27 August 2024

Our Ref: 12125

Chris Ritchie
Director, Industry Assessments
Department of Planning, Housing and Infrastructure
Locked Bag 5022,
PARRAMATTA NSW 2124

Attention: Jeffrey Peng

Dear Jeffrey,

RE: SSD-63168959 State Significant Development Application
NEXTDC S5 Data Centre and Innovation Hub (SSD-63168959)

1. Introduction

This submission has been prepared by GLN Planning on behalf of our client [redacted] who is the owner of 1 to 5 Thomas Holt Drive (**the site**), Macquarie Park. This submission responds to the public exhibition of the State Significant Development Application (**SSD**) SSD-63168959 for the adjoining site located at 269 Lane Cove Road, Macquarie Park which is currently on public exhibition between the 1 August 2024 and the 28 August 2024.

The purpose of this letter is to express our client's concerns regarding the proposed development and request that measures be implemented to better consider and address the potential impacts the development may have on the site's operations. We request that this occur prior to the determination of the application to provide surety that appropriate measures will be enforced to limit possible impacts.

This letter proceeds a previous submission (dated 22 December 2023) issued by our clients in relation to the Secretary's Environmental Assessment Requirements (**SEARs**) for SSD-63168959 which requested that the SEARs be expanded to require a more thorough acoustic and vibration assessment for the purpose of providing a more comprehensive understanding of the impacts to the site.

In summary, the submission that forms the subject of this letter raises the following concerns with the SSD application:

- Since the original request for SEARs, the planning framework has continued to evolve with the exhibition of the *Macquarie Park Innovation Precinct – Transport Orientated Development Precinct (Stage 2)* rezoning proposal (**Stage 2 Rezoning Proposal**) which reflects the aspirations of the *Macquarie Park Innovation Precinct Plance Strategy*. From a review of this documentation, it is evident that the proposal lacks strategic merit and that data centres are not a desired or permitted land use that the State Government is seeking to encourage.

- The proposal cannot be supported because the State-led Stage 2 Rezoning Proposal prohibits data centres within the E2 Commercial Centre Zone which applies to the NextDC S5 site. It is our view that a data centre is not sympathetic to achieving the aims of the State Government's investment in the Macquarie Park Innovation Precinct, particularly in circumstances where there are already several such facilities planned, under construction or in operation in the immediate vicinity of the proposed development.

- Ryde City Council (**Council**) is opposed to the delivery of additional data centres within the Macquarie Park Innovation Precinct because they are contrary to the applicable strategic planning objectives which prioritise the need for job creation and residential housing. Council has expressed concern that data centres are a non-employment intensive use that place additional demands on already constrained water infrastructure, with reports indicating that water infrastructure upgrades are now required to support any further growth across the Precinct. Until these upgrades are delivered, there is insufficient infrastructure capacity in the locality to support the delivery of additional data centres alongside housing growth as envisaged by the recently adopted Transit Oriented Development (**TOD**) reforms.

- The proposed data centre development relates to the delivery of a non-intensive employment use on land designated as being a 'Key Site' which is strategically positioned adjacent to the Macquarie Park Metro. The Sydney Metro represents a $21.6 billion dollar Government investment, with each metro station carefully designed to contribute positively to each respective locality. The proposed data centre represents a sub-optimal use of land which will contribute little to the activation of the locality. It is considered that an alternative more intensive employment generating use would better enhance the vitality of Precinct and complement the metro.

- The Noise and Vibration Impact Assessment prepared by ARUP is in adequate due to the following:

    - It incorrectly categorises [redacted] and [redacted]' premises as a commercial (office) receiver, resulting in an inaccurate assessment which underestimates the severity of the noise impacts to the site.

    - It fails to address the specific noise and vibration impacts to [redacted] and [redacted]' studio operations in the worst-case emergency scenario.

    - The vibration assessment incorrectly assumes that the site does not accommodate sensitive equipment.

    - The assessment excludes a screening analysis and a risk assessment of potential vibration impacts to sensitive equipment within the [redacted]/[redacted]' premises.

    - That the Applicant prepare a CNVMP prior to the determination of the application to confirm that suitable mitigation measures will be included to limit the impacts to our clients' site and its operations.

- There is a lack of clarity regarding the community consultation process with our clients and how community consultation requirements will be enforced. Should the Department of Planning, Housing and Infrastructure (**DPHI**) deem the proposed development suitable for

approval, Conditions of Consent should be included to require meaningful consultation with our clients to ensure vibration and noise impacts do not affect their operations.

This submission should be read in conjunction with the Peer Review of the Noise and Vibration Impact Assessment prepared by Octave Acoustics included at **Attachment A**.

1.1.1 About [redacted]

[redacted] Group is one of Asia's largest diversified real estate groups. Headquartered in Singapore, [redacted]'s portfolio focuses on real estate investment management and real estate development, and spans across more than 260 cities in over 40 countries. [redacted] owns three landholdings within the Macquarie Park Innovation Precinct, including:

- 1 – 5 Thomas Hold Drive (THD) (also known as 26 – 32 Waterloo Road, Macquarie Park).
- 1 Giffnock Avenue, Macquarie Park (MQX4).
- 71 Epping Road, Macquarie Park (Quest Macquarie Park) (owned by [redacted] Ascott REIT (CLAS).

[redacted], via [redacted] Ascendas REIT (**CLAR**), owns a number of data storage facility assets internationally and has an appreciation for the employment capacity of such developments as well as the potential acoustic and amenity impacts that require careful consideration.

1.1.2 Thomas Holt Drive and its Tenant Profile

[redacted] own three landholdings within the Macquarie Park Innovation Precinct, with the most significant being Thomas Holt Drive. Thomas Holt Drive is strategically positioned adjacent to the Macquarie Metro Station and occupies a generous sized site. It supports key tenants, including [redacted] and [redacted], which contribute significantly to the Precinct's employment generation and provide critical business services. In light of this, [redacted] has a vested interested in preserving the employment functions of the Macquarie Park Innovation Precinct and ensuring the NSW Government delivers on its strategic planning objectives for the area.

