

# **Construction Noise and Vibration Impact Statement**

PROJECT	Sydney City & Southwest Metro – Crows Nest Station	REVISION	N
DOCUMENT NUMBER	SMCSWSCN-AWE-SCN-EM-PLN-000104	DATE	19.12.2022
CLIENT	Sydney Metro	STATUS	For Approval

## **DOCUMENT APPROVAL**

	PREPARED BY	REVIEWED BY	APPROVED BY
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Project Role	Crows Nest Acoustics Advisor	Technical Reviewer	Project Director
Signature			
Date	19 December 2022	19 December 2022	19 December 2022





## **REVISION**

REVISION	DATE	STATUS	AUTHOR	APPROVED BY	COMMENTS
Α	07 January 2021	For Review	Element Environment		Initial version for review
В	16 March 2021	For Review	Element Environment		Updated version in response to Sydney Metro comments
С	27 May 2021	For Approval	Element Environment		Updated to address Sydney Metro comments and include out of hour work
D	17 June 2021	For Approval	Element Environment		Update to address Sydney Metro, AA and ER comments.
E	08 July 2021	For Approval	Element Environment		Update to include additional modelled scenarios
F	22 July 2021	For Approval	Element Environment		Address review comments
G	27 July 2021	For Approval	Element Environment		Address review comments
Н	05 October 2021	For Approval	Element Environment		Update to include additional modelled scenarios
I	20 October 2021	For Approval	Element Environment		Address review comments
J	14 February 2022	For Approval	Element Environment		Update to include additional modelled scenarios
K	08 March 2022	For Approval	Element Environment		Update to address AA and ER comments
L	04 October 2022	For Approval	Element Environment		Update to include additional modelled scenarios
M	05 December 2022	For Approval	Element Environment		Update to address AA and ER comments
N	19 December 2022	For Approval	Element Environment		Update to address AA and ER comments





## APPROVAL CITY & SOUTHWEST ACOUSTICS ADVISOR

Review of:	Sydney City & Southwest Metro	Document	SMCSWSCN-AWE-SCN-EM-
	Crows Nest Station	reference:	PLN-000104 Rev N
	Construction Noise and Vibration Impact		
	Statement (Rev N)		A W Edwards Pty Limited
Prepared			
by:	Acoustics Advisor		19 December 2022
Date of	23 December 2022		
issue:			

As approved Acoustics Advisor for the Sydney Metro City & Southwest project, and as required under A27 (d) of the project approval conditions (SSI 15-7400), I have reviewed and provided comment on the Crows Nest Integrated Station Development (CNISD) Construction Noise and Vibration Impact Statement (CNVIS).

I am satisfied that changes made to this revision are technically valid and that the CNVIS contains an adequate assessment of feasible and reasonable noise and vibration mitigation and management. On this basis, I endorse the CNVIS referenced herein.

, City & Southwest Acoustics Advisor



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## INTRODUCTION

This Construction Noise and Vibration Impact Statement (CNVIS) has been prepared on behalf of A W Edwards in accordance with the Construction Noise and Vibration Management Plan (CNVMP), for the construction of the Crows Nest Integrated Station Development (the Project).

#### RELEVANT REQUIREMENTS AND PURPOSE OF THIS CNVIS

Project Planning Approval (PPA) Condition E33 requires that:

 Construction Noise and Vibration Impact Statements must be prepared for each construction site before construction noise and vibration impacts commence and include specific mitigation measures identified through consultation with affected receivers.

This CNVIS applies to operation of the Crows Nest worksite during standard construction hours as well as works outside of standard construction hours. The construction hours of work are defined by the PPA Conditions as outlined in the CNVMP. This CNVIS forms part of the CNVMP for the Project.

## **DESCRIPTION OF CONSTRUCTION WORKS AND HOURS**

#### SUMMARY OF WORKS ADDRESSED IN THIS CNVIS

This CNVIS provides an assessment of noise and vibration impacts from construction activities associated with the construction of the Crows Nest Integrated Station Development. The works covered by this CNVIS include:

- Construction compound activities
- Detailed excavation of parts of the station floor that were not part of the prior station excavation, e.g. sump, lift shafts and drainage trenches
- In ground services and under platform ground slab
- Below ground structure
- Partially demolish ground retention walls
- Waterproofing the station walls
- Above ground structure
- Box girder delivery
- Piling
- Station fit out
- Local area / Public domain works
- Linewide works including:
  - Mechanical and Electrical fit out including SCV nozzle installation
  - Logistics works including material deliveries

Construction traffic on the existing road network

- Light vehicle movement generated by construction personnel travelling to and from work.
- Heavy vehicle movement generated by:
  - Delivery vehicles bringing raw materials, plant, and equipment to the site.
  - Concrete trucks delivering concrete for the Project.

The stages are described in detail in Appendix A.



#### **CONSTRUCTION HOURS**

#### Standard construction hours

The approved standard construction hours (defined in CoA E36 (MOD 9)) are as follows:

- 7:00 am to 6:00 pm, Mondays to Fridays;
- 8:00 am to 6:00 pm on Saturdays; and
- at no time on Sundays or public holidays.

Most of the construction work will occur during the standard construction hours.

Furthermore, CoA E37, E38, E41, E42, E44 and E46 define the construction hour restrictions in more detail.

Construction work outside the standard hours is out of hours work (OOHW) which can be either Period 1 or Period 2 as shown in Table 1 and as defined in the Sydney Metro Construction Noise and Vibration Strategy.

Table 1 - Construction hours

Description	Day	Period	
Standard Hours	Monday to Friday	7am to 6pm	
Standard Hours	Saturday	8am to 6pm	
OOHW Day	Sunday or Public Holiday	8am to 6pm (Period 1)	
	Monday to Friday	6pm to 10pm (Period 1)	
OOHW Evening	Saturday	6pm to 10pm (Period 1)	
	Sunday or Public Holiday	6pm to 10pm (Period 2)	
	Monday to Friday	10pm to 7am (Period 2)	
OOHW Night	Saturday	10pm to 8am (Period 2)	
	Sunday or Public Holiday	10pm to 8am (Period 2)	

#### 24-hour construction

In addition to the standard construction hours in Section 0, in accordance with CoA E47 and E48, the following activities may be undertaken 24 hours per day, seven days per week:

Station and tunnel fit out:

- o mechanical and electrical fit-out consisting of the tunnel rail systems located at the stations and the services required for the function of the stations. The initial fit-out of mechanical and electrical services would likely occur concurrently with the structural work via openings left in the floors and roof structure (for cut-and-cover stations) or through the vertical transport shaft (for mined stations). This would include the installation of large equipment such as fresh air ventilation fans. The final fit-out of services would occur after the completion of structural work.
- the architectural fit-out that would occur after completion of the station structural works. It would include elements such as glazing, wall and ceiling cladding, and floor finishes. And,
- Haulage and delivery of spoil and materials.

#### **Justification for OOHW**

#### **Construction Noise and Vibration Impact Statement**



Justification reasons for OOHW are listed in the Environmental Impact Statement (EIS) for the Sydney Metro Chatswood to Sydenham project [1]. It states the following for works that could occur 24 hours per day, seven days per week:

- Aboveground construction activities
  - Construction traffic for material supply to and spoil removal from tunnelling and underground excavation (station and ancillary facility sites).
     Restrictions would be in place during peak hours and during special events. At locations where night-time sensitive noise receivers are close to construction sites, significant construction vehicle movements are likely to be restricted during evening and night-time periods.
- Underground construction activities
  - Underground excavation at station and ancillary sites. May need to occur outside standard daytime construction hours provided appropriate airborne acoustic mitigation is in place.
- Tunnel and station fit-out
  - Activities that support tunnel and station fit-out may need to occur 24 hours per day, up to seven days per week.

Please refer to Table 10, which provides a list of proposed works, justification and approval pathway that ties back to the Conditions of Approval.

#### NEAREST SENSITIVE RECEIVERS

#### RESIDENTIAL RECEIVERS

To assess and manage construction noise and vibration impacts, residential areas surrounding the Project worksites have been divided into Noise Catchment Areas (NCAs) based on each area's similar acoustic environment prior to the start of construction work. The NCAs are based on those established in the EIS for the Project.

Relevant residential sensitive receivers in proximity to the worksites are identified on aerial photographs located in Appendix B.

## OTHER SENSITIVE RECEIVERS

CoA E34 states:

"Noise generating works in the vicinity of potentially affected community, religious, educational, community institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories and operating theatres) must not be timetabled within sensitive periods, unless other reasonable arrangements to the affected institutions are made at no cost to the affected institution or as otherwise approved by the Secretary."

A W Edwards will consult with identified other sensitive receivers that may fall within the categories of theatres, laboratories and operating theatres.

#### COMMERCIAL AND INDUSTRIAL PREMISES

1

SLR Consulting Australia Pty Ltd 2016 Sydney Metro Chatswood to Sydenham - Technical Paper 2: Noise and Vibration Report Number 610.14718R1 – 28 April 2016





Commercial and industrial premises near the worksites have been considered in this assessment.

#### HERITAGE RECEIVERS

Heritage receivers close to the work areas are in Table 2.

Table 2 - Heritage receivers near the site

Name	Address	Significance
St Leonards Centre	28 - 34 Clarke Street	Local
Higgins Buildings	366 - 376 Pacific Hwy	Local

## **CONSTRUCTION NOISE AND VIBRATION OBJECTIVES**

#### CONSTRUCTION NOISE CRITERIA

## Rating Background Levels (RBL)

Unattended noise monitoring was completed for the EIS to characterise the existing ambient noise environment of the Crows Nest area prior to construction commencing. Unattended noise monitors were placed at sensitive receiver locations near future construction sites for a minimum period of one week. The location of these noise surveys is shown on the respective figures in Section 10.4 of the EIS.

The results of the unattended noise survey were used to establish Rating Background Level (RBL) for the day, evening and night periods. RBL's are the median value of the average background values for the period over all the days measured. The RBL applicable to Crows Nest are:

Day 59 dB(A);
 Evening 55 dB(A); and
 Night 50 dB(A).

#### Noise management levels (NML)

The following construction noise management levels have been determined by using the Sydney Metro CNVS. See Appendix B for a more detailed summary of the NMLs.

Table 3 – NML summary

Time Period	Area	Receiver Type	Condition	NML	
		IC	CNG		
Day	All	All	CNVS Section 5.3	ICNG (see Appendix B)	
Day OOHW Period 1	All	All	CNVS Section 5.3	ICNG (see Appendix B)	
Evening OOHW Period 1	All	All	CNVS Section 5.3	ICNG (see Appendix B)	
Night OOHW Period 2	All	All	CNVS Section 5.3	ICNG (see Appendix B)	
CSSI-7400					
Day	Identified precincts	All	CSSI-7400 E38	Noise levels are required to be less than L <sub>Aeq(15</sub>	





Time Period	Area	Receiver Type	Condition	NML
	(inc. Crows Nest)			minute) 60 dB(A) for at least 6.5 hours between7am
Evening 6pm to 8pm (E1)	·	All		and 8pm, of which at least 3.25 hours must be below L <sub>Aeq(15 minute)</sub> 55 dB(A). Noise equal to or above L <sub>Aeq(15 minute)</sub> 60dB(A) is allowed for the remaining 6.5 hours between 7am and 8pm.
Evening 8pm to 10pm (E2)		Residential	0001 = 100 = 10	L <sub>Aeq(15minute)</sub> 45 dB(A)
Night 10pm to 7am (N)		Residential	CSSI-7400 E42	(internal)
All	All	All	CSSI-7400 E43	L <sub>Aeq(8hour)</sub> 85 dB(A) (external) near the CCSI

#### NMLs for CoA E37/E38/E41/E42/E43

The Sydney Metro CNVS provides guidance on the required steps to establish the NMLs for different receiver types to address condition E37, E38, E41, E42 and E43. Table 4 below is an extract from the CNVS. This incorporates both airborne and ground-borne noise. The CNVS notes that the overall aim is to not exceed the ICNG NMLs through the application of all feasible and reasonable noise mitigation measures.



Table 4 - Noise criteria applicable under the CoA for the Project

	man approact arract		. 0,000	
Area	Receiver Type	Approval	Time Period	Criteria
Identified Precincts <sup>1</sup>	All	E38	7am to 8pm	L <sub>Aeq(15minute)</sub> 60 dB(A) internal, more than 50% of time (6.5 hours total)
				L <sub>Aeq(15minute)</sub> 55 dB(A) internal, more than 25% of time (3.25 hours total)
Non- residential	Residential	E41	8pm to 9pm	L <sub>Aeq(15minute)</sub> 60 dB(A) internal
Zones <sup>2</sup>			9pm to 7am	L <sub>Aeq(15minute)</sub> 45 dB(A) internal
Residential Zones <sup>2</sup>	Residential	E42	8pm to 7am	L <sub>Aeq(15minute)</sub> 45 dB(A) internal
All	All	E43	All	L <sub>Aeq(8hour)</sub> 85 dB(A) near the CSSI

## Respite for high noise impact works

The daytime works require assessment against the requirements of CoA E37 and E38. Consultation will be undertaken with receivers predicted to experience internal noise levels greater than  $L_{Aeq(15minute)}$  60 dB(A) between 7am and 8pm. The following process has been used to identify the relevant receivers:

- For residential receivers, the equivalent external NML is based on a 10 dB(A) minimum (conservative) difference between external and internal noise levels (assuming windows open).
- For non-residential receivers with light weight glazing, the equivalent external NML is based on a 20 dB(A) minimum (conservative) difference between external and internal noise levels (assuming windows closed).
- For non-residential receivers with heavy glazing, the equivalent external NML is based on a 25 dB(A) minimum (conservative) difference between external and internal noise levels (assuming windows closed).
- Where additional information is available (e.g. if residential or non-residential properties have been acoustically treated), alternative outdoor to indoor noise difference will be determined to establish the equivalent external noise threshold.
- Receivers where noise is predicted to be above the equivalent external NML are identified in Appendix D as requiring consultation.

The adopted difference between external and internal noise levels is identified in Appendix D.

#### Residential receivers in residential and non-residential zones (CoA E41 and E42)

CoA E41 requires that internal noise levels at residential receivers within non-residential zones are not above the following (including a 5 dB(A) penalty if considered an annoying activity).

- L<sub>Aeq(15minute)</sub> 60 dB(A) between 8pm and 9pm
- L<sub>Aeq(15minute)</sub> 45 dB(A) between 9pm and 7am

CoA E42 requires that internal noise levels at residential receivers within residential zones are not above L<sub>Aeq(15minute)</sub> 45 dB(A) (inclusive of a 5 dB(A) penalty if considered an annoying activity) between 8pm and 7am.

Where the internal NMLs cannot be achieved, additional mitigation must be offered in accordance with Addendum A of the Sydney Metro CNVS. Addendum A of the Sydney





Metro CNVS also notes that zoning will be used to identify if residential receivers are located within residential or non-residential zones.

Figure 1 is an extract from the North Sydney Local Environmental Plan 2013 land zoning map LZN\_001 (accessed 4/12/2020). Figure 2 is an extract from the Lane Cove Local Environmental Plan 2009 land zoning map LZN\_004 (accessed 4/12/2020). Red and pink areas (R2, R3 and R4) indicate residential zones. As shown in Figure 1, the nearest residential receivers are in a mixed-use zone (B4 Mixed Use).

For this assessment however, all residential receivers are conservatively assumed to be in residential zones, with a corresponding internal NML of LAeq(15minute) 45 dB(A) between 8pm and 7am.

Based on a minimum (conservative) external to internal noise difference of 10 - 20 dB(A) (based on the assumptions in Section 0), an equivalent external NML of  $_{LAeq(15minute)}$  55 - 65 dB(A) typically applies between 8pm and 7am. Where noise is above this level, additional mitigation will be considered in accordance with CoA E42 and the Sydney Metro CNVS.

The assessment in Section 0 has assessed all receivers using the approach outlined in the Sydney Metro CNVS and CNVMP which achieves the requirements of CoA E41 and E42, and is consistent with the ICNG and the EIS. Details of additional mitigation measures are in Appendix E.

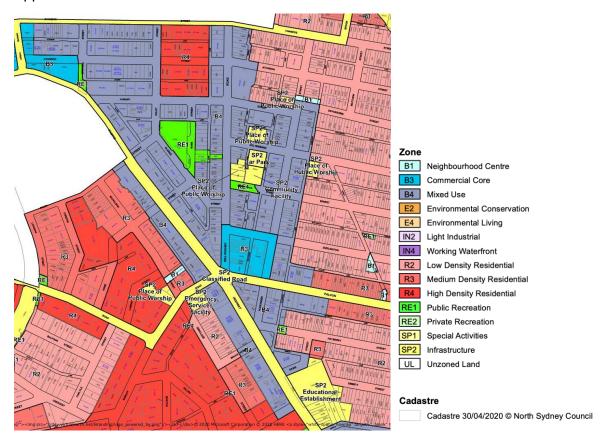


Figure 1- Extract from North Sydney Local Environmental Plan 2013 land zoning map LZN\_001



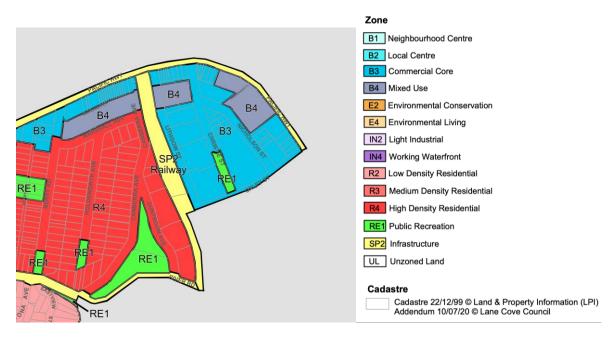


Figure 2 - Extract from Lane Cove Local Environmental Plan 2008 land zoning map LZN\_004

#### Sleep disturbance

Sleep disturbance is relevant for the Extended Work Hours which is assessed in Appendix C.4 of this document.

#### National Standard for exposure to noise

In accordance with CoA E43, the worksites will be managed to ensure that noise generated by construction will not be above the National Standard for exposure to noise in the occupational environment of an eight-hour equivalent continuous A-weighted sound pressure level of LAeq,8h, of 85 dB(A) for any employee working at a location near the worksites.

## Construction related road traffic noise objectives

On the roads immediately adjacent to construction sites, the community may associate heavy vehicle movements with works related to the Project. Construction traffic movements on public roads will aim to limit any increase in existing road traffic noise levels to no more than 2 dB(A). All feasible and reasonable noise mitigation and management measures will be implemented.

#### VIBRATION CRITERIA

As reported in Section 4.6 of the CNVMP, construction vibration criteria have been determined in accordance with CoA E28 and the Sydney Metro CNVS as follows:

- Human annoyance the acceptable vibration values set out in 'Assessing Vibration:
   A Technical Guideline' (Department of Environment and Conservation, 2006); and
- Structural damage the vibration limits set out in the British Standard 7385 Part 2 (1993).

## Disturbance to building occupants (human annoyance)

The ICNG recommends that vibration from construction works be assessed under the EPA's Assessing Vibration – a technical guideline (the Guideline). The vibration assessment criteria defined in this guideline are for human comfort and represent goals that, where predicted or





measured to be exceeded, require the application of all feasible and reasonable mitigation measures. Where the maximum value cannot be feasibly and reasonably achieved, the operator would need to negotiate directly with the affected community.

The Guideline defines vibration assessment criteria for continuous, impulsive and intermittent vibration. Vibration can be classified according to the following definitions:

- Continuous vibration: continues uninterrupted for a defined period. Applies to continuous construction activity such as tunnel boring machinery.
- Impulsive vibration: rapid build-up to a vibration peak followed by a damped decay or the sudden application of several cycles of vibration at approximately the same magnitude providing that the duration is short. Applies to very occasional construction activities that create distinct events such as the occasional dropping of heavy equipment.
- Intermittent vibration: interrupted periods of continuous vibration (such as a drill) or repeated periods of impulsive vibration (such as a pile driver).

Most of the construction works as part of the proposal would be expected to be intermittent in nature with the potential for some impulsive activities (e.g. demolition works).

Table 5 presents the management levels for continuous and impulsive vibration at different land uses. The management levels specified are as overall unweighted Root-Mean-Square vibration velocity levels (Vrms). The Guideline specifies the management levels as suitable for vibration sources predominantly in the frequency range 8-80 Hz as would be expected for construction vibration.

Table 5 - Daytime V<sub>rms</sub> management levels for continuous and impulsive vibration

	Continuous v	vibration V <sub>rms</sub> ,	Impulsive vi	bration V <sub>rms</sub> ,
Receiver	mı	m/s	mm/s	
	Preferred	Maximum	Preferred	Maximum
Residences – daytime	0.2	0.4	6	12
Residences – night-time	0.14	0.28	2	4
Offices, schools, place of worship	0.4	0.8	13	26
Workshops	0.8	1.6	13	26

For intermittent vibration, the Vibration Dose Value (VDV) is used as the metric for assessment as it accounts for the duration of the source, which will occur intermittently over the assessment period. The VDV management levels at different land uses for intermittent vibration sources are presented in Table 6.

Table 6 - VDV management levels for intermittent vibration

Receiver	VDV Intermittent vibration m/s <sup>1.75</sup>	
Neceivei	Preferred	Maximum
Residences – daytime	0.2	0.4
Residences – night-time	0.14	0.28
Offices, schools, place of worship	0.4	0.8
Workshops	0.8	1.6

## Cosmetic and structural damage to buildings

The DIN 4150-3 structural and cosmetic damage assessment criteria for different types of buildings are presented in Table 7. The criteria are specified as Peak Particle Velocity (PPV) levels measured in any direction at or adjacent to the building foundation.





DIN 4150-3 states that exposing buildings to vibration levels higher than that recommended in Table 10 would not necessarily result in damage. Rather it recommends these values as maximum levels of short-term construction vibration at which experience has shown that damage that reduces the serviceability of structures will not occur due to vibration effects.

DIN 4150-3 is suitable for the assessment of both structural and cosmetic damage, as the standard considers a reduction in serviceability of the structure is deemed to have occurred if:

- Cracks form in plastered surfaces of walls.
- Existing cracks in the building are enlarged.
- Partitions become detached from loadbearing walls or floors.

Table 7 – DIN4150-3 Structural and Cosmetic Damage Criteria

Table 7 - DIN4150-3 Structural and	Cosmetic Damage	Criteria		
	Pe	eak Particle Ve	locity (PPV) m	ım/s
	Fo	undation of struct	ture	Vibration at
Receiver	< 10 Hz	10-50 Hz	50-100 Hz	horizontal plane of highest floor at all frequencies
Buildings used for commercial, industrial purposes, industrial buildings and buildings of similar design	20	40	40 to 50	40
Dwelling and buildings of similar design and/or use	5	15	15 to 20	15
Structures that, because of their particular sensitivity to vibration, do not correspond to those listed in rows 1 and 2, and are of great intrinsic value (e.g. heritage-listed buildings)	3	8	8 to 10	8

The guideline values from BS7385 relating to cosmetic damage from transient vibration are reproduced in Table 8.

Table 8 - Criteria for transient vibration resulting in cosmetic damage

Receiver		velocity in frequency range of inant pulse		
	Frequency range			
	4 – 15 Hertz (Hz)	15 Hz and above		
Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at	4 Hz and above		
Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz		

Note that there are more conservative screening criteria for intermittent vibration sources such as rock breakers, piling rigs, vibratory rollers, excavators and the like. The predominant vibration energy occurs at frequencies greater than 4 Hz (and usually in the 10 Hz to 100 Hz range). Below are the conservative vibration screening levels:

- Reinforced or framed structures: 25 mm/s
- Unreinforced or light framed structures: 7.5 mm/s



## Heritage

As noted in the CNVMP, the approach to manage potential vibration impact shall be to:

- Identify heritage items where vibration levels may be above the 2.5 mm/s peak component particle velocity objective during specific construction activities;
- Structural engineering report to be undertaken on identified heritage items, to confirm structural integrity of the building and confirm if item is 'structurally sound';
- If item confirmed as 'structurally sound', the screening criteria in Table 8 shall be adopted; or
- If item confirmed as 'structurally unsound', the more conservative cosmetic damage objectives of 2.5 mm/s peak component particle velocity would be adopted.

## **Sensitive Scientific and Medical Equipment**

Proposed works will take place in proximity to Crows Nest Day Surgery (22 Clarke Street), which is used for dental and eye surgery. Operating hours are 7am to 5pm, Monday to Friday, and operations are generally confirmed three days in advance. A draft property assessment commissioned by Transport for NSW adopted a screening criterion of 0.025 mm/s (VC-B criterion from ASHRAE) for eye surgery procedures and 0.1 mm/s for other surgery procedures. Consultation with the surgery is needed, to make sure that construction activities do not generate unacceptably high noise or vibration levels when operating theatres are in use.

#### Utilities and other vibration sensitive structures

The presence of nearby utilities or vibration sensitive structures should be investigated prior to undertaking the works. If any utilities or other vibration sensitive structures are identified, relevant vibration criteria will be established for each item per the below paragraphs or as negotiated with asset owners.

Some structures and utilities located near the Project may be particularly sensitive to vibration. A vibration goal which differs from the cosmetic damage goals presented in Section 0 may need to be adopted. Examples of such structures and utilities include:

- Tunnels
- Gas pipelines
- Fibre optic cables

The British Standard BS 7385-2:1993 'Evaluation and measurement for vibration in buildings-Part 2: Guide to damage levels from ground-borne vibration' notes that structures below ground are known to sustain higher levels of vibration and are very resistant to damage unless in very poor condition (British Standard BS 7385-2:1993, p5). Further guidance is taken from the German Standard DIN 4150: Part 3-1999.02 'Structural vibration in buildings - Effects on Structures'. Section 5.3 of DIN 4150: Part 3 sets out guideline values for vibration velocity to be used when evaluating the effects of vibration on buried pipework. Table 9 presents the initial reference guideline for utilities and other buried pipework to evaluate the effects of short-term vibration impact. Specific vibration goals should be determined on a case-by-case basis as part of this CNVIS.

Table 9 - DIN 4150-3 Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on buried pipework

Line	Pipe Material	Guideline values for vibration velocity measured on the pipe
1	Steel (including welded pipes)	100 mm/s
2	Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange)	80 mm/s
3	Masonry, plastic	50 mm/s





Note: rock breaking/hammering and sheet piling activities have the potential to cause dynamic loading in some structures and it may therefore be appropriate to reduce the transient values by 50%.

## CONSTRUCTION NOISE ASSESSMENT

## **DETAILED DESIGN OUTCOMES**

Key noise mitigation measures at the sites are included in the noise model results in this report and include an approximate 2.4 m high noise barrier around the site. In addition, the primary concrete pouring location on Clarke Lane will be within an enclosure (gantry hoarding) and there will be a container walk between construction Site A and the buildings along Clarke Lane. This measure extends the height of the noise barrier in the area adjacent to 20 Clarke Lane.

#### NOISE PREDICTION METHODOLOGY

A 3D noise model has been developed using SoundPLAN v8.2 to assess the likely impacts of the construction works/activities that are to be conducted during the construction phase of the Project. This acoustic modelling considers the following:

- Local topography
- Ground absorption
- ISO 9613 Standard for environmental noise
- Indicative building footprints and heights
- Distance between sources and receivers
- Attenuation from barriers (natural and purpose built)

The plant and equipment used for the work activities are shown in Appendix A. Noise source locations are shown in Figure 3. The location where structure construction works will take place outside of standard construction hours is presented in Figure 5.

Track laying and Mechanical and Electrical Fitout works to be completed by Linewide will occur at track level as shown in Figure 4. Station floors will be progressively constructed with a plan view shown in Figure 4. The station floors have been considered in the noise predictions for below ground works. Linewide works will also include logistics related activities such as material deliveries some of which will occur at street level.

Other works could occur over the footprint of Site A, B and C.

## AW EDWARDS



Figure 3 - Work activity locations





Figure 4 - Linewide works and Station floor



Figure 5 – Structure Construction OOH Work Locations

#### PREDICTED NOISE LEVELS

#### Construction

Noise Levels have been predicted, assuming highest impact locations and elevations, for the following activities:

- 1b) Linewide works evening most highly noise intensive activity assessed at the bottom of the pits with floor slab at surface included in the noise model.
- 1c) Linewide works night most highly noise intensive activity assessed at the bottom of the pits with floor slab at surface included in the noise model.
- 2a) Structure Construction (incorporating waterproofing, rigging work, structural steel installation, steel fixing and form work) sites A, B & C – works assessed at the surface at Site A and Site C but below surface at Site B.
- 2b) Structure Construction OOH (incorporating waterproofing, rigging work, structural steel installation, steel fixing and form work) sites A, B & C Refined work areas and limited plant and equipment. Works assessed at the surface at Site A and Site C but below surface at Site B, refer to Figure 5 above for work locations.
- 3) Mobile Cranes around the perimeter of sites A, B & C works assessed at six locations at the surface.
- 4) Ventilation assessed as an area source at the surface.
- 5) Tower Cranes 2, 3 and 4 assessed at sites A, B & C.
- 6) Concrete Pouring assessed as occurring across five locations at the surface.
- 7) Delivery Day/Evening. Works assessed along Pacific Highway.
- 8) Delivery Night. Works assessed along Pacific Highway.

#### **Construction Noise and Vibration Impact Statement**



- 9) Services, finish, fitout sites A, B & C works assessed 3m below surface and below slab. Works are to be below slab or enclosed.
- 10) Landscaping and Public domain works works assessed at the surface.
- 11) Demolish ground retention walls works assessed at the surface.
- 12) Girder deliveries.

Floor slabs for sites A & B have been included in the modelling for Linewide works and are shown along with the Linewide works in Figure 4. The floor slab at the surface has been included in the modelling for Sites A, B and C for the other scenarios.

Noise level predictions have been carried out for selected enclosed activities and are shown in an additional column in Appendix C1-4 and Appendix D1-3. These activities have been modelled at a depth of 4 m and below the floor slab situated at the surface.

The verified SWLs for tower cranes and excavators operating have been included in the modelled scenarios for these activities<sup>2</sup>.

A reduction in noise levels ranging between 2 dB and 15 dB is predicted at nearby sensitive receivers when works occur beneath a floor slab. The predicted noise level reduction depends on the proximity to penetrations, building orientation and other factors. Noise level reductions are typically higher for noise sensitive receivers located remote from penetrations. The presented predicted noise levels represent the highest noise level that would occur when works are occurring directly adjacent to the sensitive receiver. In reality, noise levels will not be at a maximum all of the time for a given scenario and sensitive receiver location. These levels would fluctuate based on the location of works at a given point in time. Levels experienced at ground level are likely to be lower at times due to reduced line of sight to the source.

A summary of the proposed out of hours works, justification and approval pathway is provided in Table 10. It should be noted that the justification provided includes a summary of predicted noise levels relevant to the approval pathway for the works to provide context for the expected level of noise impact and management approach.

Table 10 – Proposed Out of Hours Works, Justification and Approval Pathway

OOH **OOH Period Approval Activity** Period **Justification** pathway 1 2 Due to the station design, large concrete pours are required for certain structural elements. These elements must be poured on a single occasion as the integrity of Concrete pumping the concrete will be compromised E44 (f) and pouring if the element is not completed due to the potential formation of a 'cold joint'. Once a pour commences it cannot be stopped until the pour is complete.

