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Charter Hall

Lot 101 Flagstone Logistics Estate, North Maclean

Noise Impact Assessment

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

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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 land at 4499-4651 Mount Lindesay Highway, North MacLean QLD 4280 and described as Lot 39 on SP258739 (site). This PDA Development Application seeks approval from the Minister of Economic Development Queensland for the following aspects of development:

- Development Permit for Reconfiguring a Lot - 1 into 8 Lots plus access easements, and
- Development Permit for a Material Change of Use for Warehouse (Distribution Centre).

This Noise Impact Assessment has also been prepared on behalf of the Applicant to support a development application over part of the site (Proposed Lot 101). A previous assessment was conducted for a speculative tenancy as the future tenant was unknown. This report version reassesses the site with the inclusion of tenant specific operation information.

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

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This Noise Impact Assessment has also been prepared on behalf of the Applicant to support a development application over part of the site (Proposed Lot 101). A previous assessment was conducted for a speculative tenancy as the future tenant was unknown. This report version reassesses the site with the inclusion of tenant specific operation information. The assessment consisted of the following:

- Description of the project location and the surrounding area,
- Description of proposed operations of the future tenant,
- 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 101 for a warehouse with a GFA of 18,550m² (including office space) on a total site area of 29,385m². 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.



Figure 2-1 – Project Location



Figure 2-2 - Site Location and Surrounding Zoning

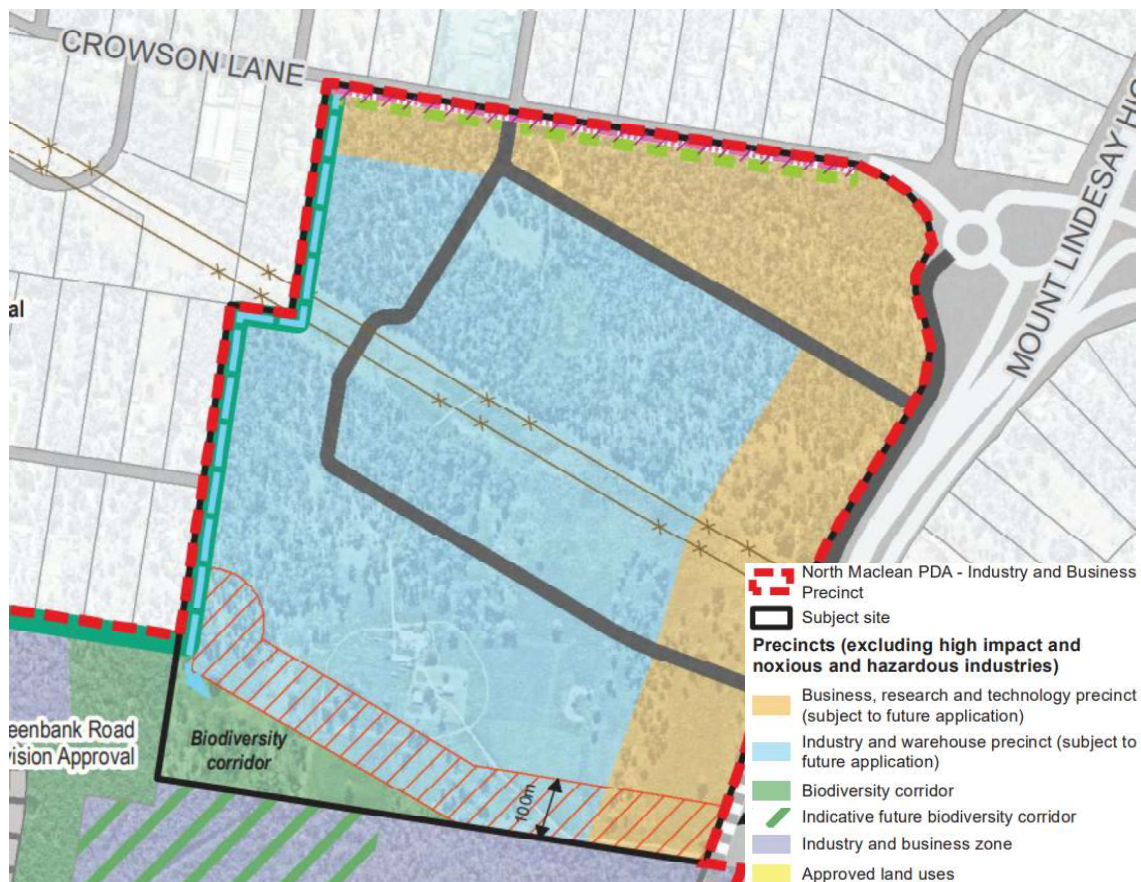


Figure 2-3 - Site Location and Proposed Precinct Zoning

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, car parking 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.