[redacted]

[redacted] is a major entertainment provider in Australia. The [redacted] Group's interests include subscription television, streaming, television, production and advertising and its brands include [redacted], Kayo Sports, Sports, BINGE, and Flash. It is one of the largest employers in Macquarie Park with approximately 600 direct employees and more than 60 permanent contractors based at the site. [redacted]'s significant workforce is involved in various aspects of the entertainment industry, including context creation, broadcasting, technology, customer service and business operations.

[redacted]

From its headquarters at the site, [redacted] produces six live 24/7 news channels that are broadcast on [redacted] and free-to air television in Australia, on Sky Television in New Zealand and streamed online to audiences internationally. Approximately 173 full time equivalent staff are employed in production roles, working in rosters around the clock from the site.

Other business critical services located on site include [redacted]' engineering, IT, HR, Commercial, Publicity, Finance and Legal departments. Across all its operations, [redacted] employs approximately 290 FTE staff, making it a major employer based in Macquarie Park.

1.1.3 Macquarie Park Innovation Precinct

The *Macquarie Park Innovation Precinct Place Strategy* establishes the vision for the Macquarie Park Innovation Precinct. It includes a master plan which informs a suite of planning controls associated with the Macquarie Park Innovation Precinct rezoning proposals.

The *Macquarie Park Innovation Precinct – Stage 1* rezoning proposal relates to land located to the immediate north east of the site. It sets out the first phase of planning control amendments and establishes a new urban design framework. The rezoning proposal was exhibited by the Department of Planning, Housing and Infrastructure (**DPHI**) from the 9 November 2023 to the 10 December 2023 and is currently under consideration.

The remaining land within the Innovation Precinct is subject to the Stage 2 Rezoning Proposal which is currently on public exhibition until the 23 August 2024 (refer to **Figure 1**). Macquarie Park is identified as an accelerated precinct under the *Transport Orientated Development Program*. In light of this, the rezoning proposal seeks to maximise the provision of residential floor space to assist in increasing the supply of affordable housing whilst delivering on the planning directions established by the *Macquarie Park Innovation Precinct Place Strategy*.

Under the rezoning proposal, the draft planning controls nominate that the E2 Commercial Centre zoning which applies to the site and the NextDC site remain unchanged. The amendments propose that data centres be prohibited within the zone.

[redacted] has a keen interest and commitment in Macquarie Park continuing to transform as a centre of innovation and employment with supporting opportunities for new housing and maximising the Government's significant investment in the Metro.

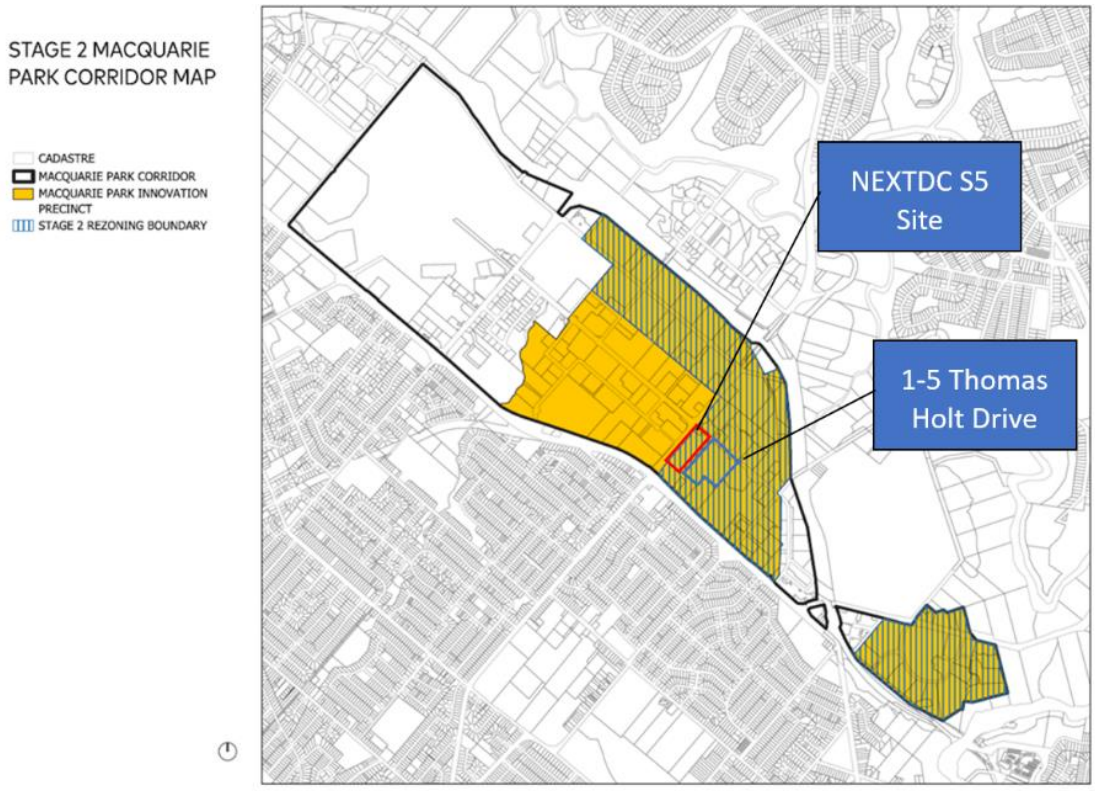

Figure 1 – Stage 2 Macquarie Park Corridor Map

1.1.4 Site Description

Our client's business is located at 1 – 5 Thomas Holt Drive within the City of Ryde Local Government Area (**LGA**). It is located approximately 11km from the Sydney Central Business District (**CBD**) and 11.1km from Parramatta CBD.

