Application Number SSD-69637456 DigiCo SYD1 Data Centre Expansion
Assessment Type State Significant Development, **Development Type** Data Storage
Location 390-422 Harris Street and 273 Pyrmont Street, ULTIMO (Lot 1 DP 109652 and Lot 1 1189030)
Applicant HDI SYD1 Property Holdings Pty Limited
Local Government Areas City of Sydney
Consent Authority Minister for Planning and Public Spaces or Independent Planning Commission

May 25, 2025

Submission

The Impact of DigiCo SYD1 Data Centre Expansion, Ultimo - Data Centre Noise on Urban Wildlife and Biodiversity in New South Wales. In addition to the Issues Identified by Our Local Community.

We have read and understood the provided proposal documentation on DigiCo SYD1 Data Centre Expansion, Ultimo.

Data Centre Noise on Urban Wildlife and Biodiversity Summary

Our submission outlines the significant, yet often overlooked, negative impacts of noise emitted from data centres on urban wildlife and indicator species within New South Wales (NSW) cities. Drawing upon recent academic literature and international best practices since 2020, we seek to highlight how continuous anthropogenic noise, of which data centres are a growing contributor, disrupts critical ecological processes, diminishes biodiversity, and compromises urban ecosystem health. While specific research on data centre noise and Australian fauna is limited, the established principles of noise pollution impact are directly applicable. Our submission details the key negative impacts, their causes, and calls for their explicit consideration within planning, environmental assessment, and policy frameworks for data centre development in NSW. And specifically, for DigiCo SYD1 Data Centre Expansion, Ultimo.

Introduction and Context

New South Wales is experiencing significant growth in its digital infrastructure, including the construction and expansion of data centres within urban and peri-urban environments. These facilities operate continuously, generating substantial noise, primarily from cooling systems, HVAC, and backup generators. While often overlooked in favour of other environmental considerations (e.g., energy consumption, water use), the persistent noise emitted by data centres contributes to the cumulative urban noise burden.

Recent academic literature, particularly since 2020, unequivocally demonstrates that anthropogenic noise is a potent stressor on urban biodiversity globally. While general research on urban noise pollution and its effects on wildlife is abundant, there remains a notable knowledge gap regarding the specific impacts on Australian fauna. However, the fundamental biological and ecological principles observed internationally are directly relevant to NSW ecosystems and species.

Negative Impacts of Data Centre Noise on Urban Wildlife

Noise emitted from data centres, as a component of broader urban noise pollution, contributes to several critical negative impacts on urban wildlife and indicator species:

1. Communication Interference (Masking)

- **Cause:** Data centre noise, particularly at low frequencies, overlaps with the acoustic signals essential for many animal species (e.g., bird songs, frog calls, insect stridulation). This "masking" effect significantly reduces the effective range and clarity of these signals.

- **Impacts:**
    - **Reduced Reproductive Success:** Many species rely on vocalizations for mate attraction. Masking leads to difficulties in finding mates, potentially reducing breeding success and population viability. Studies indicate that species may alter calls (e.g., higher pitch, shorter duration) to compensate, but these altered calls can be less effective or attractive (e.g., Superb Fairywren and the Willie Wagtails producing fewer offspring when singing at higher frequencies due to noise).
    - **Disrupted Social Cohesion:** Vocalizations are crucial for territorial defence, parent-offspring communication, and alarm calls. Interference compromises social structures and increases vulnerability to predators.
    - **Limited Breeding Pools:** The reduced range of effective calls in noisy environments limits the potential pool of mates, potentially leading to reduced genetic diversity within populations.

2. Physiological Stress

- **Cause:** Chronic exposure to continuous noise, characteristic of data centre operations, acts as a persistent stressor on animal physiology.
- **Impacts:**
    - **Elevated Stress Hormones:** Leading to a cascade of negative effects, including suppressed immune responses, altered metabolic rates, and reduced overall health and fitness.
    - **Altered Genetic Expression:** Emerging research suggests that excessive noise can even induce changes at the genetic level in certain species.
    - **Accelerated Aging and Energy Depletion:** The sustained physiological effort to cope with chronic noise can lead to premature aging and depletion of vital energy reserves, impacting survival.