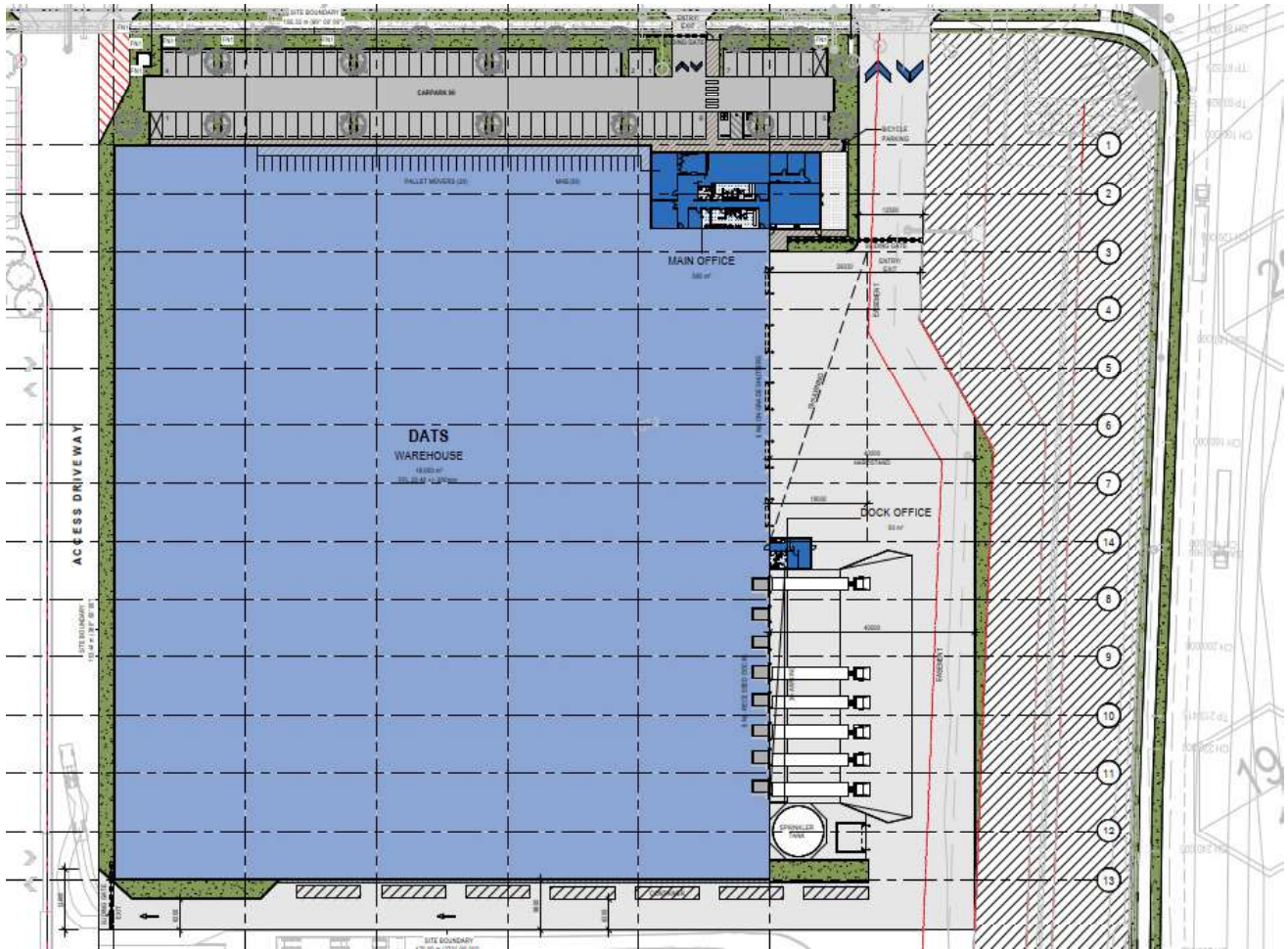


Figure 3-1 - Layout of the Project Facility

3.1 Population and Hours of Operation

The proposed tenant for the warehouse, DATS, has provided additional information on the proposed operation hours, shift times and number of staff per shift, reproduced in Table 3-1 below.

Table 3-1 - Population and Hours of Operation

Area	Time	Total Staff
Warehouse	Shift 1: 6:30am – 2:30pm	50
	Shift 2: 2:30pm – 10:30pm	30
	Shift 3: 10:30pm – 6:30am	20
Office	8:00am – 5:00pm	4

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 13th July 2022) between the 21st and 26th 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 noise monitoring results processed by Vipac are shown in Table 4-1.

Table 4-1 - Monitoring Location Noise Levels

Dates	L _{Aeq}			L _{A10}			RBL			L _{A90}		
	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	-
Total	49	46	45	51	49	47	36	33	28	42	41	40

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 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 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 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 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 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 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 7:00am – 6:00pm	47 dB(A)
	Evening 6:00pm to 10:00pm	46 dB(A)
	Night 10:00 – 7:00am	40 dB(A) and $L_{Amax} \leq 60dB(A)$
Continuous noise	Day 7:00am – 6:00pm	42 dB(A)
	Evening 6:00pm to 10:00pm	41 dB(A)
	Night 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 (approved 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).