The site is legally described as Lot 12 in DP 1043041 and [redacted] is the owner. The site is strategically located within the Macquarie Park Corridor to the immediate south east of the Macquarie Park Metro Station. It also forms part of the *Macquarie Living Station – Gari Nawi (Saltwater Canoe)* within the broader Macquarie Park Innovation Precinct.

The existing development to which this submission relates consists of a business campus accommodating three commercial buildings. Two of these developments support [redacted] and Sky News' operations (refer to **Figure 2**). Both developments sit to the immediate south east of the proposed development with [redacted] broadcasting operations located approximately 12m to the east from the area of proposed works (refer to **Figure 3**).

Figure 2 – Location of [redacted] Holdings and NextDC Site

Figure 3 –Photomontage of NextDC Proposal and its Location with Respect to 1-5 Thomas Holt Drive ([redacted] Building)

1.1.5 Operations at THD

Consistent with the vision for Macquarie Park as an employment and innovation precinct, [redacted] has developed as a commercial park with top tier tenants including [redacted], [redacted], Metcash and BSA. [redacted] and [redacted] are located in the building closest to the common boundary with 269 Lane

Cove Road (refer to **Figure 2**). [redacted] and [redacted] have been a valued tenant and employer in Macquarie Park since 2005.

[redacted] and [redacted]' operations from the site include a range of background functions, but importantly, provide a base of production and broadcasting for a significant number of their live channels. These operations are conducted throughout the day over 24 hours, in various news and information cycles, with minimal impact associated with operations outside of the traditional 9am to 5pm work day.

Four television studios, an audio recording booth, editing facilities, the newsroom and several management offices are situated on the north-western side of the building immediately adjoining the proposed NextDC development site. The television studios, audio recording booth and editing facilities all rely on specialised broadcasting equipment that is highly sensitive to noise and vibrations.

The newsroom is occupied 24/7, as are various control rooms which coordinate the receipt and transmission of signals to and from [redacted]' national and international broadcast partners and 14 bureaus around Australia. These functions are supported by sensitive IT equipment housed on site. On average, at least 16 hours of live broadcast news is produced directly from the television studios on site for [redacted] channel alone, between the hours of 5 am to 11 pm. The balance of [redacted]' 24/7 broadcast operations are also coordinated out of the site's control rooms.

The functions performed at the site cannot currently be replicated at any of [redacted]' other bureaus around the country. Doing so would require significant advance planning of several years and result in substantial disruption to operations that provide a crucial role in ensuring the Australian public have access to timely information.

In short, [redacted] as well as its tenants [redacted] and [redacted] are particularly concerned with potential impacts of NextDC's proposal on their principal purposes and respective operations. It is also considered that the proposal lacks strategic merit and cannot be supported from a statutory planning perspective. Our clients' concerns are set out in the sections below.

1.2 Lack of Strategic Merit

The NextDC site's redevelopment for a data centre is inconsistent with the strategic planning framework. For this reason, it is considered that the redevelopment of the site for an alternative commercial use represents a more appropriate use of the land.

The site forms part of the Macquarie Park Innovation Precinct (the **Precinct**). The *Macquarie Park Innovation Precinct Place Strategy* (the **Strategy**) was adopted in August 2022 to guide renewal of the Precinct to 2036. Under the Strategy the site occupies the *Macquarie Living Station – Gari Nawi (Saltwater Canoe)* neighbourhood area. Anchored by the Macquarie Park Metro Station, the vision for the neighbourhood area is for it be a '*place of activity with a commercial core and new residential development*'. The Strategy goes on to note the following:

'The predominantly commercial neighbourhood will encompass a new activity hub, an extensive commercial core and new residential development, giving it the capacity to develop into a dense and more integrated place of economic vitality'.

The Strategy establishes that the neighbourhood will support 2,000 new jobs, an 18-hour economy and a target of 350 to 450 new homes. The vision for the neighbourhood is informed by an analysis of the challenges affecting the Macquarie Park. A key challenge includes its limited cultural and night-time economy and the lack of quality public areas. In light of this, it can be concluded that there is a need for future development to foster activity, vitality and a sense of community.

The strategy designates the site as forming part of a commercial core. It establishes the aspiration to deliver denser A-grade commercial floor space around the Metro station to contribute to the creation of an activity hub.

The NextDC site's redevelopment for a data centre is inconsistent with the strategic planning directions for the Macquarie Park Innovation Precinct and the associated Gari Nawi neighbourhood. Data centres represent a type of warehouse or storage building which have a Class 7b classification under the BCA. As such, they do not contribute to the provision of A-grade commercial floor space. The NextDC site is one of few landholdings located adjacent to the Metro station. It is contended that its redevelopment for an A-grade commercial building rather than a data centre would represent a more appropriate development outcome which better aligns with the aspirations of the Strategy.

The proposal will contribute 33,643sqm of *data storage floor space,* which represents 72% of the proposal's overall land use. As such, the development's dominant use is a non-intensive employment use. Data centres foster minimal job creation, with most employment creation limited to the temporary construction phase. In comparison, a typical commercial building, manufacturing or shared service operations can have in excess of 1,000 jobs on site. Conversely, data centres typically support no more than 30 staff, resulting in a jobs-to-investment ratio that is far lower than other commercial development categories. As they employee fewer people, data centres contribute little to the economic vitality of a locality and provide minimal activation and passive surveillance. In light of this, the redevelopment of the site for a data centre with a minor ancillary office/retail component represents a missed opportunity to deliver an employment generating use on a strategically significant site.

The NextDC site is identified as a Key Site (*Key Site 7*) by the Stage 2 Rezoning Proposal. This designation recognises the site's strategic and central location within the Gari Nawi Neighbourhood. It is estimated that an employment-intensive commercial use that optimised the incentive planning controls applicable to the site could deliver approximately 90,000m^2 of GFA and 3,500 jobs. The redevelopment of the site for a data centre (a non-intensive employment use) which has a GFA of only 46,935m^2 across two buildings therefore fails to optimise the incentive controls. Furthermore, it will contribute little activation to the Precinct and will not complement the adjacent Metro station. This is contrary to the aspirations of the Strategy which aim to ensure development in the Gari Nawi Neighbourhood fosters a sense of community and contributes vitality to the area.

