered a worst case meteorological scenario.

### 6.2.1 Reference Information

Design drawings and information for the proposed facility were provided to Vipac for this assessment. The following drawings and specifications were used for the noise impact assessment:

- 'Site Plan (GFA) PDA Development Scheme – Drawing No. DA01', provided by Watson Young dated 12/05/2025,
- Design Levels TIN provided by Charter Hall dated 23/09/2023,
- '250604 – Bulk Earthworks Surface – DWG' site elevation data provided by Northrop on 06/05/2025, and
- Schedule 6 of the Logan City Council Planning Scheme 2015 (Version 8).

### 6.2.2 Noise Sources

Proposed equipment information for the site has been assumed based on the anticipated use of the site (i.e. warehousing, low or medium impact industry) and expected tenant. Noise levels from similar equipment associated the proposed operations on site have been sourced from previous Vipac studies (unless stated otherwise) and were predicted at the NSR locations detailed in Section 6.1. Noise sources are shown below in Table 6-1, their locations shown in Figure 6-2, with detailed modelling assumptions provided in Section 6.2.3.

Table 6-1 - Equipment Sound Pressure Levels

| Noise Source                                                  | Sound Pressure Level (SPL) @1m<br>L <sub>Aeq</sub> dB(A) | Sound Pressure Level (SPL) @1m<br>L <sub>AMax</sub> dB(A) |
|---------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|
| Passenger Vehicle Pass By                                     | 62                                                       | 67                                                        |
| Passenger Vehicle Ignition                                    | 72                                                       | 75                                                        |
| Passenger Vehicle Door Close <sup>2</sup>                     | 77                                                       | 84                                                        |
| Heavy Vehicle Passby                                          | 80                                                       | 89                                                        |
| Heavy Vehicle Reverse Beeping <sup>2,3</sup>                  | 94                                                       | 101                                                       |
| Electric forklift (loading/unloading outside on loading dock) | 82                                                       | 86                                                        |
| Electric forklift (loading/unloading inside warehouse)        |                                                          |                                                           |
| Welding Converter (inside warehouse)                          | 90                                                       | 94                                                        |
| Rattle Gun (inside warehouse)                                 | 98                                                       | 104                                                       |
| Angle Grinder (inside warehouse)                              | 96                                                       | 101                                                       |
| Air Compressor (inside warehouse)                             | 86                                                       | 90                                                        |
| Table Saw (hose cutting) (inside warehouse)                   | 83                                                       | 86                                                        |

<sup>1</sup> Noise source obtained from Payne Pallet Inverters. Noise level quoted assumed to be Leq SPL @ 1m (<https://paynepalletinverters.co.uk/app/uploads/2022/12/Si-Manual.pdf>).

<sup>2</sup> Includes 2 dB(A) adjustment to account for impulsiveness characteristics in accordance with AS1055.

<sup>3</sup> Includes 5 dB(A) adjustment to account for tonality characteristics.

### 6.2.3 Modelling Assumptions

For vehicle/external noise, the following information has been used in the modelling:

- Source locations are detailed in Figure 6-2.
- All vehicle generation for the site has been based on the traffic generation trips detailed in the RTA 'Guide to Traffic Generating Developments' for Warehouse usage, as shown in Table 6-2.
  - This generation rate is consistent with the rates used in the Service Road Assessment report for the estate, produced by Bitzios Consulting (report ref: P5949.002L) dated 15<sup>th</sup> of February 2023 and the Traffic Impact Assessment report by Bitzios Consulting (report ref: P5708.001R) dated 15<sup>th</sup> August 2023.
- All movements have been based on 'Daily Vehicle Trips', with the assumption the rate accounts for 24 hours of operation.
  - Considering the scale of the proposed development it is expected that night time operation after 10pm will be less than the day and evening periods. Notwithstanding, heavy vehicle movements during the night periods have been based on the 'Daily Vehicle Trips' traffic generation rates.

Table 6-2 - Site Vehicle Generation – Daily Vehicle Trips

| Land Use   | Traffic Generation Rates          |
|------------|-----------------------------------|
|            | Daily Vehicle Trips               |
| Warehouses | 4 trips per 100m <sup>2</sup> GFA |

- For all movements:
  - The total GFA of the Warehouse is 12,310m<sup>2</sup>.
    - This equates to approximately 492 vehicle movements per day.
  - It is assumed approximately 33% of the total vehicle movements will be heavy vehicles as per the Bitzios Consulting report.
    - This equates to approximately 164 heavy vehicle movements per day, or approximately 7 movements per hour.
  - The remaining 67% vehicle split is attributed to light passenger vehicle movements, equating to approximately 328 movements per day.
    - Light passenger vehicle daily movements have been split 60%/10%/30% for day, evening, and night periods respectively on the assumption the majority of movements will be driven by staff arriving and leaving in the day and night (i.e. before 7am) periods.
- Heavy vehicle and passenger vehicle pass bys have been modelled as line noise sources at 2m and 0.5m above ground respectively.
- Truck reversing beepers have been modelled as point sources at 2m above ground.
- Heavy vehicle movements are inclusive of vehicles accessing the site for waste collection and sweep trucks for cleaning.
- Forklift operations are primarily expected to occur internally, but also occasionally externally as the loading and unloading of vehicles is conducted.
  - External Forklift usage associated with loading/unloading product, as a worst case, is assumed to occur for each heavy vehicle movement (i.e. approx. 7 vehicles per hour).
    - The forklift is assumed to manoeuvre in and out of the warehouse while doing so.
    - The model accounts for an approximately 50/50 inside/outside split of time for the forklift unloading/loading a vehicle.
    - Loading/unloading is assumed to take approximately 5 minutes for each truck.
  - All internal noise sources have been assumed to occur for 50% of the time during each time period.
- Mechanical plant is anticipated to operate 24/7.
- All vehicle movements were assumed to travel at 10km/h.
- Noise level predictions have been made at 1.5m above ground level.

For all internal warehouse noise, the following information has been used in order to model a conservative operation assumption:

- Roof/Ceiling Material: It is assumed the warehouse construction and roof will be sheet metal, assumed to have a BMT (base metal thickness) of 0.42mm, which provides an approximate  $R_w$  rating of 18 (prediction shown in Appendix C).
- Wall Material: Vipac have assumed a standard concrete tilt panel wall construction up to 2.4m, with standard sheet metal façade to the roof with no insulation. For the purposes of a conservative assessment, all facades and roof has been modelled as sheet metal, providing an approximate  $R_w$  rating of 18 (prediction shown in Appendix C).
- A total of 20 electric forklifts are assumed to be used within the warehouse. All 20 have been dispersed evenly throughout the warehouse.
  - Forklift noise sources have been modelled as a point sources at 1.0m above ground.
- Floor: Concrete slab.
- The internal warehouse noise is a sum of all noise sources inside the entire area contributing to one diffusive noise environment.
- Roller doors have been modelled as open.
- Roller doors for the recessed loading dock area dimensions are approximately 3m wide and 3.5m high in accordance with the elevation drawings.
- Remaining roller doors are 7m wide and 5.5m high as per the elevation drawings.
- Building height is modelled to be approximately 13.7m as per the elevation drawings.