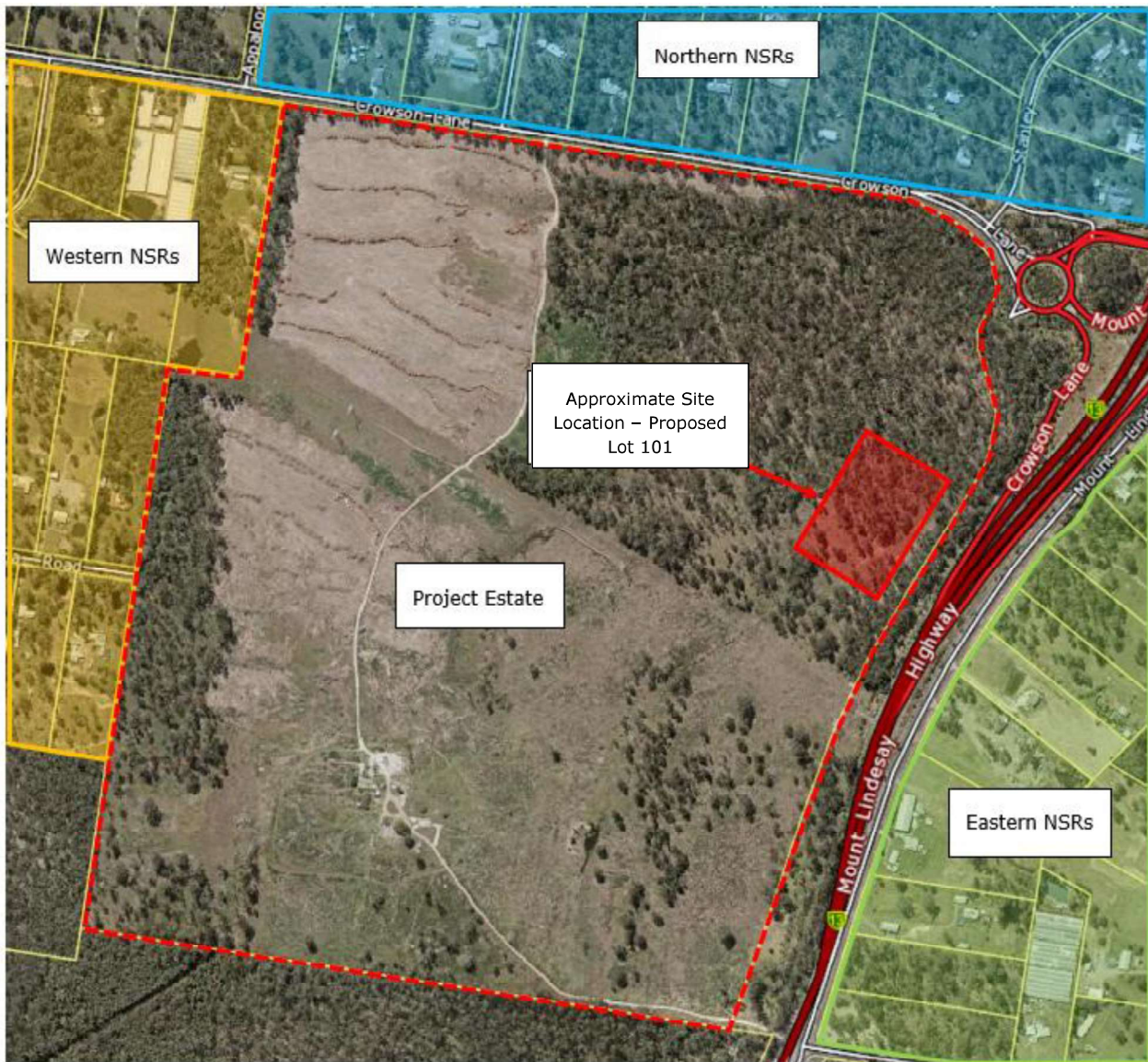


Figure 6-1 - Noise Sensitive Receptors

- Eastern NSRs:
 - 4524-4622 Mount Lindsay Highway.
- Northern NSRs:
 - 1-23 Stanley Court.
 - 61-109 Crowson Lane.
- Western NSRs:
 - 142-152 Crowson Lane.
 - 141-148 Rosina Road.

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:

- 'Overall Site Plan, drawing no. SK01, rev P2, provided by Watson Young dated 16/01/2025.
- Design Levels TIN provided by Charter Hall dated 23/09/2023.
- Design Levels:
 - 'BN253338 Design Contours' dated 17/01/2025, provided by Northrop, and
- Schedule 6 of the Logan City Council Planning Scheme 2015 (Version 8).

6.2.2 Noise Sources

Proposed equipment information for the site was provided by DATS. 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 L _{Aeq} dB(A)	Sound Pressure Level (SPL) @1m L _{AMax} dB(A)
Passenger Vehicle Pass By	62	67
Passenger Vehicle Ignition	72	75
Passenger Vehicle Door Close ²	77	84
Heavy Vehicle Passby	80	89
Heavy Vehicle Reverse Beeping ^{2,3}	94	101
Electric forklift (loading/unloading outside on loading dock)	82	86
Electric forklift (loading/unloading inside warehouse)		
Auto Pallet Wrapper ⁴	80 ⁵	90
Auto Pallet Inverter ⁴	75 ¹	85
Pallet Wrapper Compressor	86	90

¹ 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>).

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

³ Includes 5 dB(A) adjustment to account for tonality characteristics.

⁴ L10, L1 and Lmax data was not available. A conservative assumption of 5, 9, and 10dB(A) above the L_{Aeq} respectively has therefore been applied.

⁵ Noise source obtained from Fromm Packaging Australia FSW360 Pallet Wrapping Machine. Noise level assumed to be Leq SPL @ 1m (<https://www.fromm-pack.com.au/media/j0vbujyx/operation-manual.pdf>).

Noise level predictions have been made at 1.5m above ground level.

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.
- Vehicle generation for the site has been based on operational information provided by DATS, detailed below:
 - Light vehicle generation has been based on the staff numbers per shift as detailed in Table 3-1 and the assumption of 5 light vehicles for visitors each day period:
 - Daytime movements:
 - 80 movements between 2:00pm and 3:00pm to account for 'Shift 1 (50 staff)' departing and 'Shift 2 (30 staff)' arriving within the same hour.
 - 8 movements for office staff:
 - 4 movements arriving between 7:00am and 8:00am, 4 movements for staff departing at 5:00pm.
 - Evening movements: none.
 - Night movements:
 - 50 movements between 10:00pm and 11:00pm to account for 'Shift 2 (30 staff)' departing and 'Shift 3 (20 staff)' arriving within the same hour.
 - 70 movements between 6:00am and 7:00am to account for 'Shift 3 (20 Staff)' departing and 'Shift 1 (50 staff)' arriving within the same hour.
 - Heavy vehicle generation information provided by DATS:
 - 80 Heavy Vehicle movements per week (60 Semi-trailers and 20 B-doubles).
 - The assessment has assumed these 80 movements occur Monday to Friday, equalling to approx. 16 vehicles per day. It should be noted that the use and development proposal is for 24/7 operation. This is therefore a conservative assumption as it is expected that some of the 80 movements will occur on weekends, thus having fewer movements during the week than what has been assessed.
 - It is assumed the majority of these movements will occur during the day, with 1 heavy vehicle per hour, and 1 heavy vehicle every two hours during the evening and night period (i.e. 6pm-7am).
 - Reverse beeping alarms from heavy vehicle deliveries are assumed to occur for approximately 20 seconds per movement.
- 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 (i.e. Heavy Rigid, B-Doubles, Semi-trailers) 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/Electric Pallet Jack usage associated with loading/unloading product, as a worst case, is assumed to occur for each heavy vehicle movement (i.e. 1 vehicle 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.
 - Assuming loading/unloading takes approximately 5 minutes for each heavy vehicle.
 - 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/hr.

- 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 (as shown in Appendix C).
- **DATS** have advised a total of 30 electric forklifts and 20 pallet movers are expected to be used within the warehouse. All have been dispersed evenly throughout the warehouse.
 - Forklift noise sources have been modelled as a point sources at 1.0m above ground.
- Auto pallet wrapping (including associated compressor) have been modelled as point sources at 1.0m above ground) at the location stipulated on the floor plan of the warehouse.
- **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 6m high as per the elevation drawings.
- Building height is modelled to be approximately 14.6m as per elevation drawings.

Table 6-2 summarises the number of movements/activity assumptions used for the EDQ/LCC assessment.