In recent years the Macquarie Park Innovation Precinct has seen an influx of data centre developments. These data centres are illustrated in **Figure 4** and include the following:

- 44-50 Waterloo Road, Macquarie Park
- 17-23 Talavera Road, Macquarie Park Data Centres Campus
- 17-23 Talavera Road - Macquarie Data Centres IC3

- 6/8 Giffnock Avenue, Macquarie Park – NEXT DC S2
- 10-17 Khartoum Road – Stockland DC
- 23 – 25 Waterloo Road – Fujitsu DC/Digital Realty
- 4 Eden Park Drive – NEXT DC S1

It is considered that the delivery of additional data centre floorspace will undermine the economic and employment generating functions of the Innovation Precinct's commercial core.

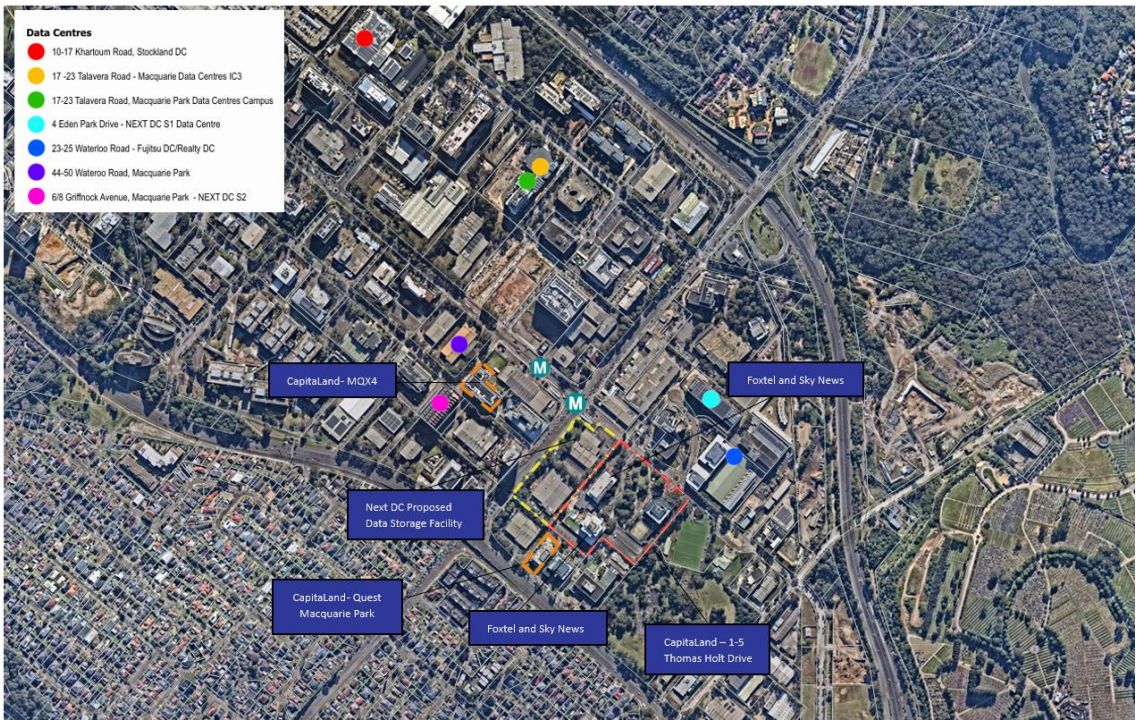

Figure 4 – Location of Surrounding Data Centres

1.3 Permissibility of Data Centres and the State-led Rezoning of Macquarie Park Innovation Precinct

The planning directions established by the *Macquarie Park Innovation Precinct Place Strategy* will be implemented by a new planning controls regime. A State-led rezoning process will facilitate the introduction of the new planning controls regime to the *Ryde Local Environmental Plan 2014*. This process has commenced and the DPHI has exhibited draft rezoning proposals setting out the proposed planning controls for the Precinct.

Pursuant to section 4.15 of the *Environmental Planning and Assessment Act 1979*, proposed instruments that have been the subject of public consultation and notified to the consent authority are required to be considered in the assessment of development applications. As such, the rezoning proposals are required to be considered in the DPHI's assessment of the application.

For the purposes of the State-led rezoning process, the Macquarie Park Innovation Precinct is divided into two stages/study areas comprising Stage 1 and Stage 2. Both the site and the NextDC site form part of the Stage 2 study area and are subject to the Stage 2 Rezoning Proposal which is currently on public exhibition until the 23 August 2024.

The Stage 2 Rezoning Proposal is accompanied by an Explanation of Intended Effect which prohibits data centres in the E2 Commercial Core. In consequence, the redevelopment of the NextDC site would not be permissible had the SSD been submitted following the gazettal of the planning control amendments. The rationale for the prohibition is to encourage placemaking initiatives and opportunities for connection between Macquarie Park communities. Accordingly, data centres are not regarded as suitable for neighbourhood locations shaped by placemaking initiatives that aim to foster a sense of community.

In addition, it would not be possible to rely on Part 2.3 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* to develop the site for a data centre given the E2 Commercial Centre zone is not a prescribed zone for the purposes of the Policy. In light of this, it is clear the NSW Government's strategic and statutory planning framework does not deem the site as suitable for accommodating non-employment intensive land uses such as data centres.

1.4 Data Centres and the Implications for Infrastructure Supply

The proliferation of data centres across the Macquarie Park Innovation Precinct has had an adverse impact on the availability of infrastructure across the precinct. The Council has expressed concern regarding the mismatch between the State Government's housing targets associated with the transport-oriented housing reforms and its policy to permit data centres in Macquarie Park, highlighting that little consideration has been given to the impacts data centres have on the supply of water infrastructure.[1]

Data centres utilise hundreds of thousands of litres of water per day to regulate their internal temperatures. Whilst Sydney Water is planning to upgrade water supply infrastructure across Macquarie Park, the upgrades will not be completed until 2026. The planned increase in data centres across the precinct will impact the locality's water supply which will consequently threaten to delay the construction of planned residential and commercial development.