Table 6-3 summarises the number of movements/activity assumptions.

*Table 6-3 - Movement/Activity Assumptions*

| Noise Source                                                  | Assumed events per D/E/N period or % per hour |
|---------------------------------------------------------------|-----------------------------------------------|
|                                                               | EDQ/LCC                                       |
| Passenger Vehicle Pass By                                     | 197/33/98                                     |
| Passenger Vehicle Ignition                                    |                                               |
| Passenger Vehicle Door Close                                  | 394/66/196*                                   |
| Heavy Vehicle Passby                                          | 7 per hour                                    |
| Heavy Vehicle Reverse Beeping                                 | 4% per hour (136 seconds)                     |
| Electric forklift (loading/unloading outside on loading dock) | 58% per hour (35 minutes per hour)            |
| Electric forklift (loading/unloading inside warehouse)        | 50% per hour                                  |
| Welding Converter (inside warehouse)                          |                                               |
| Rattle Gun (inside warehouse)                                 |                                               |
| Angle Grinder (inside warehouse)                              |                                               |
| Air Compressor (inside warehouse)                             |                                               |
| Table Saw (hose cutting) (inside warehouse)                   |                                               |

\*2 events per car movement.

It is noted the above assumptions of events per period/percentage of time is considered conservative, and in reality, is likely to be less frequent. This provides for a worst case assessment.

Figure 6-2 presents the modelled noise source locations.

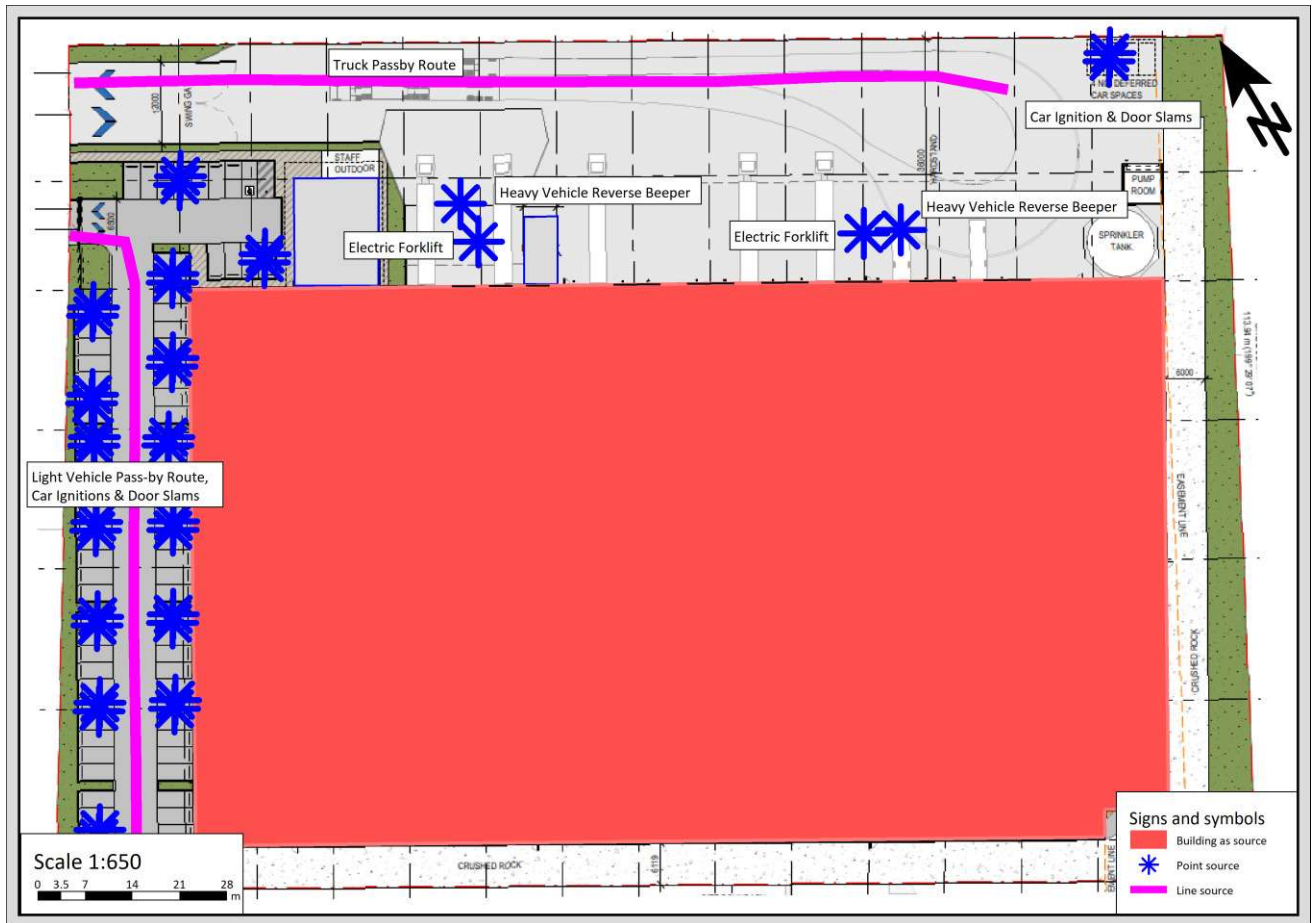


Figure 6-2 - Modelled Noise Source Locations

## 7 Results

### 7.1 Predicted Noise Levels at the NSRs

Worst case predicted cumulative noise emissions from the project have been compared against the noise criteria outlined in Section 5. The assessment has calculated cumulative noise emissions **to the nearest property boundary**. The predicted noise levels at the property boundary are shown in Table 7-1. Noise contour maps showing predicted noise level contour lines across the development have been included in Appendix A. A noise source contribution sample at the most exposed NSR has also been included in Appendix B.

