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Project Echidna Data Centre, 10 Eastern Creek Drive, Eastern Creek

Construction Noise Management Plan

SSD 47320208

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3	6/05/2024	20240040.1/0605A/R3/AW	AW		AW

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1 INTRODUCTION

Acoustic Logic has been engaged to prepare a Construction Noise Management Plan for the proposed data centre to be constructed at 10 Eastern Creek Drive, also known as Project Echidna. The management plan has been prepared to satisfy consent conditions for SSD 47320208. This report addresses conditions B9, 10, 11 & 12.

The issues which will be addressed in this report are:

- Identification of the noise standards which will be applicable to this project.
- Identification of potentially impacted nearby development.
- Identify likely sources of noise generation and predicted noise levels at nearby development.
- Formulation of a strategy to comply with the standards identified and mitigation treatments in the event that compliance is not achievable.

2 SITE DESCRIPTION

The development is located at 10 Eastern Creek Drive, on the corner of Old Wallgrove Road, and involves the construction of a two storey data centre. Excavation and construction works anticipated are as follows:

- Site establishment and excavation works.
- Bored piling of foundations and structural works.
- Erection of building structure (powered hand tools for formwork, concrete pump, vibrators).
- Landscaping (front end loaders etc).
- Internal fit out, predominantly behind semi-enclosed facade.

Proposed Construction hours are detailed below:

- Monday to Friday: 7am – 6pm
- Saturday: 7am – 3pm
- Sundays or Public Holidays: No work.

2.1 RECEIVER LOCATIONS

Sensitive receiver locations are presented in Figure 1 and detailed below. These locations will be used as a basis for this assessment.

Immediately surrounding the site are industrial and commercial facilities, within an existing industrial area. The closest residential receivers are located to the north, west and south, approximately 1.8km, 2.5km and 1.5km respectively.

Receivers have been identified as:

- **R1**: Residential Receiver 1 – 39 Farrington Street, Minchinbury.
- **R2**: Residential Receiver 2 – 146 Burley Road, Horsley Park.
- **R3**: Residential Receiver 3 – 3 Cletus Place, Erskine Park.
- **R4**: Residential Receiver 4 – 16 Weaver Street, Erskine Park.
- **R5**: Residential Receiver 5 – 13 Swamphen Street, Erskine Park.
- **R6**: Residential Receiver 6 – 10 Agrafe Place, Minchinbury.
- **R7**: Residential Receiver 7 – 168 McFarlane Drive, Minchinbury.
- **R8**: Residential Receiver 8 – 58 Burley Road, Horsley Park.
- **C1**: Commercial Receiver 1 – 1 Eastern Creek Drive, Eastern Creek.
- **C2**: Commercial Receiver 2 – 41 Eastern Creek Drive, Eastern Creek.
- **C3:** Commercial Receiver 3 – 45 Eastern Creek Drive, Eastern Creek.
- **C4:** Commercial Receiver 4 – 46 Eastern Creek Drive, Eastern Creek.
- **C5:** Commercial Receiver 5 – 50 Eastern Creek Drive, Eastern Creek.
- **I1:** Industrial Receiver 1 – 50 Old Wallgrove Road, Eastern Creek.
- **I2:** Industrial Receiver 2 – 36 Honeycomb Drive, Eastern Creek.
- **I3:** Industrial Receiver 3 – 3 Roberts Road, Eastern Creek.