3. Behavioural Changes and Altered Habitat Use

- **Cause:** Animals attempt to avoid or adapt to noisy environments, often at significant ecological cost.
- **Impacts:**
    - **Habitat Avoidance and Displacement:** Animals may abandon otherwise suitable habitats if noise levels are intolerable, forcing them into suboptimal areas where resources are scarcer or competition is higher. This can fragment populations and reduce overall carrying capacity.
    - **Disrupted Foraging Patterns:** Noise can interfere with a predator's ability to locate prey (e.g., owls demonstrating reduced hunting success with increased noise levels) or deter animals from crucial feeding grounds. It can also impact seed dispersal by deterring seed-eating birds, thereby affecting plant community dynamics.
    - **Impaired Navigation:** For species relying on acoustic cues for navigation, such as bats using echolocation or aquatic species, noise pollution can cause disorientation and even hearing damage.
    - **Altered Activity Rhythms:** Noise can disrupt natural circadian rhythms, altering periods of activity, rest, and sleep, which can have cascading effects on foraging, breeding, and predator avoidance.

4. Ecosystem Functioning and Community Structure

- **Cause:** The cumulative and interconnected effects of individual impacts ultimately alter the structure and function of urban ecosystems.
- **Impacts:**
    - **Shifts in Species Composition:** Noise-tolerant species may outcompete or replace noise-sensitive species, leading to a reduction in overall biodiversity and a shift towards less diverse, more resilient (but often less functionally rich) communities.
    - **Disrupted Ecological Interactions:** Noise can mask the sounds of approaching predators or prey, altering predator-prey dynamics. It can also impact essential ecological services; for example, noise-induced declines in pollinator populations can negatively affect plant reproduction.

- **Indirect Impacts on Plant Communities:** Changes in bird or insect populations due to noise can have flow-on effects on the plant communities they interact with (e.g., through seed dispersal or pest control).

Causes of Negative Impacts (Specific to Data Centres)

The primary cause of these negative impacts stemming from data centres is the **continuous emission of broadband and low-frequency noise** generated by:

- **Cooling Systems:** Large arrays of fans, chillers, and air conditioning units.
- **HVAC Systems:** Heating, ventilation, and air conditioning infrastructure.
- **Generators:** Backup power generators, even when not in continuous use, can contribute significantly during testing or power outages.
- **Ancillary Equipment:** Pumps, transformers, and other operational machinery.

This continuous, often low-frequency, noise creates a pervasive acoustic environment that directly interferes with the natural soundscapes vital for urban wildlife.

Australian Context and Knowledge Gaps

While international research provides strong evidence for these impacts, there is a recognised **knowledge gap in specific, targeted research** concerning the effects of urban noise, including data centre noise, on Australian fauna. However, existing Australian studies, such as the Australian Museum's FrogID project, have demonstrated how urban noise can impede communication in sensitive species like frogs, highlighting the direct applicability of international findings to our local context. The NSW EPA also acknowledges noise as a significant environmental amenity issue.

Recommendations for NSW Government Action

To mitigate the current and future negative impacts of data centre noise on urban wildlife in NSW, it is recommended that the NSW Government:

1. **Integrate Urban Fauna Acoustic Assessments into Planning Controls:**
    - Mandate comprehensive noise impact assessments, specifically considering impacts on urban fauna, for all new data centre developments and significant expansions, particularly those located near green spaces, waterways, or residential areas.
    - These assessments should go beyond human amenity and include modelling of noise propagation into natural areas.
    - Require proponents to identify and mitigate noise impacts on identified sensitive animal species.
2. **Develop Noise Emission Standards for Data Centres:**
    - Establish specific, ecologically sensitive noise emission limits for data centres, potentially with lower thresholds for nighttime hours or locations adjacent to critical biodiversity areas.
    - Consider low-frequency noise components, which are often particularly disruptive to wildlife.
3. **Promote Noise Reduction Technologies and Design:**
    - Incentivise and, where appropriate, mandate the use of best available noise abatement technologies (e.g., acoustic enclosures, quieter fan designs, strategic equipment placement, noise barriers) in data centre design and operation.
    - Encourage green infrastructure (e.g., dense vegetation buffers) as part of noise mitigation strategies.
4. **Fund Targeted Research for Australian Fauna:**
    - Invest in research specifically investigating the impacts of urban noise (including data centre noise) on key indicator species and sensitive Australian fauna across different urban habitats in NSW. This will help to develop context-specific mitigation strategies.
5. **Enhance Monitoring and Compliance:**

- Implement robust monitoring programs to assess actual noise levels from data centres and their impacts on nearby wildlife.
- Ensure strict compliance mechanisms are in place to enforce noise limits and mitigation measures.

