NSW Ports

NSW Ports Submission

Explanation of Intended Effect – Design and Place State Environmental Planning Policy

| April 2021 |

Executive Summary

NSW Ports is responsible for managing the port and freight assets of Port Botany, Port Kembla, the Cooks River Intermodal Terminal and the Enfield Intermodal Logistics Centre. These assets, along with the efficient movement of freight to and from these assets, are critical to the future economic growth, liveability, productivity and sustainability of New South Wales.

The proposed Design and Place State Environmental Planning Policy (SEPP) has the potential to provide state-level planning policy to deal with noise attenuation in residential building design located within proximity of industrial / logistics areas, ports, intermodal terminals and related infrastructure (roads and rail) **(together referred to in this submission as industrial areas and related infrastructure).** NSW Ports in this submission submits opportunities where the proposed Design and Place SEPP can include development controls to improve residential amenity through good design practices and a strengthening of requirements to recognise impacts associated with residential development near industrial areas and related infrastructure.

The Design and Place SEPP provides significant opportunity to include amenity policy (specifically noise attenuation) through the implementation of the following amenity mitigation measures for residential and other sensitive use development located in proximity to industrial areas and related infrastructure:

- Inclusion of 'urban amenity' in the Design and Place SEPP mandatory matters for consideration. All new residential development should demonstrate consideration has been given to acoustic design, layout, design orientation and building treatments to ensure residential buildings have been designed to safeguard the future operation of the industrial areas and related infrastructure. Consideration should also be given to the minimisation of any acoustic, visual, odour and air quality impacts of the surrounding environment and evidence that a good quality, high amenity residential development can be created.
- Inclusion of distance based precinct mapping to be applied to areas surrounding industrial areas and related infrastructure. These precinct maps will indicate to the applicant the level of amenity criteria that needs to be applied to the proposed residential development. Under existing planning policy, noise sensitive land uses such as residential development can be built within close vicinity to industrial areas such as ports and intermodal terminals without any acknowledgement of the presence of freight-related noise.
- Proposed updates to the external noise and pollution Apartment Design Guide (ADG) requirements to be extended to apply to urban areas where exposure to industrial areas and related infrastructure is more prevalent.
- Inclusion of mandatory design standards in the new Urban Design Guide (UDG) that all scales of residential development located within proximity of industrial areas and related infrastructure would need to achieve to improve amenity through urban design.

For ports and intermodal terminals to be productive and efficient, they need supporting industrial lands, of suitable size, in the surrounding areas. NSW Ports believes it is crucial that industrial lands that are designated to serve a specific purpose are not impacted by urban encroachment. Industrial land (and the potential productive benefit of freight related uses) is genuinely incompatible with more sensitive uses, such as residential. A consequence of urban encroachment is constrained industrial operations and constrained growth of these operations – e.g. through curfews, volume / movement caps – which leads to reduced economic productivity and inefficient use of infrastructure.

NSW Ports supports planning policy, such as the Design and Place SEPP that can assist in the reduction of amenity impacts experienced by residents and other sensitive users within proximity of industrial areas and ensure that the economic and employment benefits from industrial areas are able to be protected for the future growth of NSW and infrastructure use can be optimised.

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1. Introduction

NSW Ports is responsible for managing the port and freight assets of Port Botany, Port Kembla, the Cooks River Intermodal Terminal and the Enfield Intermodal Logistics Centre.

At NSW Ports, our focus is managing the key trade gateways connecting the people and businesses of NSW and Australia to global markets. Our business is a significant contributor to the economies of NSW and Australia.

Our role is to:

- Strategically plan for future trade and infrastructure requirements.
- Develop and maintain key port infrastructure.
- Promote opportunities to optimise port operations and associated supply chains.
- Manage safety, security and operations at common user facilities.
- Manage land leases and licences held by tenants.
- Engage with government, business and the community.

The optimisation of port operations and associated supply chains is vital, not only for NSW Ports, but for the NSW and Australian economy more broadly.

NSW Ports has reviewed the Design and Place SEPP Explanation of Intended Effect (EIE) and requests the below matters be addressed in the Design and Place SEPP prior to gazettal. NSW Ports believes that through this SEPP, the NSW Government has the opportunity to provide recognition of the amenity impacts that industrial areas and related infrastructure can have on residential development near critical freight assets and improve residential amenity through good design practices.

2. The Value of our Ports and Intermodals

The assets NSW Ports manages are critical to the NSW economy and the future growth and development of New South Wales (NSW). Port Botany and Port Kembla are vital trade gateways for our State, while the intermodal hubs at Enfield and Cooks River are a critical part of the freight logistics supply chain.

Port Botany is NSW's container port and handled 2.5 million TEU in 2019/2020. Port Botany is also a primary bulk liquid (fuel) and gas port which handled over 5 billion litres in 2019/2020.

Port Kembla is an international trade gateway for bulk agricultural, construction and mining industries. It is NSW's largest motor vehicle import hub and home to the state's largest grain export terminal and second largest coal export port.

Port Kembla has been approved by the NSW Government as the site of NSW's next container terminal once Port Botany nears capacity.

The Enfield Intermodal Logistics Centre and Cooks River Intermodal Terminal are inland extensions to the Port and provide an important contribution to the container logistics freight task.

These assets are located within major industrial / logistic precincts.

Figure 1. NSW Ports managed port and freight assets

3. Existing Situation

3.1. Urban Encroachment

Ports and intermodal terminals require protection from urban encroachment in order to operate efficiently. Urban encroachment can be in the form of an intensification of density or the redevelopment of industrial land to sensitive uses such as residential.

Residential development exists within close proximity to NSW Ports freight assets. The closest residential uses are located 200m from Port Botany and 110m from Port Kembla[1]. Currently, there are no requirements in place at Local or State planning policy level to appropriately mitigate amenity impacts associated with residential development located within the vicinity of ports and intermodal terminals.

The construction of residential development within the vicinity of ports, intermodal terminals and port-related infrastructure without appropriate amenity mitigation, specifically noise attenuation mitigation measures results in increased noise complaints and amenity impacts to the community and residents. A consequence of urban encroachment is constrained industrial operations and constrained growth of these operations – e.g. through curfews, volume / movement caps – which leads to reduced economic productivity and inefficient use of infrastructure.

Compromised planning outcomes between industrial and residential land uses fails both industry and residents. NSW needs a sustainable land use planning solution that allows industry to operate and expand to meet the growing needs of the state, while preserving the amenity of surrounding residential land uses. The freight and logistics supply chain needs greater recognition in planning at State level. The planning system needs to recognise the current operational environment of ports and intermodal terminals and the amenity impacts on sensitive land uses including residential development.

Figure 2 below illustrates population growth that has occurred surrounding NSW Ports assets. Based on Australian Bureau of Statistics (ABS) Estimated Resident Population (SA2) data, the total residential population surrounding NSW Ports assets has grown 11.4% between 2013-2019. As population densities intensify surrounding existing NSW Ports freight assets, it highlights the importance of creating well designed environments where different land zones and uses can exist within close proximity to another.

The cumulative population growth trend shown in figure 2 indicates the need for the planning system to take into consideration and implement appropriate amenity mitigation measures when assessing new development applications within the vicinity of freight assets.

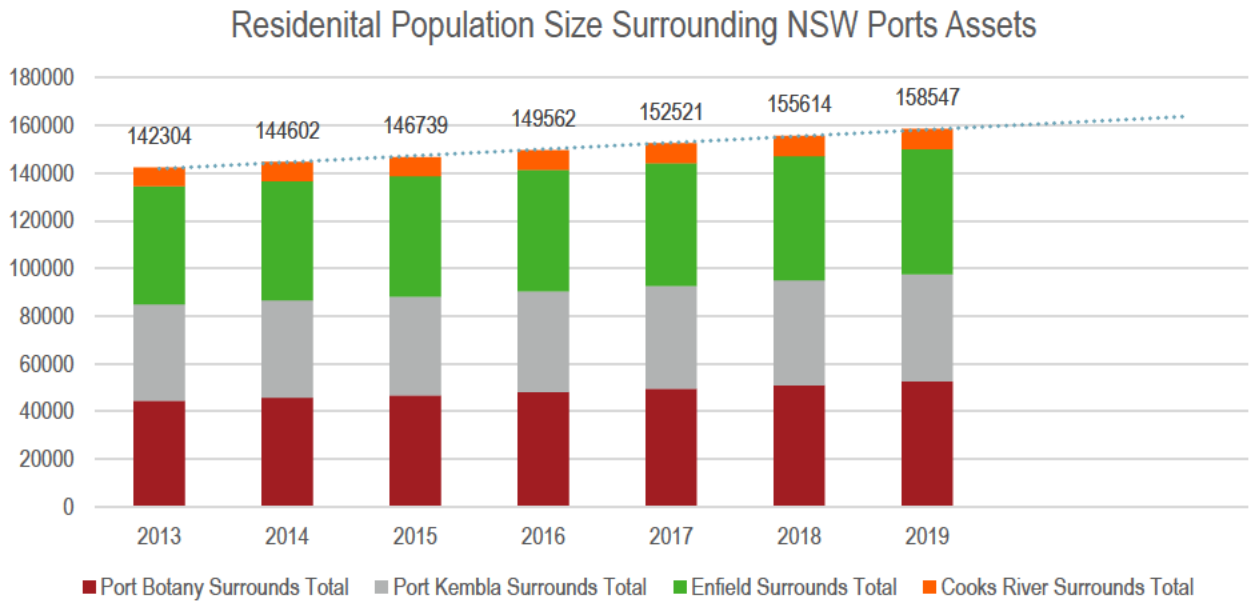


Figure 2. Residential population size surrounding NSW Ports assets (source: ABS data)

[1] NSW Ports, Navigating the Future, NSW Ports' 30 Year Master Plan, pg. 55 and 75 (2015)

In 2020 NSW Ports received 90 complaints from approximately 23 complainants in relation to noise surrounding Port Botany (Little Bay, Chifley, La Perouse, Phillip Bay, Matraville, Malabar, Banksmeadow and Botany). Figure 3 identifies the total number of noise complaints received by NSW Ports in each suburb.

