ERM

Level 15 309 Kent Street
Sydney NSW 2000
Locked Bag 3012
Australia Square NSW 1215

Telephone: +61 2 8584 8888
Fax: +61 2 9299 7502

www.erm.com

Travis Van Den Berg
Environment Specialist
Cement Australia
18 Station Avenue, Darra, QLD, 4076

10 January 2023

ERM Reference: 0488846

Dear Travis,

Subject: Glebe Island Throughput Increase Project Noise Impact Assessment (NIA) – Addendum

Environmental Resources Management Australia Pacific Pty Ltd (ERM) submitted a Noise Impact Assessment (NIA) to Cement Australia (CA) on the 16th of November 2021 for a proposed increase in the operational capacity of the cement shipping terminal and distribution facility at the Glebe Island Port Facility in Sydney. The objective of the NIA is to meet the requirements of the Secretary's Environmental Assessment Requirements (SEARs).

The NSW Environment Protection Authority (EPA) and the Department of Planning and Environment (DPE) have since reviewed the NIA and provided feedback and comments to be considered by ERM and CA.

ERM provides this addendum to address the comments and to provide clarifications, where applicable, to the NIA. This addendum is to be read in conjunction with the NIA.

The following documents have been referred to in this Addendum:

- *Cement Australia Glebe Island Throughput Increase Project Noise Impact Assessment*, prepared by ERM for CA (ERM Project No: 0488846, Revision 2, dated 16th November 2021) ('NIA').
- NSW Department of Planning and Environment *Proposed Glebe Island Silos Throughput Capacity Increase (DA-188611) – Lot 12 Sommerville Road, Rozelle* - Attachment A: Department's Comments on EIS - Letter to CA dated 8th April 2022.
- NSW Environment Protection Authority *Notice of Exhibition for the Glebe Island Silos Throughput Capacity Increase (DA-188611) – Lot 12 Sommerville Road, Rozelle* - Attachment 1: EPA comments on EIS for Glebe Island Silos Throughput Capacity Increase - Letter to DPE dated 29th March 2022.

ERM's responses to the comments by the NSW DPE and the NSW EPA are summarised in **Appendix A**.

Responses requiring a more detailed explanation are provided in **Appendix B**.

Should you wish to discuss any aspect of this addendum, please contact Magaesh Naidu at Magaesh.Naidu@erm.com.

Yours sincerely,

Magaesh Naidu
Principal Acoustics Consultant, ERM

APPENDIX A – ERM RESPONSE TO COMMENTS

Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
1	EPA	***Can DPE please confirm whether it is appropriate for noise impacts from project to be assessed and managed in accordance with the principles outlined in the GIWBPNP rather than the NPfI? During the development of the GIWBPNP, the EPA advised the Port Authority to consult with DPE to determine whether the policy would have any status in the planning system.***	ERM notes that this question from the EPA is addressed to the DPE. Advice from the DPE is recommended to be sought on this item. We note that the Port Authority has implemented the Glebe Island and White Bay Port Noise Policy (GIWBPNP) to manage noise within Glebe Island and White Bay port areas. The GIWBPNP includes a Vessel Noise Guideline that seeks to ensure noise from vessels is acceptable for each vessel arriving at the port. The framework established under the GIWBPNP will ensure that vessel noise limits are adhered to, or appropriate corrective actions are implemented to drive continual improvements in vessel noise and ensure compliance with the established vessel noise limits over time.	-
2	EPA	The increase in frequency of vessels to service the proposed increased throughput should be managed via the GIWBPNP noting that some vessels servicing Cement Australia have been subject to noise mitigation in a proactive attempt to satisfy the GIWBPNP. The vessels involved in the mitigation program are: Akuna, Wyuna and Kondili. The NIA suggests that vessels servicing Cement Australia will closely approach the vessel trigger noise levels with a 2dB exceedance identified at Batty Street Balmain (see NIA, Table 3.4). Any planning approval could seek to reinforce the GIWBPNP by requiring that only ships that either meet or have been noise attenuated to seek to meet the GIWBPNP be used to service the development.	ERM acknowledges in *Section 5 of the NIA* that there was a typographical error. The daytime VTNL should read "$L_{eq(15h)}$ 60 dB(A)" instead of "65 dB(A)". As such, compliance is achieved by 2 dB(A). We note that the measured vessel noise levels at NCA1 and NCA2 used in the assessment is 58 dB(A) $L_{eq(15min)}$, as reported in the 2021 Port Authority Noise Monitoring Report for Kondii at Berth 8. This noise level represents the maximum noise level recorded to present a conservative assessment. While there is marginal compliance of 2 dB, ERM and SLR's measurements of vessel noise are generally lower, as reported in *Table 3.1 and Table 3.2* respectively of the NIA. Lower measured vessel noise indicates a higher degree of compliance.	-

Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
		The NIA appears to erroneously apply a +5dB adjustment to the vessel trigger noise levels in Section 5 when a daytime VTNL of 65dB is noted. The VTNL for daytime is LAeq, daytime 60dB and compliance against this level is reported.	Additionally, ERM notes that the noise descriptor for the daytime VTNL is $L_{eq(15h)}$ compared to the day-time noise measurements descriptor of an $L_{eq(15min)}$. Using the $L_{eq(15min)}$ value for assessment against $L_{eq(15h)}$ VTNLs adds another degree of conservatism in the assessment approach. The maximum measurement of 58 dBA $L_{eq(15min)}$ at NCA1 and NCA2, as reported in the 2021 Port Authority Noise Monitoring Report, is unlikely to be constant during the entire 15-hour daytime assessment period and consequently the $L_{eq(15h)}$ noise assessment levels from the vessels are likely to be lower due to time-averaging.	
3	EPA	The process to assign landside trigger levels to individual users at the port has not been completed. As a practical way forward, the EPA suggests that Cement Australia be assigned landside trigger noise levels based on the cumulative limit (i.e. NPfI - urban industrial interface amenity noise levels) minus 10dB as a conservative interim assessment approach. The predicted landside noise levels in the NIA (Table 6-2) suggest that these conservative levels could be closely approached with a negligible 1dB exceedance identified at night at Batty Street Balmain.	ERM agrees with the suggested conservative interim assessment approach. Accordingly, the following landside trigger levels are proposed: ■ Day – 55 dB(A) $L_{eq,\ 11h}$ ■ Evening – 45 dB(A) $L_{eq,\ 4h}$ ■ Night – 40 dB(A) $L_{eq,9h}$ We accept that a 1 dB exceedance is predicted for the night period at Batty Street, Balmain and that this exceedance is considered as negligible in terms of human perception of noise.	-

Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
4	EPA	The NIA indicates at section 6.2 that: "The difference between the day/evening and night-time noise contours is the truck movements which are at a lower frequency in the night-time period". However, the night-time contours in Figure 6.2 are higher than the daytime levels in Figure 6.1. -additionally, the contours indicate higher noise levels than the levels reported in Table 6.2. This anomaly needs to be explained and justified.	We acknowledge the graphics error in the night-time noise contours in Figure 6.1. The model has been re-run and checked. Revised noise contours are provided in Appendix B.	Refer to Appendix B.1
5	EPA	Section 6.1.3 of the NIA indicates that: "The SWL [sound power level] for facility mechanical equipment were based on representative data from ERM's database". A single sound power level has been presented in Table 6.1 for "Facility Mechanical Equipment". Given that the facility is existing and no changes to mechanical plant are proposed, the sound power levels used in the assessment should be based on measurement of the existing plant and equipment. Significant noise sources should be identified through site surveys, and the location, height and sound power level established, reported and used in the noise model. ***The current approach to model facility mechanical plant and equipment is considered inadequate.***	Following EPA's feedback, ERM visited the Cement Australia Glebe Island Silos site on the 1st of November 2022 to conduct sound pressure level measurements of mechanical equipment noise from the facility. The full measurement details are presented in Appendix B. We wish to clarify that the facility mechanical equipment is fully enclosed, and the noise breakout is through the louvres from the blowers located at the silos. The noise measurements indicate that current noise levels of the blowers at the site are lower than the assumed SWL for facility mechanical equipment in the submitted NIA. ERM notes that the main noise contributor at the facility are the truck movements meaning that updating the SWL for facility mechanical equipment would result into no changes to the predicted noise impact of the throughput capacity increase.	Refer to Appendix B.2

Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
6	EPA	Section 6.1.3 of the NIA also indicates that: “Night-time measurements were used for calibration purposes as they were less influenced by noise sources unrelated to port activities”, however no further details are provided about model calibration or validation.	We wish to retract the following first paragraph of Section 6.1.3: “The SWL for unloading operations were calculated and calibrated from measurements conducted by ERM and SLR, as presented in Section 3.2 of this report. Night-time measurements were used for calibration purposes as they were less influenced by noise sources unrelated to the port’s activity." The dominant noise sources and associated Sound Power Levels assumed in the model for the landside noise assessment are indicated in Table 6.1 of the report.	-
7	EPA	Table 6.1 of the NIA indicates that trucks were modelled using a line source. ***Additional detail is required for example assumed speed profile through the site, source height, etc.***	ERM provides the following additional information in regard to the truck movements modelled as a line source as indicated in Table 6.1 in the NIA: ■ A constant movement speed of 20 km/h was assumed. ■ The line source was at an emission height of 2.5m relative to the ground.	-
8	EPA	The NIA reports at Section 6.1.2 that the ISO9613 model has been used and further that: “Typical noise enhancing night-time meteorological conditions were modelled (Temperature 10°C, Humidity 90%, no wind). Neutral meteorology settings were used in the model, with the harbour 100% acoustically reflective and the surrounding land areas 50% acoustically reflective to represent a conservative modelling output”. EPA notes that the ISO9613-2:1996 standard states the model is based on source to	ERM has reviewed the modelling parameters and confirms that the model has considered noise-enhancing downwind conditions as implemented using the ISO9613 algorithms on CadnaA noise modelling software. ERM would like to amend this paragraph in Section 6.1.2 of the NIA as follows: "Typical noise enhancing night-time meteorological conditions were modelled (Temperature 10°C, Humidity 90%, no wind), with the harbour 100% acoustically reflective and the	-

