
Attachment 13 – Noise Response, SLR

Blackwattle Bay

Response to Submissions

June 2022

7 June 2022

610.17565-L04-v1.2 Blackwattle Bay RtS 20220607.docx

Infrastructure NSW
Level 27, 201 Kent Street
Sydney NSW 2000

Attention: Mia Gouge

Dear Mia

Blackwattle Bay Precinct - Noise & Vibration Revised Precinct Plan & Responses to Submissions

This letter provides additional advice regarding noise and vibration impacts assessed for the Blackwattle Bay Precinct Development, specifically:

- A summary of SLR's responses to issues raised by submitters in relation to the Noise Impact Assessment (NIA) prepared by SLR in 2021 (SLR Reference 610.17565-R03-v1.1 Blackwattle Bay Stage 2) for the Blackwattle Bay Precinct.

If you require any further information, please do not hesitate to contact the signatory below.

Yours sincerely



MARK IRISH
Principal Consultant - Noise & Vibration

Checked/ Authorised by: AMi

1 Response to Submissions

The following summary addresses the key issues raised in the submissions. Where necessary, detailed responses are provided to specific technical issues raised in tabular format at the end.

1.1 Impacts from noise reflected from proposed buildings (residential and public space)

The most significant source of noise level change at surrounding receiver locations is due to the predicted increase in road traffic volumes on the surrounding road network for Year 2033 (included in Appendix B of the NIA), rather than the contribution from new traffic generated by the development.

A comparison has been made between road traffic noise modelling results for the Build vs No Build scenario for a number of existing receiver points to the East (Bulwara Road, Bank Street, Paradise Reserve public green space) and South (Pyrmont Bridge Road). In all locations the difference in predicted road traffic noise level between the two scenarios was considered negligible i.e. less than 1 dB difference between the two cases. It is commonly accepted that a change in noise level of less than 3 dB is not considered perceptible to the average listener.

1.2 Noise impacts for residential development in the vicinity of the Western Distributor

A number of submissions expressed concerns about the buildings' proximity to the Western Distributor and other major roads, and that there would be adverse amenity and health impacts for future occupants.

A detailed noise impact assessment (NIA), including assessment of road traffic and industrial/commercial noise, has been performed to assess compliance with noise guidelines. This assessment has identified areas of the site and proposed buildings where there are varying noise impacts that can potentially be mitigated through facade and ventilation system design, building layout, and the proposed uses on each level and area. Conservative assumptions and methods were used in the NIA and road traffic noise emission estimates were modelled based on anticipated future traffic volumes.

1.3 Construction noise impacts not addressed

A number of submissions expressed concerns about noise emission during the construction phase.

During construction, noise & vibration emissions will be managed by an effective Construction Noise & Vibration Management Plan (CNVMP). The CNVMP would be developed once more detailed information becomes available concerning likely construction techniques and equipment, construction program and staging. Noise and vibration mitigation and management measures are widely used in the construction industry and it is expected that off-site impacts will be able to be minimised as far as practicable.

1.4 Noise impacts of Hymix industrial noise inappropriate for commercial development

Industrial noise levels impacting on proposed commercial spaces have been determined in the NIA. It is noted that commercial spaces can achieve an appropriate indoor working environment by means of appropriately designed facades and ventilation systems.

1.5 Noise impacts of events within the precinct

Place Management NSW is the relevant authority managing the public domain of the Precinct. It is envisaged that events could operate under a tiered system similar to the following:

1. Large annual events – approximately 3 times per year e.g. Vivid and Sydney Festival

2. Community events – 1 to 2 day events e.g. markets
3. Activities – e.g. yoga in the park, activities to activate open space.

A Blackwattle Bay Precinct *Events Policy* would be developed and include noise mitigation and best practice measures to minimise noise impacts on surrounding receptors, including existing and future residential receivers. This would include measures such as event siting and hours of operation, crowd management, location and orientation of public address/amplified sound systems.

The NIA confirms that upgraded facade attenuation measures would be required for the majority of residential facades within the Precinct to mitigate road traffic noise and industrial/commercial noise. These attenuation measures will also reduce the level of noise intrusion from events operating in the Precinct and hence allow a wider range of uses at closer offset distances than would otherwise be possible.