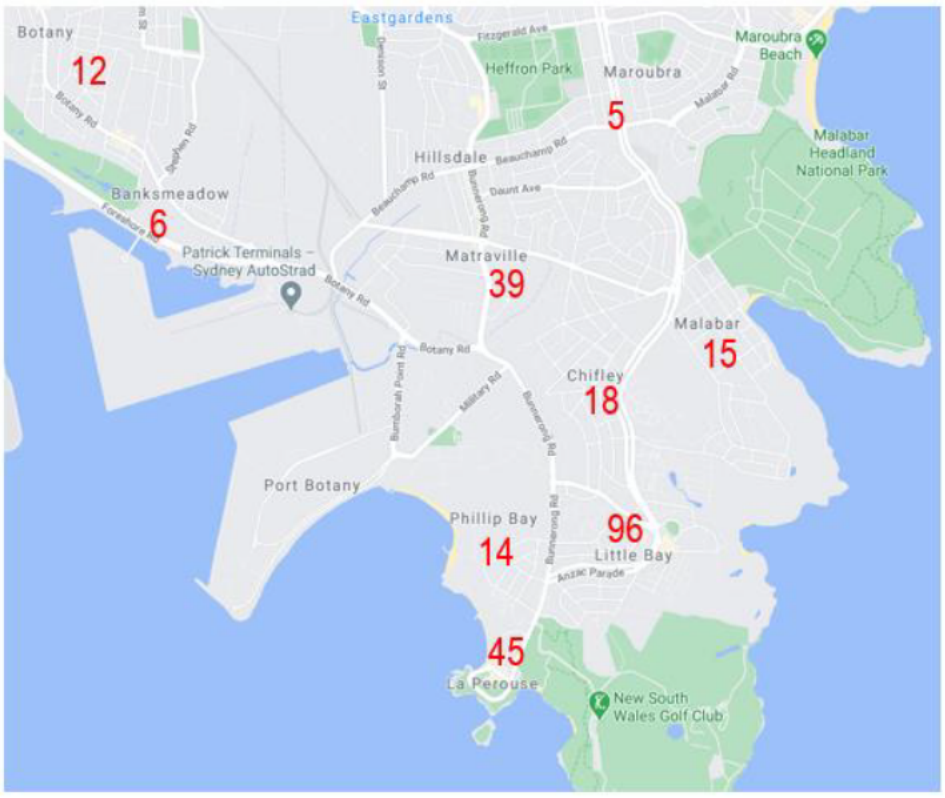


Figure 3. Total number of complaints received by NSW Ports in each suburb – for complaints received by NSW Ports in 2020

Figure 4 shows the number of Port Botany noise complaints received by both NSW Ports and the NSW Environment Protection Authority (EPA) in 2020.

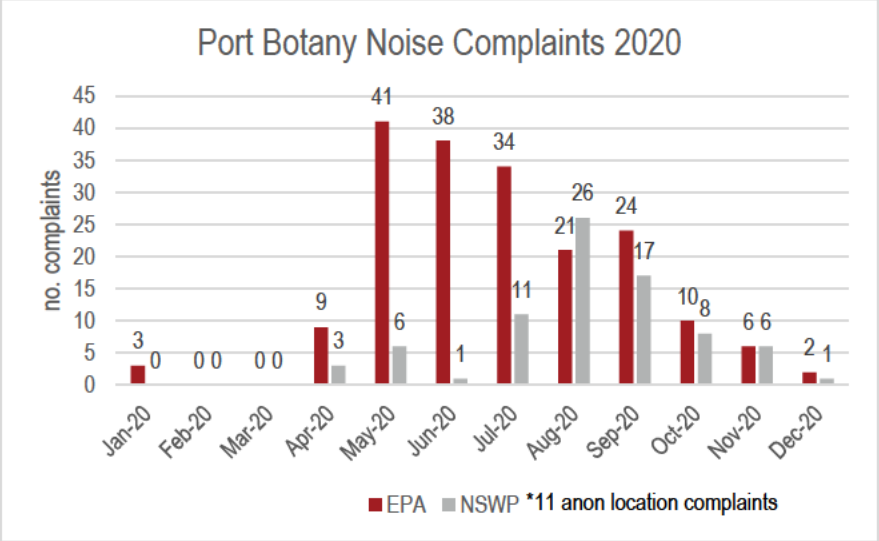


Figure 4. Port Botany Noise Complaints 2020

To mitigate future complaints, particularly as freight volumes grow, it is imperative that residential developments implement appropriate noise mitigation measures to mitigate acoustic impacts from the operational environment of the nearby industrial areas and related infrastructure. The Australian Noise Exposure Forecast (ANEF) system was developed as a land use planning tool to

take into consideration a range of noise information relevant to the local community such forecasted aircraft noise exposure, aimed at controlling urban encroachment on airports by noise sensitive development. The ANEF system includes noise mitigation measures, including mandated noise insulation by local planning authorities for residential development that fall inside designated noise contours. NSW Ports has received fewer complaints from areas which the ANEF counters apply arising from the Sydney Airport requirements than areas without these contours. This emphasises the need for State planning policy to address amenity mitigation within the vicinity of fright assets.

The below figures demonstrate the proximity of zones in which residential development is permitted to ports and intermodal terminals managed by NSW Ports.

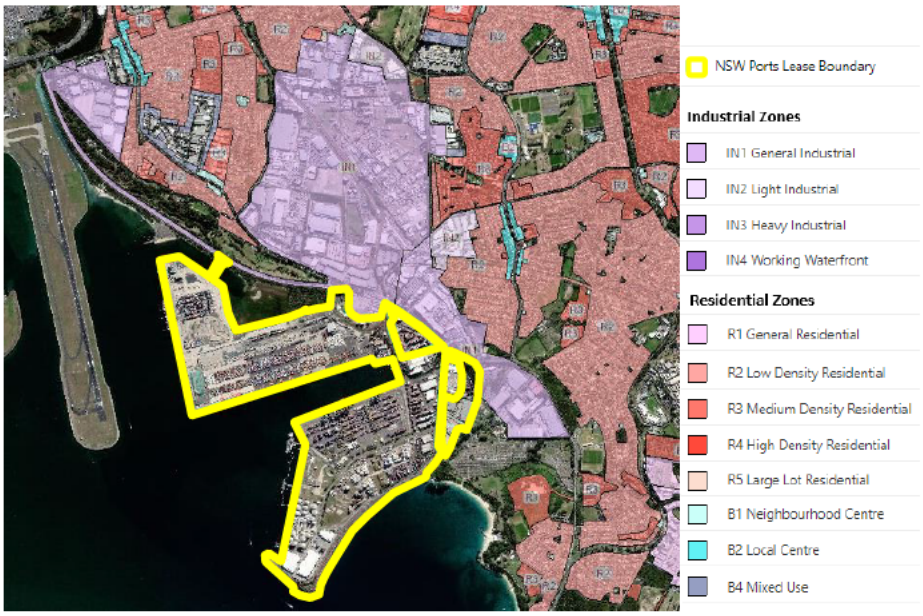


Figure 5. Port Botany surrounding industrial and residential land zones

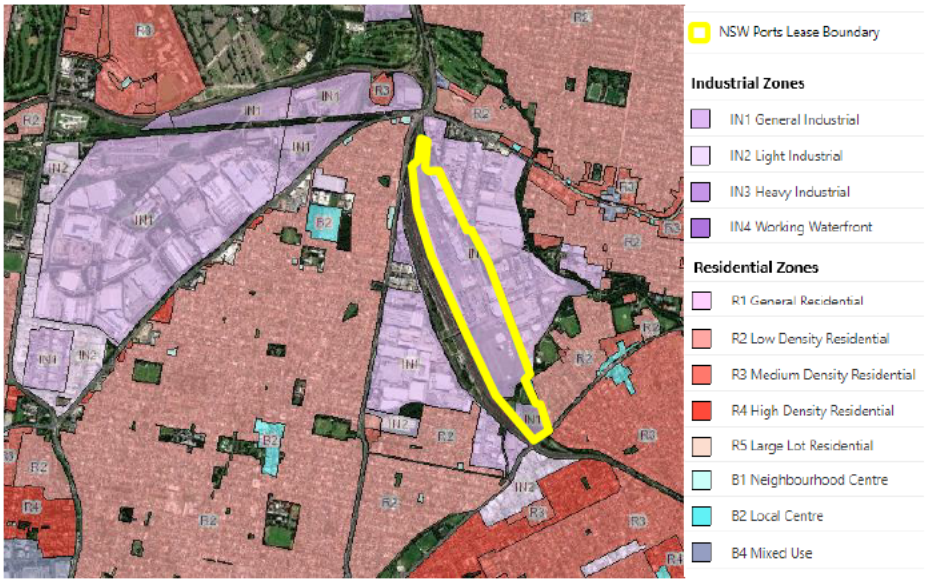


Figure 6. Enfield Intermodal Logistics Centre surrounding industrial and residential land zones