6. **Include Noise in Cumulative Impact Assessments:**
    - Recognise data centre noise as a contributor to the cumulative urban noise burden when assessing other developments, to prevent incremental degradation of urban soundscapes.

Data Centre Noise on Urban Wildlife and Biodiversity Conclusion

The rapid expansion of data centres in NSW presents a critical challenge to urban biodiversity. By proactively addressing noise pollution from these facilities, including DigiCo SYD1 Data Centre Expansion, Ultimo. The NSW Government can safeguard the ecological health of its cities, protect vulnerable wildlife populations, and contribute to the broader goals of environmental sustainability. Ignoring the acoustic dimension of urban development risks irreversible harm to the natural heritage of Ultimo, Pyrmont, and surrounding City of Sydney area, in addition to greater New South Wales.

In addition;

This submission presents significant community concerns regarding the proposed DigiCo Data Centre expansion, highlighting numerous deficiencies and impacts that require urgent re-evaluation and mitigation.

We support the key issues Identified by Our Local Community:

A. Deficient Community Consultation
B. Inaccuracies in the Proposal's Data
C. Community Contribution Proposal
D. Green Travel Plan & Public Realm Improvement
E. Overshadowing and Visual Impact on Ultimo Heritage Conservation Zone
F. Environmental Impact: Energy & Renewable Energy Omission
G. Solar Access and Overshadowing
H. Noise and Emissions: Generator Inadequate Assessment and Licensing Exemption
I. Road Traffic Noise Amplification

A. Community Consultation

The NSW Governments states in its page on “Community Consultative Committees, Strengthening community engagement on State significant projects. And that Community Consultative Committees provide a forum for discussion between a proponent and representatives of the community, stakeholder groups and the local council on issues directly relating to State significant projects.”

Which Community Group was consulted? As neither of the very long-standing local community groups, Ultimo Community Group, or Pyrmont Action were contacted for this proposal’s community consultation.

Despite the Ultimo Village Voice receiving email notification from the government on 1st May 2025 regarding broader matters, the Ultimo community, including residents via letterbox and community group members, did not receive notification of the supposed 'community consultation' specific to this proposal. No postcards or direct advisories concerning these consultation opportunities were observed within the Ultimo area.

As NSW Government seeks “to ensure the community and stakeholder groups are kept informed of the status of projects, are engaged in the development and implementation of State significant projects, and are able to provide feedback to proponents on key issues and concerns.”

Action Required: Which Community Group was consulted? Going forward both Community Groups, Ultimo Village Voice and Pyrmont Action need to be included in community consultation.

B. Misidentification of Residential Properties

The proposal demonstrably misidentifies several prominent residential properties as commercial, leading to an inaccurate representation of the affected community. Specifically:

- **R12 (Goldsbrough Apartment block):** Identified as commercial, it is primarily residential, comprising 538 apartments alongside some office spaces.
- **R13:** Incorrectly classified; it contains significant residential components.
- **R10:** Incorrectly classified; the entire block is residential.
- **Jones Street (between William Henry and Harbour Mill apartments):** Predominantly residential, not commercial as implied.

Action Required: The proposal's documentation must be urgently amended to accurately reflect the correct residential status of properties within the affected precinct to ensure all assessments are based on factual data.

C. Community Contribution: Digi Co Data Centre Project

The proposed Digi Co Data Centre development will significantly impact the amenity and liveability of the surrounding neighbourhood. The project's extensive interior and exterior modifications are perceived by residents as a substantial imposition, necessitating a corresponding community contribution from the proponent.

Residents advocate for the extension of the viaduct pedestrian walkway to the Central Business District (CBD) as a suitable community benefit. This extension, previously available prior to the Darling Harbour renovations, would re-establish convenient pedestrian access to the CBD for local residents.

Action Required: We respectfully request an assessment of this proposed walkway extension as a viable and equitable community contribution to address the project's impact on residents and the neighbourhood.

D. Green Travel Plan (GTP), Pedestrian Connectivity, and Public Realm Improvement

The proposed Green Travel Plan (GTP) must be strengthened to demonstrate a clear commitment to improving pedestrian connectivity and public realm amenity.