It is envisaged that a Precinct *Design Code* would be applicable for future residential buildings to ensure that the required levels of facade attenuation are implemented during the design development and construction stages. These design measures will protect the amenity of future residents and also safeguard the reasonable use of the public domain under the framework of the *Events Policy*.

Existing receivers surrounding the Precinct would also be considered when developing the *Events Policy*. It is anticipated that the greater offset distance to the likely event locations, as well as design and orientation of event noise sources would enable appropriate event noise limits to be determined by the future receivers in the Precinct rather than the existing receivers.

1.6 Validity of noise monitoring locations used to determine Project Noise Trigger Levels (PNTL) within Noise Catchment Areas (NCA)

Noise logger locations and receiver noise catchments were established and justified in the new Sydney Fish Market SSD noise impact assessment (SLR report 610.17565-R01-v1.7 dated April 2019) for approved SSD-8925. Given the logging data was obtained in February 2018 (pre-Covid) and previously utilised for an approved SSDA it was considered suitable to be referenced for the subject NIA.

Logger locations were determined to some degree by the access that could be arranged by the client (Infrastructure NSW, formerly UrbanGrowth NSW) at the time of the survey. There have been limited opportunities to undertake suitable background noise monitoring due to Covid-19 restrictions in 2020/2021. It is anticipated that later development approval stages across the precinct will require supplementary noise monitoring to be conducted due to the intervening time period and quantifying any changes to the acoustic environment.

1.7 City of Sydney Council requested that *Development Near Rail Corridors and Busy Roads Interim Guidelines* be addressed

The City of Sydney Council (CoS) submission indicates that the NSW Government's document *Development Near Rail Corridors and Busy Roads Interim Guidelines* is not referenced in any of the relevant documentation of the study.

Section 3.1.1 of the NIA refers to the NSW *State Environment Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) guidelines, which are noted as being consistent with *Development Near Rail Corridors and Busy Roads Interim Guidelines* and reproduces relevant text relating to noise and design considerations. The NIA also refers to the CoS *Development Control Plan 2012* which provides internal noise criteria for both naturally and mechanically ventilated spaces, and NSW Department of Planning & Environment *Apartment Design Guide 2015* which recommends that natural ventilation should be considered wherever possible for residential dwellings.

The preparation of an NIA for the precinct is a direct outcome of the identified need to address potential noise impacts for future residential and other sensitive receptors within the development. The facade noise maps included in Appendix C of the NIA confirm that the majority of the Eastern/North-eastern facades could potentially be naturally ventilated assuming habitable rooms (other than bedrooms) or non-habitable spaces. Similarly, the Western/South-western facade noise maps indicate that a large proportion of these facades could be suitable for naturally ventilated bedrooms.

1.8 City of Sydney Council strongly recommends that the privately owned sites to the north and next to the elevated roadway remain suitable for only non-residential uses

The NIA does recommend that less noise sensitive residential spaces, or habitable rooms other than bedrooms be located on the Eastern/North-eastern facades facing the Western Distributor to maximise the use of natural ventilation. The facade noise maps included in Appendix C of the NIA confirm that the majority of the Eastern/North-eastern facades could potentially be naturally ventilated assuming habitable rooms (other than bedrooms) or non-habitable spaces. Similarly, the Western/South-western facade noise maps indicate that a large proportion of these facades could be suitable for naturally ventilated bedrooms.

As noted in Section 7.3 and 7.4 of the NIA there are a number of mitigation measures that can be considered to reduce facade noise levels and provide greater attenuation of external noise sources while potentially still allowing natural ventilation, including partially or fully enclosed balconies with offset/attenuated openings.

The Revised Precinct Plan now contemplates residential uses on some lower (podium) levels of the private landowner sites to the northern end of the precinct. Facade noise levels due to road traffic from the elevated Western Distributor would be reduced at lower podium levels (i.e. below road deck level) as indicated in the facade noise maps included in Appendix C of the NIA.

Notwithstanding, the detailed design of these buildings will need to address the *Interim Guidelines* and *Apartment Design Guide* provisions to determine the extent of attenuated natural ventilation or mechanical ventilation that may be required to accommodate residential uses in these areas.