1.5 Data Centres and the Implications for Employment Growth

The encroachment of non-employment generating uses, including data centres and residential housing, have the potential to undermine the NSW Government's vision for the Macquarie Park Innovation Precinct to support a vibrant commercial core that fosters job creation.

Council's Chief Executive has identified that non-employment uses are driving out existing employment intensive development, including firms such as Fujitsu, Siemens, Polestar and Volvo, who have either relocated or are reducing their presence within Macquarie Park.[2]

[1] Thirsty Data Centres Threaten to Delay Thousands of New Homes, *Macquarie Park housing plan at threat from thirsty data centres (smh.com.au)*

[2] Ibid.

1.6 Uncertainty Surrounding Construction Staging

The SSD application addresses the construction staging, however, fails to clarify the length of the construction programme. [redacted] and [redacted]' daily operations rely on television studios, audio recording booths and editing facilities which utilise specialised broadcasting equipment. Both the equipment and facilities are highly sensitive to noise and vibration impacts. In turn, a pro-longed construction programme with significant impacts may require that our clients consider relocating their operations.

Section 3.2.8 of the Applicant's EIS specifies that the development staging will occur over two phases. The consultation summary further indicates that the construction period will take 2.5 years, however, will be subject to 'market demand and response'. The reliance on 'market demand' to determine the timing of construction activities provides little clarity or certainty surrounding the length of the construction phase. It is requested that prior to the determination of the SSD application that the Applicant confirm the precise length of the construction programme.

The Consultation Summary that accompanies the EIS suggests that NEXTDC will continue to provide project updates to [redacted] including a construction methodology, timing and staging. This suggests that [redacted] will merely be informed of the construction methodology and timing. It is requested that the Applicant engage in meaningful consultation with our clients to afford them an opportunity to have input into the construction methodology/timing for the purpose of no adverse impacts on the daily operations of its facilities. As noted previously, should the impacts be significant, our clients would need to consider relocating its operations.

1.7 Limitations Associated with the Acoustic Report

A Peer Review of the Acoustic Report has been prepared by Octave Acoustics and is included at Attachment A. It addresses the limitations associated with the Noise and Vibration Impact Assessment prepared by ARUP at *Appendix P* of the EIS that accompanies SSD-63168959.

Construction Noise Assessment

The Noise and Vibration Impact Assessment provides an assessment against the *NSW Interim Construction Noise Guideline* (the Guideline). Octave Acoustics identify that the assessment incorrectly categorises [redacted]/[redacted]' premises which results in an inaccurate assessment and an underestimation of the severity of the impacts.

The assessment of the development against the project construction noise targets (NMLs) classifies the site as a commercial receiver by defining it as an óffice' and assigning it a 70dB(A) NML. In consequence, it is not identified as being a 'highly noise affected receiver' and the assigned NML is less stringent. In turn, Octave Acoustics consider that the assessment fails to accurately represent the noise sensitive nature of the [redacted]/[redacted] facility. A more appropriate classification under the Guideline would be to designate the site as *óther businesses that may be very sensitive to noise, where the noise level is project specific as defined below'*. To ascertain the correct NMLs, the Noise and Vibration Impact Assessment should then undertake special investigations to determine the most appropriate noise levels.

Section 5.2.3 of the Noise and Vibration Impact Assessment provides an assessment of equipment sound power levels to be used during the construction phase. Piling activities are assigned a sound

power level of 111 L_w. Octave Acoustics note that the assessment has failed to consider impact piling which will increase the noise level impacts given it has a much greater sound power level of 134dB(A). In turn, the assessment fails to consider all likely plant and equipment noise. It is requested that the assessment be updated to account for noise and vibration impacts associated with impact piling.

Operational Noise Assessment

An operational noise assessment is provided within *Section 6.5.2.1* of the Noise and Vibration Impact Assessment. The assessment considers a worst-case emergency scenario where all 60 electricity generators associated with the data centre are operational during enhanced weather conditions. It concludes that the predicated noise levels at the [redacted] facility will reach 76dB(A) which well exceeds the criteria of 63dBLA_{eq}. The exceedance is noted without an adequate assessment of the noise related impacts to the operations of the [redacted] facility. In particular, the report fails to address the extent to which the development would interfere with [redacted]'s studio operations. It is considered that the assessment be revised to address the implications of the 63dB(A) and 76dB(A) noise impact on the [redacted] facility.

Vibration Impact Assessment

A Vibration Assessment is included within *Section 5.5* of the Noise and Vibration Impact Assessment prepared by ARUP and fails to adequate address the possible vibration impacts to [redacted]' premises. The recognises that construction vibration impacts may impact the interior of buildings and their contents. In light of this, it notes that scientific equipment is more susceptible to vibration impacts. It is therefore required to be assessed against a criterion that is more stringent than that which would typically apply to the assessment of human comfort levels.

Arup's assessment states that it does not anticipate scientific equipment to be in proximity to the site. However, [redacted]' facilities have the potential to accommodate sensitive studio equipment (i.e. recording devices and cameras) which is equally susceptible to vibration impacts cameras and recording devices. Whilst construction vibration levels may not trigger the typical human comfort criteria, the vibration levels may still cause impacts to sensitive studio equipment (i.e. cause the cameras to shake) which may interfere with live feeds and recording operations.

In addition, ARUP's assessment has omitted a screening analysis and a risk assessment of potential vibration impacts. It is recommended that ARUP conduct an audit and risk assessment of potential vibration impacts on sensitive equipment within the [redacted] / [redacted] facility. The results of the assessment should be included in an updated revision of the Noise and Vibration Impact Assessment.