Table 7-1 - Predicted  $L_{Aeq}$  Noise Emissions

| NSR                              | Predicted Noise Levels, $L_{Aeq}$ |         |         |                       |
|----------------------------------|-----------------------------------|---------|---------|-----------------------|
|                                  | Day                               | Evening | Night   |                       |
| Criteria                         | 47dB(A)                           | 46dB(A) | 40dB(A) | 60dB(A)<br>$L_{Amax}$ |
| 1-23 Stanley Court               | 31                                | 31      | 31      | 44                    |
| 2-10 Stanley Court               | 31                                | 31      | 31      | 45                    |
| 51-59 Crowson Lane               | 29                                | 29      | 29      | 41                    |
| 61-69 Crowson Lane               | 30                                | 30      | 30      | 44                    |
| 71-79 Crowson Lane               | 30                                | 29      | 29      | 44                    |
| 81-89 Crowson Lane               | 29                                | 28      | 28      | 42                    |
| 91-99 Crowson Lane               | 27                                | 27      | 27      | 40                    |
| 101-109 Crowson Lane             | 26                                | 26      | 26      | 39                    |
| 141-147 Rosina Road              | 19                                | 19      | 19      | 28                    |
| 142-148 Rosina Road              | 19                                | 19      | 19      | 30                    |
| 142-152 Crowson Lane             | 21                                | 21      | 21      | 33                    |
| 4524-4534 Mount Lindesay Highway | 33                                | 33      | 33      | 47                    |
| 4536-4542 Mount Lindesay Highway | 32                                | 32      | 32      | 45                    |
| 4544-4554 Mount Lindesay Highway | 34                                | 34      | 34      | 48                    |
| 4556-4564 Mount Lindesay Highway | 36                                | 36      | 36      | 49                    |
| 4566-4574 Mount Lindesay Highway | 37                                | 37      | 37      | 50                    |
| 4576-4584 Mount Lindesay Highway | 38                                | 38      | 38      | 51                    |
| 4586-4600 Mount Lindesay Highway | 34                                | 34      | 34      | 45                    |
| 4602-4622 Mount Lindesay Highway | 32                                | 32      | 32      | 35                    |

Noise levels are predicted to comply during all time periods without the need for acoustic mitigation.

### 7.2 Preliminary Mechanical Plant Noise Assessment

A reverse calculation was conducted to determine the allowable component noise source level of onsite mechanical plant prior to the inclusion of any potential acoustic treatment/screening.

The location of the mechanical equipment was assumed to be located on the nearest edge of the rooftop to the nearest receptor.

Based on the night time criteria detailed in Section 5 (and assessment to the nearest site boundary, the allowable mechanical noise levels without mitigation are presented in Table 7-2.

Table 7-2 - Mechanical Plant Predictions

| NSR                   | Assumed Nearest Plant Location | Total allowable SWL from the total mechanical plant to achieve compliance, $L_{eq}$ dB(A) |
|-----------------------|--------------------------------|-------------------------------------------------------------------------------------------|
|                       |                                | Night                                                                                     |
| Nearest Site Boundary | Warehouse Rooftop              | 88                                                                                        |

If compliance can be achieved at the assumed nearest plant location, then all other possible plant locations are expected to comply due to increased separation distance.

Acoustic treatment/screening of mechanical plant may result in higher allowable noise source levels. A detailed mechanical plant assessment should be conducted prior to the final selection of plant equipment. Compliance with the noise limits should then be checked once plant selections are finalised.

## 8 Recommendations

Noise generated by the proposed development has been assessed for compliance at the nearest property boundaries. The recommendations detailed below specify the treatment requirements for best practice management measures to ensure the potential for nuisance is minimised.

### 8.1 Mechanical Plant Noise

Because detailed plant selections are not available at this stage, it is not possible to carry out a detailed examination of the noise control measures that may be required to achieve the noise targets for mechanical plant.

Plant may need to be acoustically treated to achieve the criteria detailed in Section 5 to prevent noise emissions from adversely impacting the surrounding properties. This may include selecting the quietest plant possible, or treating the plant equipment with enclosures, barriers, duct lining, silencers, etc.

A mechanical plant noise assessment should be conducted by a suitably qualified acoustic consultant once plant selections are finalised.

## 9 Conclusion

Vipac has conducted a noise impact assessment for the proposed development Lot 103 of the Flagstone Industrial Estate in North Maclean. Potential noise emissions from the development were predicted to the nearest sensitive receptor locations and compared against the noise criteria as Section 5.

Noise levels are predicted to comply with the noise criteria with the implementation of the recommendations outlined in this report.