It is recommended that the modelling be revised and updated during the detailed design stage to assess the noise impact on the proposed residential and commercial areas. Where the modelling predicts significant noise impacts at proposed residential facades, this could be mitigated through facade and ventilation system design, building layout, and the proposed habitable/non-habitable uses on each level and area. These measures can include some or all of the following:

- Facade set at oblique or perpendicular angles to the primary noise source, with shielded ventilation openings;
- Reorienting and reducing the number of habitable spaces (particularly bedrooms) facing the Western Distributor;

- Provision of attenuated natural ventilation measures e.g. partially or fully enclosed balconies with solid balustrades and acoustic absorption, offset window openings or acoustic plenums for habitable spaces.

1.9 Transport for NSW submission concerning noise impact from surrounding industrial activities including Glebe Island

Directly adjacent industrial sources including Hymix and the new Sydney Fish Market were included in the assessment. It is anticipated that these sources would be likely to result in greater impacts than Glebe Island given the shorter separation distance to the Precinct.

The noise impact assessment for the recently approved Hanson concrete batching plant at Glebe Island indicated that noise levels at the northern boundary of the Precinct are predicted to be 40 dBA or less for both daytime and night-time operations, which indicates the cumulative impact of these operations on the Precinct is unlikely to be significant compared to the assessed noise sources.

1.10 Poulos submission

The Poulos submission includes an acoustic report prepared by Renzo Tonin & Associates (RTA report TM263-01F01 dated 20 August 2021). The purpose of the report is to provide comment on the acceptability of residential use on lower levels of the Poulos Building (PLO 01) located at the northern end of the Precinct.

SLR agrees with the overall report conclusion, namely that there is no acoustic reason that residential use should not be permitted below Level 9 of the Poulos Building. Facade noise levels due to road traffic from the elevated Western Distributor would be reduced at podium levels below road deck level, although noise levels from other sources may still be significant. As noted in Section 7.3 and 7.4 of the NIA there are a number of mitigation measures that can be considered to reduce facade noise levels and provide greater attenuation of external noise sources while potentially still allowing natural ventilation.

It is noted that the RTA report does not consider noise sources other than road traffic, such as existing or proposed industrial or commercial activities. It is important to consider the acoustic implications of residential uses on lower levels of a building if this results in less separation between noise sensitive uses and commercial premises (e.g. hospitality venues). Mitigation measures such as facade attenuation may be similar to those employed for road traffic noise, however the noise impacted facades may be different and affected room types may have more stringent design criteria at the time periods relevant to the commercial uses (e.g. bedrooms at night-time).

Appropriate planning and noise management strategies should be implemented to strike a balance and safeguard the viability of noise generating activities whilst achieving appropriate residential amenity for a vibrant mixed use precinct.

1.11 EPA submission

The EPA submission raised several matters which are addressed in **Table 1**.