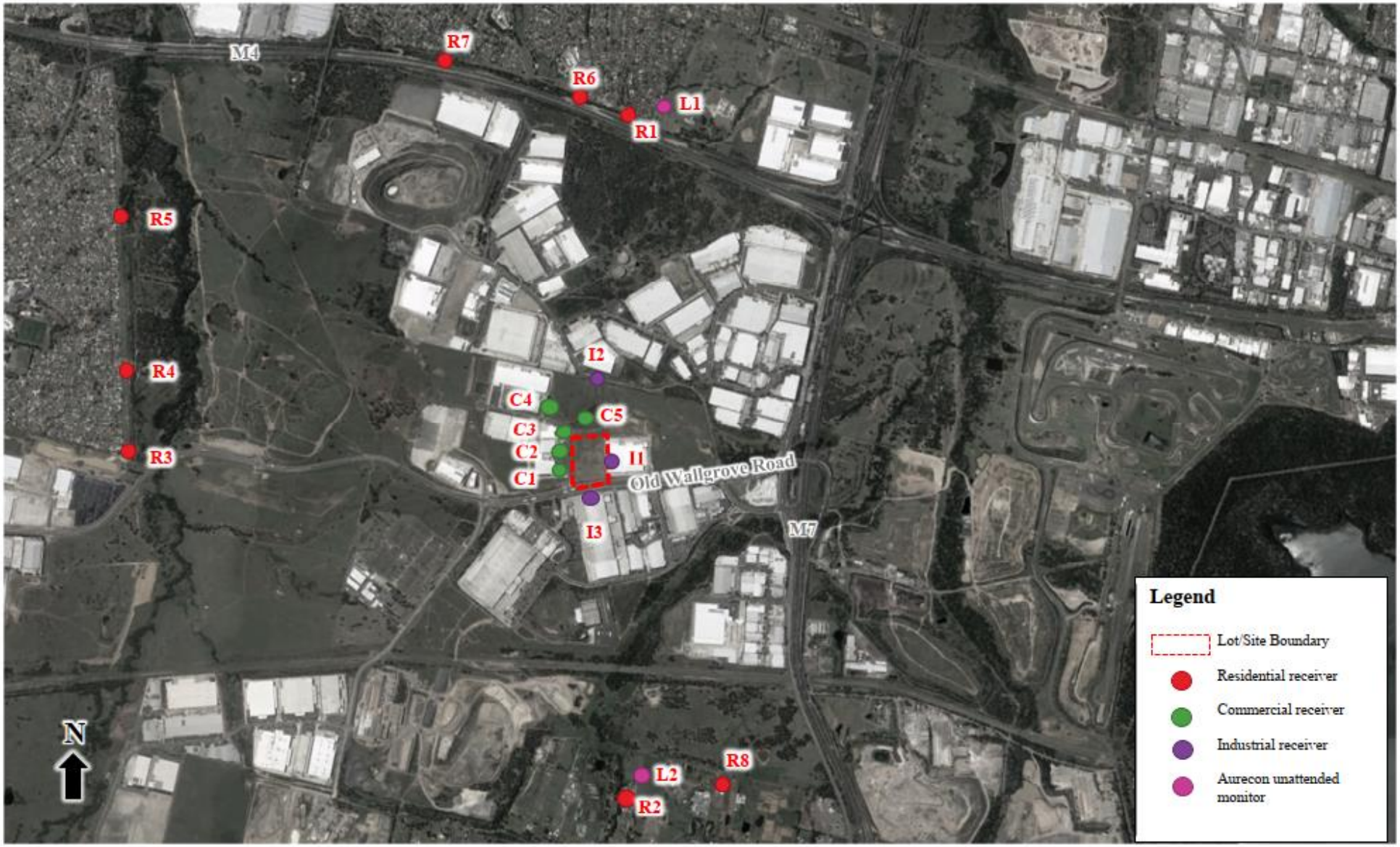


Figure 1 – Noise Receiver Locations (SSDA Acoustic Report)