<sup>&</sup>lt;sup>2</sup> Resonate undertook verification monitoring of rock breaking during detailed excavation (February 2021). A sound power level of 118 dB was calculated for the activity, which corresponds with the sound power level used in the CNVIS



Activity	OOH Period 1	OOH Period 2	Justification	Approval pathway
			There are five available concrete pouring locations across the site, each of which have been independently assessed. Whilst there are NML exceedances predicted during each of the OOH Daytime and Evening period, the following observations are made:  - Exceedances between 1 dB to 5dB at between 0 and 4 residential receivers during the OOH Daytime period.  - Exceedances between 1 dB and 13 dB at between 1 and 6 residential receiver locations depending on the location of the pour during the OOH Evening Period.  - Exceedances between 1 dB and 18 dB at between 5 and 12 residential receiver locations depending on the location of the pour during the OOH Night-time Period. Concrete pours will not	
Concrete finishing	<b>√</b>	✓	take place during the night period.  Cannot stop pouring, cold pours impact structural integrity.  Please refer to Concrete Pouring	E44 (f)
Linewide works (tunnel and station fitout)	✓ ✓	Approval.  Noise leveless than as works and slab I proximity surface madditional provided i Works wo from large	and Pumping justification.  rmitted under the Planning  els are generally predicted to be the NML during all OOHW periods will be conducted below ground level. Works occurring in close to large penetrations near the nay exceed the NMLs at times and I mitigation measures will be in accordance with the CNVMP. buld be scheduled to occur away expenetrations where reasonable ble to do so.	E48 (d)
Station services and finishes fitout	✓	<b>√</b>	24-hrs permitted under the Planning Approval.  Noise levels are generally predicted to be less than the NML during all OOHW periods as works will be conducted below	E48 (d)



Activity	OOH Period 1	OOH Period 2	Justification	Approval pathway
		_	ground and slab level. Works occurring in close proximity to large penetrations near the surface may exceed the NMLs at times and additional mitigation measures will be provided in accordance with the CNVMP. Works would be scheduled to occur away from large penetrations during out of hours periods.  24-hrs permitted under the	
Delivery of materials	<b>✓</b>	<b>√</b>	Planning Approval.  Noise levels are generally predicted to be less than the NML during all OOHW periods with the exception of the nearest receivers directly opposite the site on Pacific Highway. Deliveries will be scheduled to occur during normal work hours where reasonable and feasible to do so and additional mitigation measures will be provided in accordance with the CNVMP where OOH deliveries are required.	E48 (e)
Oversize and over mass deliveries	✓	✓	Road safety. The delivery vehicles require out of hours works due to road safety reasons. Indicative predicted noise levels for Girder Deliveries are provided in Appendix C and D for reference. NML exceedances are predicted for these deliveries however it must be noted that these deliveries would not be routine. These would include the use of Tower Cranes in addition to the delivery trucks.	E44 (a) and E44 (f)
Structure Construction (waterproofing, rigging work, structural steel installation, steel fixing and form work)	✓		Structure construction during the OOH Day and evening period will be carried out with a refined plant/equipment list. These woks will also be carried out in a reduced area as shown in Figure 5 above. Structure construction will not take place during the night period.  Noise levels are predicted to be less than the OOH Daytime and Evening NMLs for Site A, B and C. Refer to Appendix H for further details relating to the structure construction scenario.	E44 (d)



Activity	OOH Period 1	OOH Period 2	Justification	Approval pathway
Mobile cranes at surface			<ul> <li>Mobile crane noise levels are predicted to be less than NML at all residential receivers during the OOH daytime and evening period.</li> <li>An NML exceedances of 2 dB is predicted at 1no. receiver when the mobile crane is operated at Location 2 and an exceedance of 1 dB is predicted at 1no. receiver when the mobile crane at Location 4 is operating.</li> <li>NML exceedances ranging between 1 dB and 22 dB are predicted at three adjacent non-residential recording studio receivers during the OOH Daytime Period. These receivers are unlikely to be open and operational during the daytime on a Sunday. Works would not proceed where verification monitoring demonstrates an NML exceedance or where the receiver is operational.</li> </ul>	E 44 (d)
Tower cranes			- Tower crane noise levels are predicted to comply the residential Daytime OOH NML at all receiver locations with the exception of one location where a 2 dB exceedance is predicted (22-26 Clarke Street directly opposite Tower Crane 2 in Site A). It is considered reasonable to allow the use of tower cranes during the Daytime OOH period where verification monitoring demonstrates compliance with the NML Tower Crane noise levels are predicted to exceed the OOH Evening NML by up to 6 dB at up five locations during the evening period.	E44 (a) and E44 (f)



Activity	OOH Period 1	OOH Period 2	Justification	Approval pathway
			- NML exceedances up to 22 dB are predicted at four adjacent non-residential recording studio receivers during the OOH Daytime Period. These receivers are unlikely to be open and operational during the daytime on a Sunday.	
Façade works	✓		Façade works as an isolated task has a sound power level that aligns with structure construction including the use of the same equipment set.	E 44 (d)

During some out of hours works, the operation of a tower crane may be required. The TC2 tower crane has received the following acoustic treatments:

- Fixing sound proofing barrier to house.
- Fitting 8 inch Cowl Muffler Residential critical class.
- Fitting shroud in front of radiator to deflect any noise in the upward direction.
- TC3 will also have a shroud installed in front of radiator to deflect any noise in the upward direction. Noise verification monitoring will take place to confirm the attenuation achieved once this shroud is installed.
- TC4 does not have attenuation measures in place but is not proposed to be used during OOH periods.

The sound power level (SWL) of the tower cranes TC3 and TC2 has been measured on site and verified by A W Edwards.

A tower crane noise verification report was prepared by A W Edwards and submitted by Sydney Metro to the Department of Planning, Industry and Environment (DPIE) on 28 April 2021. DPIE confirmed on 13 May 2021 that they had no comments on the report. An updated tower crane noise verification report which captures recent verification data of tower crane 2 is in Appendix G.

#### **ICNG** standard hours

The detailed noise level predictions at all potentially affected receivers are presented in Appendix C.1.

A list of receivers requiring consultation for various stages of work are presented in Appendices D.1, D.2, D.3.

In summary, several receivers require letterbox drops and verification monitoring during the standard hours works as shown in Appendix D.1.

It is noted that there will be minor road works in different locations in the local area starting from November 2021 – May 2023.

#### **ICNG OOHW**





The detailed noise level predictions at all potentially affected receivers are presented in Appendix C.1(b), C2 and C3 for the daytime, evening and night-time respectively. A detailed discussion of noise levels relevant to works that are proposed to be conducted in full or in part during OOH is provided in Table 10. All works scenarios are included in Appendix C and D for reference however it must be noted that not all works are proposed to be completed OOH.

When assessing the predicted noise levels the most conservative NML has been applied, for example, properties with both commercial and residential receivers are assessed as commercial during the day and residential during the night.

## In Summary:

Where ICNG NMLs have not been achieved for a proposed activity on the site, all reasonable and feasible noise mitigation and management measures would be implemented. These mitigation and management measures are discussed in Section 0.

Where the ICNG NMLs are exceeded, the PPA Conditions allow for assessment against equivalent external NMLs. Effectively these NMLs allow for a more accurate representation of the façade transmission loss of sensitive receivers to be accounted for. Therefore, additional mitigation measures (in accordance with the CNVS) have been determined based on these NMLs which account for the additional level of mitigation afforded by the more accurate representation of the façade transmission loss at sensitive receiver locations, noting that the ICNG conservatively assumes that all sensitive receivers would have a 10 dB façade transmission loss.

Works during 7am to 8pm day/evening period CoA E37/E38 (all sensitive receiver types) **Error! Reference source not found.**. The detailed noise level predictions at all potentially affected receivers are presented in Appendix D.1. Where the measured or predicted noise levels are above the equivalent external NML, consultation will be undertaken with affected receivers to determine appropriate hours of respite in accordance with CoA E38.

A list of receivers requiring consultation for various stages of work is presented in Appendices D.1, D.2, D.3.

In summary, the properties predicted to exceed the internal noise limits by more than 10 dB at some stage will require to be consulted.

## Works during evening period CoA E41/E42 (residential receivers only)

The noise impacts for the OOHW listed below were assessed against CoA E41 and E42 (refer Appendix D.2):

- 1b) Linewide works evening
- 2b) Structure Construction OOH
- 3) Mobile Cranes
- 4) Ventilation
- 5) Tower Cranes
- 6) Concrete Pour
- 7) Delivery Day/Evening
- 9) Services, finish, fitout
- 12) Girder delivery (over size over mass delivery)





The noise impacts of the above listed activities occurring during the evening period, from 6 pm to 10 pm, have been assessed. Where levels are predicted to exceed the internal NMLs cited in CoA E41 and E42, additional mitigation measures are required.

The detailed noise assessment results for the works to be undertaken during the evening period are presented in Appendix D.2.

However, it should be noted that these measures would only apply where approved OOHW as described in Table 10 are active or proposed.

## Works during night-time period CoA E41/E42 (residential receivers only)

The noise impacts for the OOHW during the night period were assessed against CoA E41 and E42 (refer Appendix D.3):

- 1c) Linewide works Night
- 2b) Structure Construction OOH
- 3) Mobile Cranes
- 4) Ventilation
- 5) Tower Cranes
- 6) Concrete Pour
- 7) Delivery Night
- 9) Services, finish, fitout
- 12) Girder delivery (over size over mass delivery)

The noise impacts of the above listed activities occurring during the night period, between 10 pm and 12 am, have been assessed. Where levels are predicted to exceed the internal NMLs cited in CoA E41 and E42, additional mitigation measures are required.

The detailed results for the night works are presented in Appendix D.3.

However, it should be noted that these measures would only apply where approved OOHW as described in Table 10 are active or proposed.

## Sleep disturbance

Maximum noise levels during the night-time period may potentially cause sleep disturbance at nearby residential receivers. The following works listed in Table 11 would potentially occur during the night period, up to 12 am. The number of residential receivers by activity which are predicted to exceed the sleep disturbance criterion for each construction activity are listed in Table 11 below. The detailed noise level predictions at all potentially affected receivers are presented in Appendix C.4, with maximum noise levels assessed against the equivalent external NML [i.e. Night RBL of 50 dB(A) plus 15 dB(A)].

Table 11 – Number of sleep disturbance exceedances

Activity	Residential receivers exceeding sleep disturbance criterion
1c - Linewide works night	1
3b - Mobile Cranes (locations 2, 3, 4, 5, 6 and 7)	0
4 - Ventilation	0
5 - Tower Cranes	1





Activity	Residential receivers exceeding sleep disturbance criterion
6 - Concrete Pour (locations 1, 2, 3, 4 and 5)	5
8 - Delivery – Night	0
9 - Services, finish, fitout	7 (0 where works occur away from large ground slab penetrations)
12 – Girder deliveries - Night	1

However, it should be noted that the above would only apply where approved OOHW as described in Table 10 are active or proposed during the night-time period.

#### NOISE MITIGATION AND MANAGEMENT

#### Consultation with affected receivers

CoA E33 and E38 requires consultation with affected receivers to assist in determining site specific mitigation measures and to understand stakeholders' noise and vibration expectations and preferences for timing of high impact noise respite.

The sensitive receivers requiring consultation in accordance with CoA E34 and E38 for standard hours construction works is provided in Appendix D.1 in this current version L of this CNVIS. Consultation with previously identified receivers commenced in January 2021, and responses to date reflect a community noise profile with a higher tolerance to construction noise, most likely due to the construction activities that have occurred on the site since 2017.

Consultation has been in accordance with the communication and engagement approach stated in the Crows Nest Community Communications Strategy (CCS), which includes face to face briefings/door knocks, letterbox drops, newsletters, notifications and progress updates.

Consultation per E38, specifically targeting sensitive receivers identified per E37, commenced on 3 February 2021. During this consultation, A W Edwards sought feedback from all applicable receivers of the following respite periods that would be implemented when using high noise generating or annoying equipment:

- Monday to Friday, high noise activities between 8am 11am, 12pm 3pm and 4pm 6pm. Respite periods would be before 8am and between 11am-12pm, 3pm 4pm.
- On Saturday high noise activities would be limited to 8am 11am.

None of the receivers consulted per E38 queried the proposed respite periods or requested alternative periods. A digital copy of the notifications that were provided to all receivers is shown in Figure 6.





## **City & Southwest**

3 February 2021

#### Good afternoon

We came by your property today to discuss upcoming work at the Crows Nest Station site. As notified in our February 2021 Project Update, excavation of footings and services will be carried out within the site in February during standard construction hours (7am to 6pm Monday to Friday and 8am to 1pm on Saturdays). This work will commence next Thursday 11 February 2021 and is expected to take approximately three months to complete.

This work will be of high noise and you may feel some minor vibration. Mitigation measures will be applied to reduce noise impacts associated with this activity. This will include restricting rock hammering and saw cutting to three hour work blocks, with a one hour break in between as follows:

- Monday to Friday high noise activities from 8am to 11am, 12pm to 3pm and 4pm to 6pm
- · Saturday high noise activities from 8am to 11am
- . other activities will be undertaken during break periods, however they will not lead to high noise impacts.

Although vibration may be felt, vibration levels will be minor and will have no impact to surrounding properties.

If you have any queries about this work including the respite periods, please contact us via the methoods below.



Figure 6 Consultation undertaken per E38

Where face-to-face interactions with sensitive receivers near the site has occurred, receivers have not had any issues with the proposed works, proposed working hours or respite periods.

#### Standard noise control measures

Standard noise control measures which are incorporated on site are outlined in Table 12 below.

Table 12 - Standard mitigation measures to reduce construction noise and vibration

ACTION REQUIRED	APPLIES TO	DETAILS
Management Measures		
Condition E38 requires consultation with all receivers identified with Condition E37 with the objective of determining appropriate hours of respite.	Airborne noise Ground-borne noise and vibration	All receivers included that exceed the criterion Leq(15 minute) 60 dB(A) inclusive of a 5 dB penalty, if rock breaking or any other annoying activity likely to result in regenerated (ground-borne) noise or a perceptible level of vibration is planned (including works associated with utility adjustments), between 7am – 8pm.
Timing of works	Airborne noise Ground-borne noise and vibration	Saw cutting and breaking for OOH local area and utility works to be preferentially scheduled for daytime, minimised evenings and all efforts made to avoid night-time post-midnight.
Implementation of any project specific mitigation measures required	Airborne noise Ground-borne noise and vibration	In addition to the measures set out in this table, any project specific mitigation measures identified in the environmental assessment documentation (e.g. EA, REF, submissions or representations report) or approval or licence



<b>ACTION REQUIRED</b>	APPLIES TO	DETAILS
		conditions must be implemented. An example of project specific mitigation undertaken is that wire sawing will be used during capping beam demolition <sup>3</sup> . Further site specific mitigation measures are described in Section 5.4.3 below.
Implement community consultation measures	Airborne noise Ground-borne noise and vibration	<ul> <li>Periodic Notification (monthly letterbox drop)</li> <li>Website</li> <li>Project information and construction response telephone line</li> <li>Email distribution list</li> <li>Place Managers</li> </ul>
Register of Noise Sensitive Receivers	Airborne noise Ground-borne noise and vibration	A register of all noise and vibration sensitive receivers (NSRs) would be kept on site. The register would include the following details for each NSR:  - Address of receiver - Category of receiver (e.g. Residential, Commercial etc.) - Contact name and phone number
Site inductions	Airborne noise Ground-borne noise and vibration	All employees, contractors and subcontractors are to receive an environmental induction. This induction must at least include:  - All relevant project specific and standard noise and vibration mitigation measures  - Relevant licence and approval conditions  - Permissible hours of work  - Any limitations on noise generating activities with special audible characteristics  - Location of nearest sensitive receivers  - Construction employee parking areas  - Designated loading/unloading areas and procedures  - Site opening/closing times (including deliverables)  - Environmental incident procedures
Behavioural practices	Airborne noise	No swearing or unnecessary shouting or loud stereos/ radios on site.  No dropping of materials from height, throwing of metal items and slamming of doors.  No excessive revving of plant and vehicle engines.  Controlled release of compressed air.  Plant and equipment to be operated in a proper and efficient manner. Activities to be carried out in a competent manner (e.g. no
Monitoring	Airborne noise	skylarking, no deliberate noise generation.)  A noise monitoring program is to be carried out for the duration of the works in accordance with the Construction Noise and Vibration

 $<sup>^{\</sup>rm 3}$  This method cannot be used in entirety; for this reason the worst case scenario of using rock breakers has been modelled



ACTION REQUIRED	APPLIES TO	DETAILS
	Ground-borne noise and vibration	Management Plan and any approval and licence conditions.

## **Project specific mitigation**

Outlined below are some of the specific mitigation measures which are imbedded in each activity, these are in addition to the standard mitigation measures outlined in Table 11, the detailed design outcomes described in Section 5.1 and the additional noise mitigation measures described in Section 5.4.4:

- Structure Construction A reduced plant and equipment list will be utilised during OOH periods. The work locations during these times has also been reduced as per Figure 5.
- Waterproofing Electric EWPs are used where reasonable and feasible.
- Steel fixing Reinforcing steel comes to site pre-cut and pre-bent which minimises the need for power tools on site.
- Placing shutters Shutters are fabricated in the station box thus removing the requirement for night-time over-size over-mass deliveries.
- Form work form work is reused on site thus reducing the need for deliveries to site.
   Formwork is also delivered to site at appropriate lengths to minimise the use of power tools on site.
- Logistics and materials TC2 is equipped with a residential grade muffler and the engine is attenuated with a shroud to reduce the noise from this activity. A shroud will also be fitted to the engine of TC3. Sound barriers are in place at the primary concrete pouring location to reduce the noise impact from this activity. Concrete agitators arrive on site sequentially to prevent more than one agitator idling while a pour is occurring. Where possible for concrete finishing works, electric concrete vibrators are used instead of petrol vibrators.
- Piling rig A bored piling rig will be used as a less noisy alternative to pile driving.
- Services, finishes and fitout These activities are carried out beneath a floor slab within an enclosed area which attenuates any noise impacts.
- Landscaping and public domain works The use of 'annoying activities' will not be carried out outside of standard construction hours when not required by a third-party approval.
- Partially demolish ground retention walls Wire sawing will be used during capping beam removal whenever reasonable and feasible, this will be a less intrusive alternative to using rock breakers for the duration of the works.

Real-time noise monitoring at 28 Clarke Street will send an email and text alert if the measured noise level exceeds 80 LAeq(15min). Alerts will be sent to supervising staff of the works and the environment team. Work will cease and the methodology will be altered in this scenario.

Another noise mitigating factor to each of the activities listed above, and specific to the project, is the dominant background noise level caused by the Pacific Highway traffic noise. This was measured to be 66 L<sub>Aeq(15 hours)</sub> at the representative sensitive receiver (28-34 Clarke Street) without any construction occurring. This is discussed in more detail in Section 8.

On a relative scale, the works in addition to those permitted under the planning approval are of relatively low intensity as demonstrated by subjective appraisal on site and noise measurements of the following activities:

1. Waterproofing, steel fixing.

#### **Construction Noise and Vibration Impact Statement**



- 2. Logistics and materials.
- 3. Placing shutters.
- 4. Formwork.

All plant and equipment planned to be used on site will have sound power levels equal to or less than those in the CNVS reference list.

Out of hours works are planned wherever possible to:

- 1. Take advantage of the noise barrier effect of the floor slabs where noise levels are demonstrated to be lower in level at sensitive receivers.
- 2. Be conducted nearer to the surface (road level) during the daytime and evening periods with a preference for working below ground level and below floor slabs during the night-time period unless unavoidable for periods where the floor slabs are not yet in place.
- The noise level predictions indicate that noise levels at sensitive receivers are higher when works occur near penetrations in the floor slabs. Works would therefore be conducted at locations remote from penetrations during the night-time period where safe and practical to do so.
- 4. Application of the standard mitigation measures required by the CNVMP in particular for logistics works at the surface to select plant locations on the logistics lanes to maximise distance to sensitive receivers during the night-time period and plant switched off when not in use and vehicles would be switched off when not absolutely required to be operational.

## Additional noise mitigation measures

Additional mitigation measures are described in the Sydney Metro CNVS and Appendix E of this CNVIS. The additional mitigation measures are to be implemented during a project where construction noise and vibration exceedances are still predicted to occur after all reasonable and feasible standard mitigation measures have been implemented. These additional mitigation measures apply to airborne and ground-borne noise and vibration impacts.

The sensitive receivers requiring additional noise mitigation for standard hours construction works are provided in Appendix D.1Error! Reference source not found.

Additional mitigation requirements for the OOH girder delivery scenario will be summarised in each separate and subsequent OOHW Application however indicative additional mitigation requirements are provided in Appendix D.3. The mitigation requirements are likely to include community notifications, verification monitoring and review of a respite regime in the context of the future quantity of OOH deliveries.

Additional mitigation requirements for OOHW unrelated to the girder deliveries are presented in Appendix D.2 Error! Reference source not found.and D.3Error! Reference source not found.

Whilst it is acknowledged that the ICNG NMLs are exceeded, the PPA Conditions allow for assessment against equivalent external NMLs. Effectively these NMLs allow for a more accurate representation of the façade transmission loss of sensitive receivers to be accounted for. Therefore, additional mitigation measures (in accordance with the CNVS) have been determined based on these NMLs which account for the additional level of mitigation afforded by the more accurate representation of the façade transmission loss at sensitive receiver locations, noting that the ICNG conservatively assumes that all sensitive receivers would have a 10 dB façade transmission loss.



## **Noise monitoring**

Attended noise monitoring will be undertaken to verify that noise levels resulting from construction works are not higher than the levels predicted in this CNVIS, subject to obtaining the property owner/occupier's consent to access the property (where required).

Attended noise monitoring will be undertaken during works at one of the representative receivers identified in Table 13 in the NCAs most impacted by the works. Nominated attended measurement locations have been selected with the best opportunity to validate the predicted noise levels.

Table 13 - Nominated verification monitoring locations

NCA	Nominated receiver address	Monitoring location at 1 m from
Α	400 Pacific Highway	North-eastern façade
С	22 Clarke Street	South-western façade facing Clarke Lane
D	29 Hume Street	Western façade
E	473 Pacific Highway	North-eastern façade

Verification monitoring will be in accordance with Appendix A of the Sydney Metro CNVS and section 7.4 of the CNVMP.

If verification monitoring shows that the external noise levels from long-term construction works are consistently above the equivalent external NML, more detailed analysis should be conducted to quantify the building façade loss and the potential for noise to be above the internal NML of 45 dB(A) L<sub>Aeq,15min</sub> specified in CoA E41/E42. If internal noise levels are found to be above 45 dB(A) L<sub>Aeq,15min</sub>, consideration will be given to the provision of atproperty treatments, additional on-site measures or other management measures.

Periodic assessment of plant noise levels will also be undertaken to confirm the plant noise levels are within the maximum noise levels specified in the Sydney Metro CNVS. Plant noise levels that have been verified are presented within Appendix A.

Noise measurements would be reported in accordance with Section 9.2 of the Sydney Metro CNVS.

#### Complaint handling

Section 7.11 in the CNVMP shows how complaints are handled and refers to relevant sections in the CEMP which explains how to record and address complaints.

## CONSTRUCTION VIBRATION IMPACTS

#### MINIMUM BUFFER DISTANCES FOR VIBRATION INTENSIVE PLANT

The main vibration generating equipment to be used as part of the station construction include:

- 24T Excavator with hammer
- Bored piling rig

Potential vibration generated to receivers is dependent on separation distances, the intervening soil and rock strata, dominant frequencies of vibration, and the receiver structure. Unlike noise, vibration cannot be readily predicted. There are many variables from site to





site, such as soil type and conditions, sub surface rock, building types and foundations, and actual plant on site.

The recommended minimum working distances for vibration intensive plant are presented in Table 14 and Table 15. These distances are conservatively based on excavation of hard rock. Buffer distances must be measured on site where plant and equipment are likely to operate close to or within the minimum working distances for cosmetic damage (refer Table 14).

The data relied upon in this assessment (Table 14) is taken from a database of vibration levels measured at various sites or obtained from other sources (such as BS5228-2:2009, TfNSW Construction Noise and Vibration Strategy etc). They are not specific to this project as final vibration levels are dependent on many factors including the actual plant used, its operation and the intervening geology between the activity and the receiver.

Table 14 - Minimum working distances form vibration intensive plant (cosmetic damage)

Plant Item	Minimum Working Distance, m				
	Reinforced or framed structures (e.g. commercial buildings) <sup>1</sup>	st	reinfo or ligh frame tructu (e.g. esiden silding	nt ed res itial	Sensitive structures (e.g. heritage structures) <sup>2</sup>
Excavator with rock hammer (	24t)	5	10	20	
Bored piling rig		5	5	10	

- Note 1: Initial screening test criteria reduced by 50% due to potential dynamic magnification in accordance with BS7385.
- Note 2: In accordance with Section 5.8.1 of CNVMP, a site inspection should determine whether a heritage structure is structurally unsound.

Table 15 - Minimum working distances form vibration intensive plant (human annoyance)

Plant Item		Minimum Working Distance, m				
	Critical	Resid	dences	- Offices <sup>3,4</sup>	Markahana4	
	areas <sup>1,4</sup>	Day <sup>2</sup>	Night <sup>2</sup>	- Offices <sup>e, 1</sup>	Workshops <sup>4</sup>	
Excavator with rock hammer (24t)	60	40	45	25	15	
Bored piling rig	20	10	10	5	5	

- Notes 1: Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.
  - 2: Daytime is 7 am to 10 pm; Night-time is 10 pm to 7am.
  - 3: Examples include offices, schools, educational institutions and place of worship.
  - 4: Applies when in use.
  - 5: Slant distance the shortest distance through ground from source to receiver.

## **VIBRATION ASSESSMENT**

The bulk of excavation has been undertaken during earlier station works but there is some additional excavation planned in Site A and B that may require the use of rock hammers.

#### **Construction Noise and Vibration Impact Statement**



Rock hammers are high vibration generating plant items. High vibration generating works on Site C will be bored piling works.

## Structural damage

CoA E29 requires owners of properties at risk of receiving vibration levels above the screening criteria for cosmetic damage to be notified before the commencement of vibration-generating works.

No sensitive receivers are expected to be within the minimum working distances for cosmetic damage. Monitoring will be undertaken to verify predictions and if screening criteria are likely to be exceeded, alternative construction methods or additional mitigation measures would be investigated.

#### **Human annoyance**

The assessing vibration guideline<sup>4</sup> notes that inside dwellings, adverse comments often arise when occupants can perceive (feel) vibration, particularly when the vibration arises from a source located outside their home (or outside their control) and assume that the vibration has the potential to damage their building or contents.

However, it is noted that vibration levels required to cause minor cosmetic damage are typically 10 x higher than levels that will cause disturbance to building occupants. Many building occupants assume that building damage is occurring when they feel vibration or observe rattling of loose objects, however the level of vibration at which people perceive vibration or at which loose objects may rattle is far lower than vibration levels that can cause damage to structures.

At properties near the worksite, it is likely that the nearest receivers will be able to feel vibration levels when vibration-generating equipment is being utilised. It is noted that the vibratory intensive works, i.e. rock hammering with 24t excavator will occur in locations at the bottom of the station box at a depth of 25 m below ground. Works occurring at this depth means that the slant distance (shortest path through the ground) to the nearest receivers is at least 25 m.

The sensitive receivers predicted to be within the minimum working distances for human annoyance are provided in Table 16.

Table 16 - Receivers predicted to be within the minimum distances for human annoyance

Plant Item	Work site	Properties	Land use
Excavator with rock hammer (24t)		20 CLARKE ST	Recording Studio
		374 PACIFIC HWY	COM and Heritage
		22-26 CLARKE ST	MED, RES and Recording Studio
		28-34 CLARKE ST	MED and Heritage
	A, B, C	348 PACIFIC HWY	RES
		469 PACIFIC HWY	RES
		402-420 PACIFIC HWY	RES
		10-12 CLARKE ST	MED and Recording Studio
		473 PACIFIC HWY	RES
		471 PACIFIC HWY	RES

<sup>&</sup>lt;sup>4</sup> Assessing Vibration: a technical guideline, February 2006





Plant Item	Work site	Properties	Land use
		35 CLARKE ST	EDU
		6-8 CLARKE ST	Recording Studio
Bored piling rig	С	20 CLARKE ST	Recording Studio

# Sensitive equipment

At the Crows Nest Day Surgery (22 Clarke Street), vibration levels are predicted to be above the criteria nominated in Section 4.2.4. Detailed predictions at this location are provided in separate report as part of PPA Condition E34. Consultation with the surgery is needed, to make sure that construction activities do not generate unacceptably high noise or vibration levels when operating theatres are in use.

#### **VIBRATION MITIGATION MEASURES**

If measurement results indicate vibration levels above the objectives for human annoyance at the locations indicated in Table 16 standard vibration control and management measures (Section 6.5 of the CNVMP) will be provided to reduce vibration impacts.

After applying all feasible and reasonable vibration mitigation measures, if vibration monitoring still identifies that measured vibration levels are above the relevant vibration criteria for human annoyance, appropriate additional mitigation measures should be considered as presented in the CNVMP and Appendix E of the CNVIS.

The above assessment is based on vibration-generating equipment operating at the closest location to a receiver. When vibration-generating equipment operates further from the closest point, vibration levels will reduce along with the probability of adverse comment. Attended vibration measurements are proposed to be carried out proactively and in response to vibration complaints.

## **Vibration monitoring**

Attended vibration monitoring is to be undertaken to determine and verify site specific minimum working distances for cosmetic damage and human annoyance. Properties predicted to be located within the minimum working distances for human annoyance are identified in Table 15.

As a minimum, it is recommended that attended monitoring is undertaken at the locations in Table 17 when vibration significant plant items operate close to or within the minimum working distances. Additional monitoring may also be required in response to vibration complaints.

Real-time vibration monitoring in accordance with CoA C11 is proposed for this site and will commence before high vibration generating works commence. Real-time monitoring will be performed at receivers adjacent to the station box, on Clarke Lane and Pacific Highway, depending on owner/occupier consent.

When selecting real-time vibration monitoring locations, consideration will be given to locations which are accessible and where the predicted ground-borne noise and vibration levels are highest.

Real-time vibration monitors have been installed by trained personnel, familiar with the relevant standards and assessment procedures, outlined in Appendix C of the CNVMP.





Attended vibration monitoring is to be undertaken to determine and verify site specific minimum working distances for cosmetic damage and human annoyance.

Table 17 - Attended vibration and GBN monitoring - nominated representative locations

Plant	Work areas	Address <sup>2</sup>	Vibration monitoring	GBN Monitoring
	A, B, C	Crows Nest Day Surgery (dental and eye) L1, 22 Clarke Street	<b>√</b>	✓
Vibration _	А	28-34 Clarke Street <sup>1</sup>	✓	✓
generating equipment	В	Crows Nest Cosmetic and Vein Clinic, Sydney Vasectomy 10 – 12 Clarke Street	✓	√
_	В	473 Pacific Highway	✓	<b>√</b>
_	В	6 – 8 Clarke Street	<b>√</b>	<b>√</b>

Notes: 1. In the event of complaint related to vibration

Noise measurements would be reported in accordance with Section 9.3 of the Sydney Metro CNVS.

# **Complaint handling**

Section 7.11 in the CNVMP shows how complaints are handled and refers to relevant sections in the CEMP which explains how to record and address complaints.

# **GROUND-BORNE NOISE ASSESSMENT**

The bulk of excavation has been undertaken during earlier station works but there is some additional excavation planned in Site A and B that may require the use of rock hammers. Rock hammers are high vibration generating plant items. High vibration generating works on Site C will be the piling works.

#### **GROUND-BORNE NOISE PREDICTION METHODOLOGY**

Ground-borne noise (GBN) levels at receivers around the Crows Nest Station site were predicted based on the slant distance (shortest path through the ground) from the dominant vibration generating item to each receiver. The following GBN significant activities were considered:

- Medium sized rock hammer during standard working hours
- Bored piling rig at Site C during standard working hours
- GBN predictions for rock hammer excavation include a 5 dB penalty
- GBN predictions include a 3 dB(A) safety factor
- Slant distance was assumed to be minimum 25 m (the current depth of the station box.)

<sup>2.</sup> Actual monitoring locations will depend on owner/occupier consent.



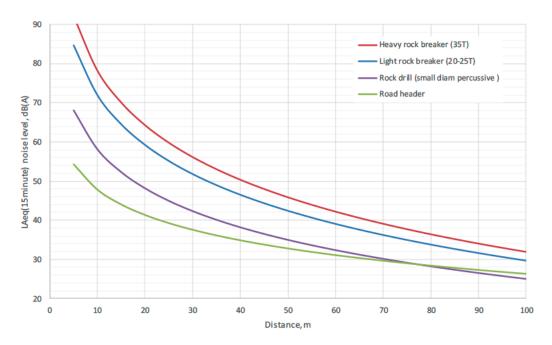


Figure 7 - GBN from recent Sydney tunnel projects (source TSE report TH511-02 01.03.04 F01 CN CNVIS (R6))

#### PREDICTED GROUND-BORNE NOISE LEVELS

GBN levels were determined by modelling the noise source, excavation location and receiver locations, based on the information presented in Section 7.1. Predictions are representative of a typical worst-case scenario where construction activities are undertaken at the closest possible location to nearby receivers. They represent the typical maximum ground-borne noise levels that receivers may experience for a limited amount of time and will reduce as equipment moves further away.

Table 18 shows the prediction results for the light rock hammer.