Stakeholder Consultation

Arup's Noise and Vibration Impact Assessment recommends that consultation with our clients be undertake. This consultation is recommended to consist of 'advanced notification of planned activities and expected disruption/effects'. However, it is not clear how this requirement will be enforced and the recommendation does not provide certainty that the consultation efforts will meaningfully assist in minimising impacts. It is requested that conditions of consent be imposed to mandate that consultation occur. If consultation is merely a recommendation, there is a risk it may not occur during the post lodgement phase.

1.8 Conclusion

Thank you for the opportunity to provide a submission to the exhibition of SSD-63168959. Our clients welcome the opportunity to work collaboratively with the DPHI during the assessment phase. Should the DPHI require any further information in relation to the matters raised in this submission, please do not hesitate to contact the undersigned.

Yours faithfully

GLN PLANNING PTY LTD

MATT COOPER
DIRECTOR

[redacted] contacts:

[redacted], Director Development Management, [redacted] Australia
+61 411 670 295 or [redacted]@[redacted].com

Attachment A - Peer Review of the Noise and Vibration Impact Assessment

Octave Acoustics
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Level 11, 1 O'Connell Street
Sydney, NSW 2000

Peer Review

13 August 2024

Client: [redacted]

NextDC S5

Peer Review of Arup NVIA

Octave Acoustics was engaged by [redacted] to carry out a limited peer review of the Noise and Vibration Impact Assessment (S5-AC-00-000-REP-F-DVA-APP-AC Report-20240626) prepared by Arup (Arup Report). The Arup Report addresses the Secretary's Environmental Assessment Requirements (SEARs) for the State Significant Development Application (SSDA) for a NextDC data centre development at 269 Lane Cove Road, Macquarie Park.

It is proposed that the development will be delivered in two stages, Building A and Building B. Building A is to incorporate:

- Basement parking for 105 cars
- 335m^2 of retail tenancy space
- A lobby, innovation hub and training rooms (3,192m^2)
- NextDC and MCX office floor space (9,765m^2)
- Seven levels of technical data floor space (17,258m^2)

Building B is to incorporate:

- Seven levels of technical data floor space (16,385m^2)
- A skybridge connecting buildings A and B
- Business signage on the western and southern building facades.

The primary noise sources associated with the development are identified as those occurring during:

- Demolition and construction works.
- Ongoing operation of the facility (plant noise emissions).

This peer review is limited to consideration of potential operational, construction and demolition noise and vibration impacts on the [redacted] and [redacted] studio facilities at 5 Thomas Holt Drive.

Details and commentary of this review are presented in the following table.

Report Section	Arup Commentary	Octave Acoustics Commentary
1. – 2.	-	None.
3.1	SEARs relevant to this project The Arup Report identifies the applicable SEARs requirements. Principally, these requirements are for a *Quantitative Noise and Vibration Impact Assessment* that addresses both construction and operational stage impacts.	This section is adequate. It is noted that the SEARs do not require provision of a detailed Construction Noise and Vibration Management Plan. As such, the Arup Report is not required to provide an exhaustive assessment of potential construction noise and vibration impacts associated with the Development.
3.2 – 4.	-	None.
4.1	Assessment Locations The Arup Report identifies the [redacted]/[redacted] site as non-residential receiver C8. The Report notes that impacts were assessed at heights of 1.5m, 10m and 28m above the ground at the boundary between the NextDC and [redacted]/[redacted] site.	This section is adequate.
4.2 – 5.	-	None.
5.1	Project construction noise targets The Arup Report establishes that noise impacts associated with the works are to be assessed in accordance with the NSW Interim Construction Noise Guideline (ICNG) and identifies that a construction Noise Management Level (NML) of 70dB(A) applies externally at the [redacted]/[redacted] buildings (when the buildings 'are in use'). The Arup Report notes that construction works will be conducted during the ICNG standard hours.	In assigning an NML of 70dB(A) to the [redacted]/[redacted] site, Arup has implicitly defined the facility under the ICNG as 'offices'. This is incorrect, the [redacted]/[redacted] facilities should have an ICNG classification of "other businesses that may be very sensitive to noise, where the noise level is project specific as defined below". To this end part 4.1.3 of the ICNG states *Examples of other noise-sensitive business are theatres and childcare centres. The proponent should undertake a special investigation to determine suitable noise levels on a project-by-project basis; the recommended 'maximum' internal noise levels in AS 2107 Acoustics – Recommended design sound levels and reverberation*

Report Section	Arup Commentary	Octave Acoustics Commentary
		times for building interiors may assist in determining relevant noise levels (Standards Australia). *The proponent should assess construction noise levels for the project, and consult with occupants of commercial and industrial premises prior to lodging an application where required.* *During construction, the proponent should regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work.* In not correctly identifying the noise sensitive nature of the [redacted]/[redacted] facility, Arup has failed to establish appropriate criteria / NML for the protection of operations in accordance with the ICNG. This has led to an outcome whereby the Arup Report has materially misrepresented the implications of demolition/construction noise impacts to operations within the [redacted]/[redacted] facility. Octave Acoustics recommends that the Arup Report be amended such that it correctly identifies the noise sensitive nature of the [redacted]/[redacted] facility in accordance with the ICNG. Arup has not established criteria for potential Ground Borne Noise (GBN) impacts in accordance with the relevant requirements of the ICNG. Octave Acoustics recommends that the Arup Report be updated to include an assessment of potential ground borne noise impacts associated with the proposed construction works.
5.2.1	Construction Noise Assessment Methodology The Arup Report provides an overview of the noise assessment methods including, prediction software, algorithm, source types and sound power levels. The Arup Report notes that '*equipment, staging, hours of work and locations and duration are unavailable at this stage of the*	The stated methods and assumptions are considered appropriate.