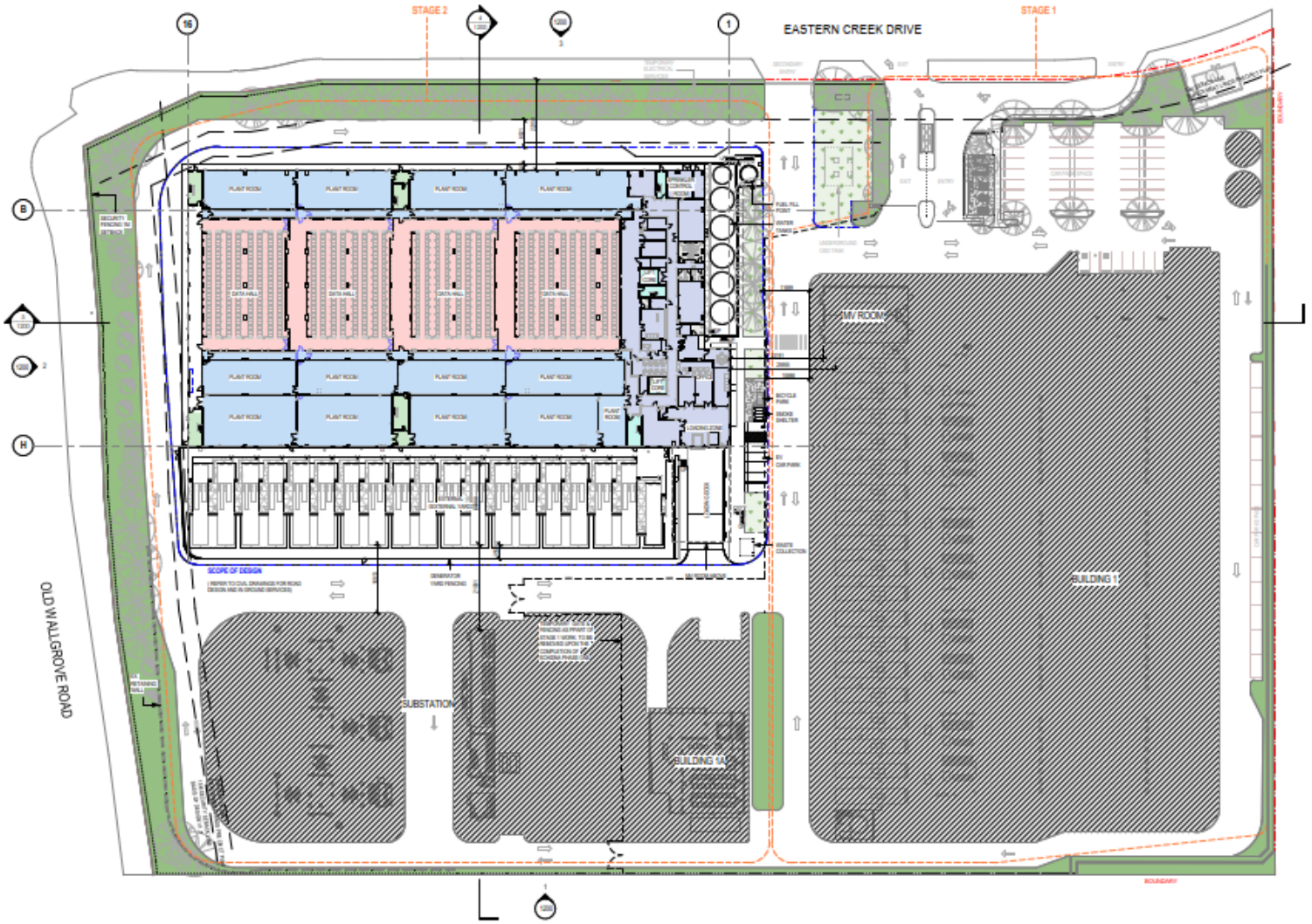


Figure 2 – Site Plan

3 BACKGROUND NOISE MEASUREMENT

Long term unattended and attended background noise measurements were undertaken by Arup at project approval stage (*Project Echidna – Noise and Vibration Impact Assessment - SSDA,* Revision 3, dated 8 February 2023) and are presented in the table below.

Table 1 – Measured Background Noise Levels, dB(A) L_{90}

Location	Period/Time	Background Noise Level dB(A) L_{90}
13 Farrington Street, Minchinbury (North of Site)	Day (7am to 6pm)	44
146 Burley Road, Horsley Park (South of Site)	Day (7am to 6pm)	41

4 CONSENT CONDITIONS – SSD 47320208

NOISE

Hours of Work

B9. *The Applicant must comply with the hours details in Table 1*

Table 1 Hours of Work

Activity	***Day***	***Time***
Construction	*Monday – Friday*	*7am to 6pm*
	Saturday	*8am – 1pm*

B10. *Works outside of the hours identified in condition B9 may be undertaken in the following circumstances:*

(a) works that are inaudible at the nearest sensitive receivers;

(b) works agreed to in writing by the Planning Secretary;

(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Construction Noise Limits

B11. *The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in the 0.*

Construction Noise Management Plan

B12. *The Applicant must prepare a Construction Noise Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition C2 and must:*

(a) be prepared by a suitably qualified and experienced noise expert;

(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated from time to time).

(c) describe the measures to be implemented to manage high noise generating works (such as piling).

(d) describe the community consultation undertaken in relation to construction noise management and outline any strategies developed with the community to manage high noise generating works, or to provide respite periods; and

(e) include a complaints management system that would be implemented for the duration of the development.

5 NOISE MANAGEMENT LEVELS

5.1 EPA INTERIM CONSTRUCTION NOISE GUIDELINE

The EPA Interim Construction Noise Guideline (ICNG) assessment requires:

- Determination of noise generation goals (based on ambient noise monitoring).
- Review of operational noise levels at nearby development.
- If necessary, recommendation of noise controls strategies in the event that compliance with noise emission goals is not possible.

EPA guidelines adopt differing strategies for noise control depending on the predicted noise level at the nearest residences:

- *"Noise affected" level*. Where construction noise is predicted to exceed the "noise effected" level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the "noise effected level". For residential properties, the "noise effected" level occurs when construction noise exceeds ambient levels by more than 10dB(A)$L_{eq(15min)}$.
- "*Highly noise affected level"*. Where noise emissions are such that nearby properties are "highly noise effected", noise controls such as respite periods should be considered. For residential properties, the "highly noise effected" level occurs when construction noise exceeds 75dB(A)$L_{eq(15min)}$ at nearby residences.

A summary of relevant construction noise management levels is presented below.

Table 2 – Noise Management Levels

Location / Receiver Type	**"Noise Affected" Level - dB(A)$L_{eq(15min)}$**	**"Highly Noise Affected" Level - dB(A)$L_{eq(15min)}$**
Residential R1 / R6 / R7 (North)	54	75
Residential R2 / R3 / R4 / R5 / R8 (West and South)	51	75
Commercial Premises	70 (When in Use)	-
Industrial Premises	75 (When in Use)	-

If predicted noise emissions from construction exceed the management levels identified in the tables above, reasonable and feasible noise management techniques will be reviewed.

6 ACTIVITIES TO BE CONDUCTED AND THE ASSOCIATED NOISE SOURCES

Typically, the most significant sources of noise or vibration generated during a construction project will be excavation, piling and structural works.

Table 5 - Sound Power Levels of the Proposed Equipment

Equipment /Process	Sound Power Level dB(A)*
Excavator with Hammer Attachment	120
Excavator / Front End Loader	110
Bored Piling Rig	110
Concrete Pump	105
Electric Crane	95
Trucks	100
Powered Hand Tools	95-100

The noise levels presented in the above table are derived from the following sources, namely:

- Table A1 of Australian Standard 2436-2010.
- Data held by this office from other similar studies.

*Noise levels take into account correction factors (for tonality, intermittency where necessary).