Table 18 - Receivers predicted to exceed the GBN criterion for standard working hours

Receiver	Minimum distance between source and receiver, m	Predicted GBN Level, dB(A)	Standard hours Criterion internal, dB L <sub>Aeq(15minute)</sub>	Predicted GNML exceedance (dB)
20 Clarke Street	25	> 60	60	< 10
22-26 Clarke Street	25	> 60	60	< 10
18-34 Clarke Street	25	> 60	60	< 10
10-12 Clarke Street	25	> 60	60	< 10
6-8 Clarke Street	25	> 60	60	< 10
473 Pacific Hwy	25	> 60	60	< 10



#### NOISE MITIGATION AND MANAGEMENT

# Noise control and management measures

Section 6.5 of the CNVMP outlines the standard mitigation measures to be applied.

Section 6.6 of the CNVMP and Appendix E of the CNVIS outlines the additional mitigation measures to be applied.

CoA E38 requires consultation with affected receivers if predicted internal noise levels are above 60 dB(A). Error! Reference source not found.

## **Ground-borne noise monitoring**

Attended noise monitoring is to be undertaken to validate the GBN predictions and to verify that GBN resulting from high vibration generating works are in accordance with the levels predicted in this CNVIS, subject to obtaining the property owner/occupier's consent to access the property.

Attended GBN noise monitoring will be conducted at representative receivers most affected by the works. Noise measurements will be undertaken internally, ideally in rooms that are the most shielded from existing ambient noise to allow a higher signal to noise ratio to be obtained. The proposed indicative measurement locations are presented in Table 16.

Noise measurements would be reported in accordance with Section 9.2 of the Sydney Metro CNVS.

# **Complaint handling**

Section 7.11 in the CNVMP shows how complaints are handled and refers to relevant sections in the CEMP which explains how to record and address complaints.

# TRAFFIC NOISE ASSESSMENT

For this traffic noise assessment, we have made the following assumptions to assess the worst-case scenario. The monthly truck volume prediction from the construction traffic management plan (CTMP) has been reproduced in Figure 8 and shows that there will be a maximum of 165 trucks per day. As a conservative estimate it is predicted that three quarters of all trucks will enter the site from Clarke Lane as three of the four concrete pumps are present along Clarke Lane. The fourth concrete pump is on Pacific Highway which accounts for the final quarter.



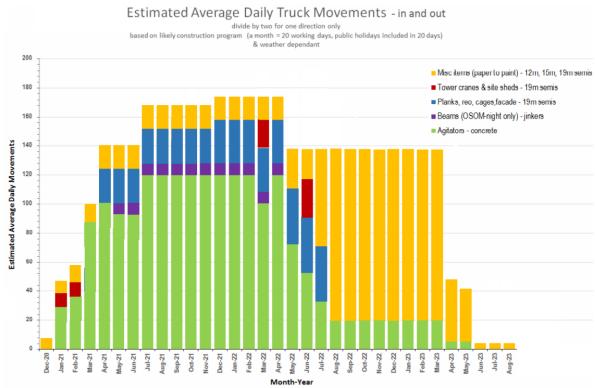


Figure 8 - Estimated average daily heavy vehicles movements over the Project timeline

Indicative traffic volumes have been taken from the report 'Sydney Metro City & Southwest - TSE works – Construction Noise and Vibration Impact Statement: Crow's Nest Station Site', dated 31 May 2018 shown in Table 19. The additional heavy vehicles movements due to construction work have been added to predict the construction traffic noise impact.

Table 19 - Indicative construction traffic volumes (typical worst-case scenario) Source: TH511-02 01.03.04 F01 CN CNVIS (R6) and construction traffic prediction by A W Edwards

Access Road	Assessment period	Existing heavy vehicle movements	Proposed heavy vehicle movements
Clarke Lane	Day (1hr)	2	11
Oxley Street	Day (15hr)	112	165
Pacific Highway	Day (15hr)	1625	41

The primary road traffic noise source at sensitive receivers located near the Project is the Pacific Highway carrying approximately 1625 heavy vehicles per day. An increase of approximately 41 trucks on Pacific Highway per day would not represent an increase in noise levels exceeding 2 dB. Hence, further detailed assessment of construction traffic noise on Pacific Highway is not warranted.

The traffic movements shown in Table 19 were used to compare the existing traffic noise levels with the additional construction traffic at the representative sensitive receiver located at 28-34 Clarke Street. An increase of 2.6 dB is predicted at this location as shown in Table 20. The CoRTN algorithm was used for the road traffic noise predictions.





It should be noted that most of the additional vehicle movements are associated with fixed location plant items servicing the site (such as concrete pumps etc). Additional noise mitigation associated with these plant items are already applicable at the sensitive receivers located on Clark Lane.

Notwithstanding, additional mitigation measures will be investigated to minimise the predicted construction traffic related noise increases. These measures may include:

- Minimising unnecessary acceleration / braking
- Installing air brake silencers on heavy vehicles
- Training for drivers accessing the site and surrounds relating to good driver practices for minimising noise impacts.

Table 20 - Construction traffic assessment

Traffic route	Assessment period	Existing traffic noise impact	Total traffic noise including construction traffic, dB(A)	Predicted road traffic noise increase, dB(A)
Clarke Lane	Day L <sub>Aeq, 15h</sub>	66	68	2.6

# **CUMULATIVE IMPACTS**

Systems Connect will be carrying out works relating to the construction of the tunnel and will be using the station box and logistics lane on Pacific highway to carry out these works. A W Edwards will consult with Systems Connect and provide them a monthly forecast of activities where these activities are additional to those considered in this CNVIS. This will allow Systems Connect to consider our works in their cumulative impact assessment. This ensures that co-ordination of works will minimise cumulative impacts of noise and vibration and maximise respite for affected sensitive receivers in accordance with CoA E39 and E40.

The CNVIS will be revised in accordance with CoA E33 to consider the other construction works and the appropriate management measures identified to minimise cumulative impacts and maximise respite for sensitive receivers. The updated CNVIS will include any specific mitigation measures identified through consultation with affected receivers.

# CONCLUSION

Construction related noise impacts onto nearby sensitive receivers due to works for the new Sydney Metro station at Crows Nest have been assessed. Construction noise levels have been assessed based upon the provided construction stages by A W Edwards. Most works occur during standard hours.

There is also OOHW proposed for the daytime, evening and night-time periods which is assessed in Appendices C.1(b), C.2, C.3, D.2 and D.3 of this report.

During standard hours (Condition E37/E38), airborne noise related NML exceedances typically range between 1 dB and 20 dB depending upon the required stage and the operating period of the construction activity. Standard and additional mitigation measures will be applied to manage the predicted NML exceedances.





During OOHW (Condition E41/E42), airborne noise related exceedances range between 1 and 13 dB for Linewide works and between 1 and 20 dB for residential receivers and up to 30 dB for the adjacent recording studio receivers (when in operation) for works on Site A, B and C. Standard and additional mitigation measures will be applied to manage the predicted exceedances.

For OOHW (Conditions E41/E42), during the night-time period, the sleep disturbance screening criterion is predicted to be exceeded at a small number of residential receivers and not for routine work. All works are planned and scheduled to minimise the potential for sleep disturbance.

Vibration intensive works including rock hammering at Sites A and B and bored piling at Site C are predicted to exceed the criteria for human annoyance and sensitive equipment at sensitive receiver locations directly adjacent to the site. Standard and additional mitigation measures will be applied to manage the predicted exceedances.

Exceedance of the cosmetic damage vibration criteria are not predicted at any sensitive receiver locations. However, vibration monitoring will be conducted to verify predictions.

The GBN assessment indicated that sensitive receivers on Clarke Lane and Pacific Highway would exceed the GBN NMLs for high vibration generating activities including rock hammering. Standard and additional mitigation measures will be applied to manage the predicted NML exceedances.

Construction traffic has been assessed, indicating compliance with construction-related road traffic noise objectives at all residential receiver locations except for the most-affected receivers backing on to Clarke Lane. Additional mitigation measures will be implemented to minimise noise impacts at this location.

Consultation requirements have been detailed in the CNVIS.



# **APPENDIX A - CONSTRUCTION STAGES**

Phase	Area of Works	Activity	Potential (AB / Vib) impacts	Equipment	Operating Location Surface or Below Ground	Lw, Item	Quantity	Penalty <sup>a</sup>	Duty Factor (DF)	Lw, modified (W/P/DF)	
				Rattle gun	_	107	4	5	15%	110	
				Grinder	_	107	2	5	7%	104	
				Welder - Diesel	_	102	1	0	15%	94	
		Linewide works evening - M&E		Generator - Diesel	_	94	1	0	100%	94	
1b	A,B	Tunnel Fitout	AB, Vib	EWP - Hi-rail	Below Slab	95	2	0	30%	93	
				Trucks 12t rigid - Hi-rail	_	103	4	0	15%	101	
				Fork Lift / material handler	_	99	2	0	100%	102	
				Excavator 20t - Rubber tyre	-	103	2	0	100%	106	
				Rail set (train consist)		98	2	0	100%	101	
				Total emission (Lw, 15minute in dBA)						113	
				Rattle gun	_	107	2	5	15%	107	
				Grinder	_	107	2	5	7%	104	
				Welder - Diesel	_	102	1	0	15%	94	
		Linewide works night - M&E		Generator - Diesel	Below Slab	94	1	0	100%	94	
1c	A,B	Tunnel Fitout	AB, Vib	EWP - Hi-rail		95	2	0	30%	93	
			Trucks 12t rigid - Hi-rail		103	2	0	15%	98		
			Fork Lift / material handler		99	1	0	100%	99		
				Excavator 20t - Rubber tyre	_	103	1	0	100%	103	
				Rail set (train consist)	_	98	1	0	100%	98	
				Total emission (Lw, 15minute in dBA)						111	
				Explosive fixing gun		101	101	1	5	10%	96
				Elevated work platform – scissor lift	_	98	1	0	25%	92	
				Hand tools (electric)	_	102	2	0	10%	95	
20	A D C	Structure Construction	AD 1/66	Hand tools	_	94	2	0	30%	92	
2a	A,B,C	Standard Hours	AB, Vib	Portable Generator 2.5 kV*A	Surface, 10m below	98	1	0	100%	98	
				Angle grinder (grinding steel)	surface for Site B	108	1	5	7%	102	
				Welding equipment	_	105	1	0	10%	95	
				Tracked mobile crane		98	1	0	50%	95	
				Club hammer		107	1	0	20%	100	
				Circular saw, bench mounted (Cutting timber)		106	1	5	10%	101	
				Total emission (Lw, 15minute in dBA)		114				108	
				Hand tools	_	94	1	0	100%	94	
				Hand tools (electric)	_	102	1	0	10%	92	
				Welding equipment		105	1	0	10%	94	
				Tracked mobile crane	Surface, 10m below	98	1	0	50%	94	
2b	A,B,C	Structure Construction OOH  Day and OOH Evening <sup>b</sup>	AB, Vib	Elevated work platform – scissor lift	surface for Site B	98	1	0	25%	92	
				Angle grinder (grinding steel) (Site C or enclosed only)	- -	108	1	5	7%	102	
				Circular saw (Site C or enclosed only)		106	 1	5	10	101	

Total emission (Lw, 15minute in dBA)

Refer to Appendix H for total emissions at various zones.

o Phase	O'B'Y Works	Activity  Mobile cranes	We Potential (AB	Eduipment Mobile cranes	Operating Location Surface or Below Ground	86 Lw, Item	Onantity	Penalty <sup>a</sup>	%05 Duty Factor %(DF)	Lw, modified (W/P/DF)
			Total	emission (Lw, 15minute in dBA)						95
4		Ventilation	AB	Ventilation system	Surface at corner of Oxley Street and Pacific Highway	78	2		100%	81
			Total	emission (Lw, 15minute in dBA)						81

Phase	Area of Works	Activity  Lower Crane 5	Potential (AB / Vib) impacts	Equipment	Operating Location Surface or Below Ground	Lw, Item 108	1 Quantity	Penalty <sup>a</sup>	% (DF)	Lw, modified (W/P/DF)
5	В	Tower Crane 3	AB	Tower crane operated with diesel engine <sup>c</sup>	Above Surface	105	1		50%	102
	С	Tower Crane 4				105	1		50%	102
				Total emission (Lw, 15minute in dBA)						108
6	A,B,C	Concrete Pour		Concrete agitator and pump	Surface	109	5 locations	0	100%	109
				Total emission (Lw, 15minute in dBA)						109
				Delivery truck	Surface	102	1	0	100%	102
7	A,B,C	Delivery - Day / Evening		Hoist/ Telehandler	Surface	98	1	0	50%	95
				Metal on metal hammering	Surface	109	1	0	33%	104
				Total emission (Lw, 15minute in dBA)						106
-				Hoist/ Telehandler	Surface	98	1	0	30%	93
8	A,B	Delivery - Night	AB	Delivery truck	Surface	102	1	0	50%	99
				Total emission (Lw, 15minute in dBA)						100
				Hand tools (electric)		102	2	0	75%	104
q	A,B,C	Services, finishes and fitout	AB, Vib	Hand tools	- - Below Slab or Enclosed <i>-</i>	94	 1	0	30%	89
9	A,D,C	Services, illustres and fillout	AD, VID	Elevated work platform – scissor lift	- Delow Sian of Eliciosed -	98	1	0	40%	94
				Circular saw, bench mounted (Cutting timber)		106	1	5	20%	104
				Total emission (Lw, 15minute in dBA)						107

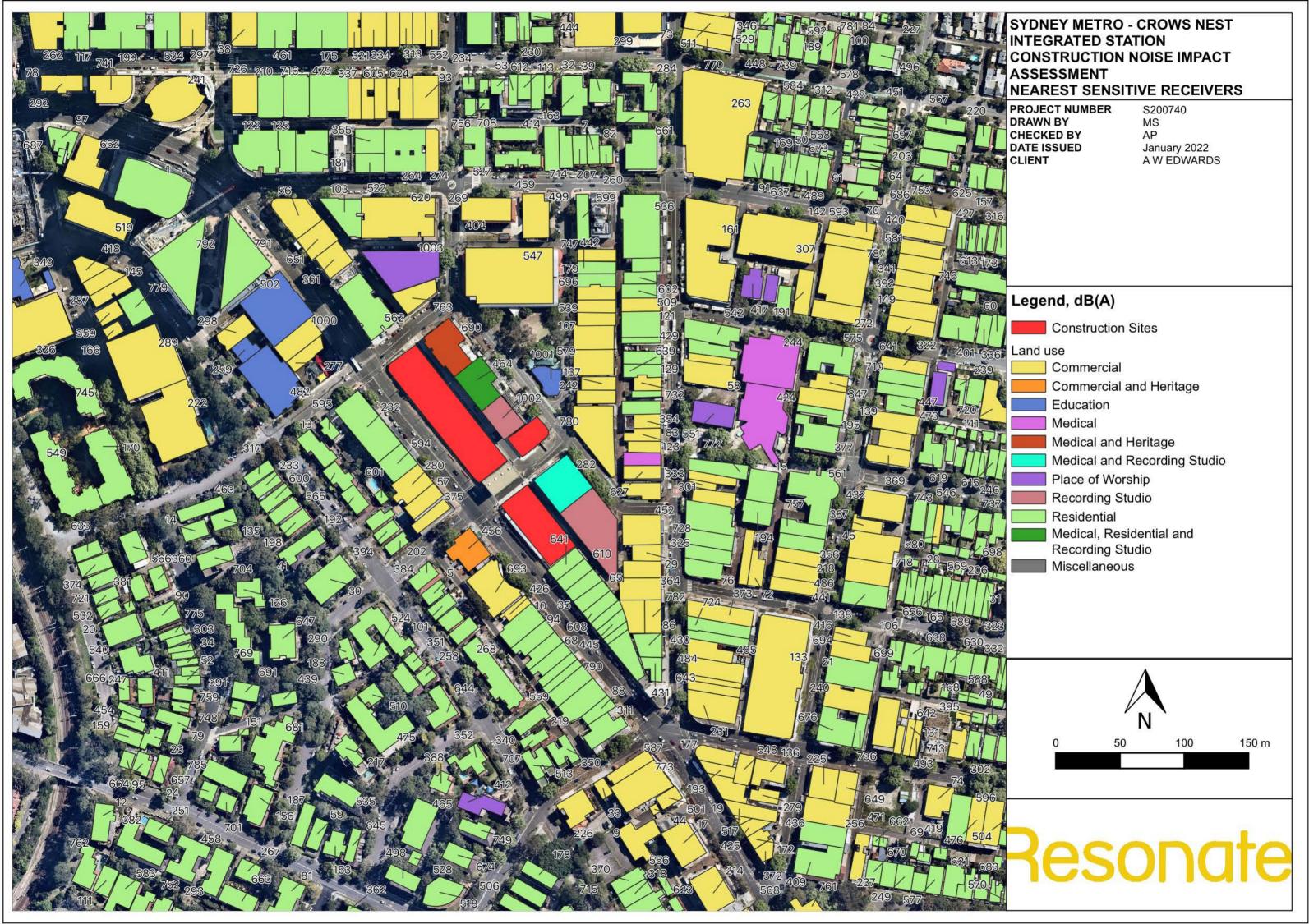
Phase	Hume Streat of Works	Activity	Potential (AB / Vib) impacts	Equipment	Operating Location Surface or Below Ground	Lw, İtem	Quantity	Penalty <sup>a</sup>	Duty Factor (DF)	Lw, modified (W/P/DF)
	Hume Street (west of Pacific Highway)			Excavator (approx. 6 tonne)		95	2	0	80%	97
	Oxley Street			Plate compactor/wacker packer	•	106	1	0	50%	103
	Oxiey Street	Landscaping and public domain works - Service		Hand tools (electric)	•	102	2	0	30%	100
10	Clarke Lane North	relocations, drainage, install	AB, Vib	Concrete agitator	Surface	109	1	0	50%	106
	Clarke Lane South	footpaths and kerbing, install street furniture, soft	7.2, 1.2	Roller (vibratory)		109	1	5	50%	111
	Clarke Street North	landscaping, lay asphalt		Grader		110	1	0	50%	107
	Clarke Street South			Concrete saw		118	1	5	15%	115
	Pacific Highway South			Excavator Hammer <sup>d</sup>		118	1	5	15%	115
	Pacific Highway North			Vacuum truck		109	1	0	50%	106
				Total emission (Lw, 15minute in dBA)						120
				Concrete saw		118	1	5	15%	115
11	A,B,C	Partially demolish ground	AB, Vib	Excavator Hammer <sup>d</sup>	Surface	118	1	5	50%	120
11	A,b,C	retention walls	AD, VID	Wire Saw on Southern Headwall	Surface	95	1	0	15%	87
				Excavator (approx. 10 tonne)		100	1	0	100%	100
				Total emission (Lw, 15minute in dBA)						121
				Tower crane operated with diesel engine <sup>c</sup>		108	1	0	50%	105
12	Girder deliveri	es at Site A and Site B	ΛR	Jinker truck approach	Surface	108	1	0	5%	95
12	Gilder deliveri	es at site A and site d	AD	AB Jinker truck idling	- Surface -	104	1	0	10%	94
				Jinker truck switched off	•	0	1	0	50%	0
				Total emission (Lw, 15minute in dBA)						106

Notes:

- a) Penalties have been applied to individual sources in accordance with Section 7.2.3 of the TfNSW Construction Noise and Vibration Strategy 2018.
- b) Refer to Appendix H of the CNVIS
- c) Tower crane levels have been verified on site for TC2 and TC3
- d) Excavator with hammer attachment levels have been verified on site



# APPENDIX B - NEAREST SENSITIVE RECEIVERS AND NML SUMMARY



#### Noise sensitive receivers and construction noise management levels

		ICNG								Conditions of Approval		Sleep Disturbance	
NCA	Possing Type		sting Noise L 90(15min), d			Resident	ial NMLs		ICNG Comments	Noise management levels (External NMLs based or loss) LAeq(15min)	n assumed façade	Conditions of Approval	L <sub>Amax external</sub>
NCA	Receiver Type	RBL Day	RBL Evening	RBL Night	NML DS	NML DO	NML E	NML N	icng comments	Standard hours / Day / E1 <sup>a</sup>	OOHW / E2/N <sup>b</sup>	Comments / Reference	Criterion
Α	Residential												
В	Residential								CS2 EIS B.19 for D/E, RTA TG360 for N				RBL + 15 dB
С	Residential	59	55	50	69	64	60	55	RTA 1G360 for N RTA additional noise	60 + Façade loss	45 + Façade loss		(65 dB(A))
D	Residential								monitoring July 2017				, ,,
Е	Residential												
	Other Sensitive Receivers (when in use)					NM	Ls						
OSR	Recording Studio					25 + Faç	ade loss		When in use. External.			When in use. External.	-
OSR	Childcare centre					40 + Faç	ade loss		When in use. External.		-	When in use. External.	-
OSR	Educational facility					45 + Faç	ade loss		When in use. External.	]		When in use. External.	-
OSR	Places of worship					45 + Faç	ade loss		When in use. External.		-	When in use. External.	-
OSR	Café/restaurant/bar					70	)		When in use. External.	60 + Façade loss	-	When in use. External.	-
OSR	Hotel (bars and lounges)					70	)		When in use. External.	ου τ raçaue ioss	-	When in use. External.	-
OSR	Hotel (Sleeping areas: Hotels near major roads)					40 + Fac	ade loss		When in use. External.		-	When in use. External.	RBL + 15 dB (65 dB(A))
OSR	Commercial premises				70 Wh				When in use. External		When in use. External	-	
OSR	Industrial								When in use. External.		-	When in use. External.	-

Notes:) a) The standard hours external equivalent noise management level is based on Project Planning Approval Condition number E37 and depends on the assumed façade loss

b) The OOHW external equivalent noise management level for residential receivers is based on Project Planning Approval Condition number E41/E42 and depends on the assumed façade loss

Day: 7am to 6pm Monday to Saturday, 8am to 6pm Sunday and Public Holidays.

E: evening period from 6pm to 10pm Monday to Sunday - OOHW P1

N: night-time period from 10pm to 7 am Monday to Friday, from 10pm to 8am Saturday, Sunday and Public holidays - OOHW P2)

E1: evening from 6pm to 8pm. )

E2/N: evening and night from 8pm to 7am.)



# APPENDIX C.1 - DETAILED PREDICTED NOISE LEVELS FOR SITE A, B, C BASED ON ICNG ASSESSMENT

- Legend for receiver types
- RES Residential
- EDU Education facility
- MED Medical facility
- POW Place of Worship
- AOS Active Use Open Space
- POS Passive Use Open Space
- CCF Child Care Facility
- COM Commercial
- IND Industrial
- MIS Miscellaneous buildings such as a shed

	Appendix C.1A Day Standard Hours Scenarios 2 and 3 Detailed Predicted Noise L												L)									
Receiver NCA	Receiver Address	ID	Receiver Type								3 Mobile Cranes (locations 2, 3, 4, 5, 6 and 7)											
				External NML																		
				dB(A)	Si	te A	Sit	te B	Site	e C		2		3		1		5	6			7
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
	28-34 CLARKE ST. CROWS NEST NSW 2065	600	MED and Heritage	70		11	56	-	57		52	_	39	_	51	_	44		43		49	-
C	20 Clarke St, Crows Nest NSW 2065	1002	Recording Studio		76	31	64	19	70	25	49	4	45	-	67	22	50	5	46	- 1	53	8
	20 Clarke St, Crows Nest NSW 2005	1002	MED. RES and	45	70	31	04	19	70	25	49	+ +	40	-	07	22	30		40	- '	33	0
Α	22-26 CLARKE ST. CROWS NEST NSW 2065	464	Recording Studio	45	75	30	60	15	61	16	51	6	40	_	56	11	47	2	44	_	49	4
	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	69	72	3	54	-	55	-	54	i i	42	-	45	- :-	41	<del>-</del> -	43		47	-
A	SE 402 FLOOR 38 OXLEY ST, ST LEONARDS NSW 2065	763	COM	70	70	-	53	_	49	-	50	-	36	-	40	-	38	<del> </del> -	41	-	45	-
B	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	69	69	0	58	_	58	-	57	-	46	-	45	-	43	<del> </del> -	44	-	47	-
			MED and	30	1	l	30				J.,	1	1 10	1	1	1	1	1			···	
В	306/10-12 CLARKE ST, CROWS NEST NSW 2065	282	Recording Studio	45	69	24	69	24	76	31	43	-	64	19	55	10	48	3	39	-	54	9
D	388 PACIFIC HWY, CROWS NEST NSW 2065	280	COM	70	69	-	64	-	63	-	50	-	48	-	48	-	49	-	50	-	53	-
Е	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	69	69	0	62	-	62	-	52	-	48	-	49	-	47	-	48	-	51	-
Е	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	57	COM	70	69	-	65	-	63	-	48	-	49	-	52	-	51	-	52	-	56	-
Α	SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	375	COM	70	68	-	66	-	64	-	47	-	49	-	51	-	52	-	54	-	59	-
В	SE 102 35 HUME ST, CROWS NEST NSW 2065	780	COM	70	67	-	63	-	70	-	33	-	56	-	41	-	38	-	45	-	47	-
E	374 PACIFIC HWY, CROWS NEST NSW 2065	456	COM and Heritage	70	66	-	71	1	63	-	44	-	46	-	46	-	53	-	59	-	58	-
D	4/41 OXLEY ST, CROWS NEST NSW 2065	547	COM	70	65	-	51	-	62	-	43	-	47	-	34	-	36	-	33	-	32	-
В	454-456 Pacific Hwy, St Leonards NSW 2065	1000	COM	70	65	-	53	-	53	-	50	-	41	-	38	-	37	-	35	-	43	-
E	1/45-47 HUME ST, CROWS NEST NSW 2065	579	COM	70	65	-	61	-	68	-	34	-	51	-	34	-	30	-	44	-	43	-
D	47/460 PACIFIC HWY, ST LEONARDS NSW 2065	502	EDU	65	64	-	52	-	53	-	51	-	39	-	43	-	36	-	40	-	42	-
E	40 OXLEY ST, ST LEONARDS NSW 2065	482	EDU	70	64	-	50	-	51	-	53	-	38	-	39	-	35	-	32	-	41	-
Α	14/360 PACIFIC HWY, CROWS NEST NSW 2065	693	COM	70	64	-	69	-	63	-	40	-	47	-	46	-	53	-	56	-	53	-
Α	39 HUME ST, CROWS NEST NSW 2065	242	COM	70	64	-	62	-	67	-	24	-	52	-	38	-	31	-	44	-	42	-
Α	41 HUME ST, CROWS NEST NSW 2065	137	COM	70	63	-	62	-	68	-	24	-	50	-	37	-	28	-	44	-	41	-
С	452 PACIFIC HWY, ST LEONARDS NSW 2065	277	COM	70	62	-	53	-	52	-	52	-	34	-	38	-	38	-	37	-	41	-
Α	107/6-8 CLARKE ST, CROWS NEST NSW 2065	610	Recording Studio	45	62	17	71	26	56	11	41	-	28	-	45	-	51	6	52	7	49	4
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	69	61	-	59	-	58	-	33	-	37	-	43	-	32	-	46	-	50	-
E	567 PACIFIC HWY, ST LEONARDS NSW 2065	361	COM	70	61	-	52	-	51	-	25	-	26	-	41	-	37	-	28	-	39	-
	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	69	61	-	48	-	38	-	24	-	23	-	30	-	26	-	33	-	34	-
D	35 Clarke St Crows Nest NSW 2065	1001	EDU	65	61	-	58	-	69	4	33	-	50	-	41	-	27	-	44	-	42	-
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	69	60	-	71	2	62	-	41	-	46	-	42	-	52	-	52	-	50	-
В	21/360 PACIFIC HWY, CROWS NEST NSW 2065	426	COM	70	59	-	68	-	59	-	39	-	41	-	38	-	49	-	50	-	48	-
D	UNIT 707 9 ALBANY ST, ST LEONARDS NSW 2065	620	COM	70	59	-	40	-	55	-	41	-	36	-	22	-	24	-	28	-	38	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	69	58	-	74	5	53	-	40	-	27	-	43	-	52	-	46	-	46	-
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	69	58	-	70	1	50	-	35	-	27	-	40	-	50	-	42	-	45	-
E	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	69	58	-	59	-	53	-	34	-	40	-	41	-	45	-	47	-	50	-
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	69	58	-	66	-	57	-	39	-	41	-	38	-	48	-	48	-	46	-
	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	69	58	-	49	-	50	-	45	-	37	-	38	-	34	-	31	-	33	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	69	57	-	53	-	52	-	38	-	34	-	42	-	36	-	39	-	41	-
E	583 PACIFIC HWY, ST LEONARDS NSW 2065	651	COM	70	57	-	48	-	42	-	25	-	21	-	38	-	35	-	36	-	38	-
С	38 WILLOUGHBY RD, CROWS NEST NSW 2065	65	COM	70	57	-	67	-	46	-	36	-	26	-	40	-	45	-	33	-	34	-
В	51 HUME ST, CROWS NEST NSW 2065	107	COM	70	57	-	58	-	62	-	35	-	48	-	26	-	28	-	38	-	40	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	69	57	-	62	-	56	-	39	-	41	-	36	-	45	-	45	-	44	-
E	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	69	57	-	40	-	52	-	24	-	26	-	27	-	25	-	27	-	32	-
L E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	69	56	-	67	-	48	-	37	-	27	-	43	-	48	-	34	-	43	-
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	69	56	-	67	-	48	-	37	-	27	-	43	-	48	-	34	-	43	-

		Appe	ndix C.1A Day Standa	rd Hours S	Scenario 6 Detai	led Predicted N	loise Levels Bas	ed on ICNG (Ext	ernal NML)					
									6 Concr (locations 1, 2		ı			
Receiver NCA	Receiver Address	ID	Receiver Type	External NML	1		2	2	3		4		5	
				dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Surface Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
D	28-34 CLARKE ST, CROWS NEST NSW 2065	690	MED and Heritage	70	80	10	64	-	53	-	64	-	57	-
Α	SE 402 FLOOR 38 OXLEY ST, ST LEONARDS NSW 2065	763	COM	70	70	0	63	-	49	-	54	-	51	-
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	69	69	0	65	-	54	-	57	-	55	-
			MED, RES and											
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	45	68	23	65	20	56	11	69	24	61	16
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	69	65	-	68	-	61	-	62	-	60	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	69	65	-	73	4	60	-	59	-	57	-
В	454-456 Pacific Hwy, St Leonards NSW 2065	1000	COM	70	64	-	66	-	54	-	54	-	51	-
D	388 PACIFIC HWY, CROWS NEST NSW 2065	280	COM	70	63	-	63	-	62	-	62	-	62	-
С	20 Clarke St, Crows Nest NSW 2065	1002	Recording Studio	45	63	18	62	17	61	16	78	33	64	19
	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	57	COM	70	63	-	62	-	63	-	65	-	65	-
С	452 PACIFIC HWY, ST LEONARDS NSW 2065	277	COM	70	63	-	66	-	52	-	52	-	51	-
E	40 OXLEY ST, ST LEONARDS NSW 2065	482	EDU	70	63	-	67	-	52	-	53	-	49	-
Α	SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	375	COM	70	62	-	61	-	63	-	65	-	65	-
	567 PACIFIC HWY, ST LEONARDS NSW 2065	361	COM	70	61	-	39	-	41	-	55	-	51	-
	583 PACIFIC HWY, ST LEONARDS NSW 2065	651	COM	70	57	-	39	-	36	-	51	-	49	-
Α	583 PACIFIC HWY, ST LEONARDS NSW 2065	56	COM	70	57	-	36	-	36	-	51	-	49	-
E	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	69	56	-	39	-	33	-	51	-	48	-
Α	14/360 PACIFIC HWY, CROWS NEST NSW 2065	693	COM	70	55	-	54	-	59	-	57	-	67	-
E	374 PACIFIC HWY, CROWS NEST NSW 2065	456	COM and Heritage	70	55	-	57	-	62	-	54	-	65	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	69	55	-	41	-	45	-	51	-	49	-
Е	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	69	55	-	38	-	37	-	43	-	40	-
D	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	69	54	-	36	-	40	-	50	-	48	-
В	21/360 PACIFIC HWY, CROWS NEST NSW 2065	426	COM	70	54	-	53	-	56	-	52	-	61	-
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	69	54	-	52	-	55		53	-	60	-
			MED and Recording											
В	306/10-12 CLARKE ST, CROWS NEST NSW 2065	282	Studio	45	54	9	56	11	74	29	70	25	62	17
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	69	53	-	50	-	41	-	57	-	61	-
Α	107/6-8 CLARKE ST, CROWS NEST NSW 2065	610	Recording Studio	45	53	8	55	10	43	-	58	13	65	20