1. Pedestrian Connectivity Reinstatement: The GTP should explicitly commit DigiCo to collaborate with Council and Transport for NSW to identify and fund opportunities for enhanced pedestrian connectivity. **b** developer contributions should be directed towards reinstating the continuation of the pedestrian walkway over Darling Harbour to the CBD**,** as previously advocated by Pyrmont Action. This reinstatement is crucial for restoring essential pedestrian access to the city.

2. Unresolved Public Realm and Safety: The ground-level façade on the North face of the site is currently unresolved, visually unappealing, and presents a perceived safety risk for pedestrians, particularly at night. The GTP must explicitly state DigiCo's commitment to collaborating with Council to significantly improve the pedestrian experience, safety, and connection between Harris Street and Pyrmont Street.

Action Required: We advocate for the introduction of a new group of internally lit "forest" trees, visually extending the "Aspire" installation by Warren Langley (under the Western Distributor on the opposite side of Harris Street) towards Pyrmont Street. This initiative would significantly pedestrianise and beautify this alienated space, enhancing safety and visual amenity.

E. Visual Impact Deficiency: Ultimo Heritage Conservation Zone

The project's visual impact assessment overlooks critical overshadowing and view loss from the Ultimo Heritage Conservation Zone (Ada Place, Bulwara Road, Fig Street Park). Current visual representations are unrepresentative, failing to capture the Digi Co Data Centre's significant dominance and the resulting sunlight reduction.

Action Required: Comprehensive visual impact assessments from the Ultimo Heritage Conservation Zone are essential for an accurate project evaluation. Including viewpoints from Ada place, Bulwara Road, Fig Street Park.

F. Environmental Impact: Energy & Renewable Energy - Solar

The proposed Digi Co Data Centre expansion presents significant environmental concerns, including loss of sunlight, overshadowing, and potential pollution from fumes and noise.

A critical omission from this proposal is the absence of solar panel integration or any commitment to renewable energy targets. Given the substantial electricity demands of data centres, and the NSW Government's clear policy direction towards increasing density across Sydney, particularly on the Pyrmont Ultimo peninsula, this is unacceptable.

Data centres are immense power users, often contributing to strain on the power grid during peak demand. The lack of a renewable energy strategy in this proposal is inconsistent with contemporary best practice and government objectives. For example, Equinix Data Centres in Melbourne, Canberra, and Sydney have successfully implemented rooftop solar panel systems, demonstrating the feasibility and industry standard for mitigating energy consumption.

Action Required: A robust renewable energy plan, including on-site solar, is essential for project approval.

G. Inadequate Solar Access and Overshadowing Assessment for Ultimo

The Environmental Impact Statement (EIS) demonstrates a significant deficiency in its assessment of solar access and overshadowing impacts. The proposal's focus is predominantly on Darling Harbour, providing only three solar access diagrams that commence testing hours at 9:00 am.

Critically, the EIS lacks any diagrams or analysis depicting solar access impacts to the West, which encompasses the heart of Ultimo, including areas such as Quarry Green. This omission is unacceptable as it fails to evaluate the solar performance and overshadowing effects on a substantial portion of the project's directly affected residential and public spaces within Ultimo.

Action Required: The EIS must be revised to include comprehensive solar access and overshadowing analysis for all affected Ultimo precincts, including Quarry Green, with appropriate testing hours.

H. Generator Noise and Emissions: Inadequate Assessment and Licensing Exemption

The White Pulse Noise assessment's conclusion that generator operations will remain below the 200-hour annual threshold, thereby negating the need for an Environment Protection Authority (EPA) licence under the Protection of the Environment Operations Act 1997 (POEO Act), is contested. The proposal itself acknowledges the possibility of additional operational hours (e.g., up to 30 hours annually for specific circumstances), which would exceed this threshold and mandate an EPA licence.

Furthermore, the environmental impact assessment's "worst-case scenario" is incomplete and dismissive. It fails to account for the cumulative noise and emissions (nitrogen dioxide and nitric oxide) from all 66 generators operating concurrently. This omission is critical, particularly given real-world precedents, such as

Ausgrid's directive for data centres to operate on generator power during the 2024 heatwave to alleviate grid strain. Such events demonstrate that "unlikely" scenarios are plausible and must not be disregarded.

