

Moorebank Precinct West Stage 2 Proposal Response to Submissions

Appendix D: Noise and Vibration Impact Assessment



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development

MPW STAGE 2 RESPONSES TO SUBMISSIONS

ADDENDUM IMPACT ASSESSMENT - NOISE

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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

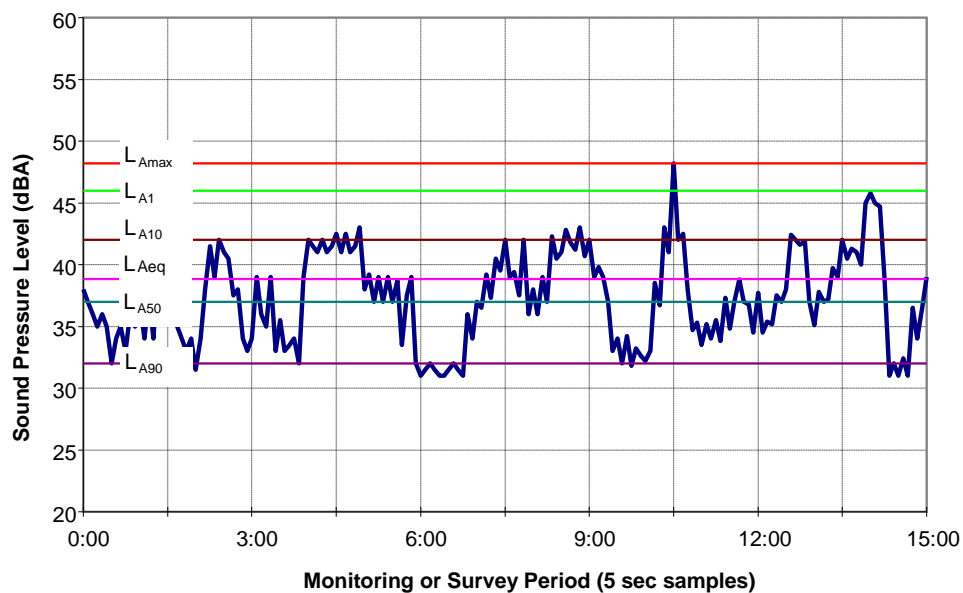
L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Typical Graph of Sound Pressure Level vs Time



1 INTRODUCTION

SIMTA are seeking approval for the construction and operation of the Moorebank Precinct West (MPW) Stage 2 Proposal (the Proposal), which will be the second stage of development under the MPW Concept Approval (SSD 5066).

An Environmental Impact Statement (EIS) was prepared for the Proposal seeking approval under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In particular, the EIS was prepared to address, and be consistent with, the following:

- The Secretary's Environmental Assessment Requirements (SEARs) (SSD 16-7709) for the Proposal, which were issued on 14 July 2016
- The relevant requirements of the MPW Concept Approval (SSD 5066) granted by the Planning Assessment Commission (PAC) on 3 June 2016
- The relevant requirements of the approval under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (No. 2011/6086).

The EIS was publicly exhibited, in accordance with clause 83 of the *Environmental Planning and Assessment Regulations 2000* (EP&A Regulations), between 26 October 2016 and 25 November 2016. During this exhibition period submissions were invited from all stakeholders including members of the community and government stakeholders. In response to the submissions received, and also to respond to design progression, amendments have been made to the Proposal (the Amended Proposal), as detailed below.

1.1 Report Purpose

The purpose of this report is to provide further environmental assessment for the Amended Proposal and serve as an addendum to the Noise and Vibration Impact Assessment (NVIA) provided within the EIS. A summary of the works included in the Amended Proposal is provided below.

1.1.1 Amended Proposal

The MPW Stage 2 Proposal (the Proposal) involves the construction and operation of an intermodal terminal (IMT) facility to support a container freight throughput volume of 500,000 twenty-foot equivalent units (TEUs) per annum. The Proposal also includes the construction and operation of approximately 215,000 m² GFA, freight village (800 m²) and associated infrastructure.