			Appendix C.1A Day	Standard I	Hours Scenario	s 4, 7, 9, 10 and 1	11 Detailed Predi	cted Noise Leve	ls Based on ICN	G (External NML)						
			Appendix 0.1A Day	Otanuaru i		ntilation	7 Delivery		9 Services,		10 Landscap domain	•	11a Demo retention wall ham	s Excavator	11b Demol retention wall	
Receiver	<b>-</b>			External					Below	Exceedance (no						
NCA	Receiver Address	ID	Receiver Type	MML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Slab/Enclosed Predicted Noise Level dB(A)		Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
С	28-34 CLARKE ST, CROWS NEST NSW 2065	690	MED and Heritage	70	45	-	63	-	74	4	108	38	93	23	70	0
	,		MED and Recording													
D	306/10-12 CLARKE ST, CROWS NEST NSW 2065	282	Studio MED, RES and	45	32	-	60	15	75	30	106	61	88	43	65	20
C	22-26 CLARKE ST, CROWS NEST NSW 2065  20 Clarke St, Crows Nest NSW 2065	464 1002	Recording Studio Recording Studio	45 45	37 36	-	63 63	18 18	69 74	24 29	104 104	59 59	85 95	40 50	62 72	17 27
D	107/6-8 CLARKE ST, CROWS NEST NSW 2065	610	Recording Studio	45	27	-	67	22	68	23	102	57	95	50	72	27
Е	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	69	27	-	60	-	72	3	99	30	92	23	69	-
D	SE 102 35 HUME ST, CROWS NEST NSW 2065	780	COM	70	23	-	59	-	67	-	95	25	83	13	60	-
D	35 Clarke St Crows Nest NSW 2065	1001	EDU	65	15	-	53	-	58	-	94	29	85	20	62	-
D E	52-54 WILLOUGHBY RD, CROWS NEST NSW 2065 471 PACIFIC HWY, CROWS NEST NSW 2065	516 719	COM RES	70 69	15 28	-	48 67	-	49 69	- 0	94 93	24 24	71 87	1 18	48 64	-
C	4/41 OXLEY ST, CROWS NEST NSW 2005	547	COM	70	36	-	61	-	59	-	92	22	78	8	55	-
В	SE 402 FLOOR 38 OXLEY ST, ST LEONARDS NSW 2065	763	COM	70	39	-	64	-	65	-	92	22	80	10	57	-
В	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	69	42	-	69	-	68	-	91	22	86	17	63	-
D	58 WILLOUGHBY RD, CROWS NEST NSW 2065	627	COM	70	11	-	45	-	43	-	90	20	68	-	45	+ -
E A	469 PACIFIC HWY, CROWS NEST NSW 2065 SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	35 57	RES COM	69 70	26 32	-	57 70	- 0	67 66	-	89 88	20 18	84 87	15 17	61 64	-
A	388 PACIFIC HWY, CROWS NEST NSW 2005	280	COM	70	36	-	70	1	66	-	88	18	87	17	64	-
A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	69	36	-	70	1	69	-	88	19	84	15	61	-
Α	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	69	41	-	70	1	71	2	88	19	83	14	60	-
Α	SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	375	COM	70	31	-	70	-	67	-	88	18	86	16	63	-
A	14/360 PACIFIC HWY, CROWS NEST NSW 2065	693	COM and Haritage	70	30 29	-	69	-	64 64	-	87 87	17 17	83	13 14	60 61	-
A E	374 PACIFIC HWY, CROWS NEST NSW 2065 LEVEL 46 WILLOUGHBY RD, CROWS NEST NSW 2065	456 452	COM and Heritage COM	70 70	11	-	70 45	0 -	47	-	87	17	84 69	14	46	-
D	39 HUME ST, CROWS NEST NSW 2065	242	COM	70	17	-	56	_	61	-	87	17	80	10	57	_
D	60-62 WILLOUGHBY RD, CROWS NEST NSW 2065	158	MED	65	11	-	41	-	41	-	86	21	58	-	35	-
Α	21/360 PACIFIC HWY, CROWS NEST NSW 2065	426	COM	70	26	-	70	-	59	-	86	16	82	12	59	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	69	25	-	54	-	63	-	86	17	81	12	58	-
D E	1/45-47 HUME ST, CROWS NEST NSW 2065 457 PACIFIC HWY, CROWS NEST NSW 2065	579 608	COM RES	70 69	19 26	-	57 49	-	61 60	-	85 85	15 16	79 76	9 7	56 53	-
D	41 HUME ST, CROWS NEST NSW 2065	137	COM	70	11	-	55	-	61	-	84	14	79	9	56	<del>-</del>
Α	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	69	25	-	68	-	59	-	84	15	79	10	56	-
D	64 WILLOUGHBY RD, CROWS NEST NSW 2065	116	COM	70	10	-	38	-	41	-	84	14	56	-	33	-
E	38 WILLOUGHBY RD, CROWS NEST NSW 2065	65	COM COM	70	27	-	50	-	60	-	84	14	78	8	55	-
D A	70 WILLOUGHBY RD, CROWS NEST NSW 2065 GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	123 631	RES	70 69	11 25	-	41 66	-	43 55	-	83 82	13 13	59 75	6	36 52	-
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	69	25	-	65	-	57	-	81	12	76	7	53	-
	51 HUME ST, CROWS NEST NSW 2065	107	COM	70	22	-	51	-	51	-	81	11	74	4	51	-
В	47/460 PACIFIC HWY, ST LEONARDS NSW 2065	502	EDU	65	31	-	61	-	60	-	81	16	78	13	55	-
В	452 PACIFIC HWY, ST LEONARDS NSW 2065	277	COM	70	28	-	63	-	59	-	81	11	73	3	50	-
B	454-456 Pacific Hwy, St Leonards NSW 2065	1000 750	COM RES	70 69	31 10	-	63 46	-	63 48	-	80 80	10 11	77 66	7	54 43	-
E B	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065  567 PACIFIC HWY, ST LEONARDS NSW 2065	361	COM	70	10	-	52	-	60	-	80	10	74	4	43 51	-
	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	69	24	-	64	-	52	-	80	11	69	-	46	-
В	40 OXLEY ST, ST LEONARDS NSW 2065	482	EDU	70	28	-	62	-	55	-	80	10	76	6	53	-
В	UNIT 707 9 ALBANY ST, ST LEONARDS NSW 2065	620	COM	70	29	-	52	-	51	-	80	10	73	3	50	-
	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES COM	69	22	-	62 44	-	50 41	-	79 78	10 8	69 50	0	46 36	-
E A	SE 3 LEVEL 51 WILLOUGHBY RD, CROWS NEST NSW 2065 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	301 595	RES	70 69	10	-	58	-	51	-	78 78	9	59 69	0	36 46	-
	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	69	15	-	55	-	50	-	78	9	73	4	50	-
	23 ALBANY ST, CROWS NEST NSW 2065	269	COM	70	25	-	49	-	43	-	78	8	66		43	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	69	22	-	62	-	50	-	78	9	68	-	45	-
	55 WILLOUGHBY RD, CROWS NEST NSW 2065	333	COM	70	9	-	43	-	40	-	77	7	61	-	38	-
A E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065 449A PACIFIC HWY, CROWS NEST NSW 2065	202 758	RES RES	69 69	22	-	61 61	-	54 49	-	77 77	8	77 67	8	54 44	-
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	69	10	-	48	-	52	-	77	8	68	-	45	-
	53 HUME ST, CROWS NEST NSW 2065	539	COM	70	20	-	46	-	43	-	76	6	67	-	44	-
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	69	22	-	60	-	51	-	76	7	69	-	46	-
	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	69	20	-	59	-	53	-	76	7	77	8	54	-
	55 HUME ST, CROWS NEST NSW 2065	754	COM COM	70	19	-	49	-	47	-	76	6	69	-	46	-
	57 WILLOUGHBY RD, CROWS NEST NSW 2065 39 WILLOUGHBY RD, CROWS NEST NSW 2065	378 728	RES	70 69	9 15	-	39 44	-	41 44	-	76 75	6	56 63	-	33 40	
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2005	559	RES	69	22	+	59	-	50	-	75	6	67		40	+
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	69	20	-	56	-	50	-	75	6	69	- 1	46	-
В	48 ALBANY ST, ST LEONARDS NSW 2065	274	COM	70	20	-	44	-	43	-	75	5	65	-	42	-
	40-44 WILLOUGHBY RD, CROWS NEST NSW 2065	364	COM	70	11	-	43	-	44	-	75	5	62	-	39	-
D	1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	354	RES	69	12	-	44	-	42	-	75	6	59	-	36	-

					4 Ven	itilation	7 Delivery I Pacific H		9 Services,	finish, fitout	10 Landscap domain	ing and Public works	11a Demoli retention walls hami	Excavator	11b Demol retention wall	
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Below Slab/Enclosed Predicted Noise Level dB(A)	Exceedance (no exceedance when works are located away from penetrations)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
	SE 5 LEVEL 134 WILLOUGHBY RD, CROWS NEST NSW 2065	536	RES	69	9	-	46	-	40	-	75	6	64	-	41	-
	2/59 HUME ST, CROWS NEST NSW 2065 583 PACIFIC HWY, ST LEONARDS NSW 2065	696 651	COM	70 70	11 22	-	49 47	-	46 52	-	75 75	5 5	68 67	-	45 44	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	69	16	-	56	-	46	-	75	6	70	1	47	-
	61 HUME ST, CROWS NEST NSW 2065	179	RES	69	10	-	46	-	48	-	74	5	68	-	45	-
	40-44 WILLOUGHBY RD, CROWS NEST NSW 2065	29	COM	70	10	-	39	-	43	-	74	4	59	-	36	-
	583 PACIFIC HWY, ST LEONARDS NSW 2065 322 PACIFIC HWY, CROWS NEST NSW 2065	56 790	COM RES	70 69	22 23	-	46 58	-	53 50	-	74 74	<u>4</u> 5	68 67	-	45 44	-
	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	69	13	-	58	-	47	-	73	4	74	5	51	-
	72A WILLOUGHBY RD, CROWS NEST NSW 2065	83	COM	70	9	-	40	-	40	-	73	3	57	-	34	-
	11/38-46 ALBANY ST, ST LEONARDS NSW 2065	264	RES	69	9	-	46	-	44	-	73	4	56	-	33	-
	SE 9 LEVEL 110 WILLOUGHBY RD, CROWS NEST NSW 2065 114 WILLOUGHBY RD, CROWS NEST NSW 2065	509 765	RES RES	69 69	12 8	-	42 41	-	38 36	-	73 72	3	64 58	-	41 35	-
	SE 11 LEVEL 110 WILLOUGHBY RD, CROWS NEST NSW 2065	602	RES	69	9	-	42	-	37	-	72	3	61	-	38	-
	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	69	23	-	56	-	48	-	72	3	64	-	41	-
	63 HUME ST, CROWS NEST NSW 2065	442	RES	69	10	-	48	-	48	-	72	3	67	-	44	-
	6/50-52 ALBANY ST, CROWS NEST NSW 2065  LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	527 524	RES RES	69 69	22 10	-	48 54	-	44 51	-	72 72	3	61 73	4	38 50	-
	102 WILLOUGHBY RD, CROWS NEST NSW 2065	429	RES	69	19	-	45	-	43	-	72	3	63	-	40	-
D	104 WILLOUGHBY RD, CROWS NEST NSW 2065	121	COM	70	18	-	46	-	43	-	72	2	64	-	41	-
	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	69	17	-	48	-	53	-	71	2	68	-	45	-
	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONE 204/29 ALBANY ST, CROWS NEST NSW 2065	268 599	RES RES	69 69	21 8	-	51 48	-	45 47	-	71 71	2 2	70 68	1 -	47 45	-
	SE 7 65 HUME ST, CROWS NEST NSW 2065	747	COM	70	10	-	48	-	47	-	71	1	67	-	44	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	69	29	-	53	-	55	-	71	2	71	2	48	-
	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	69	22	-	55	-	49	-	71	2	66	-	43	-
	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065 23 ALBANY ST, CROWS NEST NSW 2065	311 404	RES MIS	69 n/a	23 23	- #VALUE!	54 44	#VALUE!	48 43	-	70 70	1 #VALUE!	66 60	-	43 37	- #VALUE!
	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	69	23	#VALUE:	54	#VALUE:	49	-	70	1	66	-	43	#VALUE:
	2 ERNEST PL, CROWS NEST NSW 2065	424	MED	55	12	-	43	-	41	-	70	15	61	6	38	-
	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	69	7	-	45	-	52	-	69	0	67	-	44	-
	39A WILLOUGHBY RD, CROWS NEST NSW 2065 61/13 ERNEST ST, CROWS NEST NSW 2065	325 15	RES RES	69 69	18 15	-	44 44	-	44	-	69 69	0 -	60 63	-	37 40	-
	7/2B NICHOLSON ST, WOLLSTONECRAFT NSW 2065	258	RES	69	6	-	42	-	39	-	69	-	61	-	38	-
	24 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	310	RES	69	18	-	53	-	41	-	69	-	64	-	41	-
B B	SE 10 LEVEL 33 ATCHISON ST, ST LEONARDS NSW 2065 1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	93 125	COM RES	70 69	6	-	41 47	-	39 49	-	68 68	-	57 65	-	34 42	-
	51 OXLEY ST, CROWS NEST NSW 2065	616	RES	69	11	-	44	-	33	-	68	-	53	-	30	-
	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065		RES	69	12	-	51	-	43	-	68	-	67	-	44	-
	SHOP 1 75 WILLOUGHBY RD, CROWS NEST NSW 2065	542	RES	69	15	-	40	-	41	-	68	-	57	-	34	-
	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 102/300 PACIFIC HWY, CROWS NEST NSW 2065	665 773	RES COM	69 70	15 21	-	52 49	-	45 46	-	68 67	-	66 63	-	43 40	-
	500 Pacific Hwy St Leonards NSW 2065	1	RES	69	24	-	43	-	48	-	67	-	66	-	43	-
	SE 2 LEVEL 80A WILLOUGHBY RD, CROWS NEST NSW 2065	148	RES	69	11	-	42	-	43	-	67	-	60	-	37	-
	37A ATCHISON ST, CROWS NEST NSW 2065	234	RES	69	11	-	42	-	33	-	67	-	52	-	29	-
	303/66 ATCHISON ST, CROWS NEST NSW 2065 NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	457 170	RES RES	69 69	1 16	-	35 49	-	37 42	-	67 66	-	54 63	-	31 40	-
	SE 2 83 WILLOUGHBY RD, CROWS NEST NSW 2005	161	COM	70	6	-	39	-	37	-	66	-	55	-	32	-
	CHURCH 63 WILLOUGHBY RD, CROWS NEST NSW 2065	551	POW	65	7	-	34	-	38	-	66	1	57	-	34	-
	306 PACIFIC HWY, CROWS NEST NSW 2065	587	COM	70	21	-	50	-	45	-	66	-	63	-	40	-
	2 ERNEST PL, CROWS NEST NSW 2065 64 ATCHISON ST, ST LEONARDS NSW 2065	244 552	MED COM	55 70	5 9	-	36 35	-	37 31	-	66 65	- 11	56 46	1 -	33 23	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	69	15	-	46	-	44	-	65	-	63	-	40	-
	LEVEL 25-27 ALBANY ST, CROWS NEST NSW 2065	499	COM	70	8	-	33	-	35	-	65	-	60	-	37	-
	MAISON VUE 58/10-18 HUME ST, WOLLSTONECRAFT NSW 2065	647	RES RES	69	8	-	49 44	-	45 43	-	65 65	-	66	-	43	-
	58/13 ERNEST ST, CROWS NEST NSW 2065 29-57 CHRISTIE ST, ST LEONARDS NSW 2065	194 222	COM	69 70	11 15	-	44 49	-	43	-	65 65	-	61 61	-	38 38	-
	14/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	565	RES	69	16	-	42	-	43	-	65	-	58	-	35	-
	68 ALBANY ST, CROWS NEST NSW 2065	614	RES	69	6	-	43	-	45	-	65	-	62	-	39	-
	88 WILLOUGHBY RD, CROWS NEST NSW 2065	639	RES RES	69	12	-	44	-	42 39	-	65 65	-	61	-	38 40	-
	7 HUME ST, WOLLSTONECRAFT NSW 2065 423 PACIFIC HWY, CROWS NEST NSW 2065	290 177	COM	69 70	7 18	-	42 48	-	39 44	-	65 65	-	63 60	-	40 37	-
	5/6-10 LAMONT ST, WOLLSTONECRAFT NSW 2065	475	RES	69	13	-	47	-	43	-	65	-	65	-	42	-
	290-294 PACIFIC HWY, CROWS NEST NSW 2065	501	COM	70	20	-	49	-	44	-	65	-	61	-	38	-
	6/54-60 ALBANY ST, CROWS NEST NSW 2065	714	RES	69	8	-	42	-	36	-	65	-	62	-	39	-
	22 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 2/27 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	233 463	RES RES	69 69	11 18	-	36 48	-	39 39	-	64 64	-	58 60	-	35 37	-
	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	69	19	-	43	-	47	-	64	-	64	-	41	-

					4 Ver	itilation		Day/Evening Highway	9 Services,	finish, fitout	10 Landscap domain	ing and Public works	11a Demoli retention walls hamr	Excavator	11b Demol retention wall	
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)		Below Slab/Enclosed Predicted Noise Level dB(A)	Exceedance (no exceedance when works are located away from penetrations)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
Α	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	69	15	-	48	-	42	-	64	-	65	-	42	-
D	8 HOLTERMANN ST, CROWS NEST NSW 2065	544	POW	55	5	-	38	-	34	-	64	9	53	-	30	-

Receiver NCA					Append	dix C.1A Day S	Standard Hours	s - Scenarios 5	a and 2a Detai	led Predicted	Noise Levels B
Note   Producted   Note   Exceedance   Producted		Receiver Address	ID	Receiver Type				5a Tower Cra	anes Individual		
Noise Level   Exceedance   Noise Level   Excee					NML		te A	Sit	e B	Sit	e C
A 22-26 CLARKE ST, CROWS NEST NSW 2065 484 Recording Studio 45 66 21 52 7 44 - 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5						Noise Level	Exceedance	Noise Level	Exceedance	Noise Level	Exceedance
A 22.28 CLARKE ST. CROWS NEST NSW 2065	D	28-34 CLARKE ST, CROWS NEST NSW 2065	690	MED and Heritage	70	62	-	50	-	44	-
E \$\sqrt{645.553} PACIFIC HWY, ST LEONARDS NSW 2065				MED, RES and							
A SE 402 FLOOR 38 OXLEY ST, ST LEONARDS NSW 2085 763 COM 70 58 - 48 - 43 - 58 - 440 - 58 - 58 - 58 - 58 - 58 - 58 - 58 - 5	Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464		45	66	21	52	7	44	-
B 224402-429 PACIFIC HWY, CROWS NEST NSW 2065 594 RES 69 61 - 52 - 51 - 51 - 2402-429 PACIFIC HWY, CROWS NEST NSW 2065 594 RES 69 63 - 53 - 54 - 24 - 24 - 24 - 24 - 24 - 24 - 24		,					-		-		-
E 218/402-A20 PACIFIC HWY, CROWS NEST NSW 2065 1002 Recording Studio 45 66 21 54 9 44 - 2   D 388 PACIFIC HWY, CROWS NEST NSW 2066 547 COM 70 50 - 46 - 52 - 5   D 388 PACIFIC HWY, CROWS NEST NSW 2065 57 COM 70 63 - 55 - 54 - 5   E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 57 COM 70 62 - 55 - 54 - 5   D 47/400 PACIFIC HWY, ST LEONARDS NSW 2065 500 EDU 65 56 - 45 - 51 - 5   E SE 201 LEVEL 382 PACIFIC HWY, ST LEONARDS NSW 2065 500 EDU 65 56 - 45 - 51 - 5   E SE 201 LEVEL 382 PACIFIC HWY, ST LEONARDS NSW 2065 1000 COM 70 55 - 45 - 45 - 51 - 5   E SE 201 LEVEL 382 PACIFIC HWY, ST LEONARDS NSW 2065 500 EDU 65 56 - 45 - 48 - 5   E SE 201 LEVEL 382 PACIFIC HWY, ST LEONARDS NSW 2065 1000 COM 70 55 - 45 - 48 - 5   E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 277 COM 70 56 - 46 - 48 - 5   E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 61 - 56 - 54 - 5   E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 61 - 56 - 54 - 5   E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 61 - 56 - 54 - 5   E SE 40 OXLEY ST, ST LEONARDS NSW 2065 361 COM 70 55 - 41 - 48 - 5   E SE 201 TWY, ST LEONARDS NSW 2065 361 COM 70 55 - 41 - 48 - 5   E SE 201 TWY, ST LEONARDS NSW 2065 361 COM 70 55 - 41 - 46 - 48 - 5   E SE 201 TWY, ST LEONARDS NSW 2065 361 COM 70 55 - 41 - 46 - 40 - 40 - 40 - 40 - 40 - 40 - 40		·				ļ	-		-		-
C 20 Clarke St. Crows Nest NSW 2065 1002 Recording Studio 45 66 21 54 9 44 -   D 4/41 CXLEY ST, CROWS NEST NSW 2065 547 COM 70 50 -  46 -  52 -   D 388 PACIFIC HWY, CROWS NEST NSW 2065 280 COM 70 63 -  55 -  54 -   E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 57 COM 70 62 -  55 -  54 -   D 47/406 PACIFIC HWY, ST LEDNARDS NSW 2065 502 EDU 65 56 -  45 -   B 454-456 PACIFIC HWY, ST LEDNARDS NSW 2065 1000 COM 70 55 -  45 -   B 454-456 PACIFIC HWY, ST LEDNARDS NSW 2065 277 COM 70 55 -  45 -   A SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 55 -  46 -   A SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 55 -  46 -   B 40 OXLEY ST, ST LEDNARDS NSW 2065 376 COM 70 55 -  41 -   B 40 OXLEY ST, ST LEDNARDS NSW 2065 376 COM 70 55 -  41 -  48 -   E 567 PACIFIC HWY, ST LEDNARDS NSW 2065 361 COM 70 43 -   E 531/1 ALBANY ST, ST LEDNARDS NSW 2065 361 COM 70 43 -   E 331/1 ALBANY ST, ST LEDNARDS NSW 2065 456 COM 30 RES 69 51 -   B 1/336 PACIFIC HWY, CROWS NEST NSW 2065 693 COM 70 56 -  61 -   B 2/34 PACIFIC HWY, CROWS NEST NSW 2065 693 COM 70 56 -  41 -   B 2/34 PACIFIC HWY, CROWS NEST NSW 2065 456 COM 30 Hertage 70 58 -  40 -   C SS 54 -   C SS 54 -   C SS 54 -   C SS 55 -   C SS 55 -   C SS 55 -   C SS 56 -   C SS 56 -   C SS 56 -   C SS 57 -   COM 70 55 -   C SS 56 -   C SS 6 -   C SS		·	_				-		-		-
D 44/1 OXLEY ST. CROWS NEST NSW 2065 547 COM 70 50 - 46 - 52 - 388 PACIFIC HWY, CROWS NEST NSW 2065 280 COM 70 63 - 55 - 54 - 55 - 55 - 54 - 55 -									-		-
D 388 PACIFIC HWY, CROWS NEST NSW 2065 280 COM 70 63 - 55 - 54 - 54 - 55 E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 57 COM 70 62 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 55 - 5		· · · · · · · · · · · · · · · · · · ·				ļ	21		9		-
E SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 572 COM 70 62 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54 - 54 - 55 - 54		,				1	-		-		-
D 47/460 PACIFIC HWY, ST LEONARDS NSW 2065 502 EDU 65 56 - 45 - 51 - 45 - 51 - 48 44-456 Pacific Hwy, ST LEONARDS NSW 2065 1000 COM 70 55 - 45 - 45 - 48 - 48 - 48 - 48 - 48 -		·					-		-		-
B 454-456 Pacific Hwy, St Leonards NSW 2065		•					-		-		-
C 452 PACIFIC HWY, ST LEONARDS NSW 2065 277 COM 70 56 - 46 - 48 - 48 - A SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 61 - 56 - 54 - E 40 OXLEY ST, ST LEONARDS NSW 2065 482 EDU 70 55 - 41 - 48 - E 567 PACIFIC HWY, ST LEONARDS NSW 2065 361 COM 70 43 - 41 - 46 - E 33/1 ALBANY ST, ST LEONARDS NSW 2065 103 RES 69 51 - 40 - 40 - 40 - E 33/1 ALBANY ST, ST LEONARDS NSW 2065 103 RES 69 51 - 40 - 54 - 54 - E 374 PACIFIC HWY, CROWS NEST NSW 2065 456 COM and Heritage 70 58 - 60 - 54 - E 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 693 COM 70 56 - 61 - 53 - E 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 620 COM 70 28 - 41 - 48 - E 583 PACIFIC HWY, CROWS NEST NSW 2065 651 COM 70 50 - 38 - 33 - E 583 PACIFIC HWY, CROWS NEST NSW 2065 651 COM 70 50 - 38 - 33 - E 583 PACIFIC HWY, CROWS NEST NSW 2065 751 RES 69 56 - 64 - 52 - E 52 - E 58 - 50 - 51 - 51 - 52 - E 55 - 51 - 51 - 51 - 51 - 51 - 51 -		•					-		-		-
A SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065 375 COM 70 61 - 56 - 54 - 54 - 54 - 54 - 54 - 54 - 55		<b>7</b> ·				ļ	-		-		-
E 40 OXLEY ST, ST LEONARDS NSW 2065 482 EDU 70 55 - 41 - 48 - E 567 PACIFIC HWY, ST LEONARDS NSW 2065 361 COM 70 43 - 41 - 46 - E 33/1 ALBANY ST, ST LEONARDS NSW 2065 103 RES 69 51 - 40 - 40 - 40 - E 33/1 ALBANY ST, ST LEONARDS NSW 2065 456 COM and Heritage 70 58 - 60 - 54 - A 14/360 PACIFIC HWY, CROWS NEST NSW 2065 693 COM 70 56 - 61 - 53 - E 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 695 RES 69 50 - 40 - 45 - E 2/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 651 COM 70 50 - 38 - 33 - E 471 PACIFIC HWY, ST LEONARDS NSW 2065 651 COM 70 50 - 38 - 33 - E 471 PACIFIC HWY, CROWS NEST NSW 2065 779 RES 69 56 - 64 - 52 - B 306/10-12 CLARKE ST, CROWS NEST NSW 2065 791 RES 69 45 - 26 - 35 - B 472-486 Pacific Hwy, St Leonards NSW 2065 791 RES 69 45 - 26 - 35 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 53 - 59 - 51 - A 107/6-8 CLARKE ST, CROWS NEST NSW 2065 791 RES 69 53 - 59 - 51 - A 107/6-8 CLARKE ST, CROWS NEST NSW 2065 791 RES 69 53 - 59 - 51 - B 469 PACIFIC HWY, CROWS NEST NSW 2065 791 RES 69 52 - 58 - 40 - C 38 WILLOUGHBY RD, CROWS NEST NSW 2065 795 - C 38 WILLOUGHBY RD, CROWS NEST NSW 2065 796 COM 70 54 - 58 - 40 - E 467 PACIFIC HWY, CROWS NEST NSW 2065 796 608 RES 69 52 - 58 - 46 - E 467 PACIFIC HWY, CROWS NEST NSW 2065 796 50 54 - 58 - 46 - 58 - 46 - 58 - 46 - 58 - 46 - 58 - 46 - 58 - 50 - 58 - 46 - 58 - 46 - 58 - 50 - 58 - 46 - 58 - 50 - 58 - 46 - 58 - 50		,					-		-		-
E 567 PACIFIC HWY, ST LEONARDS NSW 2065 361 COM 70 43 - 411 - 466 - 537 ALBANY ST, ST LEONARDS NSW 2065 103 RES 69 51 - 40 - 40 - 40 - 50 ALBANY ST, ST LEONARDS NSW 2065 103 RES 69 51 - 40 - 40 - 50 ALBANY ST, ST LEONARDS NSW 2065 456 COM and Heritage 70 58 - 60 - 54 - 50 ALBANY ST, ST LEONARDS NSW 2065 693 COM 70 56 - 61 - 53 - 53 - 50 ALBANY ST, ST LEONARDS NSW 2065 693 COM 70 56 - 61 - 53 - 53 - 50 ALBANY ST, ST LEONARDS NSW 2065 695 COM 70 56 - 40 - 45 - 50 ALBANY ST, ST LEONARDS NSW 2065 650 COM 70 50 - 40 - 45 - 50 ALBANY ST, ST LEONARDS NSW 2065 651 COM 70 50 - 38 - 41 - 48 - 50 ALBANY ST, ST LEONARDS NSW 2065 651 COM 70 50 - 38 - 41 - 48 - 50 ALBANY ST, ST LEONARDS NSW 2065 651 COM 70 50 - 38 - 50 ALBANY ST, ST LEONARDS NSW 2065 719 RES 69 56 - 64 - 52 - 50 ALBANY ST, ST LEONARDS NSW 2065 719 RES 69 56 - 64 - 52 - 50 ALBANY ST, ST LEONARDS NSW 2065 719 RES 69 45 - 64 - 52 - 50 ALBANY ST, ST LEONARDS NSW 2065 720 ALBANY ST LEONAR		·				ļ	-		-		-
E 33/1 ALBANY ST, ST LEONARDS NSW 2065		·					-		-		-
E 374 PACIFIC HWY, CROWS NEST NSW 2065 456 COM and Heritage 70 58 - 60 - 54 - 41 14/360 PACIFIC HWY, CROWS NEST NSW 2065 693 COM 70 56 - 61 - 53 - 53 - 61 12/35-51 NICHOLSON ST., WOLLSTONECRAFT NSW 2065 595 RES 69 50 - 40 - 45 - 45 - 60 UNIT 707 9 ALBANY ST, ST LEONARDS NSW 2065 620 COM 70 28 - 41 - 48 - 48 - 62 - 65 - 64 - 65 - 65 - 65 - 65 - 65 - 65				1			-		-		-
A 14/360 PACIFIC HWY, CROWS NEST NSW 2065 693 COM 70 56 - 61 - 53 - 53 - 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 595 RES 69 50 - 40 - 45 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -							-		-		-
E 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 595 RES 69 50 - 40 - 45 - 45 - D UNIT 707 9 ALBANY ST, ST LEONARDS NSW 2065 620 COM 70 28 - 41 - 48 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -		·				1	-		-		-
D UNIT 707 9 ALBANY ST, ST LEONARDS NSW 2065 620 COM 70 28 - 41 - 48 - 58 58 PACIFIC HWY, ST LEONARDS NSW 2065 651 COM 70 50 - 38 - 33 - 33 - 58 59 56 - 64 - 52 - 58 - 50 - 50 - 58 - 50 - 50 - 58 - 50 - 50		·					-		-		-
E 583 PACIFIC HWY, ST LEONARDS NSW 2065 651 COM 70 50 - 38 - 33 - 33 - 471 PACIFIC HWY, CROWS NEST NSW 2065 719 RES 69 56 - 64 - 52 - 52 - 52 - 52 - 52 - 52 - 52 - 5		·					-		-		-
E 471 PACIFIC HWY, CROWS NEST NSW 2065 719 RES 69 56 - 64 - 52 - MED and Recording Studio 45 59 14 51 6 60 15		·					-		-		-
B 306/10-12 CLARKE ST, CROWS NEST NSW 2065 282 Recording Studio 45 59 14 51 6 60 15 A 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 13 RES 69 45 - 26 - 35 - B 472-486 Pacific Hwy St Leonards NSW 2065 791 RES 69 49 - 44 - 45 - B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 426 COM 70 53 - 59 - 51 - A 107/6-8 CLARKE ST, CROWS NEST NSW 2065 610 Recording Studio 45 54 9 63 18 43 - E 469 PACIFIC HWY, CROWS NEST NSW 2065 35 RES 69 53 - 59 - 45 - C 38 WILLOUGHBY RD, CROWS NEST NSW 2065 65 COM 70 54 - 58 - 40 - A 583 PACIFIC HWY, ST LEONARDS NSW 2065 56 COM 70 39 - 38 - 41 - E 457 PACIFIC HWY, CROWS NEST NSW 2065 560 RES 69 52 - 58 - 46 - E 463 PACIFIC HWY, CROWS NEST NSW 2065 560 RES 69 52 - 58 - 46 - E 463 PACIFIC HWY, CROWS NEST NSW 2065 560 RES 69 54 - 58 - 46 - E 463 PACIFIC HWY, CROWS NEST NSW 2065 560 RES 69 54 - 58 - 46 - E 463 PACIFIC HWY, CROWS NEST NSW 2065 514 RES 69 52 - 58 - 46 -		,					-		-		-
B       306/10-12 CLARKE ST, CROWS NEST NSW 2065       282       Recording Studio       45       59       14       51       6       60       15         A       12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065       13       RES       69       45       -       26       -       35       -         B       472-486 Pacific Hwy St Leonards NSW 2065       791       RES       69       49       -       44       -       45       -         B       21/360 PACIFIC HWY, CROWS NEST NSW 2065       426       COM       70       53       -       59       -       51       -         A       107/6-8 CLARKE ST, CROWS NEST NSW 2065       610       Recording Studio       45       54       9       63       18       43       -         E       469 PACIFIC HWY, CROWS NEST NSW 2065       35       RES       69       53       -       59       -       45       -         E       348 PACIFIC HWY, CROWS NEST NSW 2065       10       RES       69       52       -       58       -       50       -         C       38 WILLOUGHBY RD, CROWS NEST NSW 2065       65       COM       70       54       -       58       -       40       -	<u> </u>	471 PACIFIC HWY, CROWS NEST NSW 2005	719		69	50	-	04	-	52	-
A 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 13 RES 69 45 - 26 - 35 - 45 - 45 - 45 B 472-486 Pacific Hwy St Leonards NSW 2065 791 RES 69 49 - 44 - 45 - 45 - 51 B 21/360 PACIFIC HWY, CROWS NEST NSW 2065 426 COM 70 53 - 59 - 51 - 51 - 51 A 107/6-8 CLARKE ST, CROWS NEST NSW 2065 610 Recording Studio 45 54 9 63 18 43 - 51 E 469 PACIFIC HWY, CROWS NEST NSW 2065 35 RES 69 53 - 59 - 45 - 50 - 50 - 51 C 38 WILLOUGHBY RD, CROWS NEST NSW 2065 65 COM 70 54 - 58 - 40 - 58 PACIFIC HWY, ST LEONARDS NSW 2065 56 COM 70 39 - 38 - 41 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 - 58 - 46 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 52 PACIFIC HWY, CROWS NEST NSW 2065 608 RES		306/10 12 CLARKE ST. CROWS NEST NOW 2065	292		15	50	14	51	۾	60	15
B 472-486 Pacific Hwy St Leonards NSW 2065 791 RES 69 49 - 44 - 45 - 51 - 51 - 51 - 51 - 51 - 51		·									
B 21/360 PACIFIC HWY, CROWS NEST NSW 2065		,					_				
A 107/6-8 CLARKE ST, CROWS NEST NSW 2065 610 Recording Studio 45 54 9 63 18 43 -  E 469 PACIFIC HWY, CROWS NEST NSW 2065 35 RES 69 53 - 59 - 45 -  E 348 PACIFIC HWY, CROWS NEST NSW 2065 10 RES 69 52 - 58 - 50 -  C 38 WILLOUGHBY RD, CROWS NEST NSW 2065 65 COM 70 54 - 58 - 40 -  A 583 PACIFIC HWY, ST LEONARDS NSW 2065 56 COM 70 39 - 38 - 41 -  E 457 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 69 54 - 58 - 46 -  E 463 PACIFIC HWY, CROWS NEST NSW 2065 514 RES 69 52 - 58 - 45 -		· · · · · · · · · · · · · · · · · · ·				1	_				
E       469 PACIFIC HWY, CROWS NEST NSW 2065       35       RES       69       53       -       59       -       45       -         E       348 PACIFIC HWY, CROWS NEST NSW 2065       10       RES       69       52       -       58       -       50       -         C       38 WILLOUGHBY RD, CROWS NEST NSW 2065       65       COM       70       54       -       58       -       40       -         A       583 PACIFIC HWY, ST LEONARDS NSW 2065       56       COM       70       39       -       38       -       41       -         E       457 PACIFIC HWY, CROWS NEST NSW 2065       608       RES       69       54       -       58       -       46       -         E       463 PACIFIC HWY, CROWS NEST NSW 2065       514       RES       69       52       -       58       -       45       -		•					9		18		
E       348 PACIFIC HWY, CROWS NEST NSW 2065       10       RES       69       52       -       58       -       50       -         C       38 WILLOUGHBY RD, CROWS NEST NSW 2065       65       COM       70       54       -       58       -       40       -         A       583 PACIFIC HWY, ST LEONARDS NSW 2065       56       COM       70       39       -       38       -       41       -         E       457 PACIFIC HWY, CROWS NEST NSW 2065       608       RES       69       54       -       58       -       46       -         E       463 PACIFIC HWY, CROWS NEST NSW 2065       514       RES       69       52       -       58       -       45       -		·							_		_
C       38 WILLOUGHBY RD, CROWS NEST NSW 2065       65       COM       70       54       -       58       -       40       -         A       583 PACIFIC HWY, ST LEONARDS NSW 2065       56       COM       70       39       -       38       -       41       -         E       457 PACIFIC HWY, CROWS NEST NSW 2065       608       RES       69       54       -       58       -       46       -         E       463 PACIFIC HWY, CROWS NEST NSW 2065       514       RES       69       52       -       58       -       45       -		·					_		_		_
A       583 PACIFIC HWY, ST LEONARDS NSW 2065       56       COM       70       39       -       38       -       41       -         E       457 PACIFIC HWY, CROWS NEST NSW 2065       608       RES       69       54       -       58       -       46       -         E       463 PACIFIC HWY, CROWS NEST NSW 2065       514       RES       69       52       -       58       -       45       -		·					_		_		_
E       457 PACIFIC HWY, CROWS NEST NSW 2065       608       RES       69       54       -       58       -       46       -         E       463 PACIFIC HWY, CROWS NEST NSW 2065       514       RES       69       52       -       58       -       45       -		·					_		_		_
E 463 PACIFIC HWY, CROWS NEST NSW 2065 514 RES 69 52 - 58 - 45 -		•					_		_		_
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Receiver NCA	Receiver Address	ID	Receiver Type				5a Tower Cra	anes Individual		
				External NML dB(A)		te A	Sit	е В	Sit	e C
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	69	51	-	57	-	50	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	69	42	-	41	-	44	-
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	69	55	-	53	-	50	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	69	56	-	62	-	38	-
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	69	50	-	56	-	49	-
В	SE 102 35 HUME ST, CROWS NEST NSW 2065	780	COM	70	55	-	46	-	61	-
E	23 ALBANY ST, CROWS NEST NSW 2065	269	СОМ	70	31	-	29	-	35	-