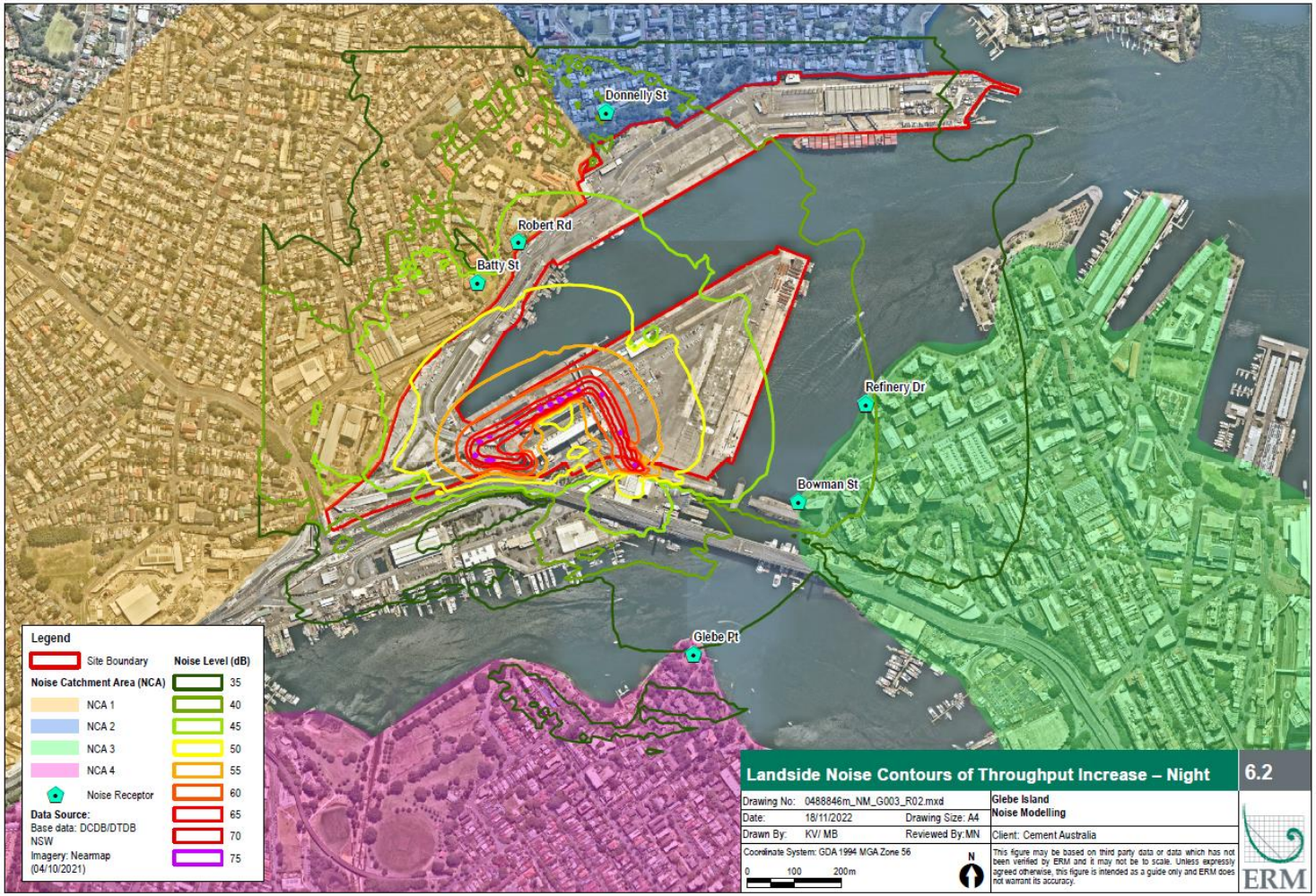
Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
		receiver wind speeds between 1-5m/s or a well-developed ground-based temperature inversion. ***Additional clarification / explanation of the commentary in the NIA as to whether the model has considered noise enhancing or "neutral" conditions while implementing the ISO9613 algorithms is required.***	surrounding land areas 50% acoustically reflective to represent a conservative modelling output."	
9	EPA	Cumulative impacts from the increased throughput and existing operations are reported in the section 6.3 of the NIA. However, only the activities of Hanson Concrete and the increase throughput of the Cement Australia have been considered. Other noise sources such as Gypsum Australia, White Bay Cruise Terminal and the construction of the Metro West etc have not been considered in the cumulative assessment. While the recommendation for the use of a conservative assessment approach under item iii above attempts to address the lack of information about existing landside activities and noise levels, the SEARs require a cumulative assessment. ***A cumulative noise impact assessment that includes impacts from existing onsite operations within Glebe Island White Bay and from surrounding developments should be undertaken as required by the SEARs.***	ERM acknowledges that the predicted cumulative impacts presented in Section 6.3 of the NIA consider activities from Hanson Concrete and the increased throughput of Cement Australia only. At the time of writing the report, Hanson Concrete Batching Plant was one of the dominant industrial noise sources influencing the noise environment at the assessed receptors. We acknowledge that a cumulative impact assessment from existing onsite operations at Glebe Island is required by the SEARs and that consideration of just Hanson Concrete Batching Plant is insufficient. A revised cumulative noise assessment is provided in Appendix B considering existing on-site operations and is considered by ERM to satisfy the SEARs.	Refer to Appendix B.3

Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
10	EPA	While section 6.4 of the NIA suggests that maximum noise events associated with truck movements are predicted to satisfy screening noise levels presented in the assessment, vehicle movements on the site will need to be carefully and effectively managed with both operational controls and management supervision. ***DPE may wish to require through any planning approval a heavy vehicle noise management plan to ensure that maximum noise events are effectively controlled and managed through measures including driver training and behaviour, speed limits, road surface etc.***	ERM notes that this recommendation provided by the EPA is addressed to the DPE for consideration. ERM provides no further comment on this item.	-
11	DPE	Section 6.1 of the Noise Impact Assessment (NIA) indicates the incremental noise impacts of the development have been combined with the findings of the NIA prepared by SLR Consulting Pty Ltd in 2018 for the Hanson development to determine landside cumulative noise impacts of the development. However, it is not clear the extent of noise sources which have been included in the cumulative assessment. ***The Department requests confirmation on the noise sources considered in the cumulative noise impact assessment.***	The cumulative noise assessment has been revised in Item 9 and Appendix B.3.	-