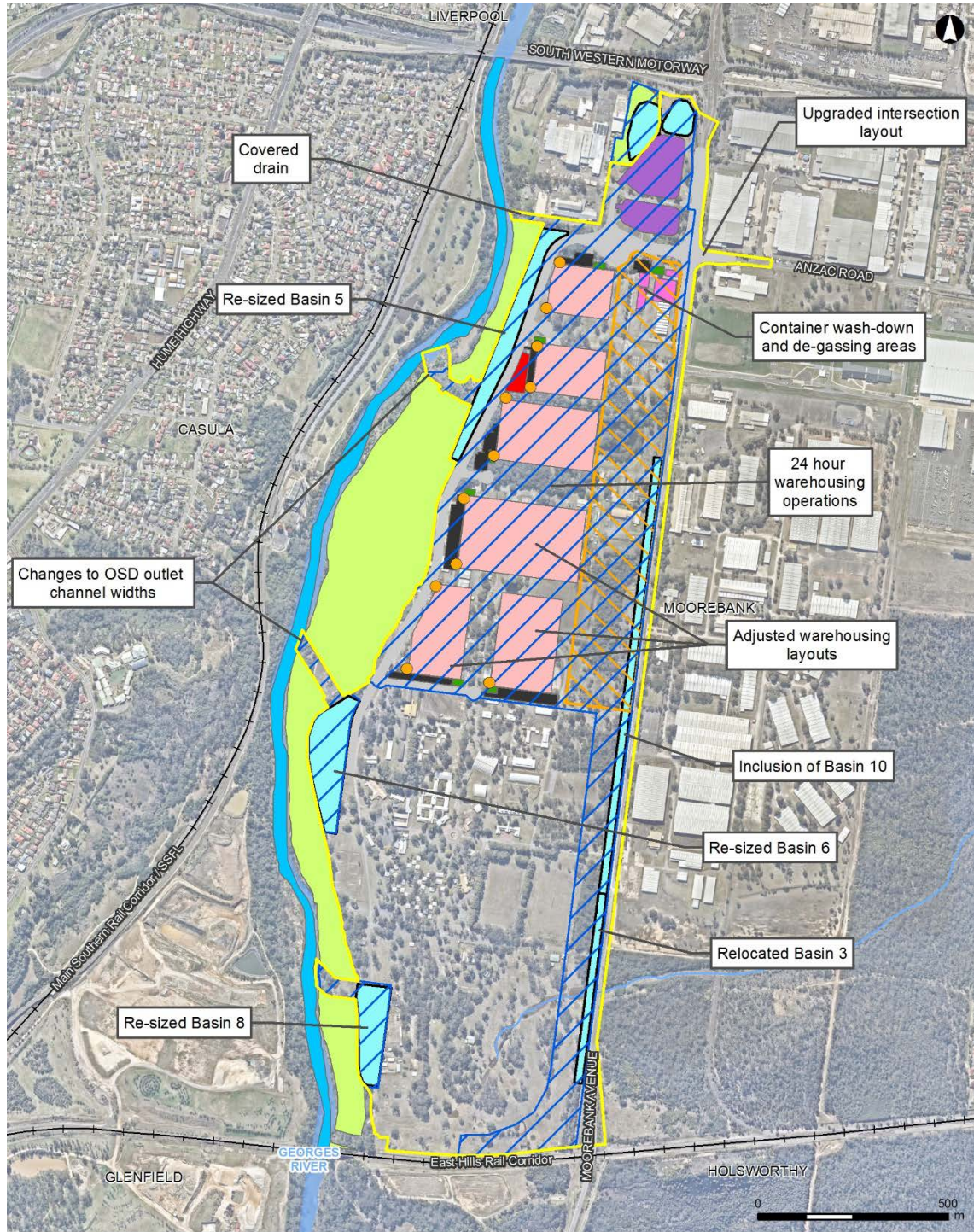
The Amended Proposal alters the Proposal based on design development, submissions received during exhibition of the EIS and, consultation with key stakeholders. A summary of the amendments to the Proposal is as follows:

- Alignment of the operational hours for warehouses to the IMT facility and Port freight operations to enable freight movements outside of peak traffic times.

- Alterations to the drainage design, including:
 - Inclusion of the OSD (Basin 10) along the eastern boundary
 - Relocation of temporary basin 3A
 - Re-sizing of OSD (Basins 5, 6 and 8) along the western boundary of the operational area
 - Reduction to the widths of selected OSD outlet channels
 - Provision of an additional covered drain within the Endeavour Energy easement
- Establishment of a container wash-down facility with de-gassing area within the IMT facility
- Illuminated backlit signage within the warehousing area
- Inclusion of an upgraded layout for the Moorebank Avenue/Anzac Road intersection
- Adjustments to warehouse layouts.

The amendments to the Proposal are shown in Figure 1-1.