	Appendix	C.1B Day	OOH Scenarios	2 and 3 De	tailed Predic	ted Noise Leve	els Based on I	CNG (External	NML)							
Receiver NCA	Receiver Address	ID	Receiver Type					3 Mobi	le Cranes (loca	ations 2, 3, 4, 5,	, 6 and 7)					
				External NML dB(A)		2		3	4	4		5		6		7
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	64	57	-	46	-	45	-	43	-	44	-	47	-
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	64	54	-	42	-	45	-	41	-	43	-	47	-
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	64	52	-	48	-	49	-	47	-	48	-	51	-
			MED, RES and													
	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	64	51	-	40	-	56	-	47	-	44	-	49	-
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	64	45	-	37	-	38	-	34	-	31	-	33	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	64	44	-	23	-	25	-	22	-	19	-	33	-
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	64	41	-	46	-	42	-	52	-	52	-	50	-
	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	64	40	-	27	-	43	-	52	-	46	-	46	-
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	64	39	-	41	-	36	-	45	-	45	-	44	-
	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	64	39	-	41	-	37	-	44	-	45	-	42	-
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	64	39	-	41	-	38	-	48	-	48	-	46	-
	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	64	38	-	34	-	42	-	36	-	39	-	41	-
	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	64	37	-	40	-	36	-	37	-	44	-	42	-
	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	64	37	-	27	-	43	-	48	-	34	-	43	-
	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	64	36	-	26	-	39	-	48	-	40	-	44	-
В	15/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	192	RES	64	35	-	21	-	25	-	28	-	26	-	26	-
	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	64	35	-	27	-	40	-	50	-	42	-	45	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	64	35	-	36	-	25	-	42	-	43	-	42	-
	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	64	35	-	35	-	25	-	42	-	43	-	42	-
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	64	35	-	38	-	36	-	37	-	43	-	41	-
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	64	34	-	37	-	36	-	39	-	42	-	41	-
	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	64	34	-	35	-	25	-	41	-	42	-	41	-
	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	64	34	-	31	-	36	-	36	-	41	-	40	-
	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	64	34	-	30	-	24	-	26	-	40	-	39	-
	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	64	34	-	40	-	41	-	45	-	47	-	50	-
	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	64	34	-	28	-	25	-	28	-	39	-	38	-
	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	64	34	-	21	-	21	-	24	-	41	-	39	-
	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	64	34	-	29	-	32	-	29	-	40	-	39	-
	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES	64	33	-	31	-	32	-	23	-	33	-	30	-
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	64	33	-	37	-	43	-	32	-	46	-	50	-
D	1405/2 ATCHISON ST, ST LEONARDS NSW 2065	117	RES	64	33	-	13	-	9	-	22	-	24	-	30	-
	6/50-52 ALBANY ST, CROWS NEST NSW 2065	527	RES	64	33	-	21	-	20	-	16	-	17	-	20	-
	SHOP 3 10 ATCHISON ST, ST LEONARDS NSW 2065	199	RES	64	32	-	27	-	21	-	26	-	31	-	32	-
	39A WILLOUGHBY RD, CROWS NEST NSW 2065	325	RES	64	31	-	28	-	25	-	27	-	23	-	29	-
A	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES RES	64	31	-	22	-	34	-	37	-	27	-	28	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	KES	64	30	-	29	-	30	-	30	-	40	-	32	-

			Appendix C.1B Day O	OH Scena	ario 6 Detailed Pı	edicted Noise	Levels Based on	ICNG (External	NML)					
									6 Concr (locations 1,					
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	1		2	2	3		4		5	
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Surface Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
Е	5/545-553 PACIFIC HWY. ST LEONARDS NSW 2065	562	RES	64	69	5	65	1	54	-	57	-	55	-
	,		MED, RES and											
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	64	68	4	65	1	56	-	69	5	61	-
Е	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	64	65	1	68	4	61	-	62	-	60	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	64	65	1	73	9	60	-	59	-	57	-
Е	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	64	56	-	39	-	33	-	51	-	48	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	64	55	-	41	-	45	-	51	-	49	-
Е	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	64	55	-	38	-	37	-	43	-	40	-
D	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	64	54	-	36	-	40	-	50	-	48	-
Е	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	64	54	-	52	-	55	-	53	-	60	-
Е	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	64	53	-	50	-	41	-	57	-	61	-
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	64	53	-	54	-	57	-	56	-	65	1
Е	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	64	52	-	44	-	51	-	55	-	46	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	64	52	-	53	-	51	-	49	-	59	-
Е	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	64	51	-	53	-	52	-	51	-	58	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONE	268	RES	64	51	-	44	-	40	-	37	-	42	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	64	51	-	54	-	41	-	56	-	65	1
Е	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	64	50	-	49	-	40	-	55	-	63	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	64	50	-	51	-	52	-	51	-	50	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	64	50	-	49	-	51	-	50	-	50	-
Е	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	64	50	-	50	-	40	-	54	-	62	-
Е	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	64	50	-	48	-	49	-	50	-	52	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	64	50	-	44	-	44	-	43	-	44	-

		Appendix	C.1B Day OOH Sce	narios 4, 7,	9, 10 and 11 De	tailed Predicted l	Noise Levels Bas	sed on ICNG (Ext	ternal NML)					
					4 Ver	itilation	7 Delivery Pacific	Day/Evening Highway	9 Services,	finish, fitout	11a Demol retention wall ham	s Excavator	11b Demol retention wal	
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Below Slab/Enclosed Predicted Noise Level dB(A)	Exceedance (no exceedance when works are located away from penetrations)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
Е	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	64	27	-	60	-	72	8	92	28	69	5
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	64	28	-	67	3	69	5	87	23	64	0
В	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	64	42	-	69	5	68	4	86	22	63	-
С	22-26 CLARKE ST, CROWS NEST NSW 2065	464	MED, RES and Recording Studio	64	37	-	63	_	69	5	85	21	62	_
Е	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	64	26	-	57	-	67	3	84	20	61	-
Α	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	64	36	-	70	6	69	5	84	20	61	-
Α	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	64	41	-	70	6	71	7	83	19	60	-
Е	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	64	25	-	54	-	63	-	81	17	58	-
Α	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	64	25	-	68	4	59	_	79	15	56	-
Α	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	64	22	-	61	-	54	-	77	13	54	-
Α	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	64	20	-	59	-	53	-	77	13	54	-
Α	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	64	25	-	65	1	57	-	76	12	53	-
Е	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	64	26	-	49	-	60	-	76	12	53	-
Α	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	64	25	-	66	2	55	-	75	11	52	-
Α	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	64	13	-	58	-	47	-	74	10	51	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	64	15	-	55	-	50	-	73	9	50	-
Α	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	64	10	-	54	-	51	-	73	9	50	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	64	29	-	53	-	55	-	71	7	48	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	64	16	-	56	-	46	-	70	6	47	-
Α	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONE	268	RES	64	21	-	51	-	45	-	70	6	47	-
Е	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	64	22	-	62	-	50	-	69	5	46	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	64	21	-	58	-	51	-	69	5	46	-
Α	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	64	24	-	64	-	52	-	69	5	46	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	64	20	-	56	-	50	-	69	5	46	-
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	64	22	-	60		51	-	69	5	46	-
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	64	10	-	48		52	-	68	4	45	-
D	204/29 ALBANY ST, CROWS NEST NSW 2065	599	RES	64	8	-	48	-	47	-	68	4	45	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	64	22	-	62	-	50	-	68	4	45	-
В	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	64	17	-	48	-	53	-	68	4	45	-
D	61 HUME ST, CROWS NEST NSW 2065	179	RES	64	10	-	46	-	48	-	68	4	45	-
E	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	64	22	-	61	-	49	-	67	3	44	-
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	64	22	-	59	-	50	-	67	3	44	-
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	64	7	-	45	-	52	-	67	3	44	-

				A	ppendix C.1B	Day OOH Sce	nario 2b Detai	led Predicted I	Noise Levels B	ased on ICNG	(External NM	L)						
Receiver NCA	Receiver Address	ID	Receiver Type							2b	Structure Co	nstruction OOD	) Day					
				External NML dB(A)		uced scope of /L 97 dB(A))		uced scope of 'L 94 dB(A))	Site A3 redu works (SW	uced scope of L 99 dB(A))	works, 10r	duced scope of n below (SWL dB(A))	works, 10n	luced scope of n below (SWL dB(A))	works, 10m b	iced scope of elow (SWL 101 (A))		uced scope of L 106 dB(A))
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
			MED. RES and		(* -)		()	1	(* */				(		( ,		()	
_	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	64	60		60		60		41		46		47		59	
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	64	56	-	55	-	59	-	40	-	45	-	46	-	60	-
B	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	64	58	-	55	-	56	-	37	-	45	-	43	-	56	<del>                                     </del>
Б	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	64	58		53		54	-	41		45		48		53	+
F	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	64	46	-	47	-	53	-	57	-	59	-	56	-	60	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	64	46	-	45	-	50	-	59	-	60	-	58	-	51	<del>-</del>
1 -	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	64	45	-	45	-	50	-	55	-	52	-	48	-	48	-
F	457 PACIFIC HWY, CROWS NEST NSW 2005	608	RES	64	45	-	43	-	49		49	-	47	-	44	-	46	<del>                                     </del>
F	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	64	46	-	43	-	45	-	31	-	36	-	38	-	36	-
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065		RES	64	40		43		49		39	1	39		39		56	+
	· · · · · · · · · · · · · · · · · · ·	202 791	RES	64	45	-	42	-	49	-	38	-		-	43	-	50	-
<u> </u>	472-486 Pacific Hwy St Leonards NSW 2065 348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	64	45	-	42	-	49	-	46	-	43 47	-	43	-	55	-
F	463 PACIFIC HWY, CROWS NEST NSW 2005	514	RES	64	43		41	-	49	-	50	-	49	-	45		46	
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	64	43	-	40		49	-	45		49	-	45	-	54	-
<u> </u>	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	64	37	-	40	-	46	-	38	-	37	-	36	-	51	-
F	'		RES			-		-		-		-		-		-		-
	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	64	42	-	40	-	43	-	31	-	32	-	34	-	48	-
A F	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5 631	RES	64 64	39 42	-	40 39	-	45 47	-	38	-	41 42	-	40 39	-	51 54	-
	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065		RES			-		-		-	<u> </u>	-		-		-		-
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	64	41	-	39	-	42	-	31	-	32	-	32	-	34	-
E	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181		64	39	-	39	-	43	-	33	-	37	-	37	-	36	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	64	42	-	39	-	45	-	43	-	40	-	38	-	53	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	64	38	-	39	-	42	-	37	-	38	-	36	-	44	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	64	41	-	38	-	44	-	41	-	39	-	37	-	52	-
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	64	41	-	38	-	45	-	40	-	38	-	37	-	51	-
A	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	64	31	-	38	-	39	-	34	-	36	-	35	-	39	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	64	41	-	37	-	41	-	34	-	38	-	39	-	44	-
A	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	64	40	-	37	-	43	-	37	-	36	-	35	-	48	-
A	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	64	40	-	36	-	42	-	35	-	33	-	34	-	41	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT	268	RES	64	40	-	36	-	37	-	36	-	37	-	37	-	40	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	64	41	-	36	-	40	-	37	-	41	-	40	-	42	-
В	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	64	39	-	36	-	42	-	36	-	34	-	34	-	43	-
	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	64	32	-	36	-	41	-	33	-	32	-	32	-	46	-
E	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	64	39	-	36	-	41	-	35	-	33	-	32	-	41	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	64	35	-	35	-	43	-	39	-	40	-	40	-	50	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	64	35	-	35	-	42	-	39	-	39	-	38	-	50	-

				Appen	dix C.1B Day	OOH Scenari	os 5a and 2a D	Detailed Predic	ted Noise Leve	els Based on IC
Receiver NCA	Receiver Address	ID	Receiver Type				5a Tower Cra	anes Individual		
				External NML dB(A)	Sit	te A	Sit	te B	Sit	e C
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
			MED, RES and							
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	64	66	2	52	-	44	-
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	64	58	-	48	-	52	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	64	61	-	52	-	51	-
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	64	63	-	53	-	54	-
E	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	64	51	-	40	-	40	-
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	64	50	-	40	-	45	-
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	64	56	-	64	-	52	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	64	45	-	26	-	35	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	64	49	-	44	-	45	-
Е	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	64	53	-	59	-	45	-
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	64	52	-	58	-	50	-
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	64	54	-	58	-	46	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	64	52	-	58	-	45	-
E	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	64	39	-	43	-	41	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	64	51	-	57	-	50	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	64	42	-	41	-	44	-
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	64	55	-	53	-	50	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	64	56	-	62	-	38	-
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	64	50	-	56	-	49	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	64	50	-	55	-	49	-
Е	11/38-46 ALBANY ST, ST LEONARDS NSW 2065	264	RES	64	28	-	40	-	46	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	64	49	-	55	-	48	-



# APPENDIX C.2 - DETAILED PREDICTED NOISE LEVELS FOR SITE A, B, C – OOHW BASED ON ICNG ASSESSMENT

- Legend for receiver types
- RES Residential
- EDU Education facility
- MED Medical facility
- POW Place of Worship
- AOS Active Use Open Space
- POS Passive Use Open Space
- CCF Child Care Facility
- COM Commercial
- IND Industrial
- MIS Miscellaneous buildings such as a shed

		App	endix C.2 Evening	Scenario	s 1b and 3 De	etailed Predict	ed Noise Leve	els Based on IC	CNG (External	I NML)								
Receiver NCA	Receiver Address	ID	Receiver Type		1b Line	wide works ening			·	·	bile Cranes (lo	cations 2, 3, 4, 6	6 and 7)					
				External NML dB(A)				2		3		4		5		6		7
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
	22-26 CLARKE ST. CROWS NEST NSW 2065	464	MED, RES and Recording Studio	60	71	11	51		40		56		47		44		49	
	22-26 CLARKE ST, CROWS NEST INSW 2005 5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	60	63	3	54	-	40	-	45	<del>                                     </del>	41	-	43	-	49	-
	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	60	61	1	40	-	27	-	43	<del>                                     </del>	52	<del>-</del>	46		46	+
	471 PACIFIC HWY, CROWS NEST NSW 2005	719	RES	60	59	<del>  '</del>	40	-	46	-	43	<del>                                     </del>	52	<del>                                     </del>	52	-	50	
	471 FACIFIC HW1, CROWS NEST NSW 2005 472-486 Pacific Hwy St Leonards NSW 2065	791	RES	60	57	+ -	38	-	34	-	42	<del>                                     </del>	36	+ -	39	-	41	<del>                                     </del>
	469 PACIFIC HWY, CROWS NEST NSW 2005	35	RES	60	55	+ -	35	-	27	-	40	<del>-</del>	50	<del>-</del>	42	-	45	<del>-</del> -
	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	60	54	+ -	52	-	48	-	49	<del>                                     </del>	47	<del>+ -</del>	48	-	51	<del>                                     </del>
	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	60	54	+ -	24	<del>-</del>	23	-	30	<del>                                     </del>	26	<del>                                     </del>	33	-	34	<del>                                     </del>
	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	60	54	+	36	<del></del>	26	-	39	<del>+ -</del> -	48	<del>+ -</del> -	40	-	44	<del>-</del> -
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	60	53	-	39	-	41	-	38	<del>-</del>	48	-	48	-	46	-
	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	60	52	<del>-</del> -	57	<del>-</del>	46	-	45	<del>                                     </del>	43	<del>                                     </del>	44	-	47	<del>                                     </del>
	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	60	52	+ -	37	<del></del>	27	-	43	<del>+ -</del> -	48	<del>+ -</del> -	34	-	43	<del>                                     </del>
	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	60	52	+	25	<del>-</del>	19	-	37	<del>+</del>	35	<del>                                     </del>	24	-	34	-
	500 Pacific Hwy St Leonards NSW 2065	1	RES	60	51	+	29	<del></del>	18	-	16	+ :	28	<del>                                     </del>	22	-	36	+ -
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	60	51	<del>-</del>	39	<del>-</del>	41	-	36	<del>                                     </del>	45	<del>                                     </del>	45	-	44	-
	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	60	51	-	35	-	35	-	25	<del>-</del>	42	-	43	-	42	-
	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	60	51	<del>-</del>	27	<del>-</del>	31	-	37	+ -	35	+	25	-	35	-
	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2005	631	RES	60	50	<del>                                     </del>	39	<del>-</del>	41	-	37	<del>+ -</del> -	44	<del>                                     </del>	45	-	42	+ -
	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	60	50	<del>  </del> -	35		36	_	25	<del>-</del>	42	+ -	43	_	42	_
	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	5	RES	60	49	+ -	27	-	33	-	32	<del>                                     </del>	34	<del>                                     </del>	38	-	40	<del>                                     </del>
	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	60	49	+ -	37	<del>-</del>	40	-	36	<del></del>	37	<del></del>	44	-	42	+ -
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	60	49	<del>-</del>	33	-	37	-	43	<del>+ -</del> -	32	<del>+ -</del> -	46	-	50	-
	23 NICHOLSON ST, WOLLSTONECKAI T NSW 2005	358	RES	60	49	-	23	-	28	_	29	<del>-</del>	31	+ -	32	-	28	+ -
	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST. WOLLSTONECRAFT	268	RES	60	49	+ -	30	<del>-</del>	26	-	25	<del>                                     </del>	29	<del>                                     </del>	33	-	37	<del>-</del> -
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	60	49	+	35	<del></del>	38	-	36	<del>+ -</del> -	37	<del>                                     </del>	43	-	41	+ -
	19 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	487	RES	60	48	+ -	23	<del></del>	25	-	27	<del></del>	29	+ -	29	-	30	<del>                                     </del>
	LEVEL 328 PACIFIC HWY. CROWS NEST NSW 2065	559	RES	60	48	<del>-</del> -	34	<del></del>	37	-	36	<del>                                     </del>	39	<del>                                     </del>	42	-	41	<del>                                     </del>
	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	665	RES	60	48	-	25	<del>                                     </del>	27	-	25	<del>                                     </del>	35	<del>                                     </del>	32	-	33	+ -

			Appendix C.2 Evenii	ng Scenar	io 6 Detailed Pre	dicted Noise L	evels Based on l	ICNG (External N	IML)					
									6 Concr (locations 1,					
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	1		:	2	3		4		5	
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Surface Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	60	69	9	65	5	54	-	57	-	55	-
	,		MED, RES and											
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	60	68	8	65	5	56	-	69	9	61	1
Е	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	60	65	5	68	8	61	1	62	2	60	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	60	65	5	73	13	60	-	59	-	57	-
E	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	60	56	-	39	-	33	-	51	-	48	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	60	55	-	41	-	45	-	51	-	49	-
Е	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	60	55	-	38	-	37	-	43	-	40	-
D	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	60	54	-	36	-	40	-	50	-	48	-
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	60	54	-	52	-	55	-	53	-	60	0
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	60	53	-	50	-	41	-	57	-	61	1
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	60	53	-	54	-	57	-	56	-	65	5
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	60	52	-	44	-	51	-	55	-	46	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	60	52	-	53	-	51	-	49	-	59	-
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	60	51	-	53	-	52	-	51	-	58	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONE	268	RES	60	51	-	44	-	40	-	37	-	42	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	60	51	-	54	-	41	-	56	-	65	5
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	60	50	-	49	-	40	-	55	-	63	3
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	60	50	-	51	-	52	-	51	-	50	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	60	50	-	49	-	51	-	50	-	50	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	60	50	-	50	-	40	-	54	-	62	2
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	60	50	-	48	-	49	-	50	-	52	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	60	50	-	44	-	44	-	43	-	44	-
D	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	170	RES	60	50	-	43	-	31	-	34	-	34	-
Α	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	60	49	-	48	-	43	-	49	-	51	-
В	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	60	49	-	48	-	41	-	46	-	42	-
E	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	60	49	-	48	-	40	-	43	-	41	-
Α	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	60	48	-	48	-	41	-	41	-	40	-
Α	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	60	47	-	44	-	36	-	48	-	50	-
E	2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	350	RES	60	47	-	42	-	33	-	37	-	44	-
Α	152/9 ATCHISON ST, ST LEONARDS NSW 2065	716	RES	60	46	-	30	-	42	-	45	-	43	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	60	45	-	58	-	36	-	39	-	35	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	60	42	-	40	-	47	-	44	-	47	-
Α	4/6 RIVER RD, WOLLSTONECRAFT NSW 2065	498	RES	60	42	-	28	-	35	-	32	-	37	-
D	11/116 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	518	RES	60	42	-	32	-	36	-	31	-	38	-
E	3/5 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	340	RES	60	42	-	38	-	36	-	39	-	44	-
E	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	60	41	-	35	-	45	-	47	-	46	-
Е	2 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	352	RES	60	41	-	30	-	33	-	31	-	36	

Appendix C.2 Evening Scenarios 4, 7 and 9 Detailed Predicted Noise Levels Based on ICNG (External NML)												
					4 Ven	tilation	7 Delivery	Day/Evening	9 Services,	finish, fitout		
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Below Slab/Enclosed Predicted Noise Level dB(A)	Exceedance (no exceedance when works are located away from penetrations)		
E	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	60	27	-	60	-	72	12		
A	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	60	41	-	70	10	71	11		
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	60	28	-	67	7	69	9		
С	22-26 CLARKE ST, CROWS NEST NSW 2065	464	MED, RES and Recording Studio	60	37	-	63	3	69	9		
A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	60	36	-	70	10	69	9		
В	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	60	42	-	69	9	68	8		
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	60	26	-	57	-	67	7		
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	60	25	-	54	-	63	3		
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	60	26	-	49	-	60	-		
Α	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	60	25	-	68	8	59	-		
Α	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	60	25	-	65	5	57	-		
Α	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	60	25	-	66	6	55	-		
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	60	29	-	53	-	55	-		
Α	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	60	22	-	61	1	54	-		
Α	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	60	20	-	59	-	53	-		
В	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	60	17	-	48	-	53	-		
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	60	10	-	48	-	52	-		
Α	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	60	24	-	64	4	52	-		
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	60	7	-	45	-	52	-		
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	60	21	-	58	-	51	-		
Α	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	60	10	-	54	-	51	-		
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	60	22	-	60	0	51	-		
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	60	15	-	55	-	50	-		
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	60	20	-	56	-	50	-		
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	60	22	-	62	2	50	-		
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	60	22	-	59	-	50	-		
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	60	22	-	62	2	50	-		
Α	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	60	23	-	58	-	50	-		
В	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	60	7	-	47	-	49	-		
Α	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	60	22	-	55	-	49	-		
E	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	60	22	-	61	1	49	-		

	Appendix C.2 Evening Scenario 2b Detailed Predicted Noise Levels Based on ICNG (External NML)																	
Receiver NCA	Receiver Address	ID	Receiver Type		2b Structure Construction zones													
				External NML dB(A)	Site A1 reduced scope of works (SWL 97 dB(A))		Site A2 reduced scope of works (SWL 94 dB(A))		Site A3 reduced scope of works (SWL 99 dB(A))		Site B1 reduced scope of works, 10m below (SWL 101 dB(A))				of Site B3 reduced scope of works, 10m below (SWL 101 dB(A))			
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
			MED, RES and															
D	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	1	60	-	60	-	60	-	41	-	46	-	47	-	59	-
	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	60	56	-	55	-	59	-	40	-	45	-	46	-	60	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	60	58	-	55	-	56	-	37	-	42	-	43	-	56	-
Α	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	60	58	-	53	-	54	-	41	-	45	-	48	-	53	-
	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	60	46	-	47	-	53	-	57	-	59	-	56	-	60	-
Е	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	60	46	-	45	-	50	-	59	-	60	-	58	-	51	-
D	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	60	45	-	44	-	50	-	55	-	52	-	48	-	48	-
D	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	60	45	-	43	-	49	-	49	-	47	-	44	-	46	-
D	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	60	46	-	43	-	45	-	31	-	36	-	38	-	36	-
Α	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	60	42	-	43	-	49	-	39	-	39	-	39	-	56	-
Α	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	60	45	-	42	-	46	-	38	-	43	-	43	-	50	-
D	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	60	44	-	41	-	49	-	46	-	47	-	46	-	55	-
В	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	60	43	-	41	-	49	-	50	-	49	-	45	-	46	-
Е	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	60	43	-	40	-	48	-	45	-	46	-	41	-	54	-
С	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	60	37	-	40	-	47	-	38	-	37	-	36	-	51	-
D	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	60	42	-	40	-	43	-	31	-	32	-	34	-	48	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	60	39	-	40	-	45	-	38	-	41	-	40	-	51	-
C	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	60	42	-	39	-	47	-	44	-	42	-	39	-	54	-
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	60	41	_	39	_	42	_	31	-	32	_	32	_	34	_
B	1704/599 PACIFIC HWY. ST LEONARDS NSW 2065	181	RES	60	39	_	39	<u> </u>	43	_	33	_	37	_	37	_	36	_
D	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	60	42	_	39		45	_	43	_	40		38	_	53	
F	23 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	101	RES	60	38	_	39	_	42	_	37	_	38	-	36	_	44	_
<u> </u>	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	60	41	-	38	<del>                                     </del>	44	-	41	-	39	-	37	-	52	-
F	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	60	41	-	38	<del>                                     </del>	45	-	40	-	38	-	37	-	51	-
В	33 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	665	RES	60	31	-	38	<del></del>	39	-	34	-	36	-	35	-	39	-
A	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	60	41	-	37	-	41	-	34	-	38	-	39	-	44	-
A	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	60	40	-	37	-	43	-	37	-	36	-	35	-	48	-
	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	60	40	-	36	-	43	-	35	-	33	-	34	-	41	-
В	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT N		RES	60	40	-	36	-	37	-	36	-	37	-	37	-	40	-
	500 Pacific Hwy St Leonards NSW 2065	1	RES	60	41	-	36	-	40	-	37	-	41	-	40	-	42	-
	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	60	39	-	36	-	40	-	36	-	34	-	34	-	42	-
	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	55	32	-	36	-	42	-	33	-	32	-	32	-	46	-
	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	60	39	-	36	-	41	-	35	-	33	_	32	<del> </del>	40	-
A	3/455 PACIFIC HWY, CROWS NEST NSW 2005	731	RES	60	35	-	35	-	43	-	39	-	40	-	40	-	50	-
	1/455 PACIFIC HWY, CROWS NEST NSW 2005	445	RES	60	35	-	35	-			39	-	39	-	38		50	
D	1/400 FACIFIC TWT, CROWS NEST NSW 2003	440	IVEO	1 00			<u></u>		42	-	J 39		J 39		30	-	50	-