Table 1 EPA Issues Raised

Issue Raised	Response
<p>(a)The NIA relies on monitoring carried out for a previous study (titled Stage 1- Noise and Vibration Study - A report to support the Bays Market District State Significant Precinct Proposal dated September 2019). Justification, clarification or further information should be sought on the NIA monitoring data to ensure it satisfies key study requirements and supporting guidelines including the Noise Policy for Industry (NPfI) (EPA, 2017).</p> <p>Issues for review are:</p> <ul style="list-style-type: none"> • There appears to be a significant number of samples excluded in the noise monitoring at all locations identified in the study. It is also unclear if the data is representative of ambient and background noise levels and satisfies the NPfI. • It appears the length of time for monitoring at location L04 is insufficient to satisfy the requirements of the NPfI. • The locations of the noise monitoring do not appear to be representative of all existing residential receivers. • Measurements used to establish the high traffic noise adjustments to the Project Noise Trigger Levels (PNTLs) would be affected by the amount of data excluded in addition to issues relating to whether locations are representative of receivers. • Some monitoring locations appear to be located adjacent to reflecting facades, but there appears to be no discussion in the NIA that describes how this has been taken into account when determining PNTLs. • In relation to assessing road traffic noise impacts, due to the amount of data excluded it is unclear if monitoring has captured enough representative data to assess: <ul style="list-style-type: none"> o the average maximum one-hour noise levels that are used to inform facade design to address road traffic noise impacts; and o to establish representative diurnal patterns that inform the calculated LAeq,15hr and LAeq,9hr descriptors. 	<p>Noise logger locations and receiver noise catchments were established and justified in the new Sydney Fish Market SSD noise impact assessment (SLR report 610.17565-R01-v1.7 dated April 2019) for approved SSD-8925. Given the logging data was obtained in February 2018 (pre-Covid) and previously utilised for an approved SSDA it was considered suitable to be referenced for the subject NIA. The measured ambient noise monitoring data was processed with reference to the NPfI and the data was filtered to remove extraneous noise events and periods affected by adverse weather conditions.</p> <p>SLR accepts the comments regarding the number of exclusions and the logging locations. Logger locations were determined to some degree by the access that could be arranged by the client (Infrastructure NSW, formerly UrbanGrowth NSW) at the time of the survey. Whilst some of these may not be considered ideal from a purely academic perspective (located on balconies), this is still believed to be representative of the RBL at the locations given as the building stock is the same throughout the assessment area. That is, the surrounding receivers are similar to the conditions in which the measurements were taken. As a result, SLR does not expect a significant impact on the RBL or corresponding assessment.</p> <p>There have been limited opportunities to undertake suitable background noise monitoring due to Covid-19 restrictions in 2020/2021. It is anticipated that later development approval stages across the precinct will require supplementary noise monitoring to be conducted due to the intervening time period and quantifying any changes to the acoustic environment. Notwithstanding, it is expected that minor changes to the background noise levels (i.e 1-2 dB) would not significantly impact the feasibility of the development or change the concept noise mitigation measures proposed.</p> <p>Road traffic noise model validation of the major roads in the project area was carried out for a major Anzac Bridge noise study conducted by SLR (SLR report 610.18957-R01). This study included multiple noise logging locations to calibrate the measured survey data to the predicted noise levels based on actual traffic volumes. The calibrated road traffic sources were then adjusted to the predicted traffic volumes included in Appendix B of the NIA to predict the noise impacts on the proposed facades.</p>

Issue Raised	Response
<p>b) It appears the NIA has incorrectly quoted the Infrastructure State Environment Planning Policy (SEPP). Clause 102 of the SEPP would apply where annual average daily traffic volume of more than 20,000 vehicles is present. This should be clarified, and the NIA appropriately amended.</p>	<p>The Infrastructure SEPP also provides best practice advice for developments adjacent to roads with annual average daily traffic volumes between 20,000 and 40,000. This applies to the Western Distributor and Pymont Bridge Road.</p>
<p>c) Information should be sought from the proponent that can demonstrate that location L01 is representative of background noise levels for all receivers in NCA1 or additional representative data be provided. Location L01 has been used to define background noise levels for residential receivers on Bank Street, Pymont. However, it is unclear if location L01 is representative of existing residential receivers in Noise Catchment Area (NCA)1. There appears to be other residential receivers in NCA1 which do not appear to have been considered and would likely experience different background noise levels, such as residential properties on Bulwarra Road and Miller Street.</p> <p>d) Justification should be sought that location L04 is representative of background noise levels in NCA3 or additional representative data be provided. The background noise levels for NCA3 appear to have been set from monitoring undertaken at location L04 in NCA2. This does not appear reasonable as the traffic on this section of road (Wattle Crescent Pymont) would be different to NCA2 and NCA3 which appears to be located significantly further away from the Western Distributor.</p> <p>e) Further information should be sought that can demonstrate that L07 is representative of background noise levels in NCA4 or additional representative data be provided. NCA4 appears to have used the monitoring location at L07 (in NCA3) to establish PNTLs. This does not appear reasonable as L07 is located a significant distance outside of NCA4. L07 is also located adjacent to Wentworth Park near Bridge Road, characteristics which are not shared with NCA4.</p>	<p>Noise logger locations and receiver noise catchments were established and justified in the new Sydney Fish Market SSD noise impact assessment (SLR report 610.17565-R01-v1.7 dated April 2019) for approved SSD-8925. Given the logging data was obtained in February 2018 (pre-Covid) and previously utilised for an approved SSDA it was considered suitable to be referenced for the subject NIA.</p> <p>Logger locations were determined to some degree by the access that could be arranged by the client (UrbanGrowth NSW) at the time of the survey. There have been limited opportunities to undertake suitable background noise monitoring due to Covid-19 restrictions in 2020/2021.</p> <p>Location L01 was considered representative of receivers in close proximity and below deck level of the Western Distributor, which would be representative of the nearest receiver locations to the precinct in NCA1.</p> <p>Location L04 was previously justified as being representative of NCA3 as the previously operating Hanson Concrete Batching facility was a significant part of the noise environment in the NCA3 location until it was closed to make way for the New Sydney Fish Market. The use of L04 as representative of the noise environment for buildings fronting this section of Pymont Bridge Rd and Bridge Rd has been validated as representative by attended measurements and calculation of road traffic noise based on traffic flow data provided to SLR.</p> <p>Location L07 was considered more representative of the residential receivers in NCA4 than Location L05 or L06 for the following reasons:</p> <ul style="list-style-type: none"> • L05 and L06 were dominated by road traffic from the Western Distributor, which is not representative of the nearest residential receivers located behind Sydney Secondary College. • L07 was significantly set back from the primary noise source in the area (Bridge Rd) and significantly shielded by the light rail viaduct so is considered more representative of NCA4 receivers located behind Sydney Secondary College. <p>Notwithstanding the above points, it is anticipated that later development approval stages across the precinct will require supplementary noise monitoring to be conducted due to the intervening time period and quantifying any changes to the acoustic environment.</p>