Figure 1-1 Amendments to the Proposal



LEGEND

- | | | |
|-----------------------------|-----------------------------------|---------------|
| Amended construction area | Ancillary components and services | OSD |
| Amended operational area | Conservation area | Truck parking |
| Multipurpose Terminal | Freight Village | Office |
| Illuminated backlit signage | Georges River | Road |
| | Carpark | Warehousing |

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Impact Assessment

1.2 MPW Stage 2 Proposal Assessment

1.2.1 Operational Noise Impacts

The NVIA for the Proposal presented an assessment of operational noise impacts, in general accordance with the *NSW Industrial Noise Policy* (INP). In accordance with the INP, the NVIA presented the predicted $L_{Aeq, 15min}$ and $L_{Aeq, period}$ noise levels from the operation of the Proposal at the most potentially affected off-site receivers, and compared these predicted noise levels with the established intrusiveness and amenity criteria, respectively. In accordance with the INP, the predicted noise levels were presented during both calm and adverse meteorological conditions.

The predicted $L_{Aeq, 15min}$ and $L_{Aeq, period}$ noise levels, from the operation of the Proposal, as presented in the NVIA, are presented in Table 1-1 and Table 1-2, respectively.

It should be noted that the predicted $L_{Aeq, 15min}$ operational noise levels at the most potentially affected receiver in Wattle Grove was incorrectly reported in the NVIA for the Proposal. The $L_{Aeq, 15min}$ operational noise levels presented in the NVIA for Wattle Grove represented the highest predicted noise levels in the region of Wattle Grove to the south of Anzac Road. However, there is a small region in Wattle Grove to the north of Anzac Road, near the intersection of Delfin Drive and Anzac Road, where the $L_{Aeq, 15min}$ operational noise levels from the proposal are moderately higher than those presented in the NVIA. This region can be identified by reviewing the operational noise contour plots presented in the NVIA, and those presented for the Amended Proposal, in Appendix A of this report. Table 1-1 presents the correct predicted levels in Wattle Grove, along with the levels originally reported in the NVIA in brackets.

Table 1-1 Predicted $L_{Aeq, 15min}$ Operational Noise Levels – MPW Stage 2 Proposal

Receiver	Predicted $L_{Aeq, 15min}$ Noise Level (dBA)				Criteria (dBA)			Exceedance?
	Day ¹	Evening ¹	Night ¹		Day ¹	Evening ¹	Night ¹	
			Calm ²	Adverse ³				
Casula	36	36	35	39	44	44	38	Up to 1 dB
Glenfield	<20	<20	<20	<20	40	40	38	0 dB
Wattle Grove	32 (28)	32 (28)	32 (28)	36 (33)	40	40	37	0 dB

1. Daytime = 7.00am-6.00pm; Evening = 6.00pm-10.00pm; Night = 10.00pm-7.00am.

2. CONCAWE Category 4.

3. CONCAWE Category 6.

Review of Table 1-1 indicates that the predicted $L_{Aeq, 15min}$ operational noise levels comply with the established criteria in Glenfield and Wattle Grove.

During periods where noise levels are enhanced by meteorological conditions, $L_{Aeq, 15min}$ operational noise levels were predicted to exceed the established night time intrusiveness criterion at the most affected receivers in Casula. At six residential receivers in Casula, the noise levels were predicted to exceed the criterion by up to 1 dB.

Table 1-2 Predicted $L_{Aeq, period}$ Operational Noise Levels – MPW Stage 2 Proposal

Receiver	Predicted $L_{Aeq, period}$ Noise Level (dBA)				Criteria (dBA)			Exceedance
	Day ¹	Evening ¹	Night ¹		Day ¹	Evening ¹	Night ¹	
			Calm ²	Adverse ³				
Casula	33	33	32	36	54	45	40	0 dB
Glenfield	<20	<20	<20	<20	54	45	40	0 dB
Wattle Grove	29	29	28	33	54	45	40	0 dB
S1	<20	<20	<20	22	45 (external, when in use)			0 dB
S2	24	24	23	27	45 (external, when in use)			0 dB
I1 (MPE)	60	60	60	60	70 (external, when in use)			0 dB
I2 (DJLU)	56	56	56	57	70 (external, when in use)			0 dB
I3 (ABB)	51	48	48	48	70 (external, when in use)			0 dB

1. Daytime = 7.00am-6.00pm; Evening = 6.00pm-10.00pm; Night = 10.00pm-7.00am.

2. CONCAWE Category 4.

3. CONCAWE Category 6.

Review of Table 1-2 indicates that the predicted $L_{Aeq, period}$ operational noise levels presented in the EIS comply with the established criteria at all sensitive receiver locations at all times.