Item	Agency	Feedback / RFI / Comment from Agency	ERM Response	Detailed Response Reference
12	DP`E	Section 5.1 of the NIA states the Applicant has limited control over the noise emissions from vessels. The Department's general expectation is for all vehicles involved in the operations of the development to be the responsibility of the Applicant to maintain and manage. Therefore, the Department requests clarification on why the Applicant's capacity to control noise emissions from vessels is limited.	ERM notes that Cement Australia does not own or directly operate vessels that visit the Port of Sydney. These vessels are generally operated by third party shipping businesses. Notwithstanding this, all vessels entering the port must comply with Port Authority's regulations, protocols and navigational rules that apply within White Bay and throughout Sydney Harbour. The Port Authority has implemented the GIWBPNP to manage noise within Glebe Island and White Bay port areas. The GIWBNP includes a Vessel Noise Guideline that seeks to ensure noise from vessels is acceptable for each vessel arriving at port. While the Port Authority sets limits on vessel noise through the Vessel Noise Guideline, the possibility of vessels emitting higher noise levels than what has been predicted still exists due to the mechanical nature of the noise sources. To address this risk, the Port Authority conducts regular noise monitoring in accordance with the GIWBPNP and has prepared a Vessel Noise Operating Protocol to be followed in the event a vessel does not comply with the specific vessel noise levels. The framework established under the Port Noise Policy will ensure that vessel noise limits are adhered to, or appropriate corrective actions are implemented to drive continual improvements in vessel noise and ensure compliance with the established vessel noise limits over time.	-

APPENDIX B – DETAILED RESPONSES

B.1 Updated Night-time Contours



B.2 Noise Measurements at Silos of Cement Australia Glebe Island Facility

The facility mechanical equipment noise source is defined as a fully enclosed blower with continuous noise emissions. The main noise pathway is from the louvres of blower area.

Attended measurements were conducted on the 1st of November 2022 using an NTi XL2 sound level meter (S/N A2A-06986-E0). Field calibration was checked at the beginning and end of measurements using a Brüel & Kjær Type 4231 calibrator (S/N 2205468) with no significant drift (±0.5 dB) was observed.

The measurement location and a photograph of the measurement are shown in Figure B–1 and Figure B–2 respectively.

Figure B–1 Measurement Location

Figure B–2 Blower North Side Louvres

The results of the attended measurements conducted are summarised in **Error! Reference source not found.**.

Table B-1 Summary of Attended Noise Measurements

Time	Duration	Measured Noise Levels in dB(A)		Sound Power Level in dB(A)	Notes and Observations
		L_{eq}	L_{90}		
9:25am	1 min	78	77	81	Blower North Side measured in the free field at 1 m from louvres (Approx. 2m x 1m area); continuous and constant noise level with marginal fluctuations

The sound power level from the louvres is expected to be 81 dB(A). By comparison, the modelling conducted previously by ERM referenced a sound power level of 96 dB(A). Therefore, we conclude that the assessment of facility mechanical noise emissions has been conservative. Notwithstanding, we note that outdoor truck movement noise dominates site emissions and the predicted landside noise levels are unaffected.

B.3 Cumulative Noise Assessment

The notable noise generating noise sources affecting the noise environment at the noise sensitive receptors are as follows:

- Sydney Metro West Construction
- White Bay Cruise Terminal
- Gypsum Terminal

Sydney Metro West construction activities are expected to dominate the noise environment under a worst-case noise scenario. We have reviewed the White Bay Cruise Terminal noise monitoring reports (https://www.portauthoritynsw.com.au/sustainability/noise/white-bay-cruise-terminal-noise-monitoring-reports/) and the Gypsum Terminal being enclosed with only truck noise emissions, and have come to this conclusion.

The Sydney Metro West construction area is shown in Figure B–3.