Table 6-2 - EDQ/LCC Movement/Activity Assumptions

Noise Source	Assumed Events per D/E/N Period or % per hour
Passenger Vehicle Pass By	93/0/120
Passenger Vehicle Ignition	59/0/50
Passenger Vehicle Door Close	93/0/120
Heavy Vehicle Passby	1/0.5/0.5
Heavy Vehicle Reverse Beeping (each side of warehouse)	20 seconds per heavy vehicle
Electric forklift (loading/unloading outside on loading dock)	5 minutes per heavy vehicle
Electric forklift (loading/unloading inside warehouse)	50% per hour
Auto Pallet Wrapper	50% per hour
Auto Pallet Inverter	50% per hour
Pallet Wrapper Compressor	50% per hour

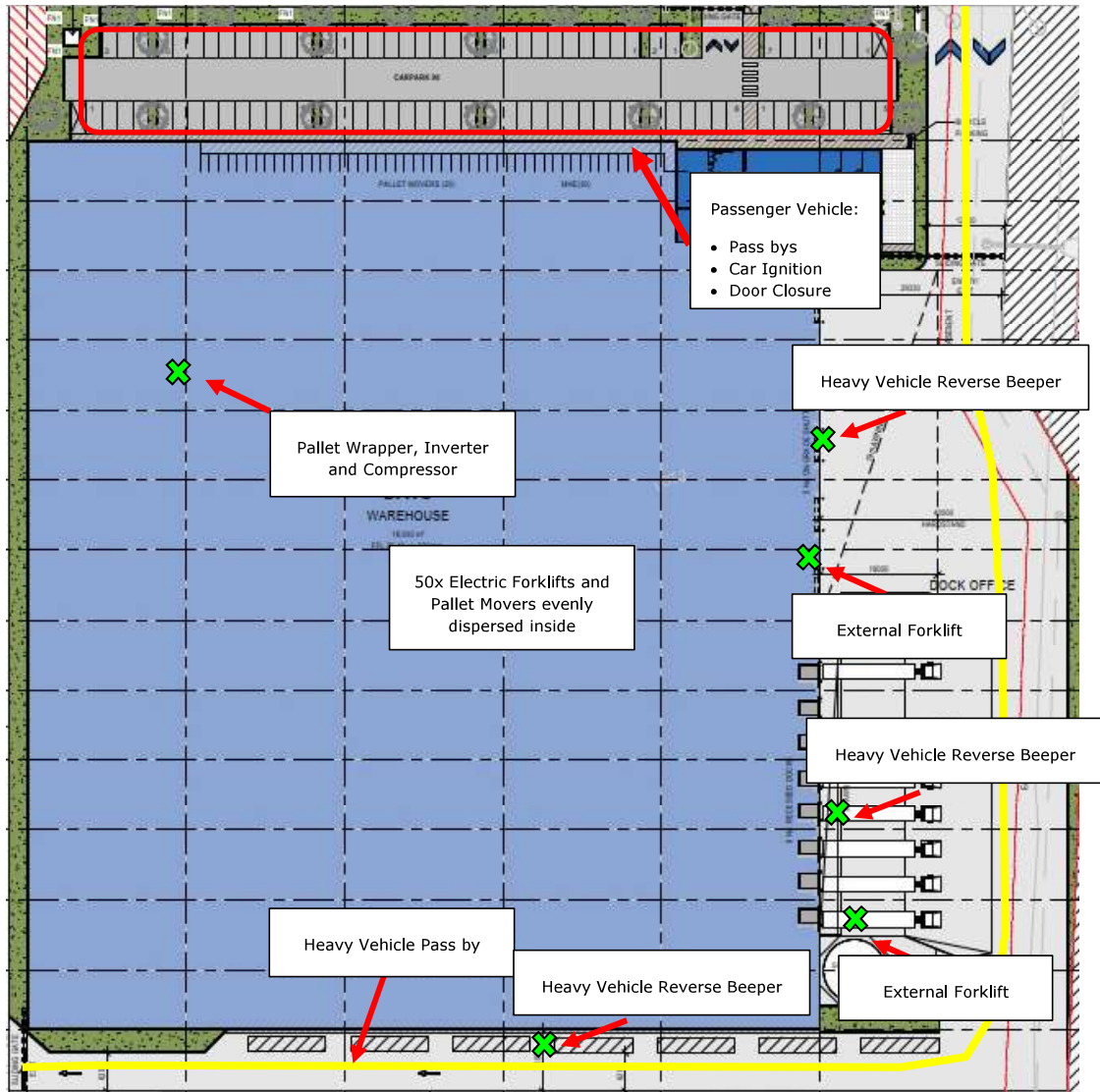


Figure 6-2 - Modelled Noise Source Locations

Note – Point sources for Heavy Vehicle Reverse Beeper and External Forklift account for all assumed number of events occurring in the one location. This is considered conservative as it is expected the number of events will be evenly dispersed across the eastern side of the development.

7 Results

7.1 Predicted Noise Levels at the NSRs

Worst case predicted cumulative noise emissions from the project have been compared against the EDQ/LCC 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) L_{Amax}
1-23 Stanley Court	22	21	22	34
2-10 Stanley Court	23	23	24	28
51-59 Crowson Lane	23	22	23	27
61-69 Crowson Lane	23	22	23	26
71-79 Crowson Lane	22	21	22	25
81-89 Crowson Lane	21	20	21	24
91-99 Crowson Lane	20	19	20	22
101-109 Crowson Lane	19	18	19	21
141-147 Rosina Road	15	14	14	36
142-148 Rosina Road	16	15	15	40
142-152 Crowson Lane	16	16	16	38
4524-4534 Mount Lindesay Highway	30	28	29	55
4536-4542 Mound Lindesay Highway	30	29	29	53
4544-4554 Mount Lindesay Highway	32	30	30	55
4556-4564 Mount Lindesay Highway	33	32	32	56
4566-4574 Mount Lindesay Highway	33	32	32	56
4576-4584 Mount Lindesay Highway	34	33	33	57
4586-4600 Mount Lindesay Highway	33	32	32	55
4602-4622 Mound Lindesay Highway	30	29	29	52

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

7.2 Preliminary Mechanical Plant 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 (i.e. 40db(A) for continuous noise) 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 SPL @1m from the mechanical plant to achieve compliance, L_{eq} dB(A)
		Night
Nearest Site Boundary	Warehouse Rooftop	85

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.