1.2.2 Construction Noise Impacts

The NVIA for the Proposal presented the predicted $L_{Aeq, 15min}$ construction noise levels for the major works periods for the Proposal, and compared these levels with the Noise Management Levels (NML) established in accordance with the *Interim Construction Noise Guideline* (ICNG). Predicted noise levels were presented for the proposed works in both standard construction hours, and a number of out of hours (OOH) periods.

The predicted construction noise levels at the most potentially affected receivers during standard construction hours, as presented in the NVIA, are shown in Table 1-3.

Table 1-3 Predicted Standard Hours¹ Construction Noise Levels – MPW Stage 2 Proposal

Receiver	Construction Works Period ²							NML
	Pre-construction stockpiling	Site preparation	Bulk earthworks, drainage and utilities	Moorebank Avenue and internal roads	IMT facility and Rail link connection	Warehouse construction and fit out	Buildings and finishing works	
Casula	39	46	50	44	47	46	41	49
Glenfield	25	32	36	30	33	32	27	45
Wattle Grove	26	33	37	31	34	33	28	45
S1	38	45	49	43	46	45	40	55
S2	37	44	48	42	45	44	39	55

Receiver	Construction Works Period ²							NML
	Pre-construction stockpiling	Site preparation	Bulk earthworks, drainage and utilities	Moorebank Avenue and internal roads	IMT facility and Rail link connection	Warehouse construction and fit out	Buildings and finishing works	
MPE (I1)	40	47	51	45	48	47	42	75
DJLU (I2)	33	40	44	38	41	40	35	75
ABB (I3)	42	49	53	47	50	49	44	75

1: Standard Construction Hours = 7.00am – 6.00pm weekdays, 8.00am – 1.00pm Saturday, no work on Sundays or public holidays.

2: Predicted noise levels included as bold text denotes an exceedance of the NML.

Review of Table 1-3 indicates that construction noise levels during standard hours are predicted to exceed the established NML at the nearest residential receivers in Casula by 1 dB, and are predicted to comply with the established NML for all other receiver catchments and discrete receivers.

The predicted construction noise levels at the most potentially affected receivers during the OOH periods, as identified in the NVIA, are presented in Table 1-4. It should be noted that OOH noise limits, established in accordance with the ICNG, are applied to residential receivers only. Accordingly, the residents of Casula, Glenfield and Wattle Grove are the focus of the noise assessment for OOH construction activities.

Table 1-4 Predicted OOH Construction Noise Levels – MPW Stage 2 Proposal

Receiver	OOH Period 1*		OOH Period 2, 3 & 4*		Exceedance
	Predicted L _{Aeq, 15min} Noise Level	NML	Predicted L _{Aeq, 15min} Noise Level	NML	
Casula	39	44	44	44	0 dB
Glenfield	26	40	31	40	0 dB
Wattle Grove	26	40	35	40	0 dB

* OOH Period 1: 6.00am – 7.00am Weekdays
OOH Period 2: 6.00pm – 10.00pm Weekdays
OOH Period 3: 7.00am – 8.00am Saturday
OOH Period 4: 1.00pm – 6.00pm Saturday

Review of Table 1-4 indicates that the predicted L_{Aeq, 15min} noise levels at the most potentially affected residential receivers comply with the establish OOH NML during all OOH works periods.

1.3 Amended Proposal Assessment

1.3.1 Methodology

Construction Noise Impacts

An assessment of construction noise impacts associated with the Amended Proposal has been undertaken for the following amendments:

- Hours of warehousing operations;
- Drainage works;
- Container wash-down facilities and degassing facility within the Proposal site;
- Illuminated backlit signage;
- Upgraded layout for the Moorebank Avenue / Anzac Road intersection; and,
- Adjustments to warehouse layout.

A breakdown of the construction noise assessment methodology for each of the listed elements above is provided below.