Report Section	Arup Commentary	Octave Acoustics Commentary
	Proposal. Therefore, assumptions provided by the project team have been made based on similar project.'	
5.2.2	The Arup Report defines four representative construction stages to facilitate noise predictions.	The approach taken is consistent with standard industry practice.
5.2.3	Plant and equipment sources The Arup Report nominates equipment/activity sound power levels that are used in its noise prediction calculations and references the source of the data as AS2436 and the Construction Noise and Vibration Management Strategy.	The nominated sound power levels are considered to be within a broadly appropriate range. However, piling activities are only represented by the bored method having a sound power level of 111dB(A). The impact piling method has a much greater sound power level of up to 134dB(A) and is not represented in the Arup assessment. Consideration of impact piling would be expected to materially increase the assessed construction noise impacts and have the potential to significantly disrupt studio operations. It is noted that contractors prefer impact piling as it is quicker than bored piles and therefore is more likely to be used all things being even. It is recommended that the Arup assessment be updated to include potential noise and vibration impacts associated with impact piling (or provide a statement that impact piling is not to be utilised).

Report Section	Arup Commentary	Octave Acoustics Commentary
5.2.4	Noise prediction results The Arup Report presents a table of predicted construction noise impacts at the [redacted] facility. This section includes an explanation that the lower end of the range of noise levels at each assessed receiver was determined by assuming all equipment/activity sound power as evenly distributed across the site. The upper end of the range assumes the loudest activity occurring at the boundary closet to the receiver in question. The assessment concludes that construction noise impacts are expected to exceed the established criteria (NML) and that noise mitigation measures should be implemented.	The assumptions used to calculate the noise impact range are reasonable. However, the omission of the impact piling from Arup's assessment means that the assessed range of noise levels is low and therefore not representative. It is recommended that the Arup assessment be updated to include potential noise and vibration impacts associated with impact piling (or provide a statement that impact piling is not to be utilised).
5.3	-	None.
5.4	Construction vibration criteria The Arup Report categorises potential vibration impacts as: - Human perception / comfort. - Effects on building content. - Vibration induced building damage.	With regard to vibration impacts on building content, Arup notes that some scientific equipment may have very stringient criteria and concludes that 'scientific equipment' is not expected to be located near the works site. However, Arup's assessment fails to specifically identify the potential for vibration sensitive equipment within the [redacted] facility. For example, vibration at levels that would not trigger human comfort criteria may result in shaking of cameras during recording or live feeds or cause damage to, or affect the calibration/settings of sensitive studio equipment. It is recommended that Arup conduct an audit and risk assessment of potential vibration impacts on sensitive equipment within the [redacted] facility. The results of this assessment should be included in an updated revision of the NVIA.

Report Section	Arup Commentary	Octave Acoustics Commentary
5.5	Vibration assessment The Arup Report refers to the minimum working distances recommended in the NSW Construction Noise and Vibration Guideline (Roads) 2023 (CNVG).	Arup has not provided either a screening analysis or risk assessment of potential vibration impacts (i.e. reference to recommended minimum working distances alone is wholly insufficient). Arup fails to reference the following text from the CNVG as appropriate: *"Operational aspects of some receivers may be highly sensitive to noise and vibration over and above typical noise and vibration allowances based on annoyance and human comfort. For highly sensitive receivers (e.g. high technology facilities with sensitive equipment, recording studios and cinemas), specific assessment is required to ensure satisfactory operation of the facility and determine if any mitigation or management measures are required to minimise the potential impacts…"* It is recommended that Arup carry out screening and risk assessment to identify potential vibration impacts on the studio facilities. Where operations and activities are identified as likely to affect studio operations, recommendations should be provided for mitigation and/or alternative methods sufficient to demonstrate that the proposed construction works can be carried out without causing material damage or disruption to studio activities.
5..6	Construction noise and vibration mitigation measures The Arup Report provides general/broad, limited and non-specific advice for noise and vibration mitigation measures. Subsection 5.6.4 recommends that 'community consultation with [redacted] building (C8) should be implemented' and that this should include advanced notification of planned activities and expected disruption/effects.	Although limited information is provided, this is not unreasonable at this early project stage, as such advice should be provided in detail in a Construction Noise and Vibration Management Plan (CNVMP) for the works. The Arup Report should be updated to include a requirement that a CNVMP for the proposed works is prepared and made available for review prior to approval.
6.0	Operational Assessment	Arup has provided design treatments to achieve marginal compliance with the 63dB(A) NPfI trigger at the [redacted]/[redacted] facility.

Report Section	Arup Commentary	Octave Acoustics Commentary
	This section describes Arup's assessment of noise impacts with respect to the applicable Noise Policy for Industry (NPfI) criteria under three datacentre operating scenarios: - Standard operation (63dB(A) predicted at [redacted]) - Generator testing (no prediction given) - Emergency operation (76dB(A) predicted at [redacted])	Arup has provided the predicted level of 76dB(A) at the [redacted]/[redacted] facility without consideration of the associated impacts (i.e. the level was provided for reference and information only). The rationale for this approach is based on observations that the power grid in the area is highly reliable. There has been no consideration of this noise impact on operations within the [redacted]/[redacted] facility. For example, to what degree would the 76dB(A) interfere with normal studio operations. It is recommended that the Arup assessment and report be updated to include an assessment of the implications of the 63dB(A) and 76dB(A) noise impact on the [redacted]/[redacted] facility.
6.5.2.1	Predicted noise levels – noise egress This section presents the results of Arup's operational noise predictions.	Results are not presented for the 'generator testing' scenario. It is recommended that this section of the Arup Report is updated to include results for the 'generator testing' scenario and associated commentary.
-	End of comments	