Issue Raised	Response
<p>f) Further information should be sought to demonstrate that all existing and proposed industrial noise sources have been identified and assessed in developing the PNTLs, and if not, they should be amended accordingly. Note 2 beneath Table 2 titled Project Noise Trigger Levels (pg. 22) states: “The recommended amenity noise levels have not been reduced by 5 dB to give the project amenity noise levels, as outlined in the NPfI, due to no other sources of industrial noise being present in the area.” However, it is unclear if this is a reasonable assumption as the assessment has included a scenario where activities such as the Hymix concrete batching plant and the Sydney Fish Market are operating in the precinct. There are also other potential sources of industrial noise that may be closer to existing receivers, such as mechanical plant from commercial buildings which have not been considered in the assessment.</p>	<p>The recommended project amenity levels have not been reduced by 5 dB as the NIA includes the cumulative noise impact of the major industrial noise sources in the immediate area including Hymix and the new Sydney Fish Market.</p> <p>It is recognised that additional sources such as rooftop plant associated with the proposed buildings have not been included in the current study and will need to be assessed when more information becomes available. Mechanical plant noise from residential and commercial spaces is anticipated to be readily mitigated through suitable engineering controls, which would be designed and assessed on a case by case basis as part of the approvals process for those uses.</p> <p>Appropriate Project Noise Trigger Levels (PTNLs) will need to be set for all additional noise sources to ensure the cumulative impact will achieve the overall precinct noise emission criteria at all receiver locations.</p>
<p>g) Table 3 titled Night-time Sleep Disturbance Screening Noise Levels (pg.24) details sleep disturbance screening levels for residential areas in the vicinity of the development. This contains sleep disturbance screening noise levels for Noise Catchment Areas NCA6 and NCA7 that are within the precinct. However similar sleep disturbance screening levels should also be derived and provided for all external receivers that will be impacted by the planning proposal. Clarification should be sought, or additional noise levels be provided.</p>	<p>The NIA provides sleep disturbance screening levels for the nearest receivers to proposed new noise sources, which are the future receivers in NCA6 and NCA7. As noted in the industrial noise screening assessment in Section 5.2.1, where exceedances of the screening criteria are indicated at the closest receivers a more detailed assessment should be carried out when more specific information becomes available.</p> <p>A more detailed assessment would also consider the extent of exceedances across the project area and any other external receiver locations, where relevant.</p>
<p>h) Chapter 3.3.3 in the NIA titled Patron Areas and Licenced Premises includes derived noise criteria for patron and music noise. This includes Table 4 titled Project Specific Noise Limits – Patron Areas which details noise criteria for only some of the NCAs and excludes NCA6 and 7 where future residential uses are proposed within the Precinct. With the proposal involving a range of mixed uses including entertainment activities, it is important that the potential impacts of noise from such activities on sensitive uses both within and external to the Precinct should be fully understood. Justification should be sought on this approach and whether additional criteria and mitigation measures should be identified for areas within the precinct.</p>	<p>Table 4 of the NIA incorrectly labels the southern study area as NCA4 instead of NCA6, and the northern study area as NCA5 instead of NCA7. Patron noise impacts have been assessed to noise sensitive receiver locations within the precinct as indicated in Section 6.2</p>