Hours of warehousing operations

Revised hours of warehousing operations as part of the Amended Proposal would not change the construction noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

Drainage works

Adjustments to the drainage design, as part of the Amended Proposal, would not significantly change the duration, intensity or distance to sensitive receivers of the related construction activities. Therefore, this amendment would not change the construction noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

Container wash-down and degassing facilities

The addition of container wash-down and degassing facilities, as part of the Amended Proposal, would not significantly change the duration, intensity or distance to sensitive receivers of the related construction activities. Therefore, this amendment would not change the construction noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

Illuminated backlit signage

The addition of illuminated backlit signage, as part of the Amended Proposal, would not significantly change the duration, intensity or distance to sensitive receivers of the related construction activities. Therefore, this amendment would not change the construction noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

Upgraded layout for the Moorebank Avenue / Anzac Road intersection

The proposed upgraded layout for the Moorebank Avenue/Anzac Road intersection would result in construction works along Moorebank Avenue being conducted for an additional three months, and would result in works being conducted in closer proximity to DJLU. The construction footprint for the upgraded layout for the Moorebank Avenue / Anzac Road intersection has been included in the noise model for the relevant works period.

Adjustments to warehouse layout

Adjustments to the warehouse layout, as part of the Amended Proposal, would not significantly change the duration, intensity or distance to sensitive receivers of the related construction activities. Therefore, this amendment would not change the construction noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

To assess the potential for incremental construction noise impacts associated with the Amended Proposal, over those predicted for the Proposal, the proposed changes were reviewed to identify the following:

- Construction activities occurring closer to sensitive receivers;
- Construction activities occurring over a longer duration; and,
- Additional construction plant.

Of the proposed changes, only the upgraded layout for the Moorebank Avenue/Anzac Road intersection have the potential to result in incremental construction noise impacts on sensitive receivers.

The additional construction activities for the Amended Proposal are anticipated to be conducted during standard construction hours, and therefore, the OOH construction noise levels presented in the NVIA for the Proposal do not require any update.

$L_{Aeq, 15min}$ construction noise levels for works periods that would change under the Amended Proposal have been modelled, taking into account additional construction plant and changes to the locations of construction activities, relative to sensitive receivers.

Operational Noise Impacts

An assessment of operational noise impacts associated with the Amended Proposal has been undertaken for the following amendments:

- Hours of warehousing operations;
- Drainage works;
- Container wash-down facilities and degassing facility within the Proposal site;
- Illuminated backlit signage;
- Upgraded layout for the Moorebank Avenue / Anzac Road intersection; and,
- Adjustments to warehouse layout.

A breakdown of the operational noise assessment methodology for each of the listed amendments above is provided below.

Hours of warehousing operations

The dominant noise sources associated with the operation of the warehouses are trucks accessing the warehouses, via the warehouse access road along the western site boundary and the internal road network in the warehousing area.

In the EIS noise model, truck movements were modelled for both average movements and worst-case 15-minute movements for the day, evening and night time assessment periods (i.e 24-hour movements), consistent with the traffic movements presented in the EIS and the supporting operational traffic and transport impact assessment.

The traffic numbers used in the EIS and the supporting operational traffic and transport impact assessment were based on a 24-hour traffic profile not an 18-hour traffic profile. The noise modelling was conducted using the average truck volumes and worst-case 15-minute peak truck volumes derived from the temporal variation (%) of traffic over the 24-hour period. Therefore, no changes to traffic movements are anticipated and no updates are required to the noise model and as such, no changes to traffic movements has been considered as part of this assessment.

Drainage works

Drainage works as part of the Amended Proposal would not change the operational noise impacts of the Proposal, and have therefore not been included in the operational noise assessment presented in this report.

Container wash-down and degassing facilities

The container wash-down and degassing facilities have the potential to introduce additional operational noise sources to the Proposal site. The dominant noise source identified for the container degassing and wash-down area is a large pressure washer. The pressure washer is represented in the noise model as a point source, operating continuously, with a sound power level of 103 dBA. The continuous operation of the pressure washer has been used to represent a typical worst-case 15-minute period for the operation of the Amended Proposal.

Illuminated signage

Illuminated signage as part of the Amended Proposal would not change the operational noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

Upgraded layout for the Moorebank Avenue / Anzac Road intersection

The upgraded layout for the Moorebank Avenue / Anzac Road intersection would not change the operational noise impacts of the Proposal, and has therefore not been assessed further as part of this report.

The upgraded layout for the Moorebank Avenue/Anzac Road intersection would not significantly affect road traffic noise levels at sensitive receivers as there are no such receivers adjacent to either Moorebank Avenue or Anzac Road in the vicinity of the upgraded layout.