## Appendix A Noise Contour Maps

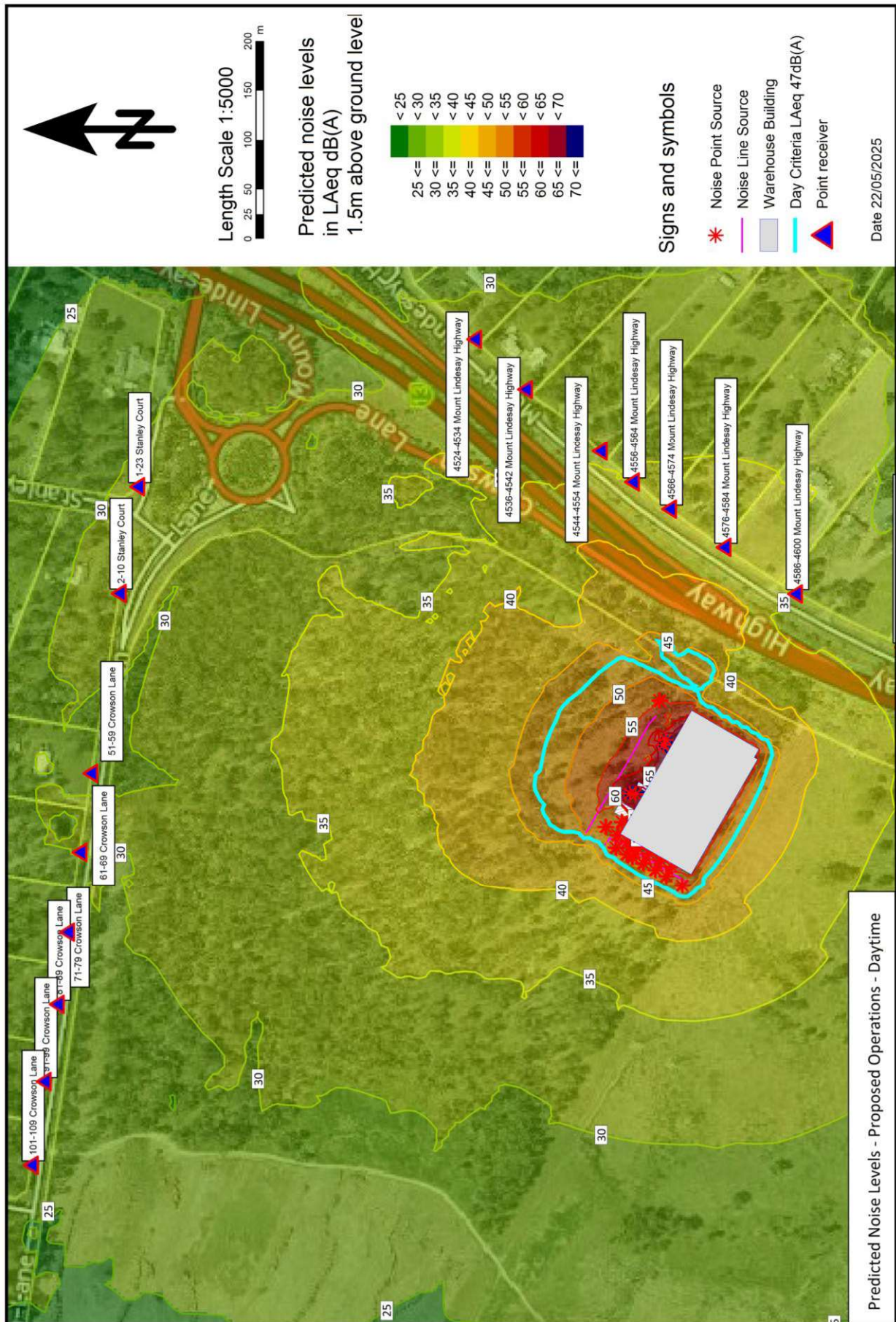


Figure A 1 - Predicted Daytime Noise Levels

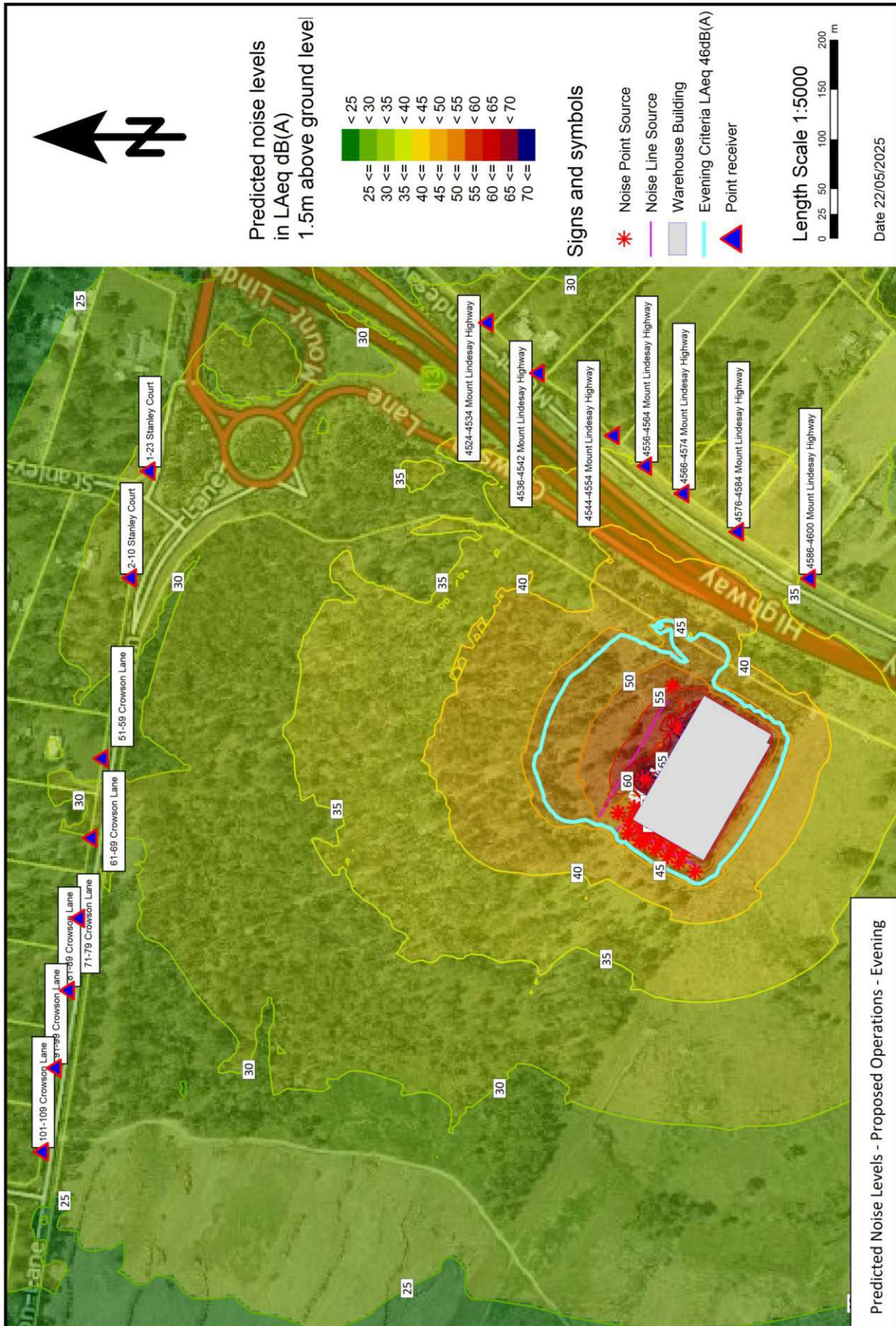


Figure A 2 - Predicted Evening Noise Levels