Report Section	Arup Commentary	Octave Acoustics Commentary

Key Recommendations

1. Octave Acoustics recommends that the Arup Report be amended such that it correctly identifies the noise sensitive nature of the [redacted]/[redacted] facility in accordance with the ICNG.
2. Octave Acoustics recommends that the Arup Report be updated to include an assessment of potential ground borne noise impacts associated with the proposed construction works.
3. It is recommended that the Arup assessment be updated to include potential noise and vibration impacts associated with impact piling (or provide a statement that impact piling is not to be utilised).
4. It is recommended that Arup conduct an audit and risk assessment of potential vibration impacts on sensitive equipment within the [redacted]/[redacted] facility. The results of this assessment should be included in an updated revision of the NVIA.
5. It is recommended that Arup carry out screening and risk assessment to identify potential vibration impacts on the studio facilities. Where operations and activities are identified as likely to affect studio operations, recommendations should be provided for mitigation and/or alternative methods sufficient to demonstrate that the proposed construction works can be carried out without causing material disruption to studio activities.
6. The Arup Report should be updated to include a requirement that a CNVMP for the proposed works is prepared and made available for review prior to approval.
7. It is recommended that the Arup assessment and report be updated to include an assessment of the implications of the 63dB(A) and 76dB(A) noise impact on the [redacted]/[redacted] facility.
8. It is recommended that this section of the Arup Report is updated to include results for the 'generator testing' scenario and associated commentary.

End.

Revision	Date	Comment	Author	Reviewer
0	12.08.2024	Issued to Client	RB	TM

Disclaimer

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Peer Review

13 August 2024

Client: [redacted]

NextDC S5

Peer Review of Arup NVIA

Octave Acoustics was engaged by [redacted] to carry out a limited peer review of the Noise and Vibration Impact Assessment (S5-AC-00-000-REP-F-DVA-APP-AC Report-20240626) prepared by Arup (Arup Report). The Arup Report addresses the Secretary's Environmental Assessment Requirements (SEARs) for the State Significant Development Application (SSDA) for a NextDC data centre development at 269 Lane Cove Road, Macquarie Park.

It is proposed that the development will be delivered in two stages, Building A and Building B. Building A is to incorporate:

- Basement parking for 105 cars
- 335m^2 of retail tenancy space
- A lobby, innovation hub and training rooms (3,192m^2)
- NextDC and MCX office floor space (9,765m^2)
- Seven levels of technical data floor space (17,258m^2)

Building B is to incorporate:

- Seven levels of technical data floor space (16,385m^2)
- A skybridge connecting buildings A and B
- Business signage on the western and southern building facades.

The primary noise sources associated with the development are identified as those occurring during:

- Demolition and construction works.
- Ongoing operation of the facility (plant noise emissions).

This peer review is limited to consideration of potential operational, construction and demolition noise and vibration impacts on the [redacted] and [redacted] studio facilities at 5 Thomas Holt Drive.

Details and commentary of this review are presented in the following table.

Report Section	Arup Commentary	Octave Acoustics Commentary
1. – 2.	-	None.
3.1	SEARs relevant to this project The Arup Report identifies the applicable SEARs requirements. Principally, these requirements are for a *Quantitative Noise and Vibration Impact Assessment* that addresses both construction and operational stage impacts.	This section is adequate. It is noted that the SEARs do not require provision of a detailed Construction Noise and Vibration Management Plan. As such, the Arup Report is not required to provide an exhaustive assessment of potential construction noise and vibration impacts associated with the Development.
3.2 – 4.	-	None.
4.1	Assessment Locations The Arup Report identifies the [redacted]/[redacted] site as non-residential receiver C8. The Report notes that impacts were assessed at heights of 1.5m, 10m and 28m above the ground at the boundary between the NextDC and [redacted]/[redacted] site.	This section is adequate.
4.2 – 5.	-	None.
5.1	Project construction noise targets The Arup Report establishes that noise impacts associated with the works are to be assessed in accordance with the NSW Interim Construction Noise Guideline (ICNG) and identifies that a construction Noise Management Level (NML) of 70dB(A) applies externally at the [redacted]/[redacted] buildings (when the buildings 'are in use'). The Arup Report notes that construction works will be conducted during the ICNG standard hours.	In assigning an NML of 70dB(A) to the [redacted]/[redacted] site, Arup has implicitly defined the facility under the ICNG as 'offices'. This is incorrect, the [redacted]/[redacted] facilities should have an ICNG classification of "other businesses that may be very sensitive to noise, where the noise level is project specific as defined below". To this end part 4.1.3 of the ICNG states *Examples of other noise-sensitive business are theatres and childcare centres. The proponent should undertake a special investigation to determine suitable noise levels on a project-by-project basis; the recommended 'maximum' internal noise levels in AS 2107 Acoustics – Recommended design sound levels and reverberation*

Report Section	Arup Commentary	Octave Acoustics Commentary
		times for building interiors may assist in determining relevant noise levels (Standards Australia). *The proponent should assess construction noise levels for the project, and consult with occupants of commercial and industrial premises prior to lodging an application where required.* *During construction, the proponent should regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work.* In not correctly identifying the noise sensitive nature of the [redacted]/[redacted] facility, Arup has failed to establish appropriate criteria / NML for the protection of operations in accordance with the ICNG. This has led to an outcome whereby the Arup Report has materially misrepresented the implications of demolition/construction noise impacts to operations within the [redacted]/[redacted] facility. Octave Acoustics recommends that the Arup Report be amended such that it correctly identifies the noise sensitive nature of the [redacted]/[redacted] facility in accordance with the ICNG. Arup has not established criteria for potential Ground Borne Noise (GBN) impacts in accordance with the relevant requirements of the ICNG. Octave Acoustics recommends that the Arup Report be updated to include an assessment of potential ground borne noise impacts associated with the proposed construction works.
5.2.1	Construction Noise Assessment Methodology The Arup Report provides an overview of the noise assessment methods including, prediction software, algorithm, source types and sound power levels. The Arup Report notes that '*equipment, staging, hours of work and locations and duration are unavailable at this stage of the*	The stated methods and assumptions are considered appropriate.

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	Proposal. Therefore, assumptions provided by the project team have been made based on similar project.'	
5.2.2	The Arup Report defines four representative construction stages to facilitate noise predictions.	The approach taken is consistent with standard industry practice.
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-	End of comments	

Report Section	Arup Commentary	Octave Acoustics Commentary

Key Recommendations

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End.

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