Adjustments to warehouse layout

The warehouse layout can affect operational noise levels from the Proposal as it influences the flow of trucks on the internal road network, and the warehouses themselves provide significant shielding between noise sources and sensitive receivers.

The latest layout for the warehouses and the internal road network, as shown in Figure 1-1, were imported into the noise model, and the associated noise sources representing traffic on the internal roads and warehousing activities were updated accordingly.

The computer noise model used to predict the $L_{Aeq, 15min}$ and $L_{Aeq, period}$ operational noise impacts for the Proposal was updated to reflect the above amendments.

None of the amendments to the Proposal are considered likely to result in noise sources with significant L_{Amax} noise levels moving closer, or being more exposed, to the most affected residential receivers. Therefore, the predicted L_{Amax} noise levels in the sleep disturbance assessment in the NVIA are representative of the likely L_{Amax} noise levels for the Amended Proposal.

1.3.2 Results

The predicted $L_{Aeq, 15min}$ and $L_{Aeq, period}$ operational noise levels at the most potentially affected sensitive receivers, under the Amended Proposal, are presented in Table 1-5 and Table 1-6, respectively. Contour plots of the predicted $L_{Aeq, 15min}$ operational noise levels from the Amended Proposal are presented in Appendix A of this report.

Table 1-5 provides a comparison of the predicted $L_{Aeq, 15min}$ operational noise levels between the results of the EIS and the revised results with the inclusion of the Amended Proposal. Table 2-5 demonstrates that the Amended Proposal would comply with the established intrusiveness criteria in Glenfield and Wattle Grove, and would exceed the criterion by up to 1 dB in Casula. This exceedance is equivalent to that identified in the NVIA.

Table 1-6 provides a comparison of the predicted $L_{Aeq, period}$ operational noise levels between the results of the EIS and the revised results with the inclusion of the Amended Proposal. Table 2-6 demonstrates that the Amended Proposal would comply with the established amenity criteria, consistent with what was identified in the NVIA prepared to support the EIS.

Comparison of the predicted operational noise levels for the Amended Proposal with the predicted operational noise levels for the Proposal as assessed in the EIS demonstrates that the Amended Proposal would have a very small effect on operational noise levels at sensitive receivers. Review of the tables indicates that, at the most affected residential receivers in Casula, under the Amended Proposal, $L_{Aeq, 15min}$ and $L_{Aeq, period}$ operational noise levels decrease by 1 dB during the daytime and evening, and $L_{Aeq, period}$ operational noise levels increase by 1 dB during the night time. However, in reality, these changes in predicted noise levels are less than 1 dB, and have been exaggerated in the process of rounding to the nearest 1 dB.

It is noted that although each warehouse is altered by the amended layout, the general location and orientation of the warehouses, and the associated internal road network, have not changed significantly when viewed in context of the overall operational noise emissions from the Proposal site. Therefore, as indicated by the results of the updated modelling, the amended warehouse layout is not expected to significantly influence the operational noise impacts from the Proposal.

Table 1-5 Comparison of Predicted $L_{Aeq, 15min}$ Operational Noise Levels between the EIS and the Amended Proposal

Receiver	MPW Stage 2 EIS (as exhibited)				Amended Proposal				Criteria (dBA)			Exceedance?	
	Predicted $L_{Aeq, 15min}$ Noise Level (dBA)				Predicted $L_{Aeq, 15min}$ Noise Level (dBA)							MPW Stage 2 EIS	Amended Proposal
	Day ¹	Eve. ¹	Night ¹		Day ¹	Eve. ¹	Night ¹		Day ¹	Eve. ¹	Night ¹		
			Calm ²	Adverse ³			Calm ²	Adverse ³					
Casula	36	36	35	39	35	35	35	39	44	44	38	Up to 1 dB	Up to 1 dB
Glenfield	<20	<20	<20	<20	<20	<20	<20	<20	40	40	38	0 dB	0 dB
Wattle Grove	32 (28)	32 (28)	32 (28)	36 (33)	32	32	32	36	40	40	37	0 dB	0 dB

1. Daytime = 7.00am-6.00pm; Eve. = 6.00pm-10.00pm; Night = 10.00pm-7.00am.
2. CONCAWE Category 4.
3. CONCAWE Category 6.

Table 1-6 Comparison of Predicted $L_{Aeq, period}$ Operational Noise Levels between the EIS and the Amended Proposal