Appendix C.2 Evening Scenarios 5a and 2a Detailed Predicted Noise Levels B													
Receiver NCA	Receiver Address	ID	Receiver Type		5a Tower Cranes Individual								
				External NML dB(A)		te A	Sit	ee B	Site C				
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance			
D	88 WILLOUGHBY RD, CROWS NEST NSW 2065	639	RES	60	46	-	40	-	55	-			
D	SE 2 LEVEL 80A WILLOUGHBY RD, CROWS NEST NSW 2065	148	RES	60	51	-	41	-	55	-			
Е	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	60	63	3	53	-	54	-			
	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	60	56	-	64	4	52	-			
	SHOP 1 75 WILLOUGHBY RD, CROWS NEST NSW 2065	542	RES	60	47	-	45	-	52	-			
	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	60	58	-	48	-	52	-			
	61 HUME ST, CROWS NEST NSW 2065	179	RES	60	36	-	40	-	52	-			
	58/13 ERNEST ST, CROWS NEST NSW 2065	194	RES	60	47	-	44	_	52	_			
Α	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES	60	46	_	50	_	52	_			
	SE 9 LEVEL 110 WILLOUGHBY RD, CROWS NEST NSW 2065	509	RES	60	42	-	41	-	51	_			
	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	60	61	1	52	_	51	_			
	39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	60	47	-	50	_	51	_			
	63 HUME ST, CROWS NEST NSW 2065	442	RES	60	37	<del> </del>	41	_	51	_			
	3/35 WILLOUGHBY RD, CROWS NEST NSW 2065	76	RES	60	43	_	49	_	51	_			
	SE 11 LEVEL 110 WILLOUGHBY RD, CROWS NEST NSW 2065	602	RES	60	42	_	43	_	51	_			
	90-92 WILLOUGHBY RD, CROWS NEST NSW 2065	129	RES	60	42	<u> </u>	44	<u> </u>	51	_			
	39A WILLOUGHBY RD, CROWS NEST NSW 2065	325	RES	60	44	<u> </u>	51	_	51	_			
	1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	354	RES	60	46	<del> </del>	32	_	51	_			
	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	60	48	_	54	_	50	_			
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	60	52	_	58	_	50	_			
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	60	51	_	45	_	50	_			
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	60	51	_	57	_	50	_			
	204/29 ALBANY ST, CROWS NEST NSW 2065	599	RES	60	44	_	45		50	_			
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	60	55	_	53		50	_			
D	114 WILLOUGHBY RD, CROWS NEST NSW 2065	765	RES	60	44	-	41		50	_			
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	60	50	_	56	_	49	_			
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	60	54	-	58	_	46	_			
A	11 LAMONT ST, WOLLSTONECRAFT NSW 2065	388	RES	60	47	_	47	_	46	_			
	2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	350	RES	60	47	-	48	_	46	_			
	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES	60	48	<del> </del>	49	<del>  _</del>	46	_			
	304/53 ATCHISON ST, CROWS NEST NSW 2065	163	RES	60	36	-	39	<del> </del>	46	_			
E	76 ALBANY ST, CROWS NEST NSW 2065	260	RES	60	26	_	39	<del>  _</del>	45	_			
E	102 WILLOUGHBY RD, CROWS NEST NSW 2065	429	RES	60	34	-	36	-	45	_			
	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	60	52	-	58		45	_			
A	MAISON VUE 58/10-18 HUME ST, WOLLSTONECRAFT NSW 2065	647	RES	60	38	-	43		45				
	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	60	49	_	44	_	45	_			
	SE 109 LEVEL 68 ALEXANDER ST, CROWS NEST NSW 2065	757	RES	60	38	_	38	_	45	_			
	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	60	53	<del> </del>	59	<del> </del>	45	_			
	133 F. A.S. TO THE F. GIVETTO HE OF HOW 2000	00	MED, RES and	00	00				70				
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	60	66	6	52	-	44	-			

Receiver NCA	Receiver Address	ID	Receiver Type		5a Tower Cranes Individual							
				External NML dB(A)	Site A		Site B		Site C			
					Predicted Noise Level Exceedance dB(A)		Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance		
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	60	56	-	62	2	38	-		



# APPENDIX C.3 AND C.4 - DETAILED PREDICTED NOISE LEVELS FOR SITE A, B, C – OOHW DURING THE NIGHT PERIOD BASED ON ICNG ASSESSMENT AND SLEEP DISTURBANCE

- Legend for receiver types
- RES Residential
- EDU Education facility
- MED Medical facility
- POW Place of Worship
- AOS Active Use Open Space
- POS Passive Use Open Space
- CCF Child Care Facility
- COM Commercial
- IND Industrial
- MIS Miscellaneous buildings such as a shed

		App	endix C.3 Night S	cenarios 1	1c, 2 and 3 De	etailed Predicte	ed Noise Leve	els Based on IC	CNG (External	NML)								
Receive NCA	Receiver Address	ID	Receiver Type		1c Linewic	le works Night				3 Mok	oile Cranes (loca	tions 2, 3, 4, 5	, 6 and 7)					
				External NML dB(A)				2		3	4	į.		5		6	;	7
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
			MED, RES and															
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	55	68	13	51	-	40	-	56	1	47	-	44	-	49	1 - 1
Е	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	55	61	6	54	-	42	-	45	-	41	-	43	-	47	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	55	59	4	40	-	27	-	43	-	52	-	46	-	46	-
Е	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	55	56	1	41	-	46	-	42	-	52	-	52	-	50	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	55	55	-	38	-	34	-	42	-	36	-	39	-	41	-
Е	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	55	53	-	35	-	27	-	40	-	50	-	42	-	45	-
Е	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	55	52	-	52	-	48	-	49	-	47	-	48	-	51	-
Е	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	55	52	-	24	-	23	-	30	-	26	-	33	-	34	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	55	51	-	36	-	26	-	39	-	48	-	40	-	44	-
Е	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	55	51	-	39	-	41	-	38	-	48	-	48	-	46	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	55	50	-	57	2	46	-	45	-	43	-	44	-	47	-
Е	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	55	50	-	37	-	27	-	43	-	48	-	34	-	43	-
Е	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	55	49	-	25	-	19	-	37	-	35	-	24	-	34	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	55	49	-	29	-	18	-	16	-	28	-	22	-	36	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	55	49	-	39	-	41	-	36	-	45	-	45	-	44	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	55	49	-	35	-	35	-	25	-	42	-	43	-	42	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	55	49	-	27	-	31	-	37	-	35	-	25	-	35	-
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	55	48	-	39	-	41	-	37	-	44	-	45	-	42	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	55	48	-	35	-	36	-	25	-	42	-	43	-	42	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	55	47	-	27	-	33	-	32	-	34	-	38	-	40	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	55	47	-	37	-	40	-	36	-	37	-	44	-	42	-
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	55	47	-	33	-	37	-	43	-	32	-	46	-	50	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	55	47	-	23	-	28	-	29	-	31	-	32	-	28	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT		RES	55	47	-	30	-	26	-	25	-	29	-	33	-	37	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	55	46	-	35	-	38	-	36	-	37	-	43	-	41	-
В	19 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	487	RES	55	46	-	23	-	25	-	27	-	29	-	29	-	30	-
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	55	46	-	34	-	37	-	36	-	39	-	42	-	41	-
A	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	55	46	-	25	-	27	-	25	-	35	-	32	-	33	-
A	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	55	46	-	30	-	29	-	30	-	30	-	40	-	32	-
E	3/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	601	RES RES	55	46	-	25	-	23	-	26	-	29	-	27 27	-	30	-
D	3/35 WILLOUGHBY RD, CROWS NEST NSW 2065	76	RES	55	46	-	25	-	23	-	26	-	25	-		-	28	-
E	39A WILLOUGHBY RD, CROWS NEST NSW 2065	325	RES	55	46	-	31	-	28	-	25	-	27	-	23	-	29	-
E	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394 595	RES	55 55	46 46	-	24 45	-	26 37	-	27 38	-	25 34	-	27 31	-	32 33	-
E	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	55	45		34	<del>-</del>		-	25	-	41	-	42	-	41	-
E E	·	384	RES	55	45	_	34	<b>+</b>	35 40		41		41	-	42		50	<del></del>
D	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	55	45	-	27	-	28	-	26	-	31	-	27	-	28	<del>-</del> -
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	55	45	-	44	<del>-</del> -	28	-	25	-	22	<del>  -</del>	19	-	33	<del></del>
D		354	RES	55	45	+ -	23	<del>  -</del>	31	-	28	-	27	-	29	-	33	-
	1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES		44	-	+	<b>+</b>		-	40		27	-			30	
A B	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065 15/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	192	RES	55 55	44		24 35	-	25 21	-	25	-	28	-	33 26	-	26	
A	14/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	192 565	RES	55	44	+ -	29	<del>-</del>	23	-	25	-	28	-	20	-	26 25	<del>-</del> -
	· ·		RES		44		<del> </del>							+	41			
Α	322 PACIFIC HWY, CROWS NEST NSW 2065	790	I KES	55	44	-	34	-	31	-	36	-	36	-	41	-	40	-

			Appendix C.3 Night	Scenario	6 Detailed Pred	icted Noise Le	vels Based on IC	NG (External N	ML)					
									6 Concr	ete Pour				
									(locations 1, 2	2, 3, 4 and 5)				
				Estamal.										
Receiver	Receiver Address	ID	Receiver Type	External NML	1		2	2	3		4		5	
NCA	100001101111111111111111111111111111111			dB(A)										
					Predicted		Predicted		Predicted Noise	Surface	Predicted Noise		Predicted	
					Noise Level dB(A)	Exceedance		Exceedance	Level dB(A)	Exceedance	Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance
					UD(A)		dB(A)						GB(A)	
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES MED. RES and	55	69	14	65	10	54	-	57	2	55	-
A	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	55	68	13	65	10	56	1	69	14	61	6
	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	55	65	10	68	13	61	6	62	7	60	5
	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065 1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	232	RES RES	55 55	65 56	10	73 39	18	60	5	59 51	4	57 48	2
	301/599 PACIFIC HWY, ST LEONARDS NSW 2005	181 122	RES	55	55	-	39 41	-	45	-	51	-	49	-
	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	55	55	-	38	-	37	-	43	-	40	-
	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	55	54	-	36	-	40	-	50	-	48	-
	348 PACIFIC HWY, CROWS NEST NSW 2065 457 PACIFIC HWY, CROWS NEST NSW 2065	10 608	RES RES	55 55	54 53	-	52 50	-	55 41	-	53 57	2	60 61	5
	471 PACIFIC HWY, CROWS NEST NSW 2005	719	RES	55	53	-	54	-	57	2	56	1	65	10
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	55	52	-	44	-	51	-	55	-	46	-
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	55	52	-	53	-	51	-	49	-	59	4
	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065 CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONE	631 268	RES RES	55 55	51 51	-	53 44	-	52 40	-	51 37	-	58 42	3
	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	55	51	-	54	-	41	-	56	1	65	10
	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	55	50	-	49	-	40	-	55	0	63	8
	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES RES	55	50	-	51	-	52	-	51	-	50	-
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065 463 PACIFIC HWY, CROWS NEST NSW 2065	343 514	RES	55 55	50 50	-	49 50	-	51 40	-	50 54	-	50 62	7
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	55	50	-	48	-	49	-	50	-	52	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	55	50	-	44	-	44	-	43	-	44	-
	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065 322 PACIFIC HWY, CROWS NEST NSW 2065	170 790	RES RES	55 55	50 49	-	43 48	-	31 43	-	34 49	-	34 51	-
	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	55	49	-	48	-	43	-	49	-	42	-
	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	55	49	-	48	-	40	-	43	-	41	-
	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	55	48	-	48	-	41	-	41	-	40	-
	12 WILLOUGHBY RD, CROWS NEST NSW 2065 2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	86 350	RES RES	55 55	47 47	-	44 42	-	36 33	-	48 37	-	50 44	-
	152/9 ATCHISON ST, ST LEONARDS NSW 2065	716	RES	55	46	-	30	-	42	-	45	-	43	-
	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	55	45	-	58	3	36	-	39	-	35	-
	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5 498	RES RES	55	42	-	40	-	47	-	32 32	-	47	-
	4/6 RIVER RD, WOLLSTONECRAFT NSW 2065  11/116 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	518	RES	55 55	42 42	-	28 32	-	35 36	-	31	-	37 38	-
	3/5 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	340	RES	55	42	-	38	-	36	-	39	-	44	-
	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	55	41	-	35	-	45	-	47	-	46	-
	2 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	352 595	RES RES	55 55	41 41		30 59	4	33 51	-	31 51	-	36 47	-
	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	55	41	-	39	-	41	-	39	-	49	-
	26/17 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	704	RES	55	41	-	34	-	35	-	39	-	37	-
	1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	354	RES RES	55	41	-	37	-	45 37	-	43	-	38	-
	3/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	601 707	RES	55 55	41	-	39 35	-	35	-	40 35	-	43 39	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	55	41		37		42		41	-	45	-
	8/124 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	513	RES	55	40	-	34	-	38	-	37	-	44	-
	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065  11 LAMONT ST, WOLLSTONECRAFT NSW 2065	384 388	RES RES	55 55	40 39	-	47 30	<u>-</u>	50 34	-	53 33	-	58 37	3
	19 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	487	RES	55	39	-	37	-	39	-	40	-	43	-
В	15/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	192	RES	55	39	-	49	-	35	-	39	-	42	-
	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	55	39	-	41	-	42	-	41	-	45	-
	5/6-10 LAMONT ST, WOLLSTONECRAFT NSW 2065  14/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	475 565	RES RES	55 55	39 39	-	30 42	-	39	-	45 41	-	42 41	-
	22 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	233	RES	55	39	-	37	-	31	-	35	-	33	-
E	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	55	39	-	38	-	40	-	41	-	38	-
	88 WILLOUGHBY RD, CROWS NEST NSW 2065 83/54 CHRISTIE ST, ST LEONARDS NSW 2065	639 745	RES RES	55 55	39 39	-	39 44	-	48 34	-	43 35	-	37 34	-
	SE 2 LEVEL 80A WILLOUGHBY RD, CROWS NEST NSW 2065	148	RES	55	38	-	38	-	42	-	43	-	38	-
	6/50-52 ALBANY ST, CROWS NEST NSW 2065	527	RES	55	38	-	44	-	34	-	34	-	32	-
Α	120 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	749	RES	55	38	-	29	-	37	-	32	-	38	-

									6 Concr (locations 1,					
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	1		2	2	3		4		5	
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Surface Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
Α	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	55	38	-	48	-	35	-	35	-	38	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	55	38	-	49	-	50	-	48	-	55	0
Е	3/2A NICHOLSON ST, WOLLSTONECRAFT NSW 2065	644	RES	55	38	-	30	-	41	•	38	-	37	-
Α	98 WILLOUGHBY RD, CROWS NEST NSW 2065	71	RES	55	38	-	37	-	39	-	39	-	38	-
Α	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES	55	38	-	37	-	39	-	52	-	41	-
E	24 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	310	RES	55	37	-	41	-	29	-	34	-	33	-
В	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	55	37	-	37	-	53	-	40	-	54	-
D	MAISON VUE 33/10-18 HUME ST, WOLLSTONECRAFT NSW 2065	126	RES	55	37	-	35	-	30	-	33	-	34	-
E	63 HUME ST, CROWS NEST NSW 2065	442	RES	55	37	-	44	-	54	•	48	-	34	-
D	61/13 ERNEST ST, CROWS NEST NSW 2065	15	RES	55	37	-	42	-	49	-	48	-	37	-
В	61 HUME ST, CROWS NEST NSW 2065	179	RES	55	37	-	44	-	53	-	47	-	34	-
В	42-44 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	329	RES	55	37	-	26	-	24	-	27	-	36	-
E	102 WILLOUGHBY RD, CROWS NEST NSW 2065	429	RES	55	37	-	36	-	38	-	37	-	35	-
E	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	55	37	-	48	-	49	•	39	-	54	-
D	3/35 WILLOUGHBY RD, CROWS NEST NSW 2065	76	RES	55	37	-	38	-	38	-	40	-	39	-
В	SE 2 LEVEL 25 WILLOUGHBY RD, CROWS NEST NSW 2065	485	RES	55	37	-	39	-	34	-	32	-	41	-
Е	16 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	600	RES	55	37	-	37	-	29	•	34	-	33	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	55	37	-	52	-	53	-	56	1	49	-

		Арр	endix C.3 Night Scer	narios 4, 5, 8	3, 9 and 12 Detai	led Predicted No	ise Levels Base	d on ICNG (Exter	nal NML)					
					4 Ver	tilation		ery Night Highway	9 Services,	finish, fitout	12a Girder [	Delivery Site A	12b Girder D	Delivery Site B
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Below Slab/Enclosed Predicted Noise Level dB(A)	Exceedance (no exceedance when works are located away from penetrations)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
Е	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	55	27	-	53	-	72	-	56	1	62	7
Α	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	55	41	-	64	6	71	6	61	6	52	-
Е	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	55	28	-	60	5	69	5	56	1	64	9
С	22-26 CLARKE ST, CROWS NEST NSW 2065	464	MED, RES and Recording Studio	55	37	_	56	1	69	1	66	11	52	_
Α	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	55	36	-	64	9	69	9	63	8	53	-
В	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	55	42	-	62	7	68	7	58	3	48	-
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	55	26	-	50	-	67	-	53	-	59	4
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	55	25	-	47	-	63	-	52	-	58	3
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	55	26	-	43	-	60	-	54	-	58	3
Α	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	55	25	-	61	-	59	-	52	-	58	3
Α	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	55	25	-	59	4	57	4	51	-	57	2
Α	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	55	25	-	59	-	55	-	50	-	56	1
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	55	29	-	46	-	55	-	49	-	44	-
Α	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	55	22	-	55	-	54	-	55	-	53	-
Α	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	55	20	-	53	-	53	-	55	-	52	-
В	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	55	17	-	42	-	53	-	42	-	41	-
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	55	10	-	42	-	52	1	51	-	40	-
Α	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	55	24	-	57	-	52	1	50	-	55	-
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	55	7	-	38	-	52	-	39	-	43	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	55	21	-	52	-	51	-	50	-	40	-
Α	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	55	10	-	47	-	51	-	47	-	47	-
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	55	22	-	54	-	51	-	49	-	55	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	55	15	-	49	-	50	-	48	-	54	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	55	20	-	49	-	50	-	45	-	26	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	55	22	-	56	1	50	1	43	-	51	-

					Append	ix C.3 Night 2	b Detailed Pre	dicted Noise Le	evels Based or	ICNG (Extern	al NML)							
Receiver NCA	Receiver Address	ID	Receiver Type							2b	Structure C	onstruction zo	nes					
				External NML dB(A)	Site A1 red	uced scope of /L 97 dB(A))		uced scope of /L 94 dB(A))		uced scope of 'L 99 dB(A))	works, 10r	luced scope of n below (SWL dB(A))	works, 10n		works, 10m be		Site C reduced works (SWL 10	
			MED, RES and		Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level Ex dB(A)	xceedance						
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	55	60	5	60	5	60	5	41	-	46	-	47	-	59	4
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	55	56	1	55	-	59	4	40	-	45	-	46	-	60	5
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	55	58	3	55	-	56	1	37	-	42	-	43	-	56	1
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	55	58	3	53	-	54	-	41	-	45	-	48	-	53	-
E D	471 PACIFIC HWY, CROWS NEST NSW 2065 8/473 PACIFIC HWY, CROWS NEST NSW 2065	719 541	RES RES	55 55	46 46	-	47 45	-	53 50	-	57 59	4	59 60	5	56 58	3	60 51	5
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	55	45	-	44	-	50	-	55	-	52	-	48	-	48	
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	55	45	-	43	-	49	-	49	-	47	-	44	-	46	
E	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	55	46	-	43	-	45	-	31	-	36	-	38	-	36	-
Е	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	55	42	-	43	-	49	-	39	-	39	-	39	-	56	1
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	55	45	-	42	-	46	-	38	-	43	-	43	-	50	-
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	55	44	-	41	-	49	-	46	-	47	-	46	-	55	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	55	43	-	41	-	49	-	50	-	49	-	45	-	46	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065 29 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	94	RES RES	55	43	-	40	-	48	-	45	-	46	-	41	-	54	
E F	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384 595	RES	55 55	37 42	-	40	-	47 43	-	38	-	37 32	-	36 34	-	51 48	-
A	25 NICHOLSON ST. WOLLSTONECRAFT NSW 2005	5	RES	55	39	-	40		45	-	38	<del>-</del>	41	-	40	-	51	
E	GROUND 338 PACIFIC HWY. CROWS NEST NSW 2065	631	RES	55	42	-	39	-	47	-	44	<del>-</del>	42	-	39	-	54	
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	55	41	-	39	-	42	-	31	-	32	-	32	-	34	-
Е	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	55	39	-	39	-	43	-	33	-	37	-	37	-	36	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	55	42	-	39	-	45	-	43	-	40	-	38	-	53	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	55	38	-	39	-	42	-	37	-	38	-	36	-	44	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	55	41	-	38	-	44	-	41	-	39	-	37	-	52	-
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	55	41	-	38	-	45	-	40	-	38	-	37	-	51	
A	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES RES	55	31	-	38	-	39	-	34	-	36	-	35 39	-	39	
C A	301/599 PACIFIC HWY, ST LEONARDS NSW 2065 322 PACIFIC HWY, CROWS NEST NSW 2065	122 790	RES	55 55	41	-	37 37	-	41 43	-	34	-	38 36	-	39	-	44	-
A	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2005	311	RES	55	40	-	36	-	42	-	35	<del>-</del>	33	-	34	-	41	
C	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT N	268	RES	55	40	<del>-</del>	36		37	-	36	<del>                                     </del>	37	-	37	-	40	
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	55	41	_	36	-	40	-	37	-	41	-	40	-	42	-
В	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	55	39	-	36	-	42	-	36	-	34	-	34	-	43	-
Α	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	55	32	-	36	-	41	-	33	-	32	-	32	-	46	-
Е	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	55	39	-	36	-	41	-	35	-	33	-	32	-	41	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	55	35	-	35	-	43	-	39	-	40	-	40	-	50	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	55	35	-	35	-	42	-	39	-	39	-	38	-	50	-
В	5/6-10 LAMONT ST, WOLLSTONECRAFT NSW 2065	475	RES RES	55	32	-	35		42	-	32	-	33	-	31	-	46	
B A	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065 LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	524 750	RES	55 55	28	-	35 34	-	45 39	-	35 31	-	36 33	-	34 35	-	51 52	-
E	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	55	34	-	34	-	46	-	34	-	34	-	34	-	50	
	61 HUME ST, CROWS NEST NSW 2065	179	RES	55	26	-	33	-	39	-	31	<del>-</del>	32	-	27	-	50	-
E	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES	55	35	-	33	-	37	-	31	-	32	-	32	-	41	-
D	39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	55	34	-	33	-	38	-	33	-	34	-	35	-	51	-
Α	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	55	37	-	33	-	38	-	35	-	34	-	33	-	36	-
	63 HUME ST, CROWS NEST NSW 2065	442	RES	55	26	-	33	-	39	-	30	-	29	-	27	-	52	-
	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	55	31	-	33	-	41	-	32	-	32	-	30	-	47	-
	61/13 ERNEST ST, CROWS NEST NSW 2065	15	RES	55	29	-	32	-	42	-	31	-	32	-	33	-	47	-
	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	55	35	-	32	-	37	-	38	-	37	-	37	-	49	-
	2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	350	RES RES	55	33	-	32	-	39	-	32	-	31	-	32	-	41	-
E A	11/38-46 ALBANY ST, ST LEONARDS NSW 2065 3105/1 MARSHALL AV, ST LEONARDS NSW 2065	264 379	RES	55 55	24 35	-	32 32	-	27 35	-	24 17	-	25 25	-	25 30	-	40	-
A	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	55	36	-	32	-	36	-	37	-	33	-	33	-	44	
A	204/29 ALBANY ST, CROWS NEST NSW 2065	599	RES	55	24	-	32	-	39	-	32	-	32	-	27	-	54	
		- 550					·			-			, J <u>-</u>			1	<u> </u>	

				App	endix C.3 Nig	ht Scenarios	5a and 2a Det	ailed Predicted	Noise Levels	Based on ICNO
Receiver	Receiver Address	ID	Receiver Type				5a Tower Cra	anes Individual		
NCA										
							I		l	
				External						
				NML dB(A)	Sit	te A	Sit	te B	Sit	te C
				ab(A)						
					Donali ataul		Donali ataut		Donali ataul	
					Predicted	Exceedance	Predicted	Exceedance	Predicted	Exceedance
					dB(A)	Exocedanise	dB(A)	Exocedance	dB(A)	Exectadilet
			MED, RES and		, , ,					
A	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	55	66	11	52	_	44	_
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	55	58	3	48	_	52	_
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	55	61	6	52	-	51	-
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	55	63	8	53	-	54	-
Е	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	55	51	_	40	-	40	-
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	55	50	-	40	-	45	-
Е	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	55	56	1	64	9	52	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	55	45	-	26	-	35	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	55	49	-	44	-	45	-
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	55	53	-	59	4	45	-
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	55	52	-	58	3	50	-
<u>E</u>	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	55	54	-	58	3	46	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	55	52	-	58	3	45	-
E	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	55	39	-	43	-	41	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94 122	RES RES	55	51	-	57	2	50	-
C E	301/599 PACIFIC HWY, ST LEONARDS NSW 2065 2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	55 55	42 55	-	41 53	-	44 50	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	55	56	- 1	62	7	38	-
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2005	631	RES	55	50	<u>'</u>	56	1	49	_
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	55	50	<u> </u>	55	<u>'</u>	49	<u> </u>
E	11/38-46 ALBANY ST, ST LEONARDS NSW 2065	264	RES	55	28	_	40	<u> </u>	46	
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	55	49	_	55	_	48	_
A	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	55	48	_	53	_	48	_
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	55	49	_	54	_	48	_
В	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	55	47	-	52	-	48	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT I	268	RES	55	51	-	48	-	45	-
В	6/50-52 ALBANY ST, CROWS NEST NSW 2065	527	RES	55	28	-	35	-	39	-
Е	24 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	310	RES	55	33	-	25	-	37	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	55	38	-	31	-	43	-
Α	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	55	46	-	51	-	47	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	55	43	-	51	-	43	-
E	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	55	47	-	51	-	47	-
A	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	55	51	-	45	-	50	-
D	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	170	RES	55	45	-	43	-	43	-
A	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES RES	55	42	-	42	-	42	-
E E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	55 55	45 44	- 	51	-	43	<u>-</u>
A	449A PACIFIC HWY, CROWS NEST NSW 2065   12 WILLOUGHBY RD, CROWS NEST NSW 2065	758 86	RES	55 55	44	<u>-</u>	50 54	-	41 49	-
D	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	55	33	<u>-</u>	35	<del>-</del>	49	<del>-</del>
	I I JUJ/JUB FACIFIC TW I, SI LEUNARDO NOW ZUOD	120	NES	33	_ აა	-	_ აა	_	44	-

Receiver NCA	Receiver Address	ID	Receiver Type				5a Tower Cra	anes Individual		
				External NML dB(A)		te A	Sit	e B	Sit	e C
					Predicted Noise Level	Exceedance	Predicted Noise Level	Exceedance	Predicted Noise Level	Exceedance
					dB(A)		dB(A)		dB(A)	
Е	102 WILLOUGHBY RD, CROWS NEST NSW 2065	429	RES	55	34	-	36	-	45	-
Α	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	55	46	-	48	-	40	-
Е	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	55	55	-	52	-	39	-

	Арр	endix C.4	Night Sleep Distur	bance So	enarios 1c, 2	and 3 Detailed	Predicted N	oise Levels Ba	sed on ICNG	(External NML)								
Receive NCA	Receiver Address	ID	Receiver Type		1c Linewid	e works Night				3 <b>M</b> o	bile Cranes (loc	ations 2, 3, 4, 5	5 and 6)					
				External NML dB(A)				2		3	4			5		6		7
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance						
			MED, RES and		]								]					
Α	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	65	68	3	51	-	40	-	56	-	47	-	44	-	49	-
Е	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	65	61	-	54	-	42	-	45	-	41	-	43	-	47	-
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	65	59	-	40	-	27	-	43	-	52	-	46	-	46	-
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	65	56	-	41	-	46	-	42	-	52	-	52	-	50	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	65	55	-	38	-	34	-	42	-	36	-	39	-	41	-
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	65	53	-	35	-	27	-	40	-	50	-	42	-	45	-
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	65	52	-	52	-	48	-	49	-	47	-	48	-	51	-
E	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	65	52	-	24	-	23	-	30	-	26	-	33	-	34	-
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	65	51	-	36	-	26	-	39	-	48	-	40	-	44	-
Е	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	65	51	-	39	-	41	-	38	-	48	-	48	-	46	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	65	50	-	57	-	46	-	45	-	43	-	44	-	47	-
Е	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	65	50	-	37	-	27	-	43	-	48	-	34	-	43	-
E	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	65	49	-	25	-	19	-	37	-	35	-	24	-	34	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	65	49	-	29	-	18	-	16	-	28	-	22	-	36	-
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	65	49	-	39	-	41	-	36	-	45	-	45	-	44	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	65	49	-	35	-	35	-	25	-	42	-	43	-	42	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	65	49	-	27	-	31	-	37	-	35	-	25	-	35	-
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	65	48	-	39	-	41	-	37	-	44	-	45	-	42	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	65	48	-	35	-	36	-	25	-	42	-	43	-	42	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	65	47	-	27	-	33	-	32	-	34	-	38	-	40	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	65	47	-	37	-	40	-	36	-	37	-	44	-	42	-
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	65	47	-	33	-	37	-	43	-	32	-	46	-	50	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	65	47	-	23	-	28	-	29	-	31	-	32	-	28	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT N	268	RES	65	47	-	30	-	26	-	25	-	29	-	33	-	37	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	65	46	-	35	-	38	-	36	-	37	-	43	-	41	-
В	19 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	487	RES	65	46	-	23	-	25	-	27	-	29	-	29	-	30	-
Е	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	65	46	-	34	-	37	-	36	-	39	-	42	-	41	-
Α	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	65	46	-	25	-	27	-	25	-	35	-	32	-	33	-
Α	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	65	46	-	30	-	29	-	30	-	30	-	40	-	32	-
Е	3/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	601	RES	65	46	-	25	-	23	-	26	-	29	-	27	-	30	-
D	3/35 WILLOUGHBY RD, CROWS NEST NSW 2065	76	RES	65	46	-	25	-	23	-	26	-	25	-	27	-	28	-
Е	39A WILLOUGHBY RD, CROWS NEST NSW 2065	325	RES	65	46	-	31	-	28	-	25	-	27	-	23	-	29	-
Е	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	65	46	-	24	-	26	-	27	-	25	-	27	-	32	-
Е	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	65	46	-	45	-	37	-	38	-	34	-	31	-	33	-
Е	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	65	45	-	34	-	35	-	25	-	41	-	42	-	41	-
Е	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	65	45	-	34	-	40	-	41	-	45	-	47	-	50	-
D	39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	65	45	-	27	-	28	-	26	-	31	-	27	-	28	-