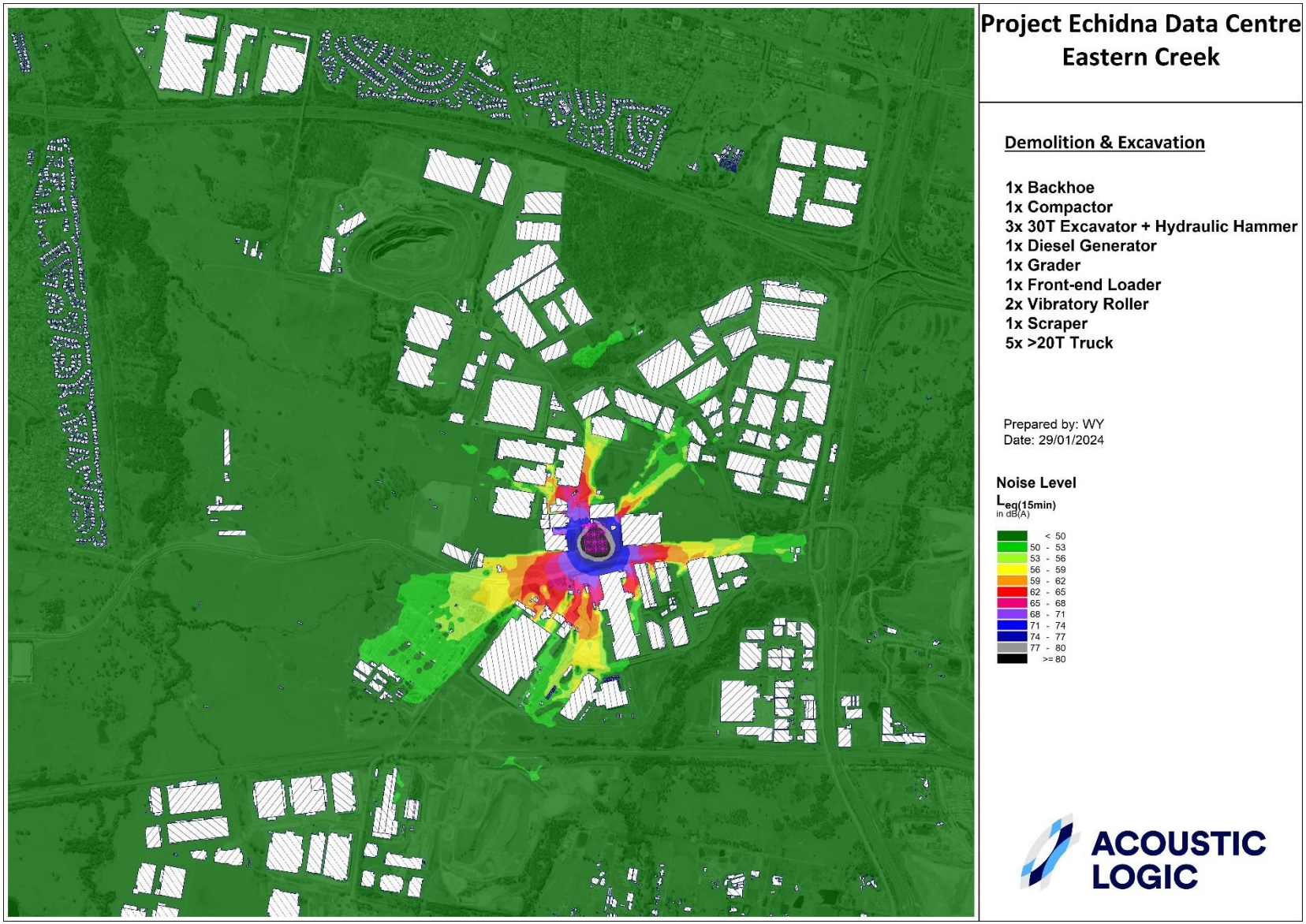
7 NOISE EMISISON PREDICTION

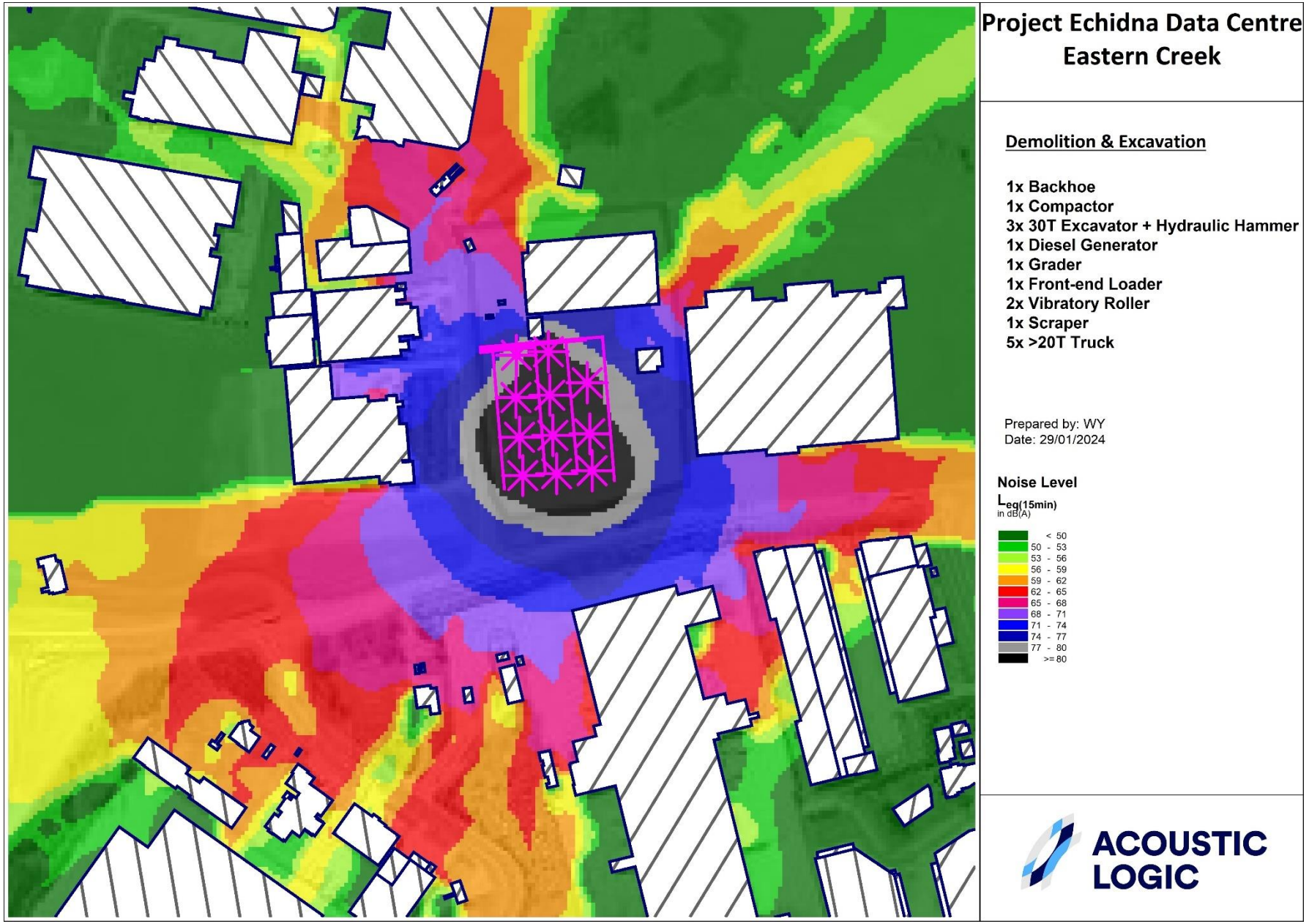
Noise emissions from the demolition/excavation/construction of the project site have been predicted at the receiver locations using SoundPlan™ modelling software implementing the ISO 9613-2:1996 *"Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation"* noise propagation Standard. Sound Power Level data used in the SoundPlan™ modelling is based on Table 3 of this report. The following weather conditions are included in the modelling based on the requirements of ISO9613:

- Wind speed of between 1m/s and 5m/s.
- 10 degrees with 70% relative humidity.

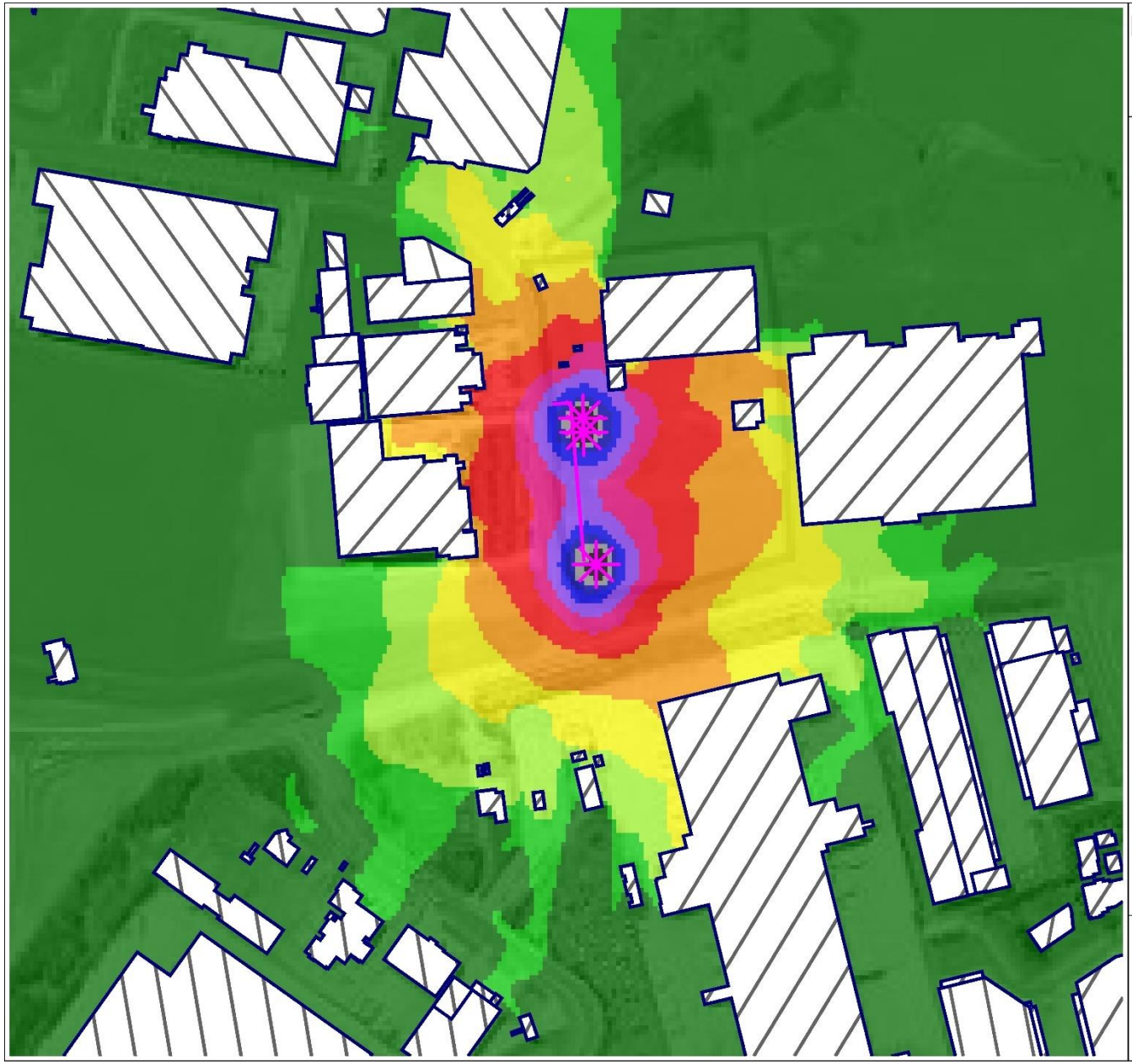
SoundPlan™ modelling has been carried out based on the equipment detailed on each stage, detailed results are presented below.