Issue Raised	Response
<p>i) Chapter 4.1 in the NIA describes the road traffic noise model developed as part of the Stage 1 NIA. However, the Stage 1 NIA does not include a comparison of the measured and predicted noise levels from the noise model. Chapter 2.5 of the Stage 1 NIA also states that the “road traffic noise model of existing conditions at the proposal site has been calibrated”. However, it does not detail what calibration factors were applied to the model. This model has been used as a basis for design recommendations for noise mitigation and therefore represents an important element of the assessment especially with the proposal being within the vicinity of major road infrastructure. As a result, the model inputs and assumptions in addition to any model validation results, including any calibration factors applied, should be sought and justified.</p>	<p>Road traffic noise model validation of the major roads in the project area was carried out for a major Anzac Bridge noise study conducted by SLR (SLR report 610.18957-R01). This study included multiple noise logging locations to calibrate the measured survey data to the predicted noise levels based on actual traffic volumes. The calibrated road traffic sources were then adjusted to the predicted traffic volumes included in Appendix B of the NIA to predict the noise impacts on the proposed facades.</p>
<p>j) Section 4.5 of the NIA states that to address the impacts of road traffic noise on, housing should be designed where sensitive spaces, such as bedrooms, are located the furthest away from the major road way and preferably separated with less sensitive uses. Care needs to be taken during the building design process to ensure the performance of these sensitive spaces are not compromised by noise emission through building elements/materials and internal pathways (e.g. ventilation, walls, doors etc.). These architectural considerations should be recognised.</p>	<p>The NIA includes predicted facade noise levels applicable to all proposed residential areas, including daytime and night-time levels. This assessment has identified areas of the site and proposed buildings where there are varying noise impacts that can be mitigated through a variety of measures including facade and ventilation system design, building layout, and the proposed uses on each level and area.</p>
<p>k) It is unclear if the road traffic noise assessment has assessed the impacts from intra-precinct shielding from buildings. With the Precinct proposing a range of tower buildings, the issue of shielding needs careful planning to ensure design can deliver any supporting benefits. Information on the staging of development across the precinct and in its vicinity is also needed because the predicted noise environment, including any shielding benefits, could significantly change across an area if buildings are not constructed, are delayed or there is a change in building design. Advice should be sought that this matter has been considered.</p>	<p>The NIA includes predicted facade noise levels based on the proposed precinct layout. The model includes screening effects for facades that are shielded from road traffic sources by intervening buildings or at varying orientations. Changes to the precinct layout due to buildings not being constructed or delays in staging etc. would require re-assessment of noise impacts.</p>
<p>l) Clarification should be sought on whether a full traffic noise assessment has been undertaken and whether further mitigation measures should be identified. Chapter 2.1.2 in the NIA provides the assessment criteria for traffic generating developments according to the NSW Road Noise Policy. However, it does not appear that the traffic noise generated by the precinct on all surrounding roads has been assessed. Study requirement 22.2 requires assessment of the potential noise pollution impacts from the rezoning. This should include noise impacts caused by additional traffic generated by the development and/or alterations to existing road network on surrounding roads such as Miller Street, Bank Street, Bridge Road, Pymont Bridge Road, Wentworth Park Road, Harris Street and others.</p>	<p>Modelling results confirm that the increase in road traffic noise emissions associated with the project is insignificant compared to noise generated by the existing surrounding road network.</p>