Receiver	MPW Stage 2 EIS (as exhibited)				Amended Proposal				Criteria (dBA)			Exceedance?	
	Predicted $L_{Aeq, period}$ Noise Level (dBA)				Predicted $L_{Aeq, period}$ Noise Level (dBA)							MPW Stage 2 EIS	Amended Proposal
	Day ¹	Eve. ¹	Night ¹		Day ¹	Eve. ¹	Night ¹		Day ¹	Eve. ¹	Night ¹		
			Calm ²	Adverse ³			Calm ²	Adverse ³					
Casula	33	33	32	36	32	32	31	35	54	45	40	0 dB	0 dB
Glenfield	<20	<20	<20	<20	<20	<20	<20	<20	54	45	40	0 dB	0 dB
Wattle Grove	29	29	28	33	29	29	28	32	54	45	40	0 dB	0 dB
S1	<20	<20	<20	22	22	22	21	24	45 (external, when in use)			0 dB	0 dB
S2	24	24	23	27	25	25	24	28	45 (external, when in use)			0 dB	0 dB
I1 (MPE)	60	60	60	60	60	60	60	60	70 (external, when in use)			0 dB	0 dB
I2 (DJLU)	56	56	56	57	56	56	56	57	70 (external, when in use)			0 dB	0 dB
I3 (ABB)	51	48	48	48	51	48	48	48	70 (external, when in use)			0 dB	0 dB

1. Daytime = 7.00am-6.00pm; Eve. = 6.00pm-10.00pm; Night = 10.00pm-7.00am.
2. CONCAWE Category 4.
3. CONCAWE Category 6.

The predicted $L_{Aeq, 15min}$ construction noise levels at the most potentially affected sensitive receivers due to the Amended Proposal are presented in Table 1-7. The table presents the predicted noise levels at sensitive receivers for the construction works periods relevant to the Amended Proposal. Namely, the “Moorebank Avenue and internal roads” works period, during which, works for the upgraded layout of the Moorebank Avenue / Anzac Road intersection would occur.

Table 1-7 Predicted Construction Noise Levels – Amended Proposal

Receiver	Moorebank Avenue & Internal Roads		NML	Incremental Impact?	Exceedance
	MPW Stage 2 EIS	Amended Proposal			
Casula	44	44	49	No	0 dB
Glenfield	30	30	45	No	0 dB
Wattle Grove	31	37	45	Yes	0 dB
S1	43	43	55	No	0 dB
S2	42	42	55	No	0 dB
MPE (I1)	45	45	75	No	0 dB
DJLU (I2)	38	64	75	Yes	0 dB
ABB (I3)	47	47	75	No	0 dB

As shown in Table 1-7, the Amended Proposal would result in additional construction noise impacts on the DJLU site, and at the most affected residential receivers in Wattle Grove.

Construction noise levels at the most affected residential receivers in Wattle Grove and on the DJLU site, during the construction works associated with the upgraded layout for the Moorebank Avenue/ Anzac Road intersection, would increase as a result of these works moving closer to these receivers. Additionally, since these works would be conducted over a longer period, construction noise on the DJLU site would be experienced over a longer period. The predicted $L_{Aeq, 15min}$ construction noise levels at the most affected receivers in Wattle Grove and on the DJLU site remain below the established NML under the Amended Proposal.

The above results indicate some increased construction noise impacts at sensitive receivers due to the construction of the Amended Proposal. However, the additional impacts do not result in any additional exceedances of the established NMLs over that presented in the EIS NVIA. Accordingly, the conclusions and recommended mitigation measures in the EIS NVIA relating to construction noise impacts from the Proposal, remain unchanged.

1.3.3 Mitigation Measures

The Amended Proposal is not expected to result in any additional operational noise impacts, beyond those presented in the NVIA. Therefore, the operational noise mitigation measures recommended in the NVIA are still valid, and no additional measures are recommended.

Construction activities under the Amended Proposal are not predicted to result in any additional exceedances of the established NML at any sensitive receivers. Therefore, no mitigation measures additional to those identified in the NVIA for the Proposal are recommended.

1.4 Conclusion

This assessment concludes that the Amended Proposal would result in consistent operational noise impacts to those already identified and assessed as part of the existing NVIA. Therefore, the outcomes and recommendations of the assessment undertaken for the NVIA are still relevant and appropriate for the assessment of the Amended Proposal.