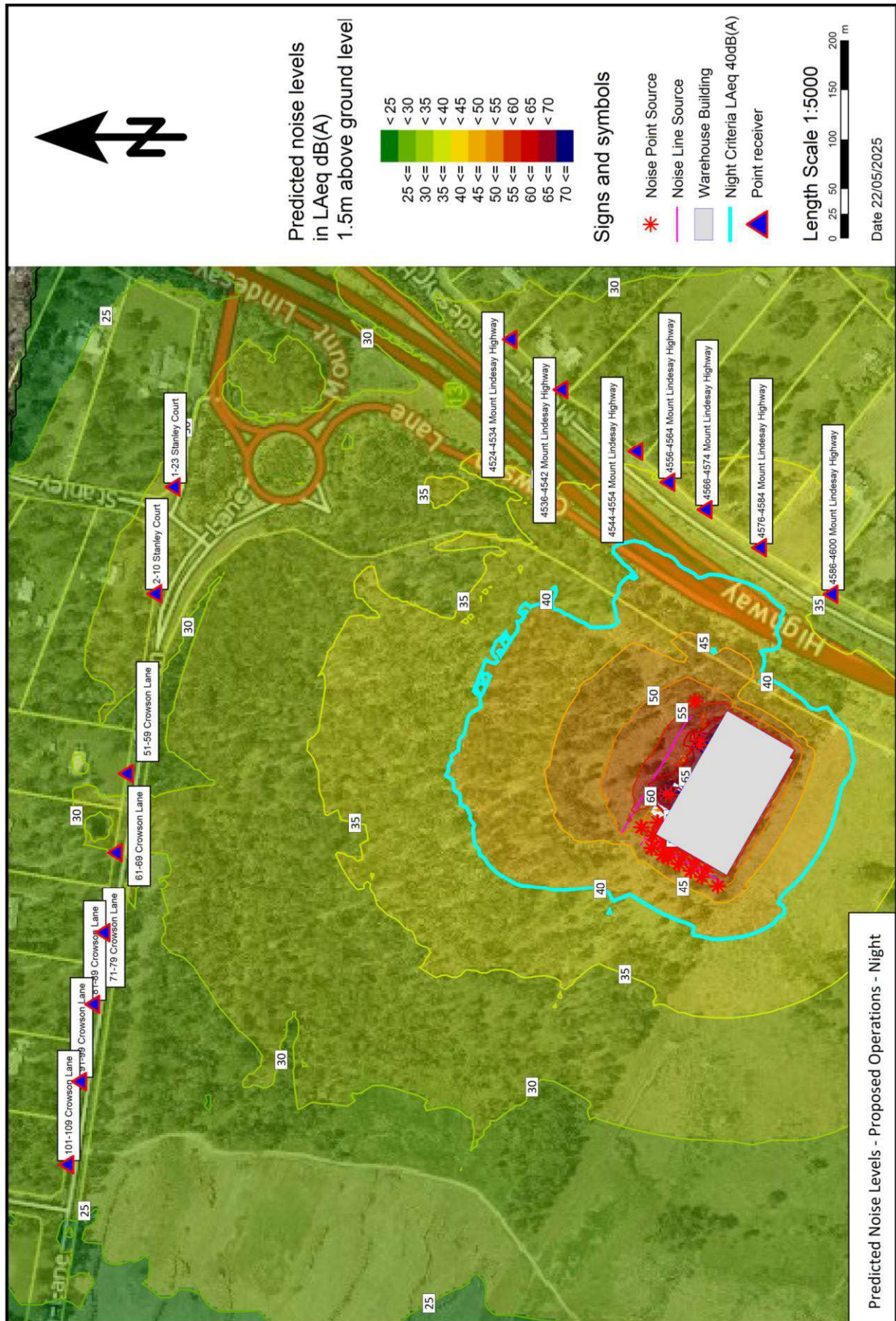


Figure A 3 Predicted Night-time Noise Levels

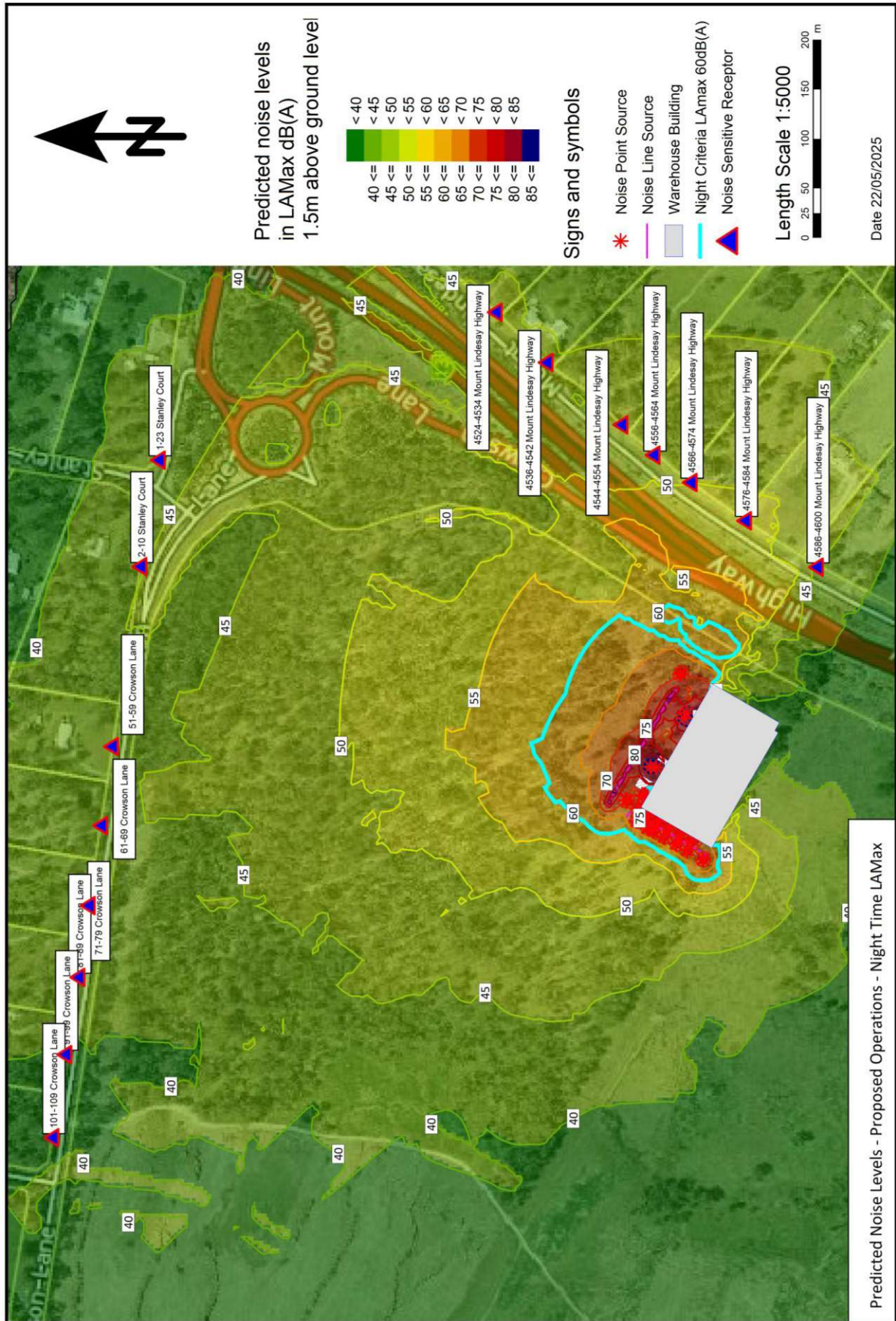


Figure A 4 - Predicted Night-time Noise Levels (L<sub>AMax</sub>)