7.3 Summary of Changes from Previous Assessment

In the interests of providing a comparison of results between this assessment and previous assessments for Lot 101, now that the warehouse tenant has been confirmed, the following notable changes are observed in the results:

- Lower noise emissions in all time periods:
 - This is primarily due to the significant reduction in light and heavy vehicle generation numbers from previous assessments. The previous reporting relied on generic warehouse/industrial vehicle generation rates provided by Bitzios Consulting for a speculative use.
 - The inclusion of assumptions based on vehicle generation provided by DATS (the tenant) resulted in a significant decrease of movements but is expected to be a more realistic and accurate representation of the expected noise emissions from the development.
- Revised warehouse design:
 - The new warehouse design reduces the number of roller doors, and removes roller doors facing the west. This results in a significant reduction in noise emissions in the westerly direction.

It is recommended to refer to the current noise contour maps in Appendix A and compare them alongside the noise contour maps in the previous report (ref: 70B-23-0424-TRP-65881-4) to see a visual representation of the effect of the changes between assessments.

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 General Noise Management Strategies

The following management strategies are recommended to minimise noise annoyance:

- Any speed humps should be bitumen, concrete (as part of the slab), or rubber, not metal.
- Any grates or other protective covers in any hardstand area or access driveway must be rigidly fixed in position to eliminate clanging and be maintained.

Note – these recommendations do not imply that these activities will be inaudible at the boundary.

8.2 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 101 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 per 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