Additionally, this assessment concludes that the Amended Proposal would result in some additional construction noise impacts to those already identified and assessed as part of the existing NVIA due to the extended duration of construction works, additional plant and works being carried out closer to sensitive receivers. However, the outcomes and recommendations of the assessment undertaken for the NVIA are still relevant and appropriate for the assessment of the Amended Proposal.

APPENDIX A
NOISE CONTOUR PLOTS

Figure A-2 Night Time $L_{Aeq, 15min}$ Operational Noise Levels – Calm Meteorological Conditions

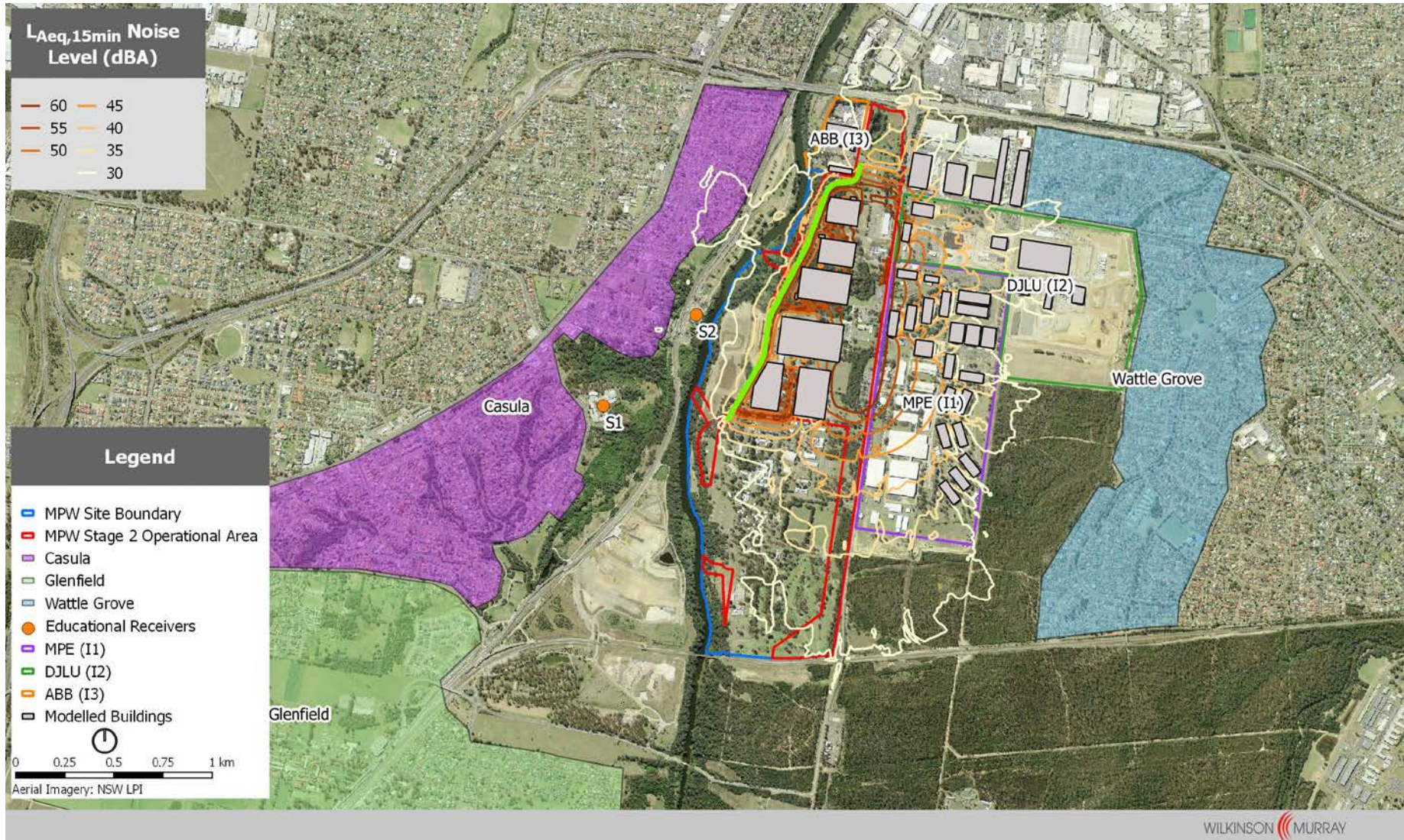


Figure A-2 Night Time $L_{Aeq, 15min}$ Operational Noise Levels – Adverse Meteorological Conditions