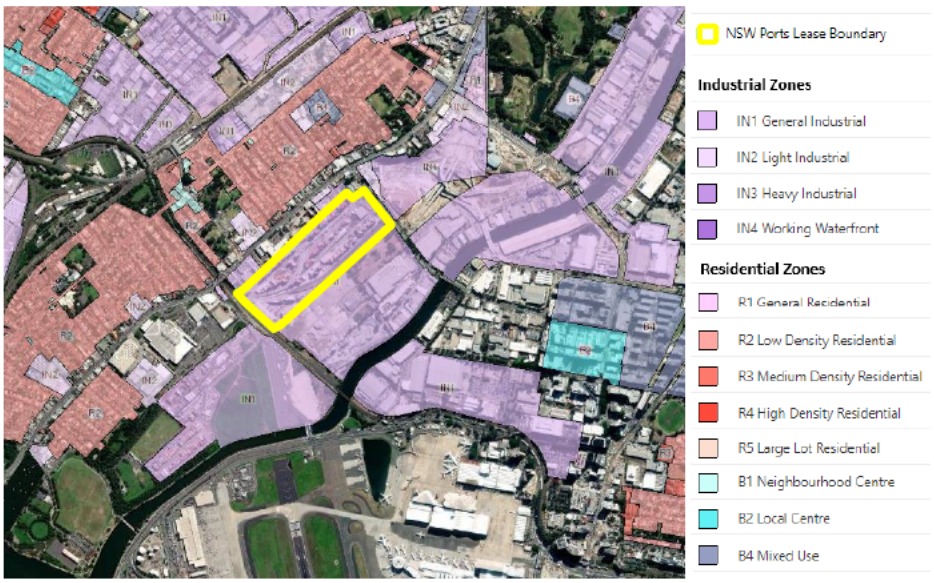


Figure 7. Cooks River Intermodal Terminal surrounding industrial and residential land zones

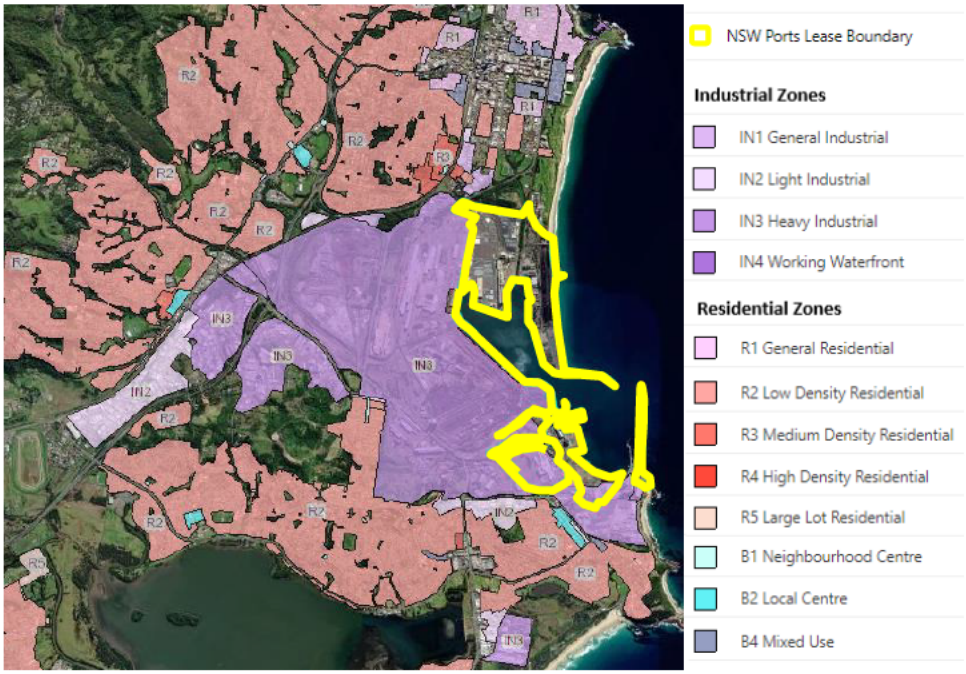


Figure 8. Port Kembla surrounding industrial and residential land zones

The consequence of reduced industrial land supply around ports and intermodal terminals is an increase in interface issues with surrounding residential areas. Port and intermodal-related activities can generate traffic, noise, light and aesthetic impacts on nearby areas. These impacts can increase as trade volumes grow. For these reasons, a buffer and appropriate mitigation measures are required between port and intermodal related activities from sensitive land uses such as housing.

3.2. Existing Legislative Environment

There is a need for a SEPP to cover amenity policy (and specifically noise attenuation) to fill the policy void where local planning policy fails to address amenity impacts on residential development located within proximity to industrial areas, ports, intermodal terminals and related infrastructure.

Noise-related complaints have been received from residents up to two kilometres from Port Botany[2]. NSW Ports aims to operate in harmony with the surrounding environment, however, this is not practical unless a number of the following solutions are put in place that can manage community impacts while also delivering efficient and sustainable freight assets:

- A State-wide SEPP to improve residential amenity through good design practices.
- Establishment of a protection zone which prohibits incompatible uses surrounding freight assets.
- Ensure all planning and development proposals within the vicinity of NSW Ports assets are referred to NSW Ports for comment during the planning policy and development assessment process.
- Identify the extent of the area potentially affected by industrial operations and map these areas in environmental planning instruments (just as airport noise contours and flood prone lands are mapped).
- Within potentially affected areas, impose development controls that require appropriate mitigation measures like the noise mitigation measures that Bayside Council imposes within the Botany Bay Development Control Plan 2013 to address airport noise impacts from Sydney Airport operations (appendix 1).
- Include notifications on Section 10.7 planning certificates that properties are within a port and industrial impact zone, as has been adopted by Inner West Council for impacts arising from the Glebe Island and White Bay port area.

3.2.1. Existing Local Planning Policy

Local Councils play a significant role as land use planners and decision makers on Development Applications (DAs). However, given the role Councils have in creating buffer areas around major freight assets or ensuring DAs have appropriately considered and assessed freight assets in their applications, there is currently limited appetite in many Local Councils to step into this area as current planning policy does not directly require them to take into consideration industrial areas and related infrastructure when assessing DAs.

Although Port Botany and Port Kembla and their surrounding lands are regulated under *State Environmental Planning Policy (Three Ports) 2013* (Three Ports SEPP), Local Environmental Plans (LEPs) still play an important role in managing the interface between the Port and surrounding areas, including mitigating the potential for land use conflict.

Many other significant freight and industrial assets, including intermodal terminals, are regulated under LEPs. NSW Ports advocates for planning authorities to facilitate efficient port and intermodal operations through strategic planning policies, development controls and development assessment process that support:

- 24/7 operations of ports, intermodal terminals, port-related infrastructure and port-related uses.
- Preservation of industrial lands around the ports and intermodal terminals and port related uses.
- Controls on sensitive developments (including residential developments) in proximity to ports, intermodal terminals, port-related infrastructure and port-related uses.
- Creation of protection zones that prohibit incompatible uses.
- Retention of large parcels of industrial lands in proximity to the Ports.
- Planning authorities to consult with NSW Ports during the preparation of planning and development proposals with a protentional to have an impact on, or be impacted by, port and intermodal activities.

3.2.2. Existing State Planning Policy

The *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) assists the NSW Government, private infrastructure providers, Local Councils and the communities they support by simplifying the process for providing infrastructure like hospitals, roads, railways, emergency services, water supply and electricity delivery.

An aim of the ISEPP is:

> *2(e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development*

The current noise and vibration provisions of the ISEPP apply to the development of sensitive uses including residential accommodation, place of public worship, hospital and education establishment or centre-based child care facility located adjacent to

[2] NSW Ports, Navigating the Future, NSW Ports' 30 Year Master Plan, pg. 55 (2015)

major roads and rail corridors. However, the provisions of the ISEPP do not apply to other state significant infrastructure such as ports and intermodal terminals.

The relevant clauses of the ISEPP are listed below:

87 Impact of rail noise or vibration on non-rail development

(1) This clause applies to development for any of the following purposes that is on land in or adjacent to a rail corridor and that the consent authority considers is likely to be adversely affected by rail noise or vibration—

(a) residential accommodation,

(b) a place of public worship,

(c) a hospital,

(d) an educational establishment or centre-based child care facility.

(2) Before determining a development application for development to which this clause applies, the consent authority must take into consideration any guidelines that are issued by the Secretary for the purposes of this clause and published in the Gazette.

(3) If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded—

(a) in any bedroom in the residential accommodation—35 dB(A) at any time between 10.00 pm and 7.00 am,

(b) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.

102 Impact of road noise or vibration on non-road development

(1) This clause applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW) and that the consent authority considers is likely to be adversely affected by road noise or vibration—

(a) residential accommodation,

(b) a place of public worship,

(c) a hospital,

(d) an educational establishment or centre-based child care facility.

(2) Before determining a development application for development to which this clause applies, the consent authority must take into consideration any guidelines that are issued by the Secretary for the purposes of this clause and published in the Gazette.

(3) If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded—

(a) in any bedroom in the residential accommodation—35 dB(A) at any time between 10 pm and 7 am,

(b) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.

(4) In this clause, freeway, tollway and transitway have the same meanings as they have in the Roads Act 1993.

NSW Ports is of the opinion that the current noise provisions of the ISEPP that apply to residential development in proximity to major roads and rail corridors should be transferred to the Design and Place SEPP and should be expanded to capture industrial areas, ports, intermodal terminals and related infrastructure and locations beyond those just 'adjacent to the corridor'.