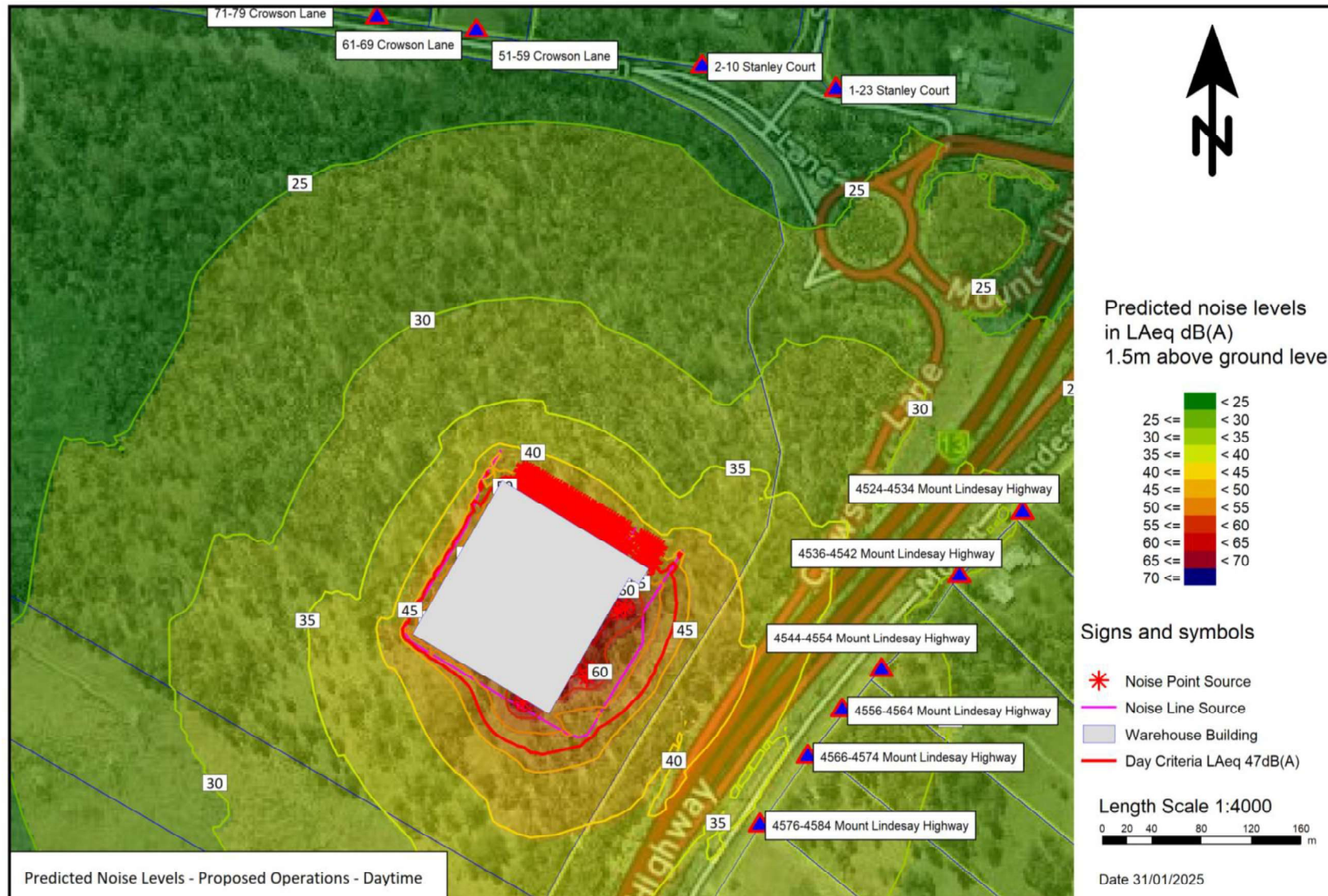


Figure A 1 - Predicted Daytime Noise Levels – EDQ/LCC

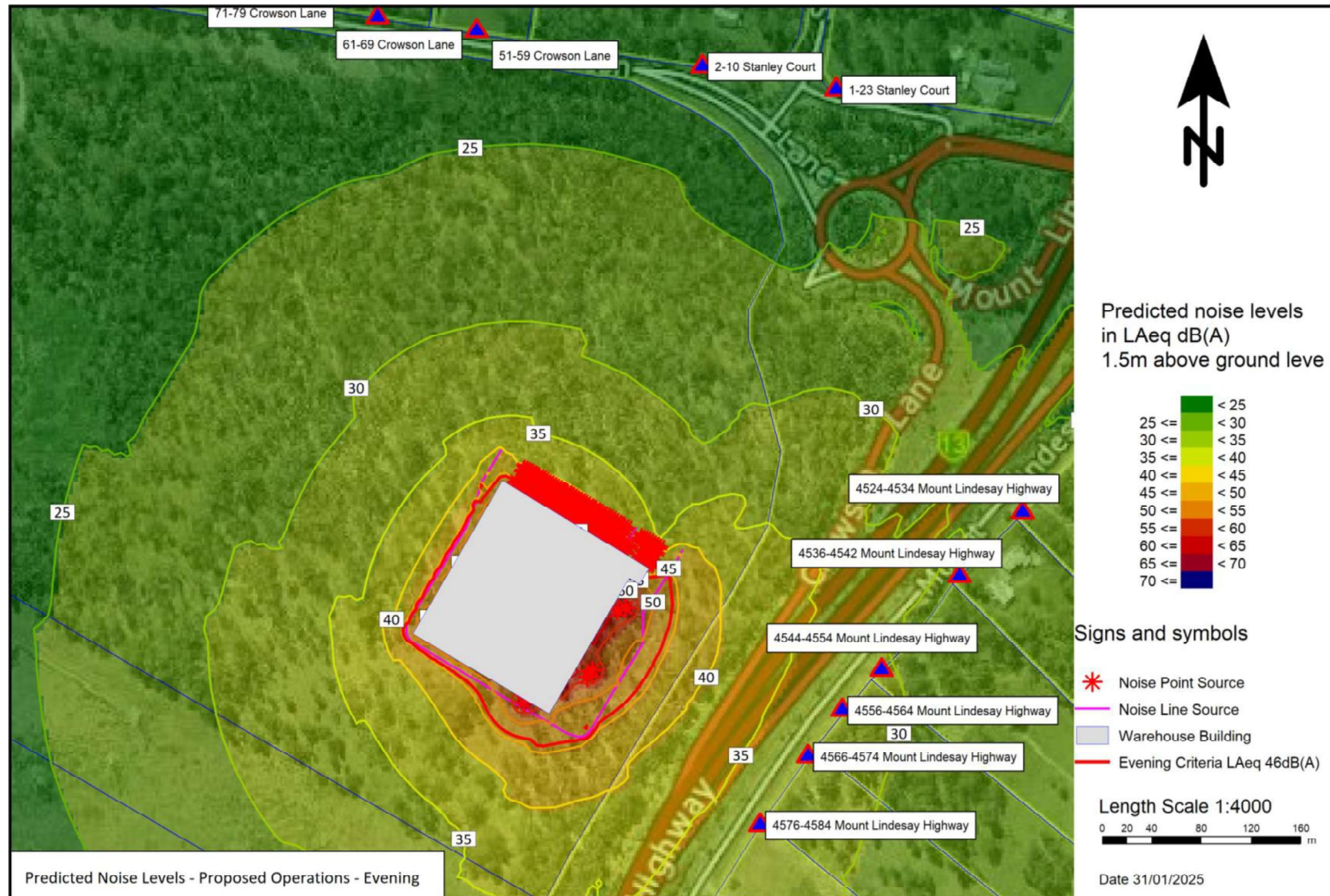


Figure A 2 - Predicted Evening Noise Levels – EDQ/LCC



Figure A 3 Predicted Night-time Noise Levels – EDQ/LCC



Figure A 4 - Predicted Night-time Noise Levels (LMax) – EDQ/LCC

Appendix B Source Contribution Samples at Most Exposed NSR

Lot 101 Flagstone Contribution level - Lot 101 Jan 2025 SPC			9
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Source	Ld dB(A)	Le dB(A)	Ln dB(A)
Receiver 4576-4584 Mount Lindesay Highway	Ld 34.3 dB(A)	Le 33.0 dB(A)	Ln 33.0 dB(A)
Reverse Beep Recessed Dock	27.1	24.0	24.0
Reverse Beep On Grade Dock	27.0	24.0	24.0
Warehouse Building Leq-Roof	24.7	24.7	24.7
Reverse Beep Recessed Dock	23.4	20.4	20.4
Warehouse Building Leq-East Facade	22.2	22.2	22.2
Warehouse Building Leq-On Grade Roller 5	21.5	21.5	21.5
Warehouse Building Leq-On Grade Roller 4	21.1	21.1	21.1
Warehouse Building Leq-On Grade Roller 3	20.9	20.9	20.9
Warehouse Building Leq-On Grade Roller 2	20.5	20.5	20.5
Warehouse Building Leq-On Grade Roller 1 (North)	20.2	20.2	20.2
Unloading Forklift	17.4	14.3	14.3
Unloading Forklift	17.1	14.1	14.1
Warehouse Building Leq-Northern Facade	15.0	15.0	15.0
Warehouse Building Leq-Recessed Dock 6	14.7	14.7	14.7
Warehouse Building Leq-Recessed Dock 3	14.6	14.6	14.6
Heavy Vehicle Passby L10	14.6	11.5	11.5
Warehouse Building Leq-Recessed Dock 5	14.5	14.5	14.5
Warehouse Building Leq-Recessed Dock 7	14.5	14.5	14.5
Warehouse Building Leq-Recessed Dock 2	14.4	14.4	14.4
Warehouse Building Leq-Recessed Dock 8 (South)	14.4	14.4	14.4
Warehouse Building Leq-Recessed Dock 4	14.3	14.3	14.3
Warehouse Building Leq-Recessed Dock 1	14.2	14.2	14.2
Warehouse Building Leq-North Warehouse Facade	2.0	2.0	2.0
Warehouse Building Leq-Western Facade	0.5	0.5	0.5
Car Door Closure	-5.0		-3.0
Car Door Closure	-5.0		-3.1
Car Door Closure	-5.1		-3.2
Car Door Closure	-5.4		-3.5
Car Door Closure	-5.5		-3.6
Car Door Closure	-5.6		-3.6
Car Door Closure	-5.7		-3.7
Car Door Closure	-5.9		-3.9
Car Door Closure	-6.0		-4.0
Car Door Closure	-6.1		-4.1
Car Passby	-9.1		-7.1
Car Door Closure	-9.9		-7.9
Car Engine Ignition	-10.1		-9.9
Car Engine Ignition	-10.2		-9.9
Car Engine Ignition	-10.3		-10.0
Car Engine Ignition	-10.3		-10.1
Car Engine Ignition	-10.5		-10.3
Car Engine Ignition	-10.6		-10.4
Car Engine Ignition	-10.7		-10.5
Car Engine Ignition	-10.8		-10.5

Vipac Engineers & Scientists Pty Ltd		1
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SoundPLAN 8.2

Appendix C 0.4 BMT Sheet Metal R_w Prediction

Sound Insulation Prediction (v9.0.20)