		Appen	dix C.4 Night Sleep Dis	sturbance	Scenario 6 Deta	ailed Predicted	Noise Levels Ba	sed on ICNG (Ex	kternal NML)					
									6 Concr (locations 1, 2					
Receiver	Receiver Address	ID	Receiver Type	External NML	1		2	?	3		4		5	
NCA	Neceivel Address	10	Neceiver Type	dB(A)	Predicted		Predicted		Predicted Noise	Surface	Producted Noise		Predicted	
					Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance	Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance
D	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES MED, RES and	65	69	4	65	0	54	-	57	-	55	-
	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	65	68	3	65	-	56	-	69	4	61	-
	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES RES	65	65	0	68	3	61	-	62 59	-	60 57	-
	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065 1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	232 181	RES	65 65	65 56	0	73 39	8	60 33	<u>-</u>	59	-	48	-
	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	65	55	-	41		45	<u>-</u>	51	_	49	
	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	65	55	-	38	-	37	-	43	-	40	-
С	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	65	54	-	36	-	40	-	50	-	48	-
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	65	54	-	52	-	55	-	53	-	60	-
	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	65	53	-	50	-	41	-	57	-	61	-
	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES RES	65	53	-	54	-	57	-	56	-	65	-
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065 342-346 PACIFIC HWY, CROWS NEST NSW 2065	202 94	RES	65 65	52 52	-	44 53	-	51 51	<u>-</u>	55 49	-	46 59	-
	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	65	51	_	53		52	<u> </u>	51	_	58	-
	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST. WOLLSTONE	268	RES	65	51	-	44	_	40	-	37	-	42	_
Α	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	65	51	-	54	-	41	-	56	-	65	0
	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	65	50	-	49	-	40	-	55	-	63	-
	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	65	50	-	51	-	52	-	51	-	50	-
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	65	50	-	49	-	51	-	50	-	50	-
	463 PACIFIC HWY, CROWS NEST NSW 2065 LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	514 559	RES RES	65 65	50 50	-	50 48	-	40 49	-	54 50	-	62 52	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	101	RES	65	50	-	48	-	49	<u> </u>	43	-	52 44	-
	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	170	RES	65	50	-	43		31	<u>-</u>	34	_	34	_
	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	65	49	-	48	-	43	-	49	-	51	-
D	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	65	49	-	48	-	41	-	46	-	42	-
	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	65	49	-	48	-	40	-	43	-	41	-
	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	65	48	-	48	-	41	-	41	-	40	-
	12 WILLOUGHBY RD, CROWS NEST NSW 2065 2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	86 350	RES RES	65	47 47	-	44 42	-	36 33	-	48 37	-	50 44	-
	152/9 ATCHISON ST, ST LEONARDS NSW 2065	716	RES	65 65	46	-	30	-	42	<u>-</u>	45	-	43	-
	12/35-51 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	13	RES	65	45	_	58		36	<u> </u>	39	_	35	
	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	65	42	-	40	-	47	-	44	-	47	-
D	4/6 RIVER RD, WOLLSTONECRAFT NSW 2065	498	RES	65	42	-	28	-	35	-	32	-	37	-
D	11/116 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	518	RES	65	42	-	32	-	36	-	31	-	38	-
	3/5 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	340	RES	65	42	-	38	-	36	-	39	-	44	-
	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	65	41	-	35	-	45	-	47	-	46	-
	2 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	352 595	RES RES	65 65	41 41		30 59	-	33 51	<u>-</u>	31 51	-	36 47	-
	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	665	RES	65	41	-	39	-	41	<u> </u>	39	-	49	-
	26/17 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	704	RES	65	41	-	34	-	35	-	39	-	37	-
E	1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	354	RES	65	41	-	37	-	45	-	43	-	38	-
	3/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	601	RES	65	41	-	39	-	37	-	40	-	43	-
	3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	707	RES	65	41	-	35	-	35	-	35	-	39	-
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	65	41	-	37	-	42	-	41	-	45	-
	8/124 SHIRLEY RD, WOLLSTONECRAFT NSW 2065 29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	513 384	RES RES	65 65	40 40	-	34 47	-	38 50	-	37 53	-	44 58	-
	11 LAMONT ST, WOLLSTONECRAFT NSW 2065	388	RES	65	39		30	-	34	<u>-</u>	33	-	37	-
	19 NICHOLSON ST, WOLLSTONECRAFT NSW 2005	487	RES	65	39	-	37	-	39	<u> </u>	40	-	43	-
	15/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	192	RES	65	39	-	49	-	35	-	39	-	42	-
	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	65	39	-	41	-	42	-	41	-	45	-
	5/6-10 LAMONT ST, WOLLSTONECRAFT NSW 2065	475	RES	65	39	-	30	-	44	-	45	-	42	-
	14/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	565	RES	65	39	-	42	-	39	-	41	-	41	-
	22 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	233	RES	65	39	-	37	-	31	-	35	-	33	-
	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 88 WILLOUGHBY RD, CROWS NEST NSW 2065	394 639	RES RES	65 65	39 39	-	38 39	-	40 48	<u>-</u>	41 43	-	38 37	-
	83/54 CHRISTIE ST, ST LEONARDS NSW 2065	745	RES	65	39	-	39 44	-	34	<u>-</u>	35	-	34	-
	SE 2 LEVEL 80A WILLOUGHBY RD, CROWS NEST NSW 2065	148	RES	65	38	-	38		42	<u> </u>	43	-	38	-
	6/50-52 ALBANY ST, CROWS NEST NSW 2065	527	RES	65	38	-	44	-	34	-	34	-	32	-
Е	120 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	749	RES	65	38	-	29	-	37	-	32	-	38	-

									6 Concre (locations 1, 2					
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	1		2	2	3		4		5	
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Surface Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
Α	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	65	38	-	48	-	35	-	35	-	38	-
В	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	65	38	-	49	-	50	-	48	-	55	-
Α	3/2A NICHOLSON ST, WOLLSTONECRAFT NSW 2065	644	RES	65	38	-	30	-	41	-	38	-	37	-
D	98 WILLOUGHBY RD, CROWS NEST NSW 2065	71	RES	65	38	-	37	-	39	-	39	-	38	-
E	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES	65	38	-	37	-	39	-	52	-	41	-
Α	24 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	310	RES	65	37	-	41	-	29	-	34	-	33	-
D	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	65	37	-	37	-	53	-	40	-	54	-
D	MAISON VUE 33/10-18 HUME ST, WOLLSTONECRAFT NSW 2065	126	RES	65	37	-	35	-	30	-	33	-	34	-
D	63 HUME ST, CROWS NEST NSW 2065	442	RES	65	37	-	44	-	54	-	48	-	34	-
E	61/13 ERNEST ST, CROWS NEST NSW 2065	15	RES	65	37	-	42	-	49	-	48	-	37	-
В	61 HUME ST, CROWS NEST NSW 2065	179	RES	65	37	-	44	-	53	-	47	-	34	-
Α	42-44 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	329	RES	65	37	-	26	-	24	-	27	-	36	-
D	102 WILLOUGHBY RD, CROWS NEST NSW 2065	429	RES	65	37	-	36	-	38	-	37	-	35	-
E	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	65	37	-	48	-	49	-	39	-	54	-
D	3/35 WILLOUGHBY RD, CROWS NEST NSW 2065	76	RES	65	37	-	38	-	38	-	40	-	39	-
E	SE 2 LEVEL 25 WILLOUGHBY RD, CROWS NEST NSW 2065	485	RES	65	37	-	39	-	34	-	32	-	41	-
E	16 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	600	RES	65	37	-	37	-	29	-	34	-	33	-
	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	65	37	-	52	-	53	-	56	-	49	-
Е	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES	65	37	-	47	-	45	-	45	-	37	-
E	7/2B NICHOLSON ST, WOLLSTONECRAFT NSW 2065	258	RES	65	37	-	36	-	37	-	36	-	38	-
A	90-92 WILLOUGHBY RD, CROWS NEST NSW 2065	129	RES	65	36	-	36	-	39	-	37	-	37	-

	Appen	dix C.4 Nig	ht Sleep Disturbance	Scenarios	4, 5, 8, 9 and 1	2 and 3 Detailed I	Predicted Noise	Levels Based on	ICNG (External I	NML)				
					4 Ver	tilation		ery Night Highway	9 Services,	finish, fitout	12 a Girder I	Delivery Site A	12b Girder D	elivery Site B
Receiver NCA	Receiver Address	ID	Receiver Type	External NML dB(A)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Below Slab/Enclosed Predicted Noise Level dB(A)	Exceedance (no exceedance when works are located away from penetrations)	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
E	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	65	27	_	53	_	72	(<0)	56	_	62	_
А	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	65	41	-	64	-	71	6 (<0) 4	61	-	52	-
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	65	28	_	60	-	69	(<0)	56	-	64	-
С	22-26 CLARKE ST, CROWS NEST NSW 2065	464	MED, RES and Recording Studio	65	37	-	56	-	69	4 (<0)	66	1	52	-
A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	65	36	-	64	-	69	4 (<0) 3	63	-	53	-
В	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	65	42	-	62	-	68	(<0)	58	-	48	-
	469 PACIFIC HWY, CROWS NEST NSW 2065 463 PACIFIC HWY, CROWS NEST NSW 2065	35 514	RES RES	65 65	26 25	-	50 47	-	67 63	2 (<0)	53 52	-	59 58	-
	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	65	26	_	43	_	60	_	54	_	58	<del>-</del>
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	65	25	_	61	_	59	_	52	_	58	-
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	65	25	_	59	-	57	_	51	-	57	-
A	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	65	25	-	59	-	55	-	50	-	56	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	65	29	-	46	-	55	-	49	-	44	-
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	65	22	-	55	-	54	-	55	-	53	-
Α	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	65	20	-	53	-	53	-	55	-	52	-
В	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	65	17	-	42	-	53	-	42	-	41	-
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	65	10	-	42	-	52	-	51	-	40	-
Α	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	65	24	-	57	-	52	-	50	-	55	-
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	65	7	-	38	-	52	-	39	-	43	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	65	21	-	52	-	51	-	50	-	40	-
	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	65	10	-	47	-	51	-	47	-	47	-
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	65	22	-	54	-	51	-	49	-	55	-
	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	65	15	-	49	-	50	-	48	-	54	-
Α	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	65	20	-	49	-	50	-	45	-	26	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	65	22	-	56	-	50	-	43	-	51	-



# APPENDIX D.1 - CONSULTATION REQUIRED UNDER CONDITIONS E37/E38 FOR SITE A, B, C

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									Append x D	1 Day Sce	nar os 2a and	d 3 Summary o	Consu tat	on Requ red	under Cond t	n =87 =88										_					
									2a Str	ucture Cons	struct on											Mob e Crane 2 2 3 4 5 6 :									
Rece ver NCA	Rece ver Address	ID	Rece ver Type	Assumed Façade Loss			S te A			S te B			S te C																		
						L	Exceedanc e	M t gat on package	L	Exceedanc e	M t gat on package	L	e exceedanc	M t gat on package	L	e	M t gat on package	No se Leve dB(A)	Exceedanc e	M t gat on package	L	Exceedanc e	M t gat on package	L	Exceedance e	M t gat on package	L	Exceedanc e	M t gat on package	L	Exceedanc M t gat on package
	28-34 CLARKE ST, CROWS NEST NSW 2065		MED and Heritage		85		-		56	-		57	-		52			39	-		51	-		44	-		43			49	-
E	20 Clarke St, Crows Nest NSW 2065	1002	Recording Studio	20	80	76			64			70	-		49			45			67	-		50			46	,		53	-
			MED, RES and																												
D	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio		80	75	-		60	-		61	-		51			40	-		56	-		47	-		44	-		49	-
A	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562			80		-		54	-		55	-		54	-		42	-		45	-		41	-		43	-		47	-
E	SE 402 FLOOR 38 OXLEY ST, ST LEONARDS NSW 2065	763			85		-		53	-	1	49			50			36	-		40	-		38	-		41	-		45	
С	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232		20	80	69	-		58	-		58			57			46	-		45	-		43	-		44	-		47	-
B	200140 40 CLARKE OF OROUGH NEOTHOW 2005	000	MED and Recording Studio		80	69			69			76			43			64			55			48		1	20			54	
D D	306/10-12 CLARKE ST, CROWS NEST NSW 2065 388 PACIFIC HWY, CROWS NEST NSW 2065	282			85		- :		64	-					43 50							- :		48	-	+	39	-		53	-
D	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	280 594			80	69	- :		62	- :		63	-÷-		52	-		48 48	- : -		48 49	- :		49	- :	+	50 48	-		51	-
F	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2005	57			70	69	-		65	-		63			48	-		46	-		49 52	-		51	-	+	48 52	-		56	
	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2085 SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2085	375			70		-			-		63			48 47				-			-		52	-	+					
D E	SE 102 35 HUME ST. CROWS NEST NSW 2065	780			70	68 67			66	-		70			33	-		49 56	-		51 41			38	-	+	54 45	-		59 47	-
	374 PACIFIC HWY, CROWS NEST NSW 2065	456			70	66	- :		71	1		63	-÷-		33 44	-		46	- : -		46	- :		53	- :	+	45 59			58	- :
F	4/41 OXLEY ST. CROWS NEST NSW 2065	456 547			80	65	-		51	-		62			43	-		46	-		34	-		36	-	+	33	-		32	-
E E	454-456 Pacific Hwy. St Leonards NSW 2065	1000		10		65	-		53		-	53			50	-	_	41	- :		38	- :		37		+	35			43	
A	1/45-47 HUME ST. CROWS NEST NSW 2065	579			85	65	- :		61	-		68			34	-		51	-		34			30	-	+	35 44			43	-
F	47/460 PACIFIC HWY, ST LEONARDS NSW 2005	502			70	64	-		52	-	-	53			51	-	_	39	-		43	-		36		+	40	-		42	
A	40 OXLEY ST, ST LEONARDS NSW 2065	482			85	64			50	-	-	51			53	-	_	38			30			35	-	+	32	-		41	
- A	14/360 PACIFIC HWY CROWS NEST NSW 2065	402 693		10		64	- :		69	- :	-	63			40	-	-	30 47	- :		39 46			53	-	+	32 56			53	
E	39 HUME ST. CROWS NEST NSW 2065	242				64	-		62	-	-	67			24	-	_	52	-		38	- :		31		+	44	- :		42	
	41 HUME ST, CROWS NEST NSW 2005	137					-		62	-	-	68			24	-	_	50	-		37	-		28		+	44	- :		41	
- A	452 PACIFIC HWY, ST LEONARDS NSW 2065	277		25		62			53	- :	-	52			52	-	-	34	-		38			38	-	+	37	-		41	
	107/6-8 CLARKE ST. CROWS NEST NSW 2065		Recording Studio		80		- :		71			56			41	-		28	- :		45	- :		51	-	+	52			49	
Č	567 PACIFIC HWY, ST LEONARDS NSW 2065	361				61			52		-	51			25	-	-	26			41	-		37		+	28	-		39	
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202				61	-		59	-		58	-		33			37	-		43	-		32	-	+	46	-		50	-
	33/1 ALBANY ST. ST LEONARDS NSW 2065	103		20		61			48	-	<b>†</b>	38			24		-	23			30			26	-	+	33			34	
	35 Clarke St Crows Nest NSW 2065	1001			80	61	-		58		1	69		<b>—</b>	33	-		50	- :		41	- :		27	-	+	44			42	
F	471 PACIFIC HWY, CROWS NEST NSW 2065	719		20		60	-		71	-		62	-		41			46	-		42	-		52	-	+	52	-		50	-
D	21/360 PACIFIC HWY, CROWS NEST NSW 2065	426			70	59	-		68	-		59			39			41	-		38	-		49	-	+	50			48	-
D	UNIT 707 9 ALBANY ST. ST LEONARDS NSW 2065	620			70	59	-		40	-		55			41			36			22	-		24	-	+	28			38	
В	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541			80	58	-		74	-		53	-		40			27	-		43	-		52	-	+	46			46	-
В	469 PACIFIC HWY, CROWS NEST NSW 2065	35			70	58	-		70	-		50			35			27	-		40	-		50	-	+	42			45	-
	29 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	384			70	58	-		59	-	1	53	-		34			40	-		41	-		45	-	+	47	-		50	-
A	348 PACIFIC HWY, CROWS NEST NSW 2065	10			70	58	-		66	-		57			39			41	-		38			48	-		48	-		46	
E	12/35-51 NICHOLSON ST. WOLLSTONE CRAFT NSW 2065	595	RES		70	58	-		49	-		50	-		45			37			38	-		34	-	1	31			33	
E	472-486 Pacific Hwy St Leonards NSW 2065	791	RES		85	57	-		53	-		52			38			34	-		42	-		36	-		39	-		41	
E	583 PACIFIC HWY, ST LEONARDS NSW 2065	651	COM	10	70	57	-		48	-		42	-		25			21	-		38	-		35	-	1	36			38	
A	38 WILLOUGHBY RD, CROWS NEST NSW 2065	65	COM	10	70	57	-		67	-		46			36			26	-		40	-		45	-	1	33			34	
В	51 HUME ST, CROWS NEST NSW 2065	107	COM	10	70	57	-		58	-		62	-		35			48	-		26	-		28	-	$T \rightarrow T$	38	-		40	-
A	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	25	85	57	-		62	-		56	-		39			41	-		36	-		45	-	1	45			44	
A	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	10	70	57	-		40	-		52			24			26			27	-		25	-	1	27	-		32	
D	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25	85	56	-		67	-		48			37			27	-		43	-		48	-	T	34	-		43	
	THOSE IS THE T, GROTTO NECOT NOTE 2000	000		20		~			- 3/			0									3			40			3			_~	

					Appe	ndix D.1 Day Sc	enario 6 Summa	ary of Consultat	on Requ red under	Condition E37/	E38							
												6 Concrete P (locations 1, 2, 3,						
Receiver NCA	Receiver Address	ID		Assumed Façade NN Loss	ıL							3		4			5	
					Predic No se L dB(A	evel Exceedan	Mtgaton package	Predicted Noise Leve dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	redicted Noise Level dB(A)	Exceedance	M t gation package	Predicted No se Level dB(A)	Exceedance	M t gat on package
С	28-34 CLARKE ST, CROWS NEST NSW 2065	690	MED and Heritage	25 8	5 80			64			53	-	64			57		
В	SE 402 FLOOR 38 OXLEYST, ST LEONARDS NSW 2065	763	COM	25 8	5 70			63			49		54			51		
В	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	20 8	69			65			54		57			55		
C	22-26 CLARKE ST. CROWS NEST NSW 2065	464	MED, RES and Recording Studio	20 8	) 68			65			56		69			61		
Ä	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	20 8				68			61		62			60		
A	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	20 8				73			60		59			57		
B	454-456 Pacific Hwy, St Leonards NSW 2065	1000	COM	10 7			1	66	-		54		54		1	51		
A	388 PACIFIC HWY, CROWS NEST NSW 2065	280	COM	25 8			1	63	-		62	_	62	-	1	62		
ĉ	20 Clarke St. Crows Nest NSW 2065	1002	Recording Studio	20 8			+	62	-		61		 78		1	64		
Ä	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	57	COM	10 7				62			63		65			65		
B	452 PACIFIC HWY, ST LEONARDS NSW 2065	277	EDU	25 8				66			52	-	52			51		
В	40 OXLEY ST. ST LEONARDS NSW 2065	482	EDU	25 8				67	-		52		53			49		
A	SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	375	COM	10 7				61			63	-	65			65		
B	567 PACIFIC HWY, ST LEONARDS NSW 2065	361	COM	25 8				39	-		41	-	55			51		
В	583 PACIFIC HWY, ST LEGNARDS NSW 2065	651	COM	10 7				39			36		51			49		
B	583 PACIFIC HWY, ST LEONARDS NSW 2065	56	COM	25 8				36	-		36	- :	51	<del></del>		49	-	
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	20 8				39			33		51	-		48		
A	14/360 PACIFIC HWY, CROWS NEST NSW 2065	693	COM	10 7				54	-		59	- :	57			67	-	
A	374 PACIFIC HWY, CROWS NEST NSW 2065	456	COM and Heritage	10 7				57	-		62		54	· ·		65		
B	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	10 7				41	-		45		51			49	-	
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	20 8				38	-		37		43			40	-	
В	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	10 7				36	-		40	- :	50			48	- :	
A	21/360 PACIFIC HWY, CROWS NEST NSW 2065	426	COM	10 7				53	-		56	- :	52			61	-	
A	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10 7			_	52	-		55	- :	53			60	- :	
Α	348 PACIFIC HW1, CROWS NEST NSW 2065	10	MED and	10 /	54			52	-		55	-	53		1	60		
D	306/10-12 CLARKE ST, CROWS NEST NSW 2065	282	Recording Studio	20 8				56	-		74	-	70			62		
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25 8				50	-		41		57			61		
D	107/6-8 CLARKE ST, CROWS NEST NSW 2065	610	Recording Studio	20 8				55	-		43		58			65		
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	20 8				54	-		57		56	•		65		
A	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	10 7				44	-		51	-	55	•	1	46		
A	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	25 8				53	-		51		49	•		59		
D	51 HUME ST, CROWS NEST NSW 2065	107	COM	10 7				48	-		62		51			42		
A	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	25 8				53	-		52	-	51		1	58		
A	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT	268	RES	10 7				44	-		40		37			42		
E	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	20 8				54	-		41	-	56		1	65		
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10 7				49			40		55		1	63		
A	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	25 8				51	-		52		51			50		
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	25 8				49	-		51	-	50		1	50		
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	10 7				50	-		40		54			62		
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	25 8				48	-		49	-	50		1	52		
D	SE 102 35 HUME ST, CROWS NEST NSW 2065	780	COM	10 7				46			70	-	64		1	49		
E	38 WILLOUGHBY RD, CROWS NEST NSW 2065	65	COM	10 7				50	-		40		54			58		
A	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	10 7				44	-		44		43			44		
В	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	170	RES	10 7				43	-		31	-	34			34		
A	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	10 7				48	-		43		49			51		
D	41 HUME ST, CROWS NEST NSW 2065	137	COM	25 8	5 49	-		38	-		65		52		1	42		

		Ар	pendix D.1 Day So	cenario 6 S	umma	ry of Consultation	on Required u	nder Conditio	on E37/E38					
										5 Tower Cranes	Individual			
Receiver NCA	Receiver Address	ID	Receiver Type	Assumed Façade Loss	NML		Site A			Site B			Site C	
						Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	20	80	66	-		54	-		44	-	
Α	8 BALFOUR ST, WOLLSTONECRAFT NSW 2065	2	RES	10	70	66	-		52	-		44	-	
Α	18 BALFOUR ST, WOLLSTONECRAFT NSW 2065	3	RES	10	70	63	-		55	-		54	-	
В	SE 1 LEVEL 63-65 CHANDOS ST, ST LEONARDS NSW 2065	4	COM	10	70	63	-		53	-		54	-	
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	10	70	62	-		55	-		54	-	
	7 DEVONSHIRE ST, CROWS NEST NSW 2065	6	RES	10	70	62	-		50	-		44	-	
	4/74 ALBANY ST, CROWS NEST NSW 2065	7	RES	10	70	61	-		52	-		51	-	
	93 FALCON ST, CROWS NEST NSW 2065	8	RES	10	70	61	-		56	-		54	-	
	286 PACIFIC HWY, CROWS NEST NSW 2065	9	COM	10	70	59	-		51	-		60	-	
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10	70	58	-		60	-		54	-	
	101/40 FALCON ST, CROWS NEST NSW 2065	11	COM	10	70	58	-		48	-		52	-	
	1/19 RIVER RD, WOLLSTONECRAFT NSW 2065	12	RES	10	70	58	-		48	-		43	-	
	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	10	70	56	-		45	-		51	-	
	7/23-25 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	14	RES	10	70	56	-		62	-		38	-	
	61/13 ERNEST ST, CROWS NEST NSW 2065	15	RES	10	70	56	-		64	-		52	-	
	104 ATCHISON ST, CROWS NEST NSW 2065	16	RES	10	70	56	-		46	-		48	-	
	202/272 PACIFIC HWY, CROWS NEST NSW 2065	17	COM	10	70	56	-		61	-		53	-	
	UNIT 3 65 ERNEST ST, CROWS NEST NSW 2065	18	RES	10	70	55	-		41	-		48	-	
	401 PACIFIC HWY, CROWS NEST NSW 2065	19	COM	10	70	55	-		45	-		48	-	
	17 LITHGOW ST, WOLLSTONECRAFT NSW 2065	20	RES	10	70	55	-		46	-		61	-	
	47 ALEXANDER ST, CROWS NEST NSW 2065	21	RES	10	70	55	-		53	-		50	-	
	66 FALCON ST, CROWS NEST NSW 2065	22	RES	10	70 70	55	-		52	-		39	-	
	30A RIVER RD, WOLLSTONECRAFT NSW 2065 28 RIVER RD, WOLLSTONECRAFT NSW 2065	23 24	RES RES	10 10	70	54 54	-		46 58	-		59 40	-	
	62 BURLINGTON ST, CROWS NEST NSW 2065	25	RES	10	70	54 54	-		58	-		40	-	
	90A FALCON ST, CROWS NEST NSW 2065	26	RES	10	70	54	-		63	-		43	-	
	28 HAYBERRY ST, CROWS NEST NSW 2065	27	RES	10	70	53	-		59	-		45	-	
	50 BURLINGTON ST, CROWS NEST NSW 2065	28	RES	10	70	53			59	-		51	-	
	40-44 WILLOUGHBY RD. CROWS NEST NSW 2065	29	COM	10	70	52	-		58	-		45	-	
	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	10	70	52	-	1	58			50	-	
	56 BURLINGTON ST, CROWS NEST NSW 2065	31	RES	10	70	51	-		48	-		45	-	
	307/45 ATCHISON ST, CROWS NEST NSW 2065	32	RES	10	70	51	-		46	-		58	-	
	99 SHIRLEY RD, CROWS NEST NSW 2065	33	COM	10	70	51	-		57	-		50	-	
	14 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	34	RES	10	70	51	-		40	-		40	-	
	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10	70	51	-		41	_		55	-	
	133 CHANDOS ST. CROWS NEST NSW 2065	36	RES	10	70	51	-		45	-		50	-	
	78 HAYBERRY ST, CROWS NEST NSW 2065	37	RES	10	70	50	-		56	-		49	-	
	SE 9 LEVEL 30 ATCHISON ST, ST LEONARDS NSW 2065	38	COM	10	70	50	-		38	-		33	-	
	11/80 HUME LANE, CROWS NEST NSW 2065	39	RES	10	70	50	-		45	-		47	-	
	3/86 BURLINGTON ST, CROWS NEST NSW 2065	40	RES	10	70	50	-		43	-		59	-	
Α	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES	10	70	50	-		55	-		49	-	
	2/1 HUNTINGTON ST, CROWS NEST NSW 2065	42	RES	10	70	50	-		46	-		52	-	
Α	16 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	43	RES	10	70	50	-		40	-		45	-	
Α	290-294 PACIFIC HWY, CROWS NEST NSW 2065	44	COM	10	70	49	-		50	-		49	-	
E	75 ALEXANDER ST, CROWS NEST NSW 2065	45	COM	10	70	49	-		44	-		45	-	