Issue Raised	Response
<p>m) Clarification should be sought that all plant and industrial noise sources have been considered and if not, further information should be required. Chapter 5.1.5 in the NIA states that “proposed rooftop plant” could be controlled using standard mitigation approaches. However, tower buildings can also contain a range of other mechanical plant including mid-tower plant rooms, plant associated with car parks and commercial developments, generators and other power infrastructure.</p>	<p>As noted in Section 5.1.5, mechanical plant from residential and commercial spaces would be mitigated through suitable engineering controls, which would be designed and assessed on a case by case basis as part of the approvals process for those uses.</p>
<p>n) Table 14 titled “Significance of Residual Impacts” (pg.37) states: “The significance of any potential residual noise impacts should be taken into account when considering the reasonableness and feasibility of operational noise mitigation and management measures”. However, the NPfI requires that the significance of residual impacts is considered after all reasonable and feasible mitigation has been applied. The above statement appears to imply that residual impacts should be considered before mitigation, which is not consistent with the NPfI. The table should be amended to be consistent with the NPfI and the NIA be revised where necessary.</p>	<p>SLR agrees that all reasonable and feasible mitigation should be considered before evaluating residual noise impacts.</p>
<p>o) Chapter 7.6 in the NIA highlights that the cumulative noise level from all noise sources within the precinct will be required to meet the established noise goals for sources such as industrial noise and patron/music noise and that individual uses may be separately assessed at the Development Application stage. However, a framework is needed to ensure individual operators can be assigned noise emission allowances fairly under the total cumulative emission goals for the precinct. The NIA would benefit from including a discussion on the potential for noise sharing or allocation of noise emission allowances within the precinct. This will ensure the cumulative noise emissions can meet established targets for each noise source type. Further information on Noise Management Precincts can be sought in NPfI (Section 2.8).</p>	<p>At the time of preparation of the NIA there was no specific information available regarding specific locations of noise sources including proposed building mechanical plant and patron activity. Indicative assumptions were made for the purpose of the assessment, however this was not considered sufficiently detailed to look at allocation of noise allowances across the precinct.</p> <p>A Design Code will be applicable to both noise sensitive and noise generating development within the Precinct, which will ensure that cumulative impacts of both existing and future industrial and commercial noise sources are considered and future residents are informed as to the nature of the entertainment and recreation precinct.</p> <p>External mitigation measures including buffer distances, acoustic shielding and receiver orientation are to be considered as required by the Design Code, in addition to facade treatments to achieve appropriate internal acoustic amenity for all sources including new noise-generating uses.</p> <p>The assessment of cumulative impacts required by the Design Code will ensure new sources readily mitigated through engineering controls (e.g. future mechanical plant) are given reduced noise limits than existing industrial sources with limited mitigation options (e.g. Hymix).</p>

Issue Raised	Response
<p>p) The NIA should be updated to include information on ferry wharf noise. The proposal includes a new ferry wharf, but it appears the assessment has not considered this proposed new activity. Whilst the NPfl may not be specifically designed for ferry wharves, the EPA considers that it is appropriate to apply the NPfl to this activity to determine the need for feasible and reasonable mitigation.</p>	<p>No information has been provided to model ferry wharf noise in this assessment. It is noted that wharf unloading activity associated with the new Sydney Fish Market has been included in the model without any significant noise impacts noted.</p>
<p>q) Clarification should be sought on whether noise impacts on the public domain/spaces has been assessed and measures identified to manage such impacts. Study requirements 22.5, 22.6 and 22.10 require the NIA to consider impacts from the rezoning on proposed public open space within the precinct. It is unclear if the assessment has adequately considered the potential impacts to these spaces from existing and future noise sources. These places will be important places for the community in these high-density urban settings where their amenity needs suitable acoustic protection. In this regard their design would benefit a soundscape approach as part of place making to compliment traditional noise control solutions. A soundscape approach seeks to not only reduce the impact of noise pollution but also to enhance the acoustic amenity and quality of the space. The Code could be used to help deliver innovative design approaches for these places that support a soundscape approach.</p>	<p>Noise modelling conducted for the exhibited precinct plan indicates daytime noise levels along the waterfront public domain are predicted to range from LAeq(15hr) 50-55 dB at locations that are well shielded from road traffic noise, up to LAeq 60-65 dB for areas with more direct exposure or proximity to Pyrmont Bridge Road or Western Distributor. Comparison with NSW Road Noise Policy assessment criteria for new traffic generating developments suggests that noise levels up to LAeq(15hr) 55 dB would be suitable for passive recreation, and up to LAeq(15hr) 60 dB for active recreation use.</p> <p>SLR agrees that acoustic amenity for the proposed public spaces does require careful consideration, including the intended use of different zones (e.g. active or passive recreation) and the practical benefit of any noise control measures that might be introduced.</p> <p>It is envisaged that the Precinct Design Code would consider the range of existing and future noise levels across the public domain spaces to assist in determining the most appropriate use and allow suitable transitions/screening elements to be incorporated between spaces. These Precinct design measures will enhance the acoustic amenity of the public domain for all uses including passive and active recreation and events managed under the framework of the Events Policy.</p>
<p>r) The supporting information states that if Hymix continues to operate as currently permitted, the lower floors of buildings located closest to the Hymix facility should be commercial/retail use and residential receivers should be located on higher floors. While these building design elements should be reflected in any controls, it is important that DPIE (Planning) is also engaging with Hymix to explore complimentary approaches to improve the performance of the facility as part of any transitional arrangements to prevent future land use conflicts.</p>	<p>DPIE engagement with Hymix is outside the scope of the NIA and the project approvals process.</p>
<p>(s) reference unused in submission</p>	<p>N/A</p>