3.2.3. Australian Noise Exposure Forecast

Noise contours are used in land use planning to manage aircraft noise impacts and have been successfully integrated into planning legislation, for example, the ANEF. Similar to aircraft noise, freight related noise must be considered when planning works for existing or new residential development.

Bayside Council addresses aircraft noise through planning controls contained within the Botany Bay Development Control Plan 2013 (appendix 1). Experience has shown that urban encroachment on airports can lead to aircraft noise problems which in turn can result in community pressures to restrict airport operations. Through the successful implementation of planning controls to manage aircraft noise, appropriately mitigated residential development is able to exist within the proximity of airports. The successful implementation of a buffer around airports by setting the noise acceptable criteria should also be implemented for industrial areas and related infrastructure.

Further, *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (Codes SEPP) prohibits residential complying development to be carried out on land that is in the 25 ANEF contour or a higher ANEF contour.

The above two examples demonstrate how airport noise has been managed through planning legislation to mitigate impacts on residential development. Similar requirements should be considered and applied to residential development surrounding industrial areas and related infrastructure.

4. Design and Place State Environmental Planning Policy

The Design and Place SEPP is an appropriate environmental planning instrument to deal with noise attenuation in new residential building design. Residential development within the vicinity of significant industrial areas, ports, intermodal terminals and related infrastructure need to be designed with an understanding of the requirements of the surrounding environment. Increased and improved amenity mitigation measures in the design and construction of new and existing residential development will assist in improving the overall amenity for residents living in proximity of industrial areas, ports, intermodal terminals and related infrastructure.

The Greater Sydney Commission's *A Metropolis of Three Cities includes the following strategy under Objective 16 – freight and logistics network is completive and efficient.*

> ***Strategy 16.1***[3]
>
> *Manage the interfaces of industrial areas, trade gateways and intermodal facilities by:*
>
> ***Land use activities***
>
> - *providing buffer areas to nearby activities such as residential uses that are sensitive to emissions from 24-hour port and freight functions*
> - *requiring sensitive developments within the influence of port and airport operations to implement measures that reduce amenity impacts*
> - *improving communication of current and future noise conditions around Port Botany, airports, surrounding road and rail networks, intermodal terminals and supporting private lands*
> - *improving the capacity of existing stakeholders to implement existing planning noise standards for incoming sensitive developments*

It is considered that the Design and Place SEPP is the appropriate environmental planning instrument to implement planning controls to address the Greater Sydney Commission strategy items listed above.

4.1. Design Process – Place-based approach

The Design and Place SEPP seeks to embed a place-based approach to the design of the built environment. The amenity impact of industrial areas, ports, intermodal terminals and related infrastructure on residents needs to be considered for the long-term

[3] Greater Sydney Commission, Metropolis of Three Cities, page 96 (2018)

sustainability and resilience of all new residential development. In order to deliver on well-designed built environments and provide a holistic understanding of place that development will impact and shape, it is critical that consideration be given to surrounding land uses that have the potential to impact the amenity of residential environments.

To manage potential impacts that industrial areas, ports, intermodal terminals and related infrastructure have on residents and other sensitive users located within their proximity, it is recommended that the following clause be included in the Design and Place SEPP:

Development within the vicinity of Ports and Intermodal Terminals

(1) This clause applies to residential development that is –

(a) On land shown as "potentially affected zone" on the Industrial Areas and Related Infrastructure Map.

(2) Before determining a development application for development to which this clause applies, the consent authority must ensure the application has applied all applicable mitigation measures contained within relevant State Government guidelines such as the Apartment Development Guidelines and / or Urban Development Guidelines.

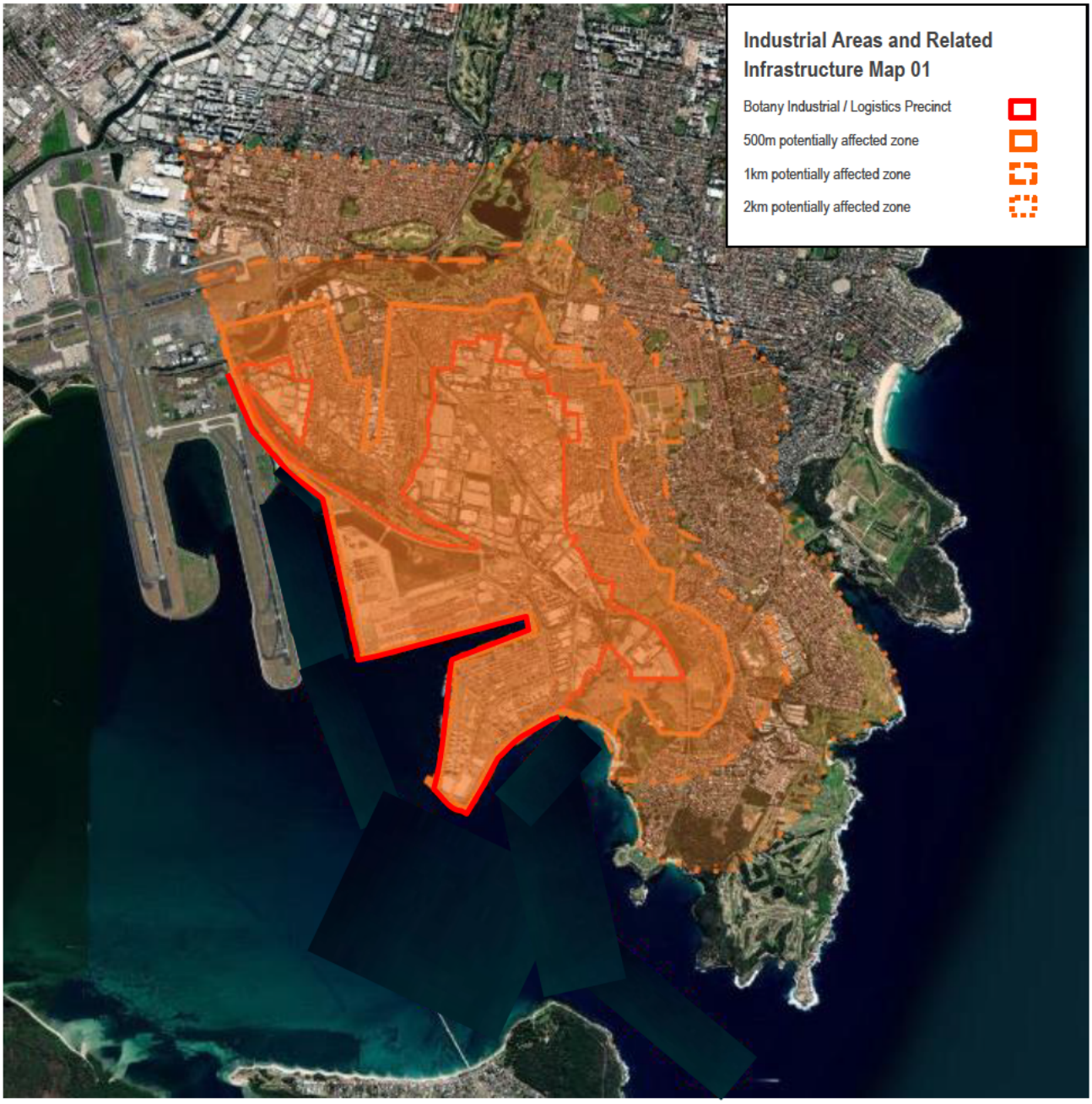
(3) The consent authority must not grant consent unless it is satisfied that appropriate measures will be taken that the following LAeq levels are not exceeded –

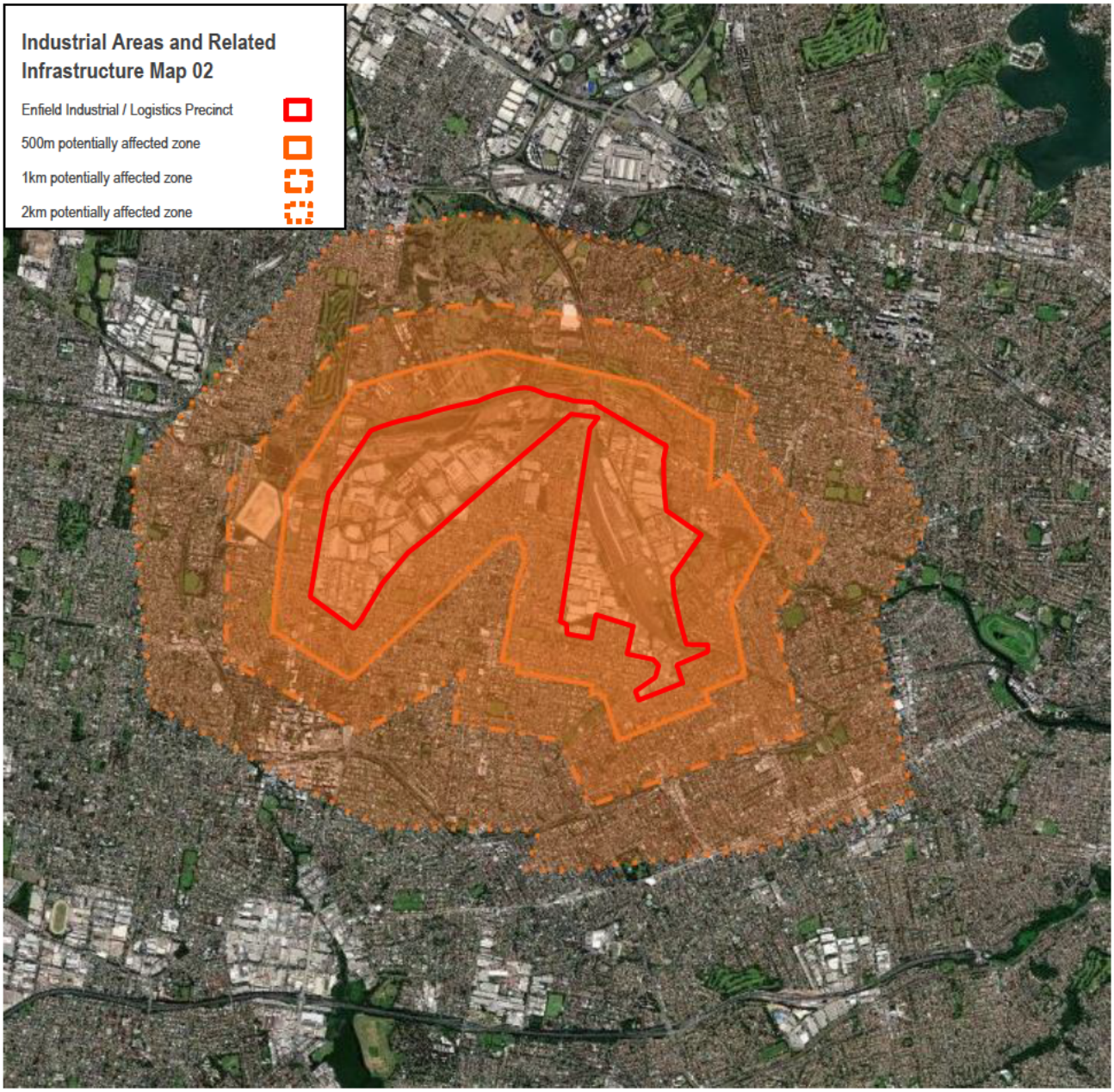
Note: NSW Ports seeks to further engage with DPIE and EPA to determine an appropriate noise design criterion for inclusion.