## Appendix B Source Contribution Sample at Most Exposed NSR

|                                                                   |          |
|-------------------------------------------------------------------|----------|
| <b>Amazon Fulfilment Centre - Flagstone Estate, North Maclean</b> | <b>9</b> |
| <b>Contribution level - Lot 103 SPC</b>                           |          |

| Source                                    | Ld<br>dB(A)   | Le<br>dB(A)   | Ln<br>dB(A)                   |
|-------------------------------------------|---------------|---------------|-------------------------------|
| Receiver 4576-4584 Mount Lindesay Highway | Ld 38.4 dB(A) | Le 38.4 dB(A) | Ln 38.4 dB(A) Lmax 51.3 dB(A) |
| Reverse Beeper East                       | 32.1          | 32.1          | 32.1                          |
| Reverse Beeper West                       | 29.8          | 29.8          | 29.8                          |
| Lot 103 Building-Roof                     | 29.5          | 29.5          | 29.5                          |
| Lot 103 Building-North Facade             | 27.3          | 27.3          | 27.3                          |
| Lot 103 Building-East Facade              | 26.2          | 26.2          | 26.2                          |
| Lot 103 Building-Roller Door 6            | 25.9          | 25.9          | 25.9                          |
| Lot 103 Building-Roller Door 1            | 25.6          | 25.6          | 25.6                          |
| Lot 103 Building-Roller Door 5            | 25.2          | 25.2          | 25.2                          |
| Lot 103 Building-Roller Door 3            | 25.1          | 25.1          | 25.1                          |
| Lot 103 Building-Roller Door 4            | 24.8          | 24.8          | 24.8                          |
| Lot 103 Building-Roller Door 2            | 24.8          | 24.8          | 24.8                          |
| External Electric Forklift East           | 24.3          | 24.3          | 24.3                          |
| External Electric Forklift West           | 20.3          | 20.3          | 20.3                          |
| Heavy Vehicle Passby                      | 15.3          | 15.3          | 15.3                          |
| Lot 103 Building-Recessed Roller Door 2   | 14.9          | 14.9          | 14.9                          |
| Lot 103 Building-Recessed Roller Door 3   | 14.4          | 14.4          | 14.4                          |
| Lot 103 Building-South Facade             | 11.2          | 11.2          | 11.2                          |
| Lot 103 Building-Recessed Roller Door 1   | 11.2          | 11.2          | 11.2                          |
| Car Door Closure x 5                      | 9.3           | 5.7           | 7.4                           |
| Lot 103 Building-West Facade              | 7.0           | 7.0           | 7.0                           |
| Lot 103 Building-South Small Facade       | 6.1           | 6.1           | 6.1                           |
| Lot 103 Building-East Small Facade        | 3.4           | 3.4           | 3.4                           |
| Car Ignition x 5                          | 5.1           | 1.6           | 3.3                           |
| Car Door Closure x 5                      | 3.5           | 0.0           | 1.6                           |
| Car Ignition x 5                          | -0.1          | -3.6          | -1.9                          |
| Car Ignition x 5                          | -3.5          | -7.0          | -5.3                          |
| Car Door Closure x 5                      | -4.9          | -8.5          | -6.8                          |
| Car Ignition x 5                          | -8.7          | -12.2         | -10.5                         |
| Car Door Closure x 5                      | -10.5         | -14.1         | -12.4                         |
| Car Ignition x 5                          | -12.3         | -15.8         | -14.1                         |
| Car Door Closure x 5                      | -15.0         | -18.5         | -16.8                         |
| Car Door Closure x 5                      | -15.6         | -19.1         | -17.4                         |
| Car Door Closure x 5                      | -15.7         | -19.2         | -17.6                         |
| Car Door Closure x 5                      | -15.7         | -19.3         | -17.6                         |
| Car Door Closure x 5                      | -15.8         | -19.3         | -17.7                         |
| Car Door Closure x 5                      | -15.8         | -19.3         | -17.7                         |
| Car Ignition x 5                          | -15.9         | -19.4         | -17.7                         |
| Car Door Closure x 5                      | -16.0         | -19.5         | -17.8                         |
| Car Door Closure x 5                      | -16.0         | -19.5         | -17.8                         |
| Car Door Closure x 5                      | -16.1         | -19.6         | -17.9                         |
| Car Door Closure x 5                      | -16.1         | -19.6         | -17.9                         |
| Car Ignition x 5                          | -16.2         | -19.7         | -18.1                         |
| Car Door Closure x 5                      | -16.2         | -19.7         | -18.1                         |
| Car Door Closure x 5                      | -16.4         | -19.9         | -18.3                         |

|                                      |   |
|--------------------------------------|---|
| Vipac Engineers & Scientists Pty Ltd | 1 |
|--------------------------------------|---|

SoundPLAN 8.2

## Appendix C 0.4BMT Sheet Metal $R_w$ Prediction

### Sound Insulation Prediction (v9.0.20)

Program copyright Marshall Day Associates 2017

Margin of error is generally within  $R_w \pm 3$  dB.

Key No: 1709

Job Name:

Job Ref:

Date: 25/05/2023

File Name:

Intel:spatrickd

Notes:



|       |       |
|-------|-------|
| $R_w$ | 18 dB |
| C     | 0 dB  |
| Ctr   | -2 dB |