Program copyright Marshall Day Acoustics 2017
Margin of error is generally within $R_w \pm 3$ dB
Key No. 1709

Job Name:

Job No.:

Date: 25/09/2023

File Name:

Initials: patrickd

Notes:



R_w 18 dB
 C 0 dB
 C_{tr} -2 dB

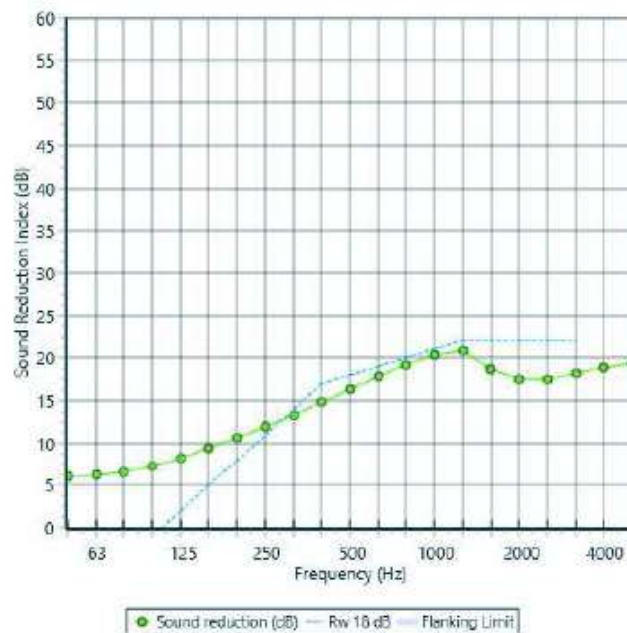
Panel Size = 2.7 m x 4.0 m

Partition surface mass = 3.12 kg/m²

System description

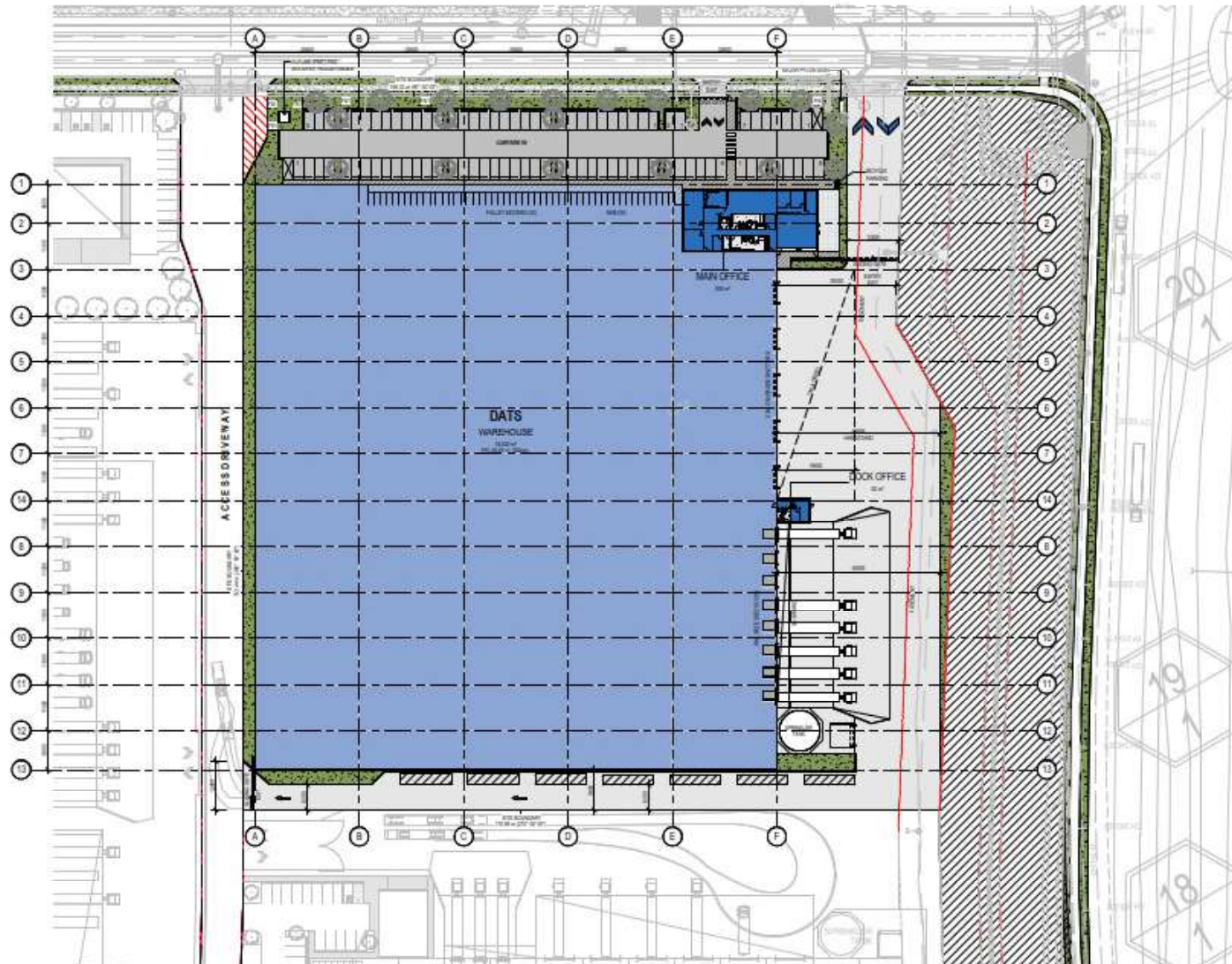
Panel 1: 1 x 0.4 mm Custom Orb (0.55mm)

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



500 SITE PLAN (GLA)
SCALE: 1:500

DEVELOPMENT ANALYSIS

BUILDING	GFA
WAREHOUSE	18,330 m²
OFFICE	550 m²
DOCK OFFICE	50 m²
TOTAL AREA	18,930 m²

EXTERNAL AREAS (APPROX)