The industrial areas and related infrastructure areas can be determined based on existing land application areas and land zoning. For example, the boundaries of the Botany industrial / logistics precinct could be based on the Three Ports SEPP Port Botany land application map which includes Port Botany and surrounding industrial lands. This application can be mirrored to other industrial estates around the state.

Further, intermodal terminals across the state could apply an offset from the surrounding industrial zoned land at / surrounding intermodal terminals such as the Enfield ILC, Cooks River intermodal terminal, Moorebank intermodal terminal and St Marys intermodal terminal.

Example Industrial Areas and Related Infrastructure Maps are provided below. The below indicative maps illustrate three different zone boundaries for further discussion with DPIE. There is the provision for certain precincts to have location specific contours developed based on elements which may impact residential development within the local community such as industrial areas and related infrastructure operations, land topography, wind enhancement, temperature inversion etc.


Industrial Areas and Related Infrastructure Map 01
Botany Industrial / Logistics Precinct
500m potentially affected zone
1km potentially affected zone
2km potentially affected zone



The inclusion of the above clause and industrial areas and related infrastructure maps in the Design and Place SEPP will clearly indicate to the applicant the level of amenity criteria that needs to be applied to the proposed residential development. industrial areas and related infrastructure mapping would be particularly useful in land use planning around industrial and logistics assets and assist the planning system in identifying properties that may be susceptible to noise intrusion from operational industrial areas, ports, intermodal terminals and related infrastructure.

Given the State importance of ports, it is considered prudent that significant freight assets are protected from sensitive land uses that could impose constraints or inhibit future expansion.

Under the current approach, noise sensitive land uses such as residential development can be built within close vicinity to industrial areas, ports, intermodal terminals and related infrastructure without any acknowledgement of the presence of freight related noise. At the very least, land use planning decisions should take into account the location of industrial areas and related infrastructure areas.

NSW Ports would welcome further discussion with DPIE regarding the proposed industrial areas and related infrastructure mapping and recommended mitigation measures. It would further be appropriate to ensure the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (Codes SEPP) is amended to ensure complying development for residential purposes cannot be undertaken within the 500m potentially affected zone.

4.2. Mandatory matters for consideration

The Design and Place SEPP proposes to include 19 mandatory matters for consideration. The EIE proposes the following mandatory matters:

1. Cultural and built heritage
2. Public space
3. Connectivity
4. Local living
5. Street design
6. Water management
7. Green infrastructure
8. Resilience
9. Fine-grain movement
10. Density
11. Housing diversity
12. Transport and parking
13. Attractive form
14. Impacts on public space
15. Impacts on vibrant areas
16. Activation
17. Emissions and resource efficiency
18. Tree canopy
19. Affordable housing

The mandatory matters for consideration fail to consider urban amenity – an important factor in good place design. Consideration of amenity is relevant for all residential building design. It is considered that residential development designed without appropriate consideration given to how the surrounding environment may impact the subject site is a poor planning outcome. This can result in long-term land use conflicts if new development is not designed to appropriately mitigate amenity impacts of the surrounding environment. NSW Ports has observed cases where residential development has not been designed to mitigate acoustic impacts from the operations of ports and intermodal terminals. This results in community noise complaints, resulting in angst amongst the community. Whereas, if residential development considered the surrounding environment and appropriately mitigated the development from any potential impacts when it was designed and constructed, it would improve the quality of the development for its occupants.

NSW Ports advocates for the below mandatory matters for consideration be included in the Design and Place SEPP:

PROPOSED CONSIDERATION	BENEFIT	APPLIES TO
Urban Amenity If the development site is located within **a potentially affected zone on the industrial areas and related infrastructure map** the proposal demonstrates: Acoustic design, layout, design orientation, building treatments (e.g. walls, windows, roofs) of residential buildings have been designed to safeguard the future operation of the area. Consideration given to the minimisation of any acoustic, visual, odour and air quality of the surrounding environment and evidence that a good quality, high amenity residential development can be created.	Ensures the amenity of the built environment is not diminished by surrounding development, including ports, intermodals, port-related infrastructure and industrial development. Protects residents of the development by creating appropriately mitigated environments to live in.	Precinct Significant development All other development Principle 1: Design places with beauty and character

5. Apartment Design Guide

The Apartment Design Guide (ADG) provides planning and design standards for residential apartments across the State.

The SEPP proposes to update the ADG in relation to residential amenity. The EIE states:

Provide acoustic separation for internal and external noise sources to respond to increased work-from-home needs and increased density in urban areas where exposure to busy road, rail corridors and industrial uses is more prevalent.

Figure 9 below details the proposed update to the ADG in relation to external noise and pollution.

PROPOSED DESIGN CRITERIA	GUIDANCE	BENEFIT
9. External noise & pollution Introduce new requirements for development on busy roads (as currently defined, i.e. > 20,000 vehicles per day) to supplement the Infrastructure SEPP.	Update design guidance to align with recent best practice developed by local councils.	Improve the amenity and consistency of development expectations for apartments where environmental quality is compromised (including road and rail corridors).

Figure 9. Extract from the EIE, Table A6: Summary of proposed changes to the Apartment Design Guide in relation to residential amenity

Apartment development is typically a high-rise form of residential development and when located within the vicinity of industrial areas, ports and intermodal terminals, it often results in having a direct line of sight to surrounding industrial areas and related infrastructure. This results in this type of built form being more susceptible to acoustic impacts without appropriate acoustic mitigation.

NSW Ports advocates for the proposed external noise and pollution ADG requirements proposed in table A6 of the EIE to be extended to apply to significant industrial areas, ports, intermodal terminals and related infrastructure.

NSW Ports would welcome further engagement in reviewing the proposed update to the design guidance to align with the recent best practice developed by local councils.

6. Urban Design Guide

The new Urban Design Guide (UDG) will apply to the proposed three scales of residential development being, precinct, significant development and all other development. The UDG is intended to cover 'delivering amenity through urban design'. There is significant room for improvement in regard to amenity considerations for residential development located within existing localities where it would be difficult to achieve good liveability outcomes without proper amenity mitigation measures in place for development which trigger the need for them.

The proposed industrial / logistics precincts map within the Design and Place SEPP could indicate in the UDG development sites which need to consider design criteria relating to new residential development within the vicinity of industrial areas and related infrastructure.

The inclusion of mandatory design standards in the UDG that all scales of residential development located within the industrial areas and related infrastructure mapped area would need to achieve would improve the land use conflict which can occur between residential zones and industrial areas and related infrastructure.

The current noise provisions contained in Clause 87 and Clause 102 of the ISEPP should be applied to industrial areas and related infrastructure areas as a way of example and be expanded to include buffer areas, not just land located adjacent to.

Further the Department of Planning document titled *Development Near Rail Corridors and Busy Roads – Interim Guidelines* provides examples of acoustic planning measures and acoustic treatments of residences which could be applied as a way of example to the UDG to reduce the impacts of industrial areas and related infrastructure noise on residential development.

The UDG should give consideration to the following for new residential development located within the industrial areas and related infrastructure map:

- Acoustic assessment which assesses mandatory matters including:
  - The noise source:
    - Cumulative day and night time noise of the surrounding environment (must identify "worst case" or "high percentile case" noise exposure taking into consideration variations in meteorological conditions and operational activity)
    - 24/7 operations of surrounding industrial areas and related infrastructure
    - Consideration of future proposals or operational capacity
  - The proposed development:
    - The proposed use and its level of acoustic sensitivity
    - Characteristics of the site
    - Proposed layout and design of the site
  - Baseline noise levels and assessment criteria (must identify "worst case" or "high percentile case" noise exposure taking into consideration variations in meteorological conditions and operational activity)
  - Recommended mitigation measures and likely effectiveness
- Recommended building materials e.g. specifications for windows, doors, walls, roofs and floors
- Building location, design orientation and layouts

NSW Ports would welcome further discussion with DPIE regarding the proposed recommended design mitigation measures.