7.1 DEMOLITION & EXCAVATION PHASE




Project Echidna Data Centre
Eastern Creek
Demolition & Excavation
1x Backhoe
1x Compactor
3x 30T Excavator + Hydraulic Hammer
1x Diesel Generator
1x Grader
1x Front-end Loader
2x Vibratory Roller
1x Scraper
5x >20T Truck
Prepared by: WY
Date: 29/01/2024
Noise Level
Leq(15min)
in dB(A)
< 50
50 - 53
53 - 56
56 - 59
59 - 62
62 - 65
65 - 68
68 - 71
71 - 74
74 - 77
77 - 80
>= 80
ACOUSTIC LOGIC

7.2 STRUCTURAL WORKS



Project Echidna Data Centre
Eastern Creek

Structural Works

1x Concrete Pump
1x Concrete Pump Truck
1x Piling Rig (Bored)
1x >20T Truck

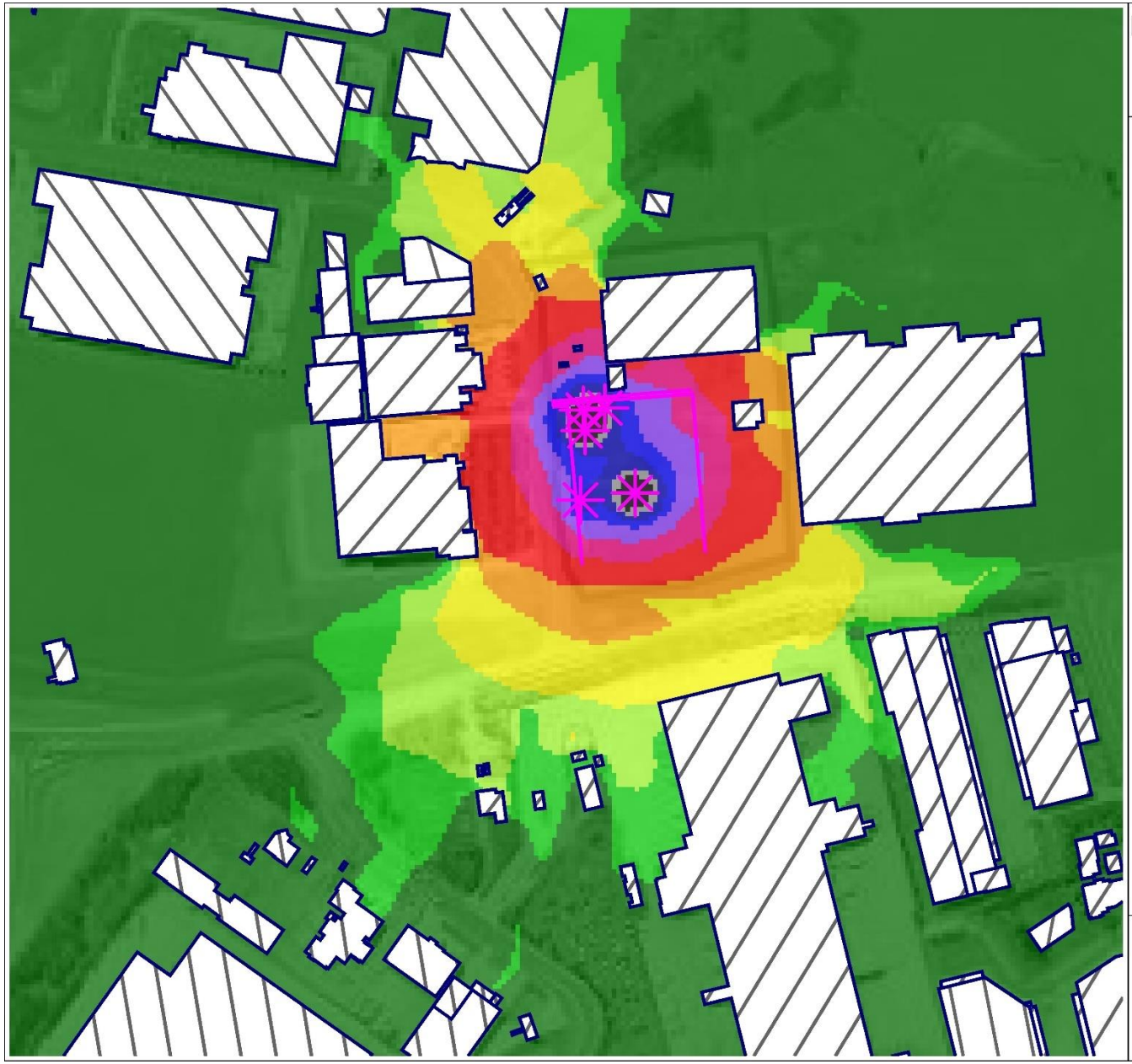
Prepared by: WY
Date: 29/01/2024

Noise Level
$L_{eq(15min)}$
in dB(A)