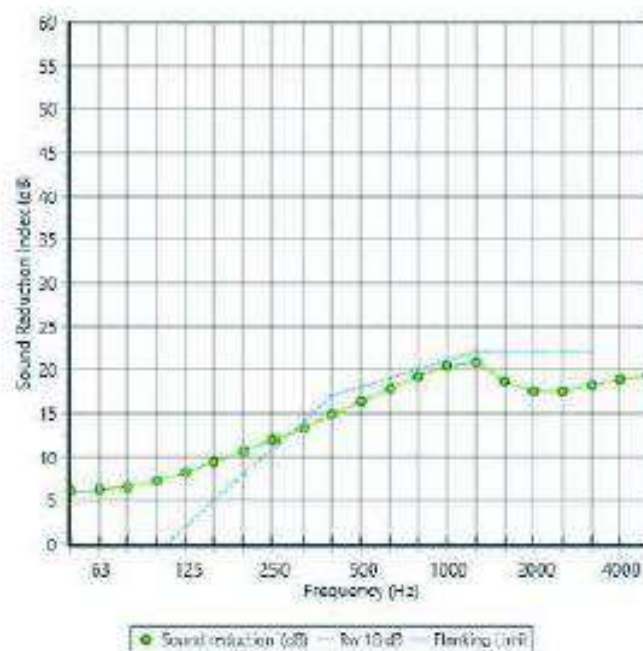
Panel Size: 2.7m x 4.0m

Partition surface mass = 0.12 kg/m<sup>2</sup>

### System description

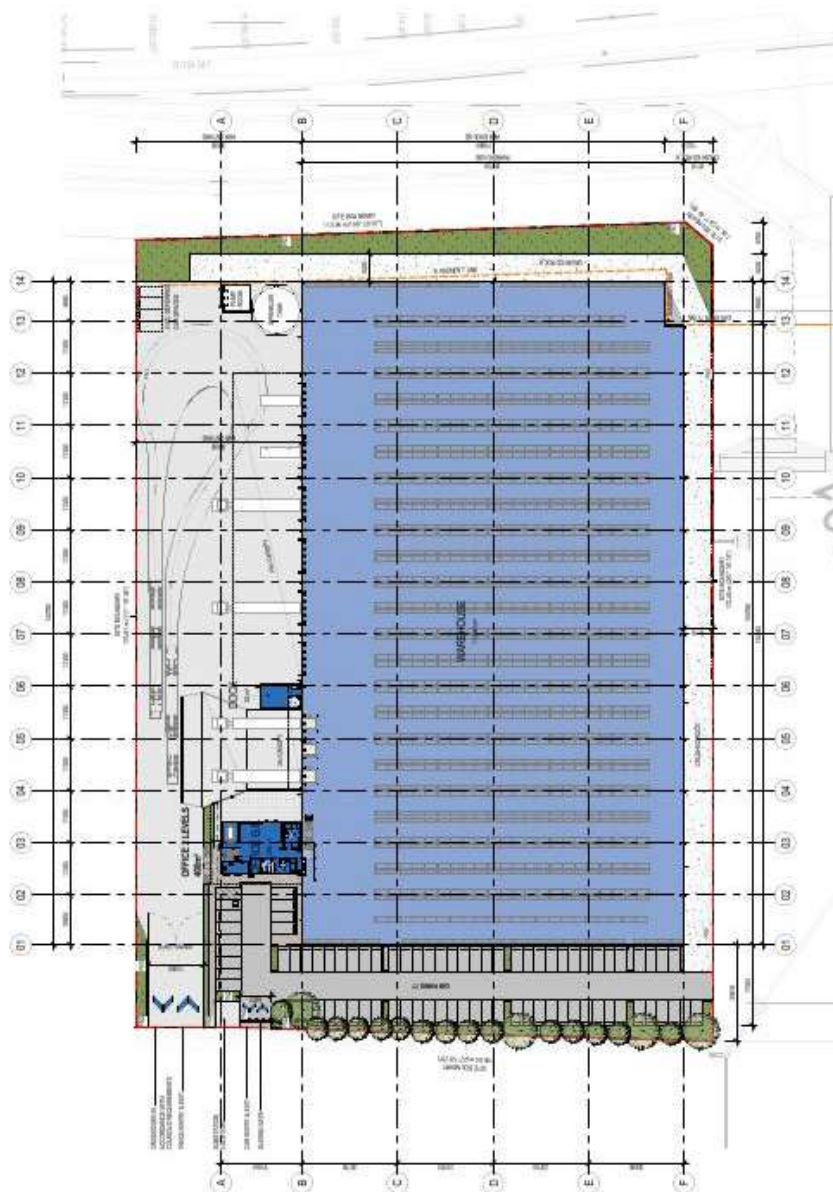
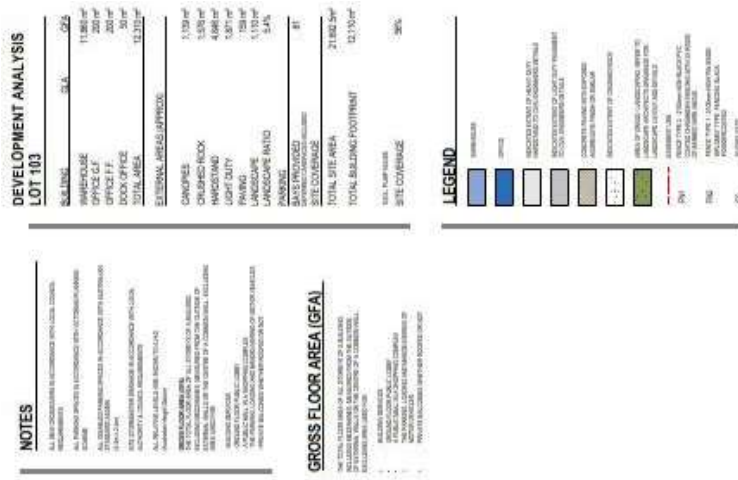
Panel 1: 1 x 0.4mm Gypsum Dc (65mm)

| freq (Hz) | R(dB) | R(dB) |
|-----------|-------|-------|
| 50        | 6     |       |
| 63        | 6     | 6     |
| 80        | 7     |       |
| 100       | 7     |       |
| 125       | 8     | 8     |
| 160       | 9     |       |
| 200       | 11    |       |
| 250       | 12    | 12    |
| 315       | 13    |       |
| 400       | 15    |       |
| 500       | 16    | 16    |
| 630       | 18    |       |
| 800       | 19    |       |
| 1000      | 20    | 20    |
| 1250      | 21    |       |
| 1600      | 19    |       |
| 2000      | 18    | 18    |
| 2500      | 18    |       |
| 3150      | 18    |       |
| 4000      | 19    | 19    |
| 5000      | 19    |       |





## Appendix D    Development Plans



SITE PLAN : OVERALL GROUND FLOOR PLAN  
SCALE: 1:500

PRELIMINARY  
NOT FOR CONSTRUCTION[illegible]

Journal of Interpersonal Violence 26(12) 2389-2406  
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DOI: 10.1177/0886260511419111  
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**watson  
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| DATE     | APRIL 2022 |
| DRAWN BY | ST         |
| SCALE    | 1:500 @ A1 |
| SCALE    | 1:250 @ A3 |