7. Conclusion

Industrial areas and related infrastructure are of state and national significance and therefore require appropriate consideration of their needs within State planning policies. NSW Ports supports the Design and Place SEPP and sees opportunity in strengthening planning policy to deal with noise attenuation in new residential building design located within proximity of industrial areas and related infrastructure.

NSW Ports would welcome the opportunity to further engage with DPIE during the preparation of the draft Design and Place SEPP. To organise a meeting to discuss this submission further, please do not hesitate to contact Greg Walls, Planning Manager on [redacted]

Appendix 1 – Botany Bay Development Control Plan 2013 – Section 3J Aircraft Noise & OLS

Contents

3J.1 Introduction

This Part provides a means of assessing the effect of aircraft noise on development proposals by utilising an appropriately endorsed Australian Noise Exposure Forecast (ANEF) chart that takes into account long-term operating procedures and air traffic forecasts at Sydney (Kingsford-Smith) Airport. This Part also provides potential applicants with an understanding of the predicted level of the potential height limits due to prescribed airspace on proposed development sites and the potential for proposed developments to cause mechanical windshear.

3J.1.1 Land to which this Part Applies

The aircraft noise controls apply to all development in the City of Botany Bay within the 20 ANEF and above contour on the ANEF chart applicable to the City of Botany Bay. The ANEF chart for Sydney Airport will be the ANEF chart adopted by Council based on the most up-to-date information on operating procedures and air traffic forecasts at Sydney (Kingsford Smith) Airport.

The potential height limit controls, due to prescribed airspace for Sydney (Kingsford Smith) Airport, apply to all land within the Botany Bay LGA.

The map at **Schedule 2** shows the area of the Botany Bay LGA in which development may require an assessment for mechanical wind shear.

Note: In regards to minor development including non-habitable development or minor alterations and additions (i.e laundries) contact Council for further advice.

3J.1.2 Definitions

ANEF - Australian Noise Exposure Forecast:

A single number index for predicting the cumulative noise exposure levels in communities near an airport during a specified time period. It is based on a forecast of aircraft movement numbers, aircraft types, destinations and the location of runways at the airport. The most appropriate ANEF, as adopted by Council from time to time, is located in Council's Administration Centre, Coward Street, Mascot.

Australian Standard (AS) 2021-2015 - Acoustics - Aircraft Noise Intrusions - Building Siting and Construction:

The Standard provides guidance to State & Local Government authorities regarding land use planning, building construction and on the acoustic adequacy of existing buildings in areas in the vicinity of airports and aircraft flight paths.

Applicants can refer to the supplementary Handbook published by the Standards Australia Committee “Acoustics – Guidance on producing information on aircraft noise.” (Publication SA HB 149:2016) to gain understanding of aircraft noise and its impacts.

Indoor design sound level:

The maximum A-weighted sound pressure level from an aircraft fly-over which, when heard inside a building by the average listener, will not be judged as intrusive or annoying by that listener while carrying out a specified activity.

3J.1.3 General Objectives

Objectives

O1 To provide a planning approach that is capable of variation in the event of differing circumstances arising from changed aircraft operating procedures and traffic volumes associated with Sydney (Kingsford-Smith) Airport; and

O2 To ensure, to the extent practicable when applying an endorsed ANEF noise metric, that developers, property owners and purchasers/occupiers are aware of the predicted level of aircraft noise, potential height limits due to prescribed airspace for Sydney (Kingsford Smith) Airport on properties, the subject of development, and the possibility that certain development in certain areas in the vicinity of Sydney Airport may cause mechanical wind shear.

3J.2 Aircraft Noise Exposure Forecast

Objective

O1 To provide a discretionary approach by Council in the assessment of proposed development within localities affected by aircraft noise.

Controls

Development Classified as "Acceptable"

C1 Where the building site is classified as "acceptable" under Table 2.1 of AS2021-2015, development may take place subject to Council consent, there being no need, in the case of building construction, to provide protection specifically against aircraft noise.

Note:
Where the height of the proposed development is higher than the existing height of the localised building stock (and the proposed development has a direct line of sight to the seaport and/or the airport) an acoustical assessment by an accredited acoustical consultant is required which takes into account noise from the operations of Port Botany and Sydney Kingsford Smith Airport.

Development Classified as "Conditional"

C2 Where the building site is classified as "conditional" under Table 2.1 of AS2021-2015, development may take place, subject to Council consent and compliance with the requirements of AS2021-2015.

Note:
Where the height of the proposed development is higher than the existing height of the localised building stock (and the proposed development has a direct line of sight to the seaport and/or the airport) an acoustical assessment by an accredited acoustical consultant is required which takes into account noise from the operations of Port Botany and Sydney Kingsford Smith Airport.

Development Classified as "Unacceptable"

C3 In certain circumstances, and subject to Council discretion, Council may grant consent to development where the building site has been classified as "unacceptable" under Table 2.1 of AS2021-2015. For Council to be able to consider such applications for development, the following factors must be complied with:

(i) Submission of specialist acoustic advice by an accredited acoustical consultant certifying full compliance with the requirements of Table 3.3 of AS2021-2015;

(ii) Submission of plans and documentation indicating the subject premises will be fully air-conditioned or mechanically ventilated in accordance with Council guidelines; and

(iii) Any additional information considered necessary by Council to enable it to make a decision.

Note: The Standard also requires that the external environment to a dwelling within a 25 to 30 ANEF Contour be considered for aircraft noise impacts. This process has to take the following into account:

1. Whether or not there is an existing residential dwelling on site;
2. What the application of the Standard applies to;
3. Does the dwelling have access to a rear yard within the property, which is currently available for outdoor recreational use by residents of the dwelling; and
4. Does the outdoor environment given the curfew and current operating patterns are such that in daylight hours there will be sufficient opportunity to resort to the private open space without the presence of aircraft noise.

Note: Where the height of the proposed development is higher than the existing height of the localised building stock (and the proposed development has a direct line of sight to the seaport and/or the airport) an acoustical assessment by an accredited acoustical consultant is required which takes into account noise from the operations of Port Botany and Sydney Kingsford Smith Airport.

General

C4 Notwithstanding the above controls, no applications for new residential development, new educational establishments, new child care centres, new hospitals, new nursing homes, or any other use which, in the opinion of Council, is considered to be aircraft noise sensitive will be supported by Council where the property is located within the 30+ ANEF contour.

C5 Where a building site is considered by Council to be located on or immediately adjacent to an ANEF contour and could be affected by aircraft noise the subject development will be assessed as if it was located within the relevant ANEF contour.

C6 For residential development located within the 25+ ANEF contour the external environment (i.e deck and pergola) to the dwelling must be considered for aircraft noise impacts. The acoustic report must consider the external environment in accordance with AS 2021-2015.

Note: Advice from the Department of Infrastructure and Regional Development's website:

AS 2021 provides an assessment of potential aircraft noise exposure around airports based on the Australian Noise Exposure Forecast (ANEF) metric which applies to the development of airport master plans and is applied in strategic land use planning in the vicinity of airports.

AS2021 currently specifies that it is 'acceptable' to construct noise sensitive developments in areas where the ANEF is less than 20. This may lead to the mistaken perception that intrusive aircraft noise stops at the 20 ANEF contour and that properties immediately adjacent to the contour will not be adversely impacted. For further information please access the Department of Infrastructure and Regional Developments website.

3J.3 Aircraft Height Limits and Prescribed Zones

Botany Bay Local Government Area lies within the prescribed airspace for Sydney (Kingsford Smith) Airport. The prescribed airspace for Sydney over Botany Bay LGA consists of Procedures for Air Navigation Systems Operations (PANS-OPS) and Obstacle Limitation Surfaces (OLS).

The critical component of the prescribed airspace over Botany Bay is the Inner Horizontal Surface (51.0 metres AHD) of the OLS for Sydney (Kingsford Smith) Airport. Any intrusion into prescribed airspace would constitute a controlled activity and as such, must be referred to Sydney Airports Corporation Limited (SACL) for an approval process (*Airports Act 1996* Section 186).

Note: Section 182 of the *Airports Act 1996* defines 'Controlled Activities' as: constructing a building, or other structure, that intrudes into the prescribed airspace; altering a building or other structure so as to cause the building or structure to intrude into the prescribed airspace; any other activity that causes a thing attached to, or in physical contact with the ground to intrude into the prescribed airspace. It also makes reference to artificial lighting, light reflection and the generation of air turbulence and emissions such as smoke, dust, steam or gases or other particulate matter.

The approval process involves referral of the application to the Civil Aviation Safety Authority (CASA) and Airservices Australia (AsA) for assessment relating to safety, efficiency and regularity of air traffic using Sydney (Kingsford Smith) Airport. These assessments, once received, along with SACL recommendations, are forwarded to the Department of Infrastructure and Regional Development, for consideration and approval. The approval will nominate a building height limit that will not interfere with the prescribed air space or aircraft movements. The approval will also consider the impact of the proposed building envelope and building materials on airport navigation systems.

Note: Permanent controlled activities' are not permitted to penetrate the Procedures for Air Navigation Services Operations surfaces (PAN-OPS) component of the prescribed airspace. 'Permanent controlled activity' is considered to be any structure erected for a period of more than 3 months.