< 50
50 - 53
53 - 56
56 - 59
59 - 62
62 - 65
65 - 68
68 - 71
71 - 74
74 - 77
77 - 80
>= 80

ACOUSTIC LOGIC

7.3 CONSTRUCTION & FITOUT



Project Echidna Data Centre
Eastern Creek

Construction & Fit Out

1x Concrete Pump
1x Concrete Pump Truck
1x Crane (Franna)
1x Crane (Tower)
1x Diesel Generator
3x >20T Truck

Prepared by: WY
Date: 29/01/2024

Noise Level
$L_{eq(15min)}$
in dB(A)

	< 50
	50 - 53
	53 - 56
	56 - 59
	59 - 62
	62 - 65
	65 - 68
	68 - 71
	71 - 74
	74 - 77
	77 - 80
	>= 80

ACOUSTIC LOGIC

7.4 SUMMARY OF NOISE PREDICTIONS

Table 3 – Predicted Noise Levels

Receiver	Predicted Noise Level During Excavation Stage	Predicted Noise Level During Structure Stage	Predicted Noise Level During Construction Stage	Noise Affected Management Level	Comment
Residential R1 / R6 / R7 (North)	< 50 dB(A) $L_{eq(15min)}$	< 50 dB(A) $L_{eq(15min)}$	< 50 dB(A) $L_{eq(15min)}$	54 dB(A) $L_{eq(15min)}$ External	Below Noise Affected Management Level at All Times
Residential R2 / R8 (South)	< 50 dB(A) $L_{eq(15min)}$	< 50 dB(A) $L_{eq(15min)}$	< 50 dB(A) $L_{eq(15min)}$	51 dB(A) $L_{eq(15min)}$ External	
Residential R3 / R4 / R5 (West)	< 50 dB(A) $L_{eq(15min)}$	< 50 dB(A) $L_{eq(15min)}$	< 50 dB(A) $L_{eq(15min)}$	51 dB(A) $L_{eq(15min)}$ External	
Commercial Receivers C1 / C2 / C3 / C4	Up to 76 dB(A) $L_{eq(15min)}$ at worst affected point	Up to 65 dB(A) $L_{eq(15min)}$ at worst affected point	Up to 68 dB(A) $L_{eq(15min)}$ at worst affected point	70 dB(A) $L_{eq(15min)}$ External	Exceeds Noise Affected Management Level during initial excavation stage only. Refer Section 7.5 & 7.7 for discussion and recommendations.
Industrial Receivers I1 / I2 / I3	Up to 75 dB(A) $L_{eq(15min)}$ at worst affected point	Up to 64 dB(A) $L_{eq(15min)}$ at worst affected point	Up to 62 dB(A) $L_{eq(15min)}$ at worst affected point	75 dB(A) $L_{eq(15min)}$ External	Below Noise Affected Management Level. Refer Section 7.5 & 7.7 for discussion and recommendations.

7.5 DISCUSSION

Noise from construction activities to residential receivers are expected to be below the noise affected management levels at all times.

During the initial excavation stage, where higher noise generating equipment is proposed, noise to industrial premises is expected to approach the NML's for the site.

Exceedances are likely to commercial receivers during the initial excavation phase, particularly where rock hammering is required or being carried out. We note that these exceedances are only expected during the initial phases of construction, and so will be relatively short in duration. Where feasible, limiting or avoiding use of hammering should be considered.

For structural works and general construction/fit out, all receivers are expected to be below the noise management levels, as lower noise generating equipment is anticipated to be in use.

7.6 COMMUNITY CONSULTATION UNDERTAKEN TO DATE

Consultation with receivers immediately surrounding the proposed site has been undertaken by Taylor, including the following tenants:

- Bullivants
- FX Factory
- RDO Equipment
- Ricoh
- Vermeer.

We note that residential and industrial receivers have been identified as not being affected by noise, based on ICNG management levels. The above tenants have been contacted and provided with a communication letter, noise management plans & traffic management plans. These include details for enquiries and complaints to be directed to Taylor, if required, during construction.