CHARTER HALL

**SITE PLAN (GFA) PDA DEVELOPMENT  
SCHEME**

**SPECULATIVE WAREHOUSE & OFFICE**  
LOT 120, FLAGSTONE LOGISTICS ESTATE  
Oremson | one North Main | O.D.

| PROPOSED EXTERNAL FINISHES |                                          |                                  |
|----------------------------|------------------------------------------|----------------------------------|
| A                          | PRECAST CONCRETE<br>PAINT FINISH         | WINDSPRAY                        |
| B                          | PRECAST CONCRETE<br>PAINT FINISH         | MONUMENT                         |
| C                          | PRECAST CONCRETE<br>PAINT FINISH         | SUPPORT                          |
| D                          | PRECAST CONCRETE<br>PAINT FINISH         | SHALE GREY                       |
| E                          | PRECAST CONCRETE<br>PAINT FINISH         | CHARTERHALL BLUE                 |
| F                          | PRECAST CONCRETE<br>PAINT FINISH         | WOODLAND GREY                    |
| G                          | PRECAST CONCRETE<br>PAINT FINISH         | BSALT                            |
| H                          | CLADDING WALL                            | COLORBOND<br>SHALE GREY          |
| I                          | COLORBOND WALL<br>CLADDING               | COLORBOND<br>HOSPITALITY         |
| J                          | COLORBOND WALL<br>CLADDING               | COLORBOND<br>MONUMENT            |
| K                          | COLORBOND WALL<br>CLADDING               | COLORBOND<br>SUPPORT             |
| L                          | COLORBOND WALL<br>CLADDING               | COLORBOND<br>CHARTERHALL BLUE    |
| M                          | COLORBOND WALL<br>CLADDING               | COLORBOND<br>WOODLAND GREY       |
| N                          | COLORBOND WALL<br>CLADDING               | BSALT                            |
| O                          | COLORBOND WALL<br>CLADDING               | THUNDER<br>ZINCALUME             |
| P                          | ROLLER SHUTTER<br>DOOR CLADDING          | COLORBOND<br>MONUMENT            |
| Q                          | ROLLER SHUTTER<br>DOOR CLADDING          | COLORBOND<br>MONUMENT            |
| R                          | BOLLARDS                                 | SAFETY YELLOW                    |
| S                          | COLORBOND FASCIA                         | MONUMENT                         |
| T                          | ALUMINIUM FRAMED<br>GLAZING              | LOW E GLAZE                      |
| U                          | POLYCARBONATE FINISH                     | CHEMICAL                         |
| V                          | SOLID ALUMINIUM<br>WALL CLADDING         | WHITE/TIMBER<br>LOOK             |
| W                          | ALUMINIUM SLOTT<br>WALL CLADDING         | TIMBER LOOK COLOR<br>AS SELECTED |
| X                          | TIMBER LOOK<br>ALUMINIUM SLICES          | OK - TIMBER                      |
| Y                          | ALUMINIUM SLICES<br>AND COLORBOND TINTED | TINTED                           |
| BNL                        | NOOF BRIGHT                              |                                  |

PRELIMINARY  
NOT FOR CONSTRUCTION

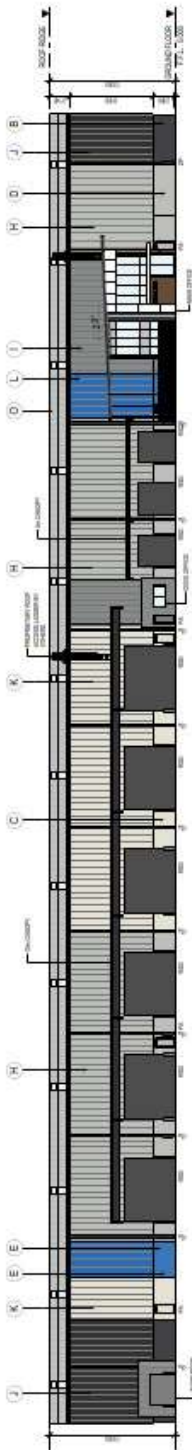
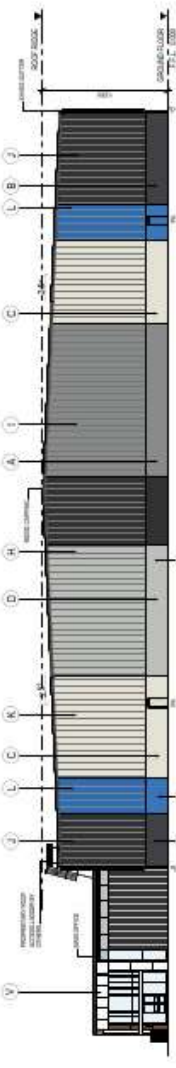
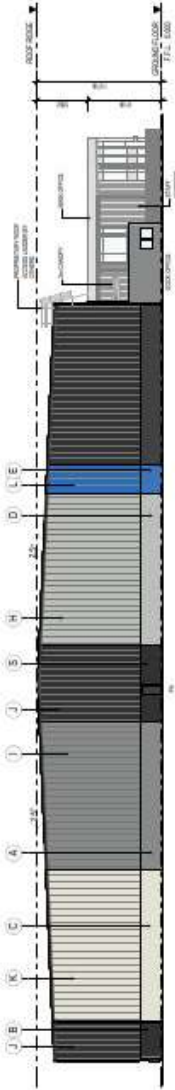
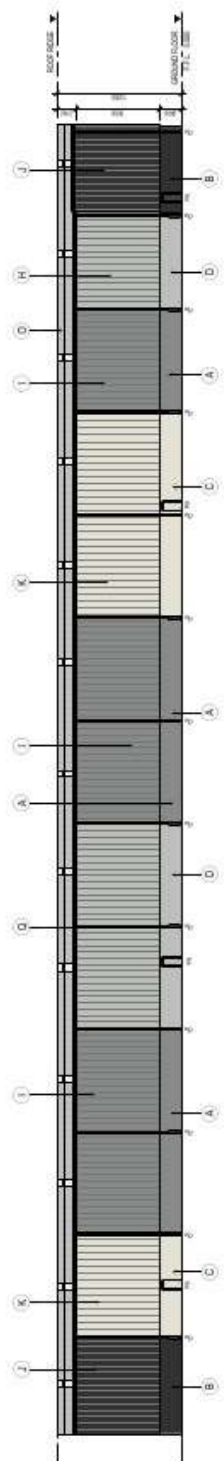
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| 1980-1989 | 100.0000  | 100.00 | 100.00 |
| 1990-1999 | 100.0000  | 100.00 | 100.00 |
| 2000-2009 | 100.0000  | 100.00 | 100.00 |

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**watson  
young**

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| DATE     | APRIL 2025 |
| DRAWN BY | BT         |
| SCALE    | 1:250 @ A1 |
| SCALE    | 1:500 @ A3 |

NORTH ELEVATION VIEW  
SCALE: 1/320

CHARTER HALL

OVERALL ELEVATIONS

**SPECULATIVE WAREHOUSE & OFFICE**  
**LOT 103, FLAGSTONE LOGISTICS ESTATE**  
 (near North Midway, Off D)