Issue Raised	Response
<p>(t) The NIA would benefit a discussion on noise from port related activities. Information should be sought from Sydney Ports on any noise management approaches that support Sydney Harbour operations to help guide the design of the precinct.</p>	<p>It is anticipated that industrial sources included in the assessment including Hymix and the new Sydney Fish Market would be likely to result in greater impacts given the shorter separation distance to the precinct.</p> <p>The noise impact assessment for the recently approved Hanson concrete batching plant at Glebe Island indicated that noise levels at the northern boundary of the precinct are predicted to be 40 dBA or less for both daytime and night-time operations, which indicates the cumulative impact of these operations on the Precinct is unlikely to be significant.</p>

2 Noise & Vibration Implications of the Revised Precinct Plan

In response to the submissions received on the exhibited Precinct Plan, an amended public domain and built form framework has been developed for Blackwattle Bay, referred to as the Blackwattle Bay Revised Precinct Plan. The Revised Precinct Plan was developed with review and input from the Project Review Panel and the Project Working Group, comprising Department of Planning and Environment, Government Architect NSW, Transport for NSW and City of Sydney members.

Key changes of relevance to the NIA include:

- Proposed building footprints have been moved out of the City of Sydney land parcel adjacent to Bank Street near the intersection with Pyrmont Bridge Road. This locates some of them slightly farther away from the Western Distributor. There is no change to the distance from Pyrmont Bridge Road.
- Removal of Building 07 and reduction from 8 storeys to 6 storeys for Building 2B, Building 06, Building 5A and Building 5B. Building PL01-1 has also reduced in height to RL54.4m from RL65m.
- Further reductions to Building 5B and Building 03 podium to improve amenity of adjacent residential.
- Increase in height of Building PL02 tower from RL91.5 to RL100.4m
- Adjusted building footprints for Buildings 05A, 05B and 06, and repositioning and reduction of tower envelope for Building 02, now Building 2A.
- An increase in tower separations for Private Landowner sites to minimum 24 m above 8 storeys.

Overall, the private landowner buildings have the same distance from the Western Distributor in the Revised Precinct Plan as the exhibited Precinct Plan. For the buildings on the existing Sydney Fish Market site, there is no change in distance from the Western Distributor for Building 2A, a slight increase of approximately 2 m in the setback from the Western Distributor for Building 03, and a slightly larger increase in the setback for Building 04 (approximately 5-7m).

There have also been changes in the proposed use on some floors of the buildings as illustrated by the changes in the orange (residential) and grey (commercial) colouring in **Figure 1**.

The slight increases in setbacks from the Western Distributor should result in the predicted facade noise levels reducing in some areas. However significant changes to the model predictions are unlikely as a doubling of setback distance is typically required to achieve a 3 dB reduction in facade noise level. As residential use is now proposed at lower levels in some of the buildings, the number of residential dwellings located on high noise impact facades is likely to increase compared to the exhibited Precinct Plan.

It is recommended that the modelling be revised and updated during the detailed design stage to assess the noise impact on the proposed residential and commercial areas. Where the modelling predicts significant noise impacts at proposed residential facades, this could be mitigated through facade and ventilation system design, building layout, and the proposed habitable/non-habitable uses on each level and area. These measures can include some or all of the following:

- Facade set at oblique or perpendicular angles to the primary noise source, with shielded ventilation openings;
- Reorienting and reducing the number of habitable spaces (particularly bedrooms) facing the Western Distributor;

- Provision of attenuated natural ventilation measures e.g. partially or fully enclosed balconies with solid balustrades and acoustic absorption, offset window openings or acoustic plenums for habitable spaces.

Figure 1 Comparison of Exhibited and Revised Precinct Plans