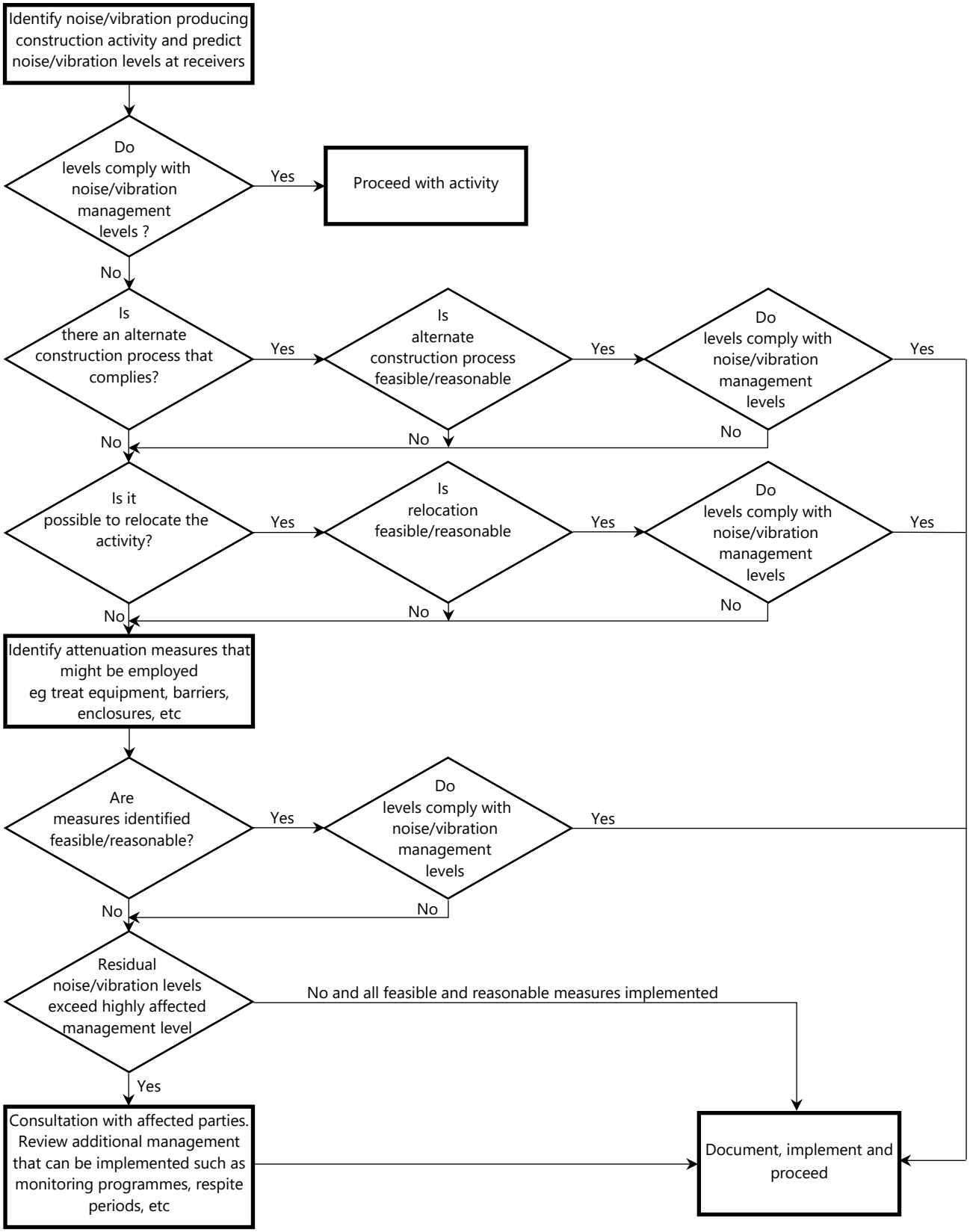
7.7 RECOMMENDATIONS

In light of the above, we recommend:

- Quiet work methods/technologies:
  - The primary noise generating activity at the site will be the bulk excavation period. As much as practicable, use of quieter excavation methods is adopted.
  - Excavation is conducted initially using excavator with bucket (quietest excavation method), then use of rock rippers (as opposed to hydraulic hammers and rock saws) when rock strength permits. Use of the loudest excavation equipment (hydraulic hammers/rock saws is used only with other options are not available).
  - Bored piles (quietest piling method) as opposed to drive nor vibrated piles are proposed.
- Materials handling/vehicles:
  - Trucks and bobcats to use a non-tonal reversing beacon (subject to OH&S requirements) to minimise potential disturbance of neighbours.
  - Avoid careless dropping of construction materials into empty trucks.
  - Trucks, trailers and concrete trucks (if feasible) should turn off their engines during idling to reduce noise impacts (unless truck ignition needs to remain on during concrete pumping).
- Complaints handling:
  - An after hours contact number is displayed outside of the building site, so that in the event that surrounding development believes that a noise breach is occurring, they may contact the site.
  - In the event of complaint, the procedures outlined in Section 10 are adopted. Additional methods of control of construction noise and additional noise control measures which may be adopted by the site are detailed in Section 8.

8 CONTROL OF CONSTRUCTION NOISE AND VIBRATION – PROCEDURAL STEPS

The flow chart presented below illustrates the process that will be followed in assessing construction activities.



10 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration criteria occur immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices.

If a noise complaint is received the complaint should be recorded. Any complaint form should list:

- The name and address of the complainant (if provided);
- The time and date the complaint was received;
- The nature of the complaint and the time and date the noise was heard;
- The name of the employee who received the complaint;
- Actions taken to investigate the complaint, and a summary of the results of the investigation;
- Required remedial action, if required;
- Validation of the remedial action; and
- Summary of feedback to the complainant.

A permanent register of complaints should be held.

11 CONCLUSION

A construction noise assessment has been undertaken of the proposed construction works to be undertaken for 10 Eastern Creek Drive, also known as Project Echidna. The management plan has been prepared to satisfy consent conditions for SSD 47320208. This report addresses conditions B9, 10, 11 & 12.

Potential noise and vibration impacts on nearby development have been assessed. Provided that the mitigation techniques recommended in sections 7.7, 8 & 10 of this report are adopted, noise and vibration impacts on the adjacent buildings are expected to be acceptable.

Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Alex Washer