Objectives

O1 To provide potential applicants with an understanding of the predicted level of the potential height limits due to prescribed airspace on proposed development sites;

O2 To ensure, to the extent practicable, that developers, property owners and purchasers/occupiers are aware of the height limits on properties and the impact of controlled activities;

O3 To provide guidance to applicants of the approval process required in areas impacted by Sydney (Kingsford Smith) Airport - Procedures for Air Navigation Systems Operations (PANS-OPS) and Obstacle Limitation Surfaces (OLS); and

O4 To ensure that developments do not adversely impact on the PANS-OPS or OLS for Sydney (Kingsford Smith) Airport.

Controls

C1 If the building is located within a specific area identified on the OLS map or seeks to exceed the height limit specified in the map the application must be referred to Civil Aviation Safety Authority and Airservices Australia for assessment.

Note 1: Any development over 7.62 metres from existing ground level in the area bounded by Hollingshed Street, Sutherland Street, Sparks Street, Wentworth Avenue, Myrtle Street, Lord Street and Botany Road is required to be referred to Sydney Airport Corporation for consideration on height grounds.

Note 2: Development outside the area detailed in **Note 1** above, which is 15.24 metres or over in height is required to be referred to Sydney Airport Corporation for consideration on height grounds.

C2 Developments must consider the operating heights of all construction cranes or machinery (short-term controlled activities) that may exceed the OLS height limits thereby penetrating the prescribed airspace. Consideration should be given to the timing and location for the proposed controlled activity on site for referral to Civil Aviation Safety Authority and Airservices Australia.

C3 Approval to operate construction equipment (i.e. cranes) shall be obtained prior to any commencement of construction, where the prescribed airspace is affected.

Note: Please contact Council for advice to whether or not your Development Application is required to be referred to SACL.

3J.4 National Airports Safeguarding Framework

The National Airports Safeguarding Framework is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA), has developed the National Airports Safeguarding Framework (the Framework).

Relevant Commonwealth, State (including NSW) and Territory Ministers considered and agreed to the Framework at the Ministerial Standing Council on Transport and Infrastructure (SCOTI) meeting in May 2012.

Additional information on the National Airports Safeguarding Framework can be found at http://www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/

Note: For all development please refer to:

- *Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports;*
- *Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports, this risk needs to be addressed and minimised;*
- *Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation; and*
- *Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports.*
- *Guideline G: Protecting Aviation Facilities - Communication, Navigation and Surveillance (CNS)*

With respect to Guideline B, a procedure has been prepared on behalf of Sydney Airport Corporation Limited by wind engineering and air quality consultants Cermak Peterka Petersen that can be used to determine whether or not an assessment for mechanical wind shear impacts is needed for any development proposed to occur in the area of the Botany Bay LGA shown in the map at **Schedule 2**. The procedure is reproduced in full at **Schedule 3**.

SCHEDULE 1 - AUSTRALIAN STANDARDS 2021-2015

The following tables have been reproduced from AS2021-2015 and set out the criteria to be used in the siting of buildings (Table 2.1) and in the setting of indoor design sound levels (Table 3.3).

BUILDING SITE ACCEPTABILITY BASED ON ANEF ZONES

Source: AS2021-2015 (to be used in conjunction with Table 3.3)

Building Type	ANEF Zone of Site		
	Acceptable	Conditional	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25-30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF (Note 1)	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1)	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

Notes:

1. The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths. Because of this, the procedure of Clause 2.3.2 may be followed for building sites outside but near to the 20 ANEF contour.

2. Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate (see also Figure A1 of Appendix A).

3. There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building). In these cases Table 2.1 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3.

4. This standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing build-up areas designed as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.

5. In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations.

INDOOR DESIGN SOUND LEVELS FOR DETERMINATION OF AIRCRAFT NOISE REDUCTION

Source: AS2021-2015 - These indoor design levels are not intended to be used for measurement of adequacy of construction.

Building Type and Activity	Indoor Design Sound Level, dB(A)
Houses, home units, flats, caravan parks	
Sleeping areas, dedicated lounges	50
Relaxing or sleeping areas	55
Normal domestic	60
Hotels, motels, hostels	
Relaxing or sleeping	55
Social activities	70
Service activities	75
Schools, universities	
Libraries, study areas	50
Teaching areas, assembly areas (see Note 5)	55
Workshops, gymnasia	75
Hospitals, nursing homes	
Wards, theatres, treatment and consulting rooms	50
Laboratories	65
Service areas	75
Public buildings	
Churches, religious activities	50
Theatres, cinemas, recording studios (see Note 4)	40
Court houses, libraries, galleries	50
Commercial buildings, offices and shops	
Private offices, conference rooms	55
Drafting, open offices	65
Typing, data processing	70
Shops, supermarkets, showrooms	75
Industrial	
Inspection, analysis, precision work	75
Light machinery, assembly, bench work	80
Heavy machinery, warehouse, maintenance	85

Notes:

1. The indoor design sound levels in Column 2 are hypothesised values which are based on Australian experience. A design sound level is the maximum level (dB(A)) from an aircraft fly-over which, when heard inside a building by the average listener, will be judged as not intrusive or annoying by that listener while carrying out the specified activity. Owing to the variability of subjective responses to aircraft noise, these figures will not provide sufficiently low interior noise levels for occupants who have a particular sensitivity to aircraft noise.

2. Some of these levels, because of the short duration of individual aircraft fly-overs, exceed some other criteria published by Standards Australia for indoor background noise levels (see AS2107).

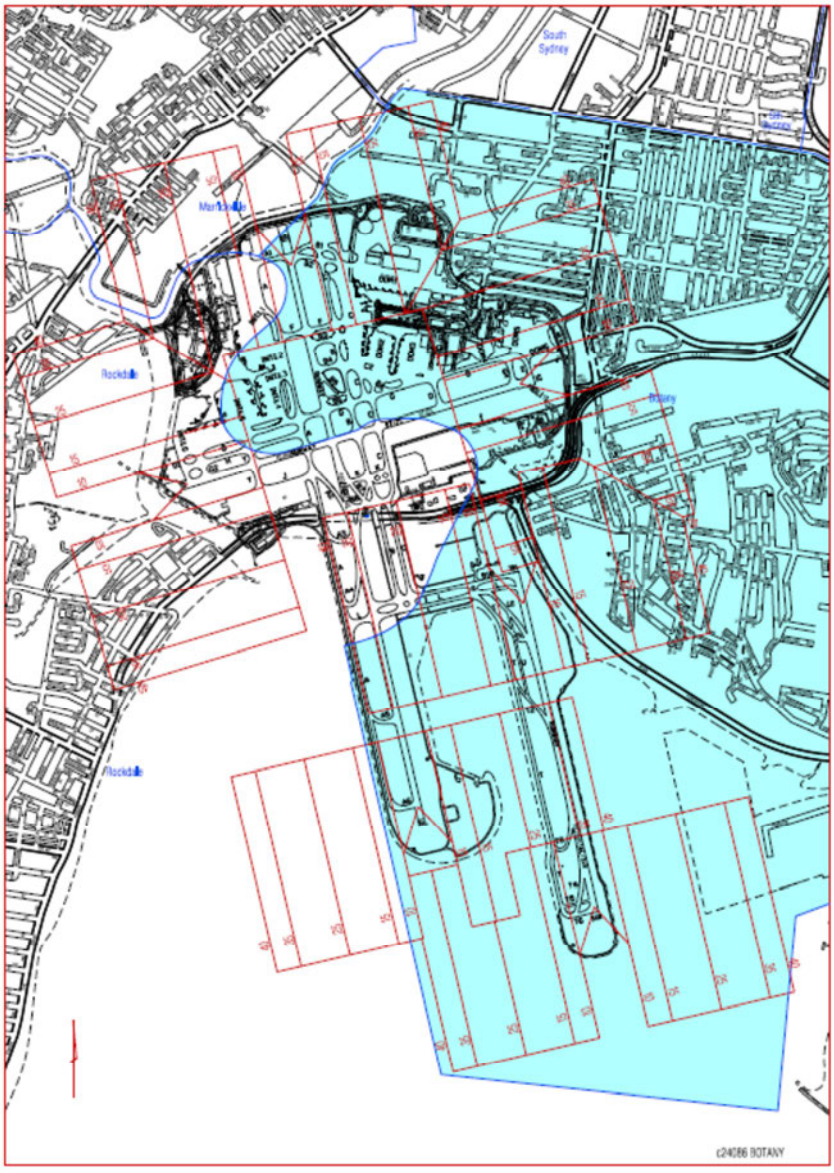
3. The indoor design sound levels are intended for the sole purpose of designing adequate construction against aircraft noise intrusion and are not intended to be used for assessing the effects of noise. Land use planning authorities may have their own internal noise level requirements which may be used in place of the levels above.

4. For opera and concert halls and theatres, and for recording, broadcast and television studios and similar buildings where noise intrusion is unacceptable, specialist acoustic advice should always be obtained.

5. Certain activities in schools may be considered particularly noise sensitive and 50 dB(A) may be a more desirable indoor sound level to select for any teaching areas used for such activities. However, the effect of other noise sources should be considered.

6. The provisions of this standard relating to different internal design sound levels for different indoor spaces could result in the use of different construction of materials in contiguous spaces, and require the construction of substantial barriers between habitable spaces, e.g. heavy self-closing internal doors, detracting from the amenity of the building. Therefore consideration should be given to a uniform perimeter insulation approach.

Schedule 2 – Map showing shaded blue area in which proposed development may require assessment for mechanical wind shear



SCHEDULE 3 - PROCEDURE TO USE TO DETERMINE WHETHER OR NOT AN ASSESSMENT FOR MECHANICAL WIND SHEAR IMPACTS IS NEEDED

The following has been supplied by Sydney Airport Corporation[1] to Council for applicants to follow when assessing whether an assessment for mechanical wind shear is required and whether the development application needs to be forwarded to SACL for its assessment.