Action Required: The proponent must provide a guarantee that generator running times will not exceed the 200-hour threshold, or alternatively, secure the necessary EPA licence. A comprehensive and robust worst-case scenario assessment, incorporating the full operational capacity of all 66 generators and accounting for real-world grid demands, is essential and must not be dismissed.

I. Amplification of Road Traffic Noise Due to Building Height

The proposed increase in the height of the Digi Co Data Centre building will exacerbate existing road traffic noise levels for adjacent residents. This phenomenon, known as the "urban canyon effect," occurs when tall, hard building surfaces reflect and focus sound waves, preventing their absorption and redirecting them back towards the ground.

Studies consistently demonstrate that increased building height directly correlates with elevated road noise, with documented increases of several decibels (e.g., 3.5 to 6.32 dB(A)) for every 10-15 metres of height. This reflection can focus noise over specific areas, including those approximately 550-600 metres from the roadway.

Action Required: It is imperative that the project's noise assessment fully accounts for the amplified road traffic noise, particularly on thoroughfares such as Harris Street and residential areas like Ada Place, resulting from the proposed increase in building height. Mitigation strategies must be developed to address this direct impact on resident amenity.

Recommendations: NSW Government Response Actions to this Public Exhibition are, derived from a summary of key local residential community concerns. Among these, it is crucial to safeguard urban biodiversity and integrate the ecological impacts of data centre noise on wildlife into the Ultimo data centre and all NSW data centre planning, mandating wildlife-focused acoustic assessments and setting strict, ecologically sensitive emission standards.

Respectfully

Local Resident

References and Supporting Information:

- **Australian Museum.** (Ongoing). *FrogID Project Data and Insights*. [Relevant information can be accessed via the FrogID project page: https://www.frogid.net.au/].
- **European Environment Agency (EEA).** (Various reports since 2020). *Environmental noise and its impacts on biodiversity*. [For general information on environmental noise and its impacts, see the EEA's main topic page on noise: https://www.eea.europa.eu/themes/noise].
- **NSW Environment Protection Authority (EPA).** (Current information). *Noise Pollution Guidance and Regulations*. [Relevant information can be found on the NSW EPA's noise pollution pages, e.g., https://www.epa.nsw.gov.au/your-environment/noise and https://www.epa.nsw.gov.au/licensing-and-regulation/legislation-and-compliance/environmental-guidelines/noise-guide-for-local-government].
- **Australia State of the Environment 2021.** (Relevant sections on urban pressures and biodiversity). [The full report is available from the Department of Climate Change, Energy, the Environment and Water: https://soe.dcceew.gov.au/].

- **Western Sydney International (Nancy-Bird Walton) Airport.** (Environmental Impact Statement documents related to noise impacts on biodiversity). [Relevant EIS documents are typically available via the NSW Department of Planning and Environment's Major Projects website by searching for "Western Sydney International Airport": https://www.planningportal.nsw.gov.au/major-projects].
- **General Academic Consensus:** Principles regarding communication masking, physiological stress, and behavioural changes due to anthropogenic noise are widely accepted and published in peer-reviewed journals (e.g., *Biological Conservation*, *Journal of Applied Ecology*, *Conservation Biology*, *Environmental Pollution*) since 2020. While specific direct citations for *data centre noise* on *Australian urban wildlife* are scarce, the underlying mechanisms are broadly supported by research in urban ecology and acoustic ecology.
- **City of Sydney, Aspire Sculptures:** Initiated by the people of Pyrmont and Ultimo, this illuminated forest of trees appears to hold up the freeway. From a sculptural perspective the work intercepts the geometry of the site, by introducing an incongruous element between the contoured ground surface and the vast concrete planes above. With the tree forms effectively wedged between the ground and the underside of the freeway, an illusion is created where the 'forest' of illuminated trees appears to suspend aloft the visual weight of the freeway. The glowing trees, made of high-density polyethylene, can be enjoyed at close quarters by pedestrians and from afar by-passing traffic. They improve pedestrian amenity and increase safety. The appearance of the light sculptures varies depending on the surrounding ambient light levels. (City of Sydney: https://www.cityofsydney.nsw.gov.au/sculptures/aspire).
- **NSW Government, (Community Consultative Committees)** https://www.planningportal.nsw.gov.au/major-projects/community/community-consultative-committees