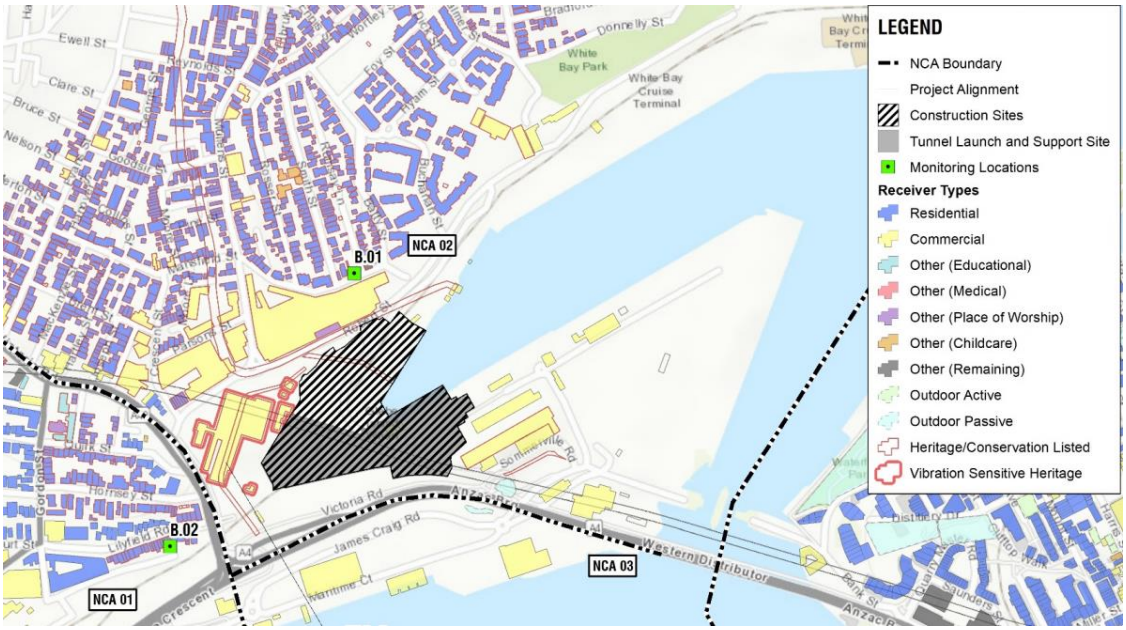


Figure B–3 Extract from *Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021 Technical Paper 2 Noise and Vibration (SLR 2021)*

The results of the cumulative assessment are summarised in the following table.

The cumulative impact assessment indicates that no exceedances of the Precinct Cumulative Noise Limits are predicted at all NCAs for all periods.

ERM

Level 15 309 Kent Street
Sydney NSW 2000
Locked Bag 3012
Australia Square NSW 1215

Telephone: +61 2 8584 8888
Fax: +61 2 9299 7502

www.erm.com

Table B-2 Predicted Cumulative Impact

NCA	Receptor Location	Precinct Cumulative Noise Limit $L_{eq,period}$ in dBA			Predicted Noise Impact from Throughput Increase $L_{eq,Period}$ in dBA			Sydney Metro West Construction Noise[1,2,3,4]			Cumulative Noise Level, in dB		
		D	E	N	D	E	N	D	E	N	D	E	N
1	Batty Street, Balmain	65	55	50	42	42	41	41	41	41	**45**	**45**	**44**
2	Donnelly Street, Balmain				38	38	37	41	41	41	**43**	**43**	**42**
3	Refinery Drive, Pyrmont				37	37	35	30	30	30	**38**	**38**	**36**
4	Leichhardt Street, Glebe				31	31	30	30	30	30	**34**	**34**	**33**

Notes:

1. Sydney Metro West Construction noise is expected to dominate in comparison to noise from White Bay Cruise Terminal and the Gypsum Terminal
2. Predicted construction noise from *Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021 Technical Paper 2 Noise and Vibration (SLR 2021)*
3. Typical $L_{eq(15\ min)}$ noise levels for each period predicted for the relevant NCA in which the receptors are located are assumed to be similar to $L_{eq(period)}$
4. Noise generated is from TBM support and spoil removal, deliveries, and on/off loading