CANOPIES	1,229 m²
PARKING	5,305 m²
LANDSCAPE	3,055 m²
TOTAL	9,589 m²

PARKING	
BAYS PROVIDED	90

SITE COVERAGE	
TOTAL SITE AREA	28,519 m²
TOTAL BUILDING FOOTPRINT	18,930 m²
NET FLOOR AREA	
SITE COVERAGE	66%

LEGEND

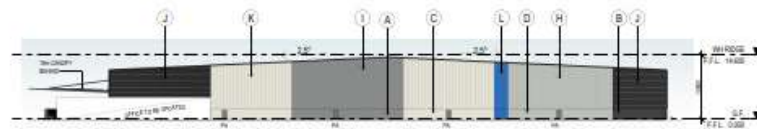
[Blue Box]	WAREHOUSE
[Light Blue Box]	OFFICE
[Hatched Box]	INDICATES EXISTING OR HEAVY DUTY HARDWARE TO LOCAL ENGINEERING DETAIL
[Hatched Box]	INDICATES EXISTING OR LIGHT DUTY HARDWARE TO LOCAL ENGINEERING DETAIL
[Hatched Box]	INDICATES EXISTING OR APPROXIMATE HEAVY DUTY HARDWARE TO LOCAL ENGINEERING DETAIL
[Hatched Box]	CONCRETE FLOORING (APPROXIMATE) INDICATES EXISTING OR APPROXIMATE
[Hatched Box]	INDICATES EXISTING TRUCK ACCESS ROAD TO BE USED APPROVAL
[Hatched Box]	AREA OF ORIGIN (LANDSCAPE) REFER TO LANDSCAPE ARCHITECT'S DRAWING FOR LANDSCAPE (L1) AND (L2) DETAILS
[Red Line]	ACCESSORY LINE
[Red Line]	PAVE TYPE 1 (STRAIGHT) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 2 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 3 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 4 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 5 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 6 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 7 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 8 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 9 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 10 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 11 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 12 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 13 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 14 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 15 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 16 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 17 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 18 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 19 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL
[Red Line]	PAVE TYPE 20 (CURVED) INDICATES EXISTING OR APPROXIMATE PAVING WITH SURFACING OF BARRIER OR RAIL

NO.	DATE	REVISION	BY	CHK.
1	1/1/2025	PRELIMINARY DESIGN	ST	ST
2	1/1/2025	FINAL DESIGN	ST	ST

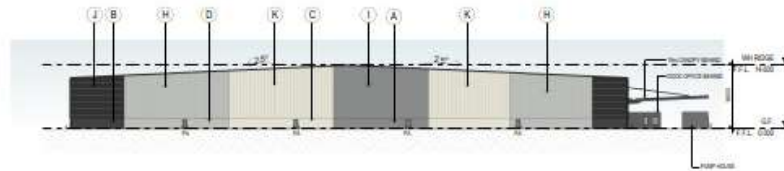
These drawings are intended for use as a guide only and are not to be used for construction purposes without the approval of the relevant authorities. The client is responsible for ensuring that the drawings are used in accordance with the relevant regulations and standards. The client is also responsible for ensuring that the drawings are used in accordance with the relevant regulations and standards.

Watermark: 25004
SK01 P2
watson young

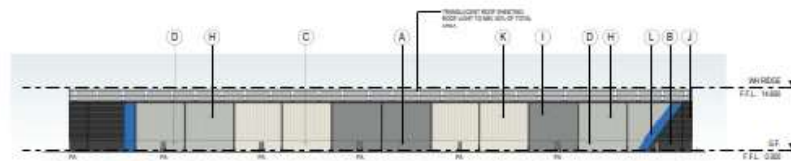




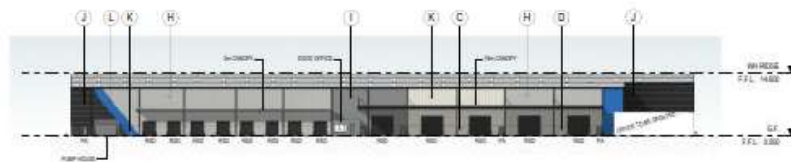
WAREHOUSE ELEVATION - NORTH
SCALE: 1:500



WAREHOUSE ELEVATION - SOUTH
SCALE: 1:500



WAREHOUSE ELEVATION - WEST
SCALE: 1:500



WAREHOUSE ELEVATION - EAST
SCALE: 1:500

EXTERNAL FINISHES

A	PRECAST CONCRETE PANEL, PAINT FINISH	WINDSPRAY
B	PRECAST CONCRETE PANEL, PAINT FINISH	MONUMENT
C	PRECAST CONCRETE PANEL, PAINT FINISH	SURFACIT
D	PRECAST CONCRETE PANEL, PAINT FINISH	SHALE GREY
E	PRECAST CONCRETE PANEL, PAINT FINISH	CHARTER HALL BLUE
F	PRECAST CONCRETE PANEL, PAINT FINISH	WOODLAND GREY
G	PRECAST CONCRETE PANEL, PAINT FINISH	SASALT
H	COLORBOND WALL CLADDING	COLORBOND SHALE GREY
I	COLORBOND WALL CLADDING	COLORBOND WINDSPRAY
J	COLORBOND WALL CLADDING	COLORBOND MONUMENT
K	COLORBOND WALL CLADDING	COLORBOND SURFACIT
L	COLORBOND WALL CLADDING	CHARTER HALL BLUE
M	COLORBOND WALL CLADDING	WOODLAND GREY
N	COLORBOND WALL CLADDING	COLORBOND BASALT
O	ROOF CLADDING	TIMBER, ZINCALUME
P	ROLLER SHUTTER DOOR CLADDING	COLORBOND MONUMENT
Q	DOWNPIPES / GUTTERS / RA. DOWNS	COLORBOND MONUMENT
R	BOLLARDS	SAFETY YELLOW
S	COLORBOND FASCIA	MONUMENT
T	ALUMINUM FRAMED GLAZING	LOW E GLASS
U	WINDOW FRAME	CHARCOAL
V	SOLID ALUMINUM WALL CLADDING	WHITE
W	ALUMINUM SOFFIT	TIMBER LOOK COLOUR AS SELECTED
X	TIMBER SCREEN	OAK - TIMBER
Y	ALUMINUM FRAMED COLORBACK TINTED GLAZING	TINTED

DRAFT

PROJECT
DATS
LOT 101, FLAGSTONE LOGISTICS ESTATE

TITLE
WAREHOUSE ELEVATIONS

Charter Hall

DATE: JANUARY, 2025
DRAWN BY: ST
SCALE: As indicated @ A1

25004
SK03 P2

watson young