Assessment Procedure

In terms of a procedure a series of steps have been defined for the wind shear assessment of development applications. It has been assumed through the development of this assessment process that the building height would not penetrate the obstacle limitation surface (OLS) for the airport, and that the operating wind criterion for using a Runway is limited by a 3 s gust wind speed measured at the control anemometer location of 30 kt in the cross-wind direction.

Step 1: Location of the development

If the proposed development is wholly outside the zoned plan area presented in Figure 1 then the development does not require any additional assessment.

Step 2: Height of the development

If the development is below the height surface presented in Figure 1 then the development does not require any additional assessment. The height limit surface varies linearly with distance perpendicular to the centreline of the runway.

It is assumed that the height of the building is less than the OLS, which is a maximum of 51 m AHD for the assessment areas.

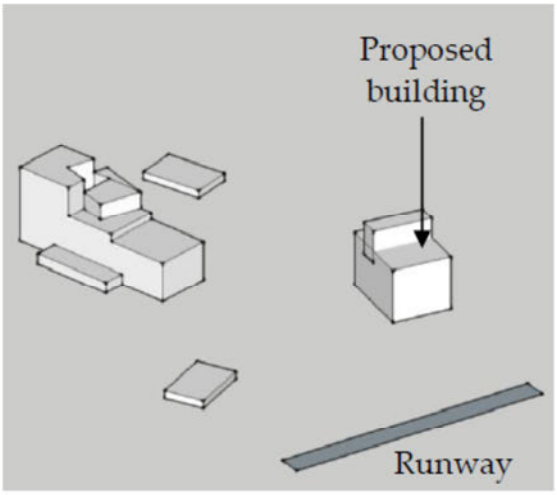
[1] Letter dated 23 April 2014 from Cermak Peterka Petersen, Wind Engineering and Air Quality Consultants to Sydney Airport Corporation Limited

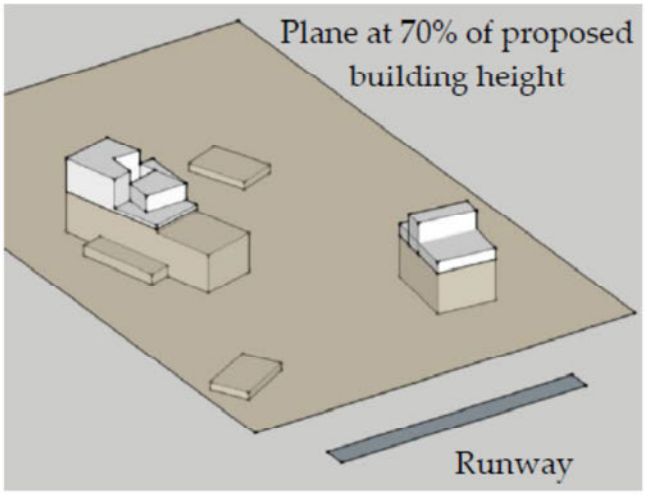
Figure 1: NASAG zones showing minimum height limits requiring assessment and OLS relative to AHD

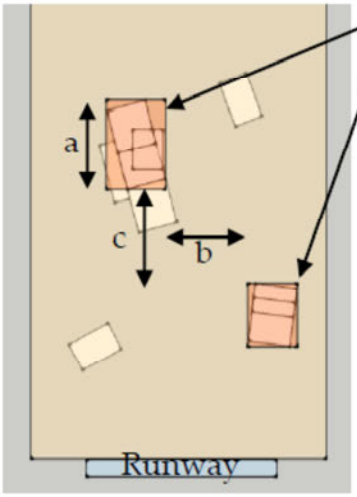
Step 3: Type of development: isolated or compound

To determine whether a building is isolated, all existing (or Council approved) buildings with a height greater than 70% of the proposed building should be considered. The plan-form shape for each building should be taken as the enveloping rectangle parallel to the runway for all building elements above the plane through the 70% height of the proposed building. This is illustrated in Figure 2.

The proposed building is classified as isolated, if the distance between the proposed and the adjacent existing (or Council approved) buildings of height greater than 70% of the proposed building, is less than the maximum dimension of the two enveloping rectangles.







Enveloping plan-form rectangles in runway axis for all buildings above 70% of proposed building height.

Where a is the largest dimension of both enveloping rectangles, b and c are the distances parallel and perpendicular to the runway respectively between the portion of the buildings exceeding the 70% of proposed building height limit.

If b>a or c>a, then the proposed building is classified as isolated for that combination of buildings,
If b≤a and c≤a then the proposed building is classified as multiple for that combination of buildings, with the total width defined in Figure 3.

Figure 2: Schematic for determining isolated building

For determining the compound size of multiple buildings, the proposed building should be assessed in the first instance individually with all neighbouring existing and Council approved buildings. If a compound building is determined the assessment should progressively expand from the perimeter building, using the dimensions of the individual buildings, not the compound shape.

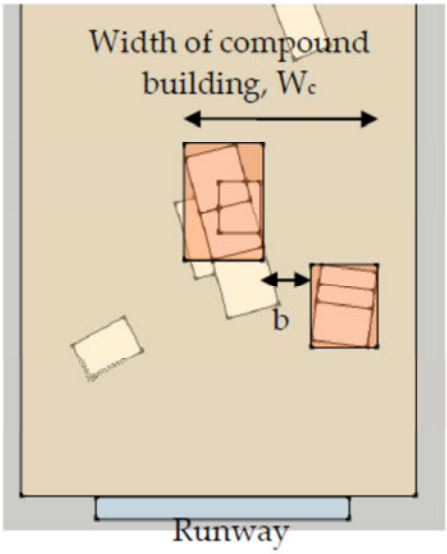
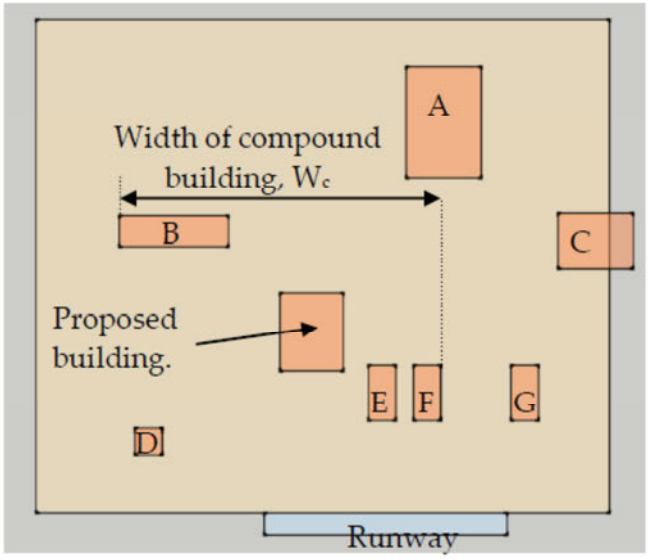


Figure 3: Width of compound building for adjacent buildings

In the example sketched in Figure 4, the proposed building was assessed independently with all buildings and only buildings B and E were classified as compound. Building E is on the edge of the compound shape and should be assessed with neighbouring Building F using their respective building envelopes, not the building envelope of the compound shape, W_c. As Building E and F are considered compound, Building F is on the edge of the compound shape and should be similarly assessed with neighbouring Building G. The width of the compound building is the overall width parallel to the runway as noted in Figure 4.



Building envelopes in the assessment area exceeding 70% the height of the proposed building.

Figure 4: Example for assessing compound size of multiple buildings

Step 4: Isolated building assessment

If the enveloping rectangle dimension parallel to the Runway, W, is less than one third of the distance from the rear face of the building to the Runway Centreline, D, then the building does not require any further wind shear assessment. If W>D/3, then the building requires a qualitative assessment in accordance with NASAG (2012).

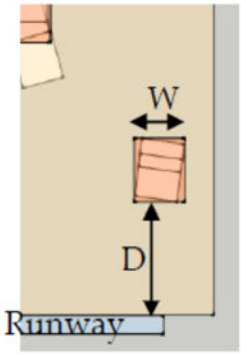


Figure 5: Definition for assessing an isolated building

Step 4: Compound building assessment

If the width of a compound building parallel to the Runway, W_c, is less than one third of the distance from the rear face of the compound building to the edge of the Runway, D, Figure 6, then the building does not require any further wind shear assessment. If W>D/3, then the building requires a qualitative or quantitative assessment in accordance with NASAG (2012).

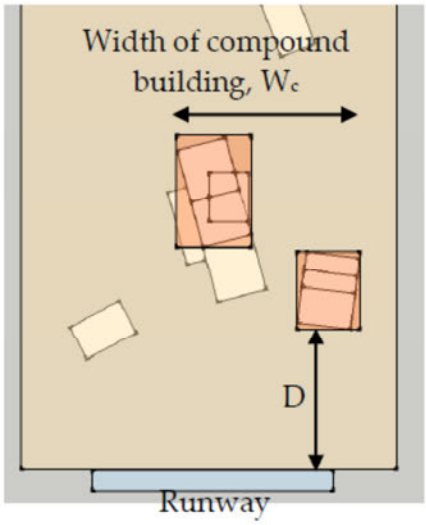


Figure 6 Definition for assessing a compound building

Conclusions

A procedure has been developed to assist with the wind shear assessment of proposed development applications for Council. The assessment is based on the procedures outlined in NASAG (2012) in combination with the upper height restrictions defined in the Sydney Airport OLS (51 m AHD), and an operational 3 s gust wind speed of 30 kt in the cross-wind direction.