Receiver Pyo   Frequency   F	ed Exceedance Mt gation No se Leve E	sh ground retention walls Wire saw  Exceedance
D   Receiver Address   D   Receiver Type   Faced   Secretains   Frictional Note Lived   Exceedance   Mitgation   Principled Note Lived   Exceedance   Mitgation   Mitgation   Principled Note Lived   Exceedance   Mitgation   Principled Note Lived   Exceedance   Mitgation   Principled Note   Mitgation   Principled Note   Mitgation   Principled Note   Mitgation   Principled Note   Mitgation	Secretarion   No se Leve E   Secretario	
C 28-04 CLARKE ST, CROWS NEST NSW 2065 690 MED and Heritage 25 85 45 - 63 - 74 108 23 M. I.B 93 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 65  5 62  15 M.LB 72  15 M.LB 69  12 M.LB 69  13 M.LB 60  5 62  1 14 48  - 55  - 57  6 6 63  - 45  - 46  - 4  - 4  - 4  - 61  - 3  - 60  - 63  - 64  - 61  - 7  - 64  - 61  - 64  - 65  - 65  - 64  - 64  - 65  - 65  - 64  - 64  - 65  - 64  - 65  - 65  - 64  - 65  - 64  - 65  - 64  - 65  - 64  - 65  - 65  - 66	
D 306/10-12 CLARKE ST, CROWS NEST NSW 2065 280 Recording Studio 20 80 32 - 600 - 75 - 106 26 M. LB 88 RECORDS NEST NSW 2065 690 - 100 80 37 - 63 - 74 - 101 424 M. LB 86 RECORDS NEST NSW 2065 690 - 100 80 37 - 63 - 74 - 101 424 M. LB 95 RECORDS NEST NSW 2065 910 Recording Studio 20 80 37 - 63 - 74 - 101 424 M. LB 95 RECORDS NEST NSW 2065 910 Recording Studio 20 80 37 - 63 - 74 - 101 424 M. LB 95 RECORDS NEST NSW 2065 910 Recording Studio 20 80 27 - 67 - 68 - 102 22 M. LB 95 RECORDS NEST NSW 2065 910 Recording Studio 20 80 27 - 67 - 68 - 102 22 M. LB 95 RECORDS NEST NSW 2065 910 Recording Studio 20 80 27 - 60 - 72 - 99 91 91 M. LB 95 RECORDS NEST NSW 2065 910 RECORDS NSW 206	8 65 5 MLB 62 15 MLB 72 15 MLB 72 12 MLB 69 13 MLB 60 5 62 1 48 7 64 7 64 7 64 64 1 48 17 MLB 61 17 MLB 64 4 61 18 MLB 63 18 MLB 63	
C 22-26 CLARKE ST. CROWS NEST NSW 2005	15 M.LB 72 15 M.LB 72 15 M.LB 69 12 M.LB 69 13 M.LB 60 5 62 1 48 7 64 7 64 - 57 6 6 63 - 47 17 M.LB 61 17 M.LB 61 17 M.LB 64 4 61 17 M.LB 64 4 61 18 M.LB 63 18 M.LB 63	
C 20 Clarkes BL Crows Near NSW 2065   1002 Recording Studio 20 80 36 - 63 - 74 - 104 24 M, LB 95   E 8th 37 PACIFIC HWY, CROWS NEST NSW 2065   541 RES 20 80 27 - 667 - 668 - 102 22 M, LB 95   E 8th 37 PACIFIC HWY, CROWS NEST NSW 2065   541 RES 20 80 27 - 660 - 72 - 99 19 M, LB 95   E 8th 37 PACIFIC HWY, CROWS NEST NSW 2065   541 RES 20 80 27 - 660 - 72 - 99 19 M, LB 95   E 8th 37 PACIFIC HWY, CROWS NEST NSW 2065   541 RES 20 80 27 - 660 - 72 - 99 19 M, LB 83   D SS Clarkes SL Crows Nest NSW 2065   541 RES 20 80 15 - 53 - 55	15 M.LB 72 12 M.LB 69 13 M.LB 60 5 S 62 1	
E 8473 PACIFIC HWY, CROWS NEST INSW 2065 541 RES 20 80 27 - 60 - 72 - 99 19 M. LB 92 CD S END ST. CROWS NEST INSW 2065 780 COM 10 70 23 - 55 9 - 67 - 95 25 M. LB 83 D 35 Clarke S1 Crows Nest INSW 2065 150 CD S-25 CM LD GUSH PRO CROWS NEST INSW 2065 151 COM 10 70 15 - 48 - 49 - 94 14 M. LB 85 D 52 CM MILL GUSH PRO CROWS NEST INSW 2065 779 RES 20 80 28 - 67 - 69 - 93 13 M. LB 87 C 441 CALLEY ST. CROWS NEST INSW 2065 779 RES 20 80 28 - 67 - 69 - 93 13 M. LB 87 C 441 CALLEY ST. CROWS NEST INSW 2065 779 RES 20 80 28 - 67 - 69 - 92 12 M. LB 87 D 52 C 54 C	12 M,LB 69 13 M,LB 69 15 62 11 48 77 64 15 17 65 17 62 11 17 M,LB 61 17 M,LB 64 17 M,LB 64 18 16 11 18 M,LB 63 11 M,LB 63	
D SE 102 35 HJME ST, CROWS NEST NSW 2005 780 COM 10 70 23 - 59 - 67 - 995 25 M. LB 83 3 D 35 CJánk ST, CROWS NEST NSW 2005 10 10 EDU 20 80 15 - 53 - 58 - 94 114 M. LB 85 D 52-54 WILLOUGHBYRD, CROWS NEST NSW 2005 516 COM 10 70 15 - 48 - 49 - 94 24 M. LB 71 1	13 M, LB 60 5 5 62 1 48 7 7 64 48 7 7 64 64 7 7 65 62 62 62 62 64 64 65 63 64 64 64 64 64 64 64 64 61 13 M, LB 63 11 M, LB 60	-
D 52-54 MULOUGHBYRD. CROWS NEST NSW 2065 516 COM 10 70 15 - 48 - 49 - 94 24 M. LB 71 LE 4 71 PACPIC HWY, CROWS NEST NSW 2065 719 RES 20 80 28 - 67 - 69 - 93 13 M. LB 87 COM 20 80 36 - 61 - 59 - 92 12 M. LB 71 M. LB 72 COM 20 80 36 - 61 - 59 - 92 12 M. LB 72 COM 20 80 36 - 61 - 59 - 92 12 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 - 61 - 59 M. LB 72 COM 20 80 36 M. LB 72 COM 20 80 36 M. LB 72 COM 20 80 M. LB 72 COM 20 80 M. LB 72 COM 20 80 M. LB 72 COM 20 M. LB 85 M. LD 85 M.	1 48 7 64 64 65 65 66 66 66 67 66 67 67 66 67 67 67 67 67	-
E 471 PACIFIC HWY, CROWN SIEST NSW 2005 719 RES 20 80 28 - 67 - 69 - 93 13 M. LB 87 C 4 41 ONLEY ST. GROWN SIEST NSW 2005 5 54 C COM 20 80 36 - 66 1 - 59 9 - 92 12 M. LB 87 R B SE 402 FLOOR 36 ONLEY ST. ST. LECONARDS NSW 2005 763 C COM 25 85 39 - 64 - 65 - 92 7 R B O	7 64 55 55 56 6 63 63 64 57 MLB 64 17 MLB 64 4 61 3 3 MLB 63 11 3 MLB 63 13 MLB 63	
B SE 402 FLOOR 36 OXLEY ST, ST LEONARDS NSW 2005 763 COM 25 85 39 - 64 - 65 - 92 7 80 0 B 5 554-5583 PACPIT HWY, ST LEONARDS NSW 2005 562 RES 20 80 42 - 69 9 - 68 9 - 91 11 M. LB 86 D S WILLOUGHBY RD, CROWS NEST INSW 2005 6627 COM 10 70 11 - 45 - 43 - 90 20 M. LB 86 B - 91 11 M. LB 86 D S WILLOUGHBY RD, CROWS NEST INSW 2005 77 - 89 19 M. LB 86 D S WILLOUGHBY RD, CROWS NEST INSW 2005 77 - 89 19 M. LB 86 D S WILLOUGHBY RD, CROWS NEST INSW 2005 77 COM 10 70 32 - 70 0 66 - 88 18 18 M. LB 87 D S WILLOUGHBY RD, CROWS NEST INSW 2005 77 COM 10 70 32 - 70 0 66 - 88 18 18 M. LB 87 D S WILLOUGHBY RD, CROWS NEST INSW 2005 78 D S WILLOUGHBY RD, CROWS NEST INSW 2005 78 D S WILLOUGHBY RD, CROWS NEST INSW 2005 80 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	- 57 6 6 63 - 45 14 M.LB 61 17 M.LB 64 2 64 4 61 3 60 16 M.LB 63 13 M.LB 63	
B 5546-553 PACEC HWY, STLEONARDS NSW 2095 502 RES 20 80 42 - 69 - 69 - 69 - 69 - 90 20 ML B 86 E 499 PACEC HWY, CROWS NEST NSW 2095 50 AS RES 10 70 26 - 57 - 67 - 89 19 ML B 86 E 499 PACEC HWY, CROWS NEST NSW 2095 51 AS RES 10 70 26 - 70 0 66 - 88 81 81 ML B 84 A SE 201 LEVEL 382 PACFC HWY, CROWS NEST NSW 2095 52 AS RES 20 80 AS RES 20 80 AS RES 20 80 AS RES 20 AS	6 6 63	
D 55 WILLOUGHBYRD, CROWS NEST INSW 2005 627 COM 10 70 11 - 45 - 43 - 90 20 M. LB 68 B 44 A SE 201 LEVEL 382 PACFIC HMY, CROWS NEST INSW 2005 57 COM 10 70 32 - 70 0 66 - 88 18 18 M. LB 87 A 38 PACFIC HMY, CROWS NEST INSW 2005 57 COM 10 70 32 - 70 0 66 - 88 18 18 M. LB 87 A 218402-420 PACFIC HMY, CROWS NEST INSW 2005 594 RES 20 80 36 - 71 - 66 - 88 8 8 8 8 8 8 8 A 24 A 224402-420 PACFIC HMY, CROWS NEST INSW 2005 52 RES 20 80 41 - 70 - 69 - 88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	- 45 14 M, LB 61 177 M, LB 64 2 64 4 61 3 60 16 M, LB 63 13 M, LB 63	-
A SE 201 LEVEL 382 PACFIC HMY, CROWS NEST NSW 2065 57 COM 10 70 32 - 70 0 66 - 88 19 M. LB 87 A 38 PACFIC HMY, CROWS NEST NSW 2065 220 COM 25 85 36 - 71 - 66 6 - 88 3 19 M. LB 87 A 218402-420 PACFIC HMY, CROWS NEST NSW 2065 594 RES 20 80 36 - 70 - 69 - 88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	17 M, LB 64 2 64 4 61 3 60 16 M, LB 63 13 M, LB 60	
A 338 PACIFIC HWY, CROWS NEST NSW 2065 280 COM 25 85 36 - 71 - 66 - 88 3 87 87 A 244802-420 PACFC HWY, CROWS NEST NSW 2065 232 RES 20 80 36 - 70 - 69 - 88 8 8 8 8 8 8 8 A 3 A 34 87 87 87 88 8 8 8 8 8 8 8 8 8 8 8 8 8	2 64 4 61 3 60 16 M,LB 63 13 M,LB 60	-
A 224/402-240 PACFFC HWY, CROWS NEST NSW 2065 232 RES 20 80 41 - 70 - 71 - 88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3 60 16 M, LB 63 13 M, LB 60	-
A SE 101 LEVEL 382 PACFIC HWY, CROWS NEST NSW 2095 375 COM 10 70 31 - 70 - 67 - 88 118 M. LB 86 A 14309 PACFIC HWY, CROWS NEST NSW 2095 693 COM 10 70 30 - 69 - 64 - 87 17 M. LB 83 A 374 PACFIC HWY, CROWS NEST NSW 2095 456 COM 410 70 29 - 70 0 64 - 87 17 M. LB 84 B 17 M. LB 84 B 18 M. LB 83 M. LB 84 M. LB 85	16 M, LB 63 13 M, LB 60	
A 14/300 PAC/FIC-HWY, CROWS NEST INSW 2005 693 COM 10 70 30 - 69 - 64 - 87 17 M. LB 83 A 37 PAC/FIC-HWY, CROWS NEST INSW 2005 456 COM and Phenical 10 70 29 - 70 0 64 - 87 17 M. LB 84 E LEVEL 46 WILLOUGHBY PD, CROWS NEST INSW 2005 452 COM 10 70 11 - 45 - 47 - 87 17 M. LB 69 D 39 H.M.E ST, CROWS NEST INSW 2005 242 COM 25 85 17 - 56 - 61 - 87 2 80 D 662 WILLOUGHBY PD, CROWS NEST INSW 2005 158 MED 20 80 11 - 41 - 41 - 86 6 6 58 A 21/300 PAC/FIC-HWY, CROWS NEST INSW 2005 426 COM 10 70 26 - 70 - 59 - 86 16 M. LB 82 E 463 PAC/FIC-HWY, CROWS NEST INSW 2005 514 RES 10 70 25 - 54 - 63 - 86 16 M. LB 82 C M. LB 84 E M. LB 85 E M. L	13 M, LB 60	
E LEVEL 46 WILLOUGHBY RD, CROWS NEST INSW 2065 452 COM 10 70 11 - 45 - 47 - 87 17 M, LB 69 1   D 39 HJME ST, CROWS NEST NSW 2065 242 COM 25 85 17 - 56 - 61 - 87 2 80   D 60-62 WILLOUGHBY RD, CROWS NEST NSW 2065 158 MED 20 80 11 - 41 - 41 - 86 6 6 . 56   A 21/300 PACIFIC HIVY, CROWS NEST INSW 2065 426 COM 10 70 26 - 70 - 59 - 86 16 M, LB 82   E 463 PACIFIC HIVY, CROWS NEST INSW 2065 514 RES 10 70 25 - 54 - 63 - 86 16 M, LB 82   D 1/45-47 HJME ST, CROWS NEST NSW 2065 579 COM 25 85 19 - 57 - 61 - 85 - 79   E 457 PACIFIC HIVY, CROWS NEST NSW 2065 579 COM 25 85 26 - 49 - 60 - 85 - 76 61 -	14 M, LB 61	
D 39 HJME ST. CROWS NEST NSW 2005 242 COM 25 85 17 - 56 - 61 - 87 2 80 0 0 50 50 50 150 50 150 50 150 50 50 50 50 50 50 50 50 50 50 50 50 5		-
D 60-62 WILLOUGHBY RD, CROWS NEST NSW 2065 158 MED 20 80 11 - 41 - 41 - 86 6 6 58 A 21/360 PACFIC HWY, CROWS NEST NSW 2065 426 COM 10 70 26 - 70 - 59 - 86 16 M, LB 82 E 463 PACIFIC HWY, CROWS NEST NSW 2065 514 RES 10 70 25 - 54 - 63 - 86 16 M, LB 81 D 1/45-47 HUMB ST, CROWS NEST NSW 2065 579 COM 25 85 19 - 57 - 61 - 85 - 79 E 457 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 25 85 26 - 49 - 60 - 85 - 76	- 46 - 57	
E 463 PACFIC HWY, CROWS NEST NSW 2065 514 RES 10 70 25 - 54 - 63 - 86 16 M, LB 81 D 1/45-47 HUMB ST, CROWS NEST NSW 2065 579 COM 25 85 19 - 57 - 61 - 85 - 79 E 457 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 25 85 26 - 49 - 60 - 85 - 76	- 35	-
D 1/45-47 HUME ST, CROWS NEST NSW 2065 579 COM 25 85 19 - 57 - 61 - 85 - 79 E 457 PACIFIC HWY, CROWS NEST NSW 2065 608 RES 25 85 26 - 49 - 60 - 85 - 76	12 M.LB 59	-
	11 M, LB 58	
	- 53	
D 41 HJME ST, CROWS NEST NSW 2005 137 COM 25 85 11 - 55 - 61 - 84 - 79 A 348 PACIFIC HVY, CROWS NEST NSW 2005 9 - 84 14 M. LB 79	- 56 9 56	
A 348 PAGFC HWY, CROWS NEST NSW 2065 10 RES 10 70 25 - 68 - 59 - 84 14 M.LB 79 D 64 WILLOUGHBYND, CROWS NEST NSW 2065 116 COM 10 70 10 - 38 - 41 - 84 14 M.LB 56	- 33	
E 38 WILLOUGHBYRD, CROWS NEST NSW 2065 65 COM 10 70 27 - 50 - 60 - 84 14 M, LB 78	8 55	-
D 70 WILLOUGHBYRD, CROWS NEST INSW 2065 123 COM 10 70 11 - 41 - 43 - 83 13 M.LB 59 A GROUND 338 PACIFIC HWY, CROWS NEST THSW 2065 631 RES 25 85 25 - 66 - 55 - 82 - 75	- 36 - 52	
A 342-346 PACIFIC HOVY, CROWN REST NSW 2065 94 RES 25 85 25 - 665 - 57 - 81 - 76	- 53	-
D 51 HJME 5T, CROWS NEST ISSW 2005 107 COM 10 70 22 - 51 - 51 - 81 11 M.LB 74 B 47460 PAGIFC HDV, STLEONARDS ISSW 2005 50 - 81 11 M.LB 78		-
B 47/460 PAC/FIC HWY, STLEONAROS NSW 2065 502 EDU 10 70 31 - 61 - 60 - 81 11 M.LB 78 B 452 PAC/FIC HWY, STLEONAROS NSW 2065 277 EDU 25 85 28 - 63 - 59 - 81 - 73	8 55 - 50	
B 454-456 Pacific Hwy, St Leonards NSW 2065 1000 COM 10 70 31 - 63 - 63 - 80 10 77	7 54	
E LEVEL 47X WILLOUGHBYRD, CROWS NEST NSW 2065 750 RES 10 70 10 - 46 - 48 - 80 10 66 6 - 80 - 74 - 75 - 75 - 75 - 75 - 75 - 75 - 75	- 43 - 51	
B 567 PACIFIC HWY, \$TLEONARDS NSW 2065 361 COM 25 85 12 - 52 - 60 - 80 - 74 A 330 PACIFIC HWY, \$TLEONARDS NSW 2065 68 RES 25 85 24 - 64 - 52 - 80 - 69	- 46	
B 40 OXLEYST, STLEONARDS NSW 2065 482 EDU 25 85 28 - 62 - 55 - 80 - 76	- 53	-
B UNIT 707 9 ALBANY ST, ST LEGNARDS NSW 2005 620 COM 10 70 29 - 52 . 51 - 80 10 73 E 3455 PACIFIC HVY, CROWS NEST INSW 2005 791 RES 25 85 22 - 50 - 79 - 69	3 50 46	
E SE 3 LEVEL 5 IN LOUGHBY RD, CROWS NEST NSW 2065 301 COM 10 70 10 - 444 - 41 - 78 8 59	- 36	-
A 1235-51 NCHOLSTON ST, WOLLSTONECRAFT RSW 2065 595 RES 10 70 21 - 58 - 51 - 78 8 699 A 25 NCHOLSTONE RAFT RSW 2065 5 RES 10 70 15 - 55 - 50 - 78 8 73	- 46	•
A 25 NICHOLSON 5T, WOLLSTONECRAFT NSW 2005 5 RES 10 70 15 - 55 - 50 - 78 8 733 C 23 ALBANY ST, CROWN NEST NSW 2005 209 COM 10 70 25 - 49 - 43 - 78 8 66	3 50 43	
E 1/455 PACIFIC HWY, CROWS NEST NSW 2065 445 RES 25 85 22 - 62 - 50 - 78 - 68	- 45	-
E 55 WILDUGHBYRD, CROWS NEST NSW 2065 333 COM 10 70 9 - 43 - 40 - 77 7 61 A 277 HJME ST, WOLLSTONE, CROWS NEST NSW 2065 202 RES 10 70 22 - 61 - 54 - 77 7 7 77 77 77 77 77 77 77 77 77 77	- 38 7 54	
E 449A PACIFIC HWY, CROWS NEST NSW 2065 758 RES 10 70 22 - 61 - 49 - 77 7 67	- 44	
B 33/1 ALBANY ST, STLEONARDS NSW 2065 103 RES 20 80 10 - 48 - 52 - 77 - 68	- 45	-
D 53 HUME ST, CROWS NEST NSW 2065 539 COM 10 70 20 - 46 - 43 - 76 6 67 A LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065 343 RES 25 85 22 - 60 - 51 - 76 - 69	- 44	
A 29 NCHOLSON ST, WOLLSTONECRAFT NSW 2065 384 RES 10 70 20 - 59 - 53 - 76 6 777	7 54	-
D 55 HUME ST. CROWS NEST INSW 2005 754 COM 10 70 19 - 49 - 47 - 76 6 699 E 57 WILLOUGHBY ROD, CROWS NEST INSW 2005 378 COM 10 70 9 - 39 - 41 - 76 6 556	- 46 - 33	
E 37 WILLOUGHBY RU, CROWN REST INSW 2005 37.6 COVM 10 70 9 - 39 - 41 - 70 b 50 E 39 WILLOUGHBY RU, CROWN REST INSW 2005 728 RES 10 70 15 - 44 - 44 - 75 5 63	- 33	-
A LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065 559 RES 25 85 22 - 59 - 50 - 75 - 67	- 44	
A 12/35-51 NCHOLSON ST, WOLLSTONECRAFT NSW 2065 13 RES 10 70 20 - 56 - 50 - 75 5 69 B 48 ALBANY ST ST LEONARD S NSW 2065 274 COM 10 70 20 - 44 - 43 - 75 5 65	- 46	<del>- : -  </del>
E 40-44 WILLOUGHBYRD, CROWS NEST NSW 2065 364 COM 10 70 111 - 43 - 44 - 75 5 62	- 42	
D 1/76 WILLOUGHBY RD, CROWS NEST NSW 2065 354 RES 25 85 12 44 4 42 . 75 5 59 D SELEVEL 134 WILLOUGHBY RD, CROWS NEST NSW 2065 56 RES 10 70 9 46 40 . 75 5 5 64	- 36	-
D SE 5 LEVEL 134 WILLOUGHBY RD, CROWS NEST NSW 2065 538 RES 10 70 9 - 46 - 40 - 75 5 64 D Z59 HJME ST, CROWS NEST NSW 2065 60 COM 10 70 11 - 49 - 46 - 75 5 68	- 41 - 45	
B 583 PACIFIC HWY, STLEONARDS NSW 2065 651 COM 10 70 22 - 47 - 52 - 75 5 67	- 44	-
A 23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 101 RES 10 70 16 - 56 - 46 - 75 5 70	0 47	-
D 61 HUME ST, CROWS NEST INSW 2065 179 RES 10 70 10 - 46 - 48 - 74 4 688 E 40-44 WALD LOUGHBYD, CROWS NEST INSW 2065 29 COM 10 70 10 - 39 - 43 - 74 4 59	- 45	
B 583 PACIFIC HWY, STLEDNARDS NSW 2065 56 COM 25 85 22 - 46 - 53 - 74 - 68	- 45	-
A 322 PACEFC HWY, CROWS NEST NSW 2065 790 RES 10 70 23 - 58 - 50 - 74 4 677 A 1/31 NICHOLS NON EAPT NSW 2065 394 RES 10 70 13 - 58 - 47 - 73 3 74	- 44 4 51	
A 1/31 MUNUSUN S1, WOULST UNNECKRET INSW 2005 394 RES 10 70 13 - 55 - 47 - 73 3 3 FA D 728 WULLOUGH BY RD, CROWN SETS TINSW 2005 88 COM 10 70 9 - 40 - 40 - 73 3 3 57	- 34	
B 11/38-46 ALBANYST, ST LEONARDS NSW 2065 264 RES 10 70 9 - 46 - 44 - 73 3 5.56 C	- 33	-
D SE9 LEVEL 110 WILLOUGHBY RD, CROWS NEST NSW 2065 509 RES 10 70 12 - 42 - 38 - 73 3 64 D 114 WILLOUGHBY RD, CROWS NEST NSW 2065 765 RES 10 70 8 - 441 - 36 - 72 2 558	- 41 - 35	
D SE 11 LEVEL 110 WILLOUGHBY RD, CROWS NEST NSW 2065 602 RES 10 70 9 - 42 - 37 - 72 2 61	- 38	-
E 447 PACIFIC HWY, CROWS NEST NSW 2065 162 RES 25 85 23 - 56 - 48 - 72 - 64	- 41	-
D 63 HUME \$17, CROWS NEST INSW 2005 442 RES 10 70 10 - 48 - 72 2 67 C 650 624 ALBAN \$15, CROWS NEST INSW 2005 527 RES 10 70 22 - 48 - 44 - 72 2 61	- 44 - 38	-
A LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065 524 RES 10 70 10 - 54 - 51 - 72 2 73	3 50	-
D 102 WILLOUGHBY RD, CROWS NEST NSW 2065 429 RES 10 70 19 - 45 - 43 - 72 2 63 D 104 WILLOUGHBY RD, CROWS NEST NSW 2065 121 COM 10 70 18 - 46 - 43 - 72 2 64	- 40 - 41	
D 104 WILLOUSHBYRD, CROWS NEST NSW 2065 121 COM 10 70 18 - 46 - 43 - 72 2 64 4 - 75 1 6 6 8 8 30 1599 PACIFIC HOW, YT ELEONARDIS NSW 2065 122 RES 10 70 17 - 48 - 53 - 71 1 6 6 8	- 41	

Receiver				Assumed		4	Vent at on		7 Deli	very Day/Eve	ning	9 Se	ervices, finish, f	tout	10 Landsc	aping and Pub works	lic domain		sh ground rete cavator hamm		11b - Demo	sh ground retention walls Wire saw
NCA	Receiver Address	ID	Receiver Type	Façade Loss	NML	Predicted No se Level dB(A)	Exceedance	Mtgaton package	Predicted Noise Leve dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted No se Level dB(A)	Exceedance	M t gation package	Predicted No se Leve dB(A)	Exceedance Mtgaton package
A	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT	268	RES	10	70	21	-		51	-		45	-		71	1		70	-		47	-
D	204/29 ALBANY ST, CROWS NEST NSW 2065	599	RES	10	70	8	-		48			47	-		71	1		68	-		45	-
D	SE 7 65 HUME ST, CROWS NEST NSW 2065	747	COM	10	70	10	-		48			47	-		71	1		67	-		44	-
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	25	85	29	-		53			55	-		71			71	-		48	-
A	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	10	70	22	-		55			49	-		71	1		66	-		43	-



## APPENDIX D.2 - ADDITIONAL MITIGATION MEASURES PER E41/E42 FOR SITE A, B, C FOR WORKS BETWEEN 6PM AND 10PM

						Append x D 2	Even ng Scenar	os 1b and 3 Sumi	nary of Consu t	at on Requ red	d under Cond	t on E41 E42												
						1b L newi	de works Even ng								Mob e Cranes s 2, 3, 4, 5, 6 a									
Rece ver NCA	Rece ver Address	ID	Rece ver Type	Assumed Façade Loss	NML																			
						Pred cted No se Level dB(A)	ceedanc Mtgat e packa		Exceedance	M t gat on package	Pred cted No se Leve dB(A)	Exceedanc	M t gat on package	Pred cted No se Leve dB(A)	Exceedance	Mitigation package Pred ct Noise Le	ve Exceedanc	Mtgaton package	Pred cted No se Leve	Exceedanc e		Pred cted No se Leve dB(A)	Exceedanc e	Mtgaton package
			MED, RES and																					
	2-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	20	65	71	6 LB	51	-		40	-		56		47	-		44	-		49	-	
	545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	20	65	63	-	54	-		42	-		45		41	-		43	-		47	-	
	473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	20	65	61	-	40	-	+	27	-		43		52	-	+	46	-	1	46	-	
	71 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	20	65	59	-	41	-	+	46	-		42		52	-	+	52	-	1	50	-	
	72-486 Pacific Hwy St Leonards NSW 2065	791	RES	25	70	57	-	38	-	+	34	-		42		36	-	+	39	-	1	41	-	
	69 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10	55	55	-	35	-	+	27	-		40		50	-	+	42	-	1	45	-	
	18/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594 103	RES RES	20	65 65	54	-	52	-		48	-		49		47	-		48	-	-	51	-	
	3/1 ALBANY ST, ST LEONARDS NSW 2065			10	65	54	-	24	-		23	-		30		26	-		33 40	-		34	-	
	63 PACIFIC HWY, CROWS NEST NSW 2065 48 PACIFIC HWY, CROWS NEST NSW 2065	514 10	RES RES	10	55	54	-	36	-		26 41	-		39		48			40	-		44 46		
	48 PACIFIC HWY, CROWS NEST NSW 2065 24/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	20	65	53	-	39 57	- :		41	-		38 45		48	_		48	-		46 47		
	57 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25	70	52	-	37	-		27	-		45		43			34	-		47		
			RES		65				_					43 37						-				
	704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	20	65	52 51	-	25 29	-		19	-		16		35 28	-		24	-		34 36	-	
	00 Pacific Hwy St Leonards NSW 2065 42-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	25	70	51	-:-	39	-		18	-	+	36	-	28 45		+	45		_	36 44	- :	
	455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	25	70	51	-	35	-		35	-	+	25		43		+	43		_	42	- :	
	01/599 PACIFIC HWY, CROWS NEST NSW 2005	122	RES	10	55	51	-	27	-		31	-	+	37		35		+	25		_	35	- :	
	ROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	25	70	50	-	39	-		41	-	+	37		35		+	45		_	42	- :	
	455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	25	70	50	-	35	-		36	-	+	25		42		+	43		_	42	-	
	5 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	10	55	49	-	27	-		33	1 - 1		32		34	-		38	-		40	-	
	30 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	25	70	49	-	37			40	1		36		37			44			42		
	17 HUME ST. WOLLSTONECRAFT NSW 2065	202	RES	10	55	49	-	33	-		37	-	+	43		32		+	46		_	50	- :	
	3 NICHOLSON ST. WOLLSTONECKAI THOW 2003	358	RES	10	55	49	-	23	-		28	1		29		31			32			28		
	ROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST. WOLLSTONECRAFT N	268	RES	10	55	49	-	30	-		26	-		25		29			33			37		
	EVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	25	70	49	-	35	-		38	1		36		37			43			41	-	
	9 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	487	RES	10	55	48		23			25			27		29		1	29			30		
	EVEL 328 PACIFIC HWY. CROWS NEST NSW 2065	559	RES	25	70	48		34		1	37	1	1	36		39		1	42	1	1 1	41		
	EVEL 328 PACIFIC HWY, CROWS NEST NSW 2065 3 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	559 665	RES	10	70 55	48		34 25	-	1	27	-	1	36 25		39	-	1	32	-	1 1	33		
	3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	10	55	48		30	-	+	29	-		30		30	-	+	40	-	1	33		
	35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	601	RES	10	55	48	-	25	-	+	23			26		29	-	+	27		1	30	-	
	35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	76	RES	10	55	48	-	25	- :	1	23	-	1	26		29		1	27	1	1 1	28		
	9A WILLOUGHBY RD, CROWS NEST NSW 2065	325	RES	10	55	48	-	31	-	+	28			25		25		+	23	-	1	29	- :	
	9A WILLOUGHBY RD, CROWS NEST NSW 2065 31 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	394	RES	10	55	48		24	-	1	28		1	25		27		1	27	1	1 1	32		
	2/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	48		45	-	+	37	-	1	38		25 34	-	+	31	-	1	33		
	49A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	10	55	48	-	34	-	1	35	1		25		41		+	42	1		41		
	9 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	384	RES	10	55	48	-	34		1	40	-		41		45		+	47	1		50		
	9 WILLOUGHBY RD. CROWS NEST NSW 2065	728	RES	10	55	47		27		1	28	1		26		31		+	27	1	1 -	28		
	WILLOUGHDT ND, CNOWS NEST NOW 2005	120	INEO	1 10	33	47		21			20			26		31						20		

						F	Appendix D.2 Even	ng - Scenario 6 S	summary of Consulta	t on Requ red und	er Condition E41	E42								
													oncrete Pour s 1, 2, 3, 4 and 5)							
Receiver NCA	Receiver Address	ID	Receiver Type	Assumed Façade Loss									3						5	
						Predicted No se Level dB(A)	Exceedance	M t gat on package	Predicted No se Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	M t gation package	Predicted No se Leve dB(A)	Exceedance	M t gat on package
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	20	65	69	4		65	0		54	-		57	-		55		
ь.	22-26 CLARKE ST. CROWS NEST NSW 2065	464	MED, RES and Recording Studio	20	65	68	3		65			56			69	4		61		
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	20	65	65	- 3		68	3		61	-		62	- 4		60	<del>.</del>	
A	224/402-420 PACIFIC HWY, CROWS NEST NSW 2005	232	RES	20	65	65	0		73	8	LB	60			59			57		+
D	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	20	65	56			39	-		33			51			48		_
A	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	10	55	55	-		41			45			51			49		-
A	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	20	65	55	-		38	-		37			43			40		_
E	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	10	55	54	-		36			40	-		50	-		48		
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10	55	54	-		52			55			53			60	5	
A	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25	70	53	-		50	-		41	-		57	-		61		
С	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	20	65	53	-		54			57	-		56			65		
С	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	10	55	52	-		44	-		51			55			46		
E	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	25	70	52			53			51			49			59		
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	25	70	51	-		53	-		52			51			58		
A	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT		RES	10	55	51	-		44			40	-		37	-		42		
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	20	65	51	-		54	-		41			56			65	0	
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10	55	50	-		49	-		40	-		55	0		63	8	LB
E	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	25	70	50	-		51	-		52			51	-		50		
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES RES	25	70	50	-		49	-		51	-		50			50		
E A	463 PACIFIC HWY, CROWS NEST NSW 2065 LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	514 559	RES	10 25	55 70	50 50	-		50 48	-		40 49	-		54 50			62	7	LB
A	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	10	55	50			48	- :		49	- :		43			52 44		-
B	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	170	RES	10	55	50			43	- 1		31	- :		34	- :		34	:	
	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	10	55	49			48	-		43			49	- :		51		
B	11 NICHOLSON PL. CROWS NEST NSW 2065	219	RES	10	55	49			48	-		41			46			42		
D	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	25	70	49			48			40			43			41		
D	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	20	65	48			48			41			41			40		_
В	12 WILLOUGHBY RD. CROWS NEST NSW 2065	86	RES	10	55	47			44			36			48			50		_
D	2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	350	RES	10	55	47			42			33			37			44		
E	152/9 ATCHISON ST, ST LEONARDS NSW 2065	716	RES	10	55	46	-		30	-		42			45	-		43		
С	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	10	55	45	-		58	3		36			39	-		35		
D	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	10	55	42	-		40	-		47	-		44	-		47		
A	4/6 RIVER RD, WOLLSTONECRAFT NSW 2065	498	RES	10	55	42	-		28	-		35	-		32			37		
E	11/116 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	518	RES	10	55	42	-		32	-		36			31			38		
E	3/5 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	340	RES	10	55	42	-		38			36	-		39			44		$\perp$
A	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	10	55	41	-		35	-		45	-		47	-		46	-	
D	2 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	352	RES	10	55	41	-		30			33			31			36		
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	41	-		59	4		51	-		51	-		47		
D	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	10	55	41	-		39	-		41	-		39	-		49		
B	26/17 CHRISTIE ST, WOLLSTONECRAFT NSW 2065 1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	704 354	RES RES	10 25	55 70	41	-		34 37	-		35 45	-		39 43	-		37 38	-	+
6	3/35-51 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	601	RES	10	55	41			39	-		45 37	-		43	-		43		+
E	3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065  3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	707	RES	10	55	41			39 35			37	-	1	40 35	-		43 39	- :	+
	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	10	55	41			35	- :		42	- :	1	35 41	- :		39 45		+
A	8/124 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	513	RES	10	55	40			34	-		38			37	- :		45	<del></del>	+
	29 NICHOLSON ST. WOLLSTONECRAFT NSW 2005	384	RES	10	55	40			47			50			53			58	3	+
_	25 NOTICESON ST, WOLLD TO NEST ST 1 NOW 2005	554	0	2	3	-0			47			30	1	1	- 55	1 -	1	50	J	1

							Appendix D.2 Ever	ning Scenario 6 S	Summary of Consultat	tion Required unde	er Condition E41/E	42		
									5 T	ower Cranes Indivi	idual			
									5 10	ower Cranes marvi	luuai			
Receiver				Assumed			011.			0:1.5			011.0	
NCA	Receiver Address	ID	Receiver Type	Façade Loss	NML		Site A			Site B			Site C	
						Predicted		Mitigation	Predicted Noise		Mitigation	Predicted Noise		Mitigation
						Noise Level	Exceedance	package	Level dB(A)	Exceedance	package	Level dB(A)	Exceedance	package
			MED, RES and			dB(A)								
В	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	20	65	66	1		52	-		44	-	
E A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065 224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594 232	RES RES	20 20	65 65	63 61	-		53 52	-		54 51	-	<u> </u>
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	20	65	58	<del>-</del>		48	-		52		
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	20	65	56	-		62	-		38	-	
С	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	20	65	56	-		64	-		52	-	
	2/17 HUME ST, WOLLSTONECRAFT NSW 2065 29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	202 384	RES RES	10 10	55 55	55 55	<u> </u>		53 52	-		50 39	<u> </u>	<del>                                     </del>
	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25	70	55 54			58	-		46		
E	469 PACIFIC HWY, CROWS NEST NSW 2005	35	RES	10	55	53	-	1	59	4	1	45	-	
	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	10	55	52	-		58	3		45	-	
	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10	55	52			58	3		50		$\vdash$
A E	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT 342-346 PACIFIC HWY, CROWS NEST NSW 2065	268 94	RES RES	10 25	55 70	51 51	-		48 57	-		45 50	-	<b> </b>
A	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	20	65	51	-		40	-		40	-	
	SE 2 LEVEL 80A WILLOUGHBY RD, CROWS NEST NSW 2065	148	RES	25	70	51	-		41	-		55	-	
E	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	10	55	51	-		45	-		50	-	
E D	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631 475	RES RES	25 10	70 55	50 50	-		56 45	-		49 47	-	1
E	5/6-10 LAMONT ST, WOLLSTONECRAFT NSW 2065 330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	25	70	50			45 55	-		47		<b>H</b>
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	50	-		40	-		45	-	
E	61/13 ERNEST ST, CROWS NEST NSW 2065	15	RES	10	55	49	-		50	-		49	-	
Α	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	25	70	49	-		44	-		45	-	ļ
	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065 LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343 559	RES RES	25 25	70 70	49 49	-		55 54	-		48 48	-	1
C	26/17 CHRISTIE ST. WOLLSTONECRAFT NSW 2065	704	RES	10	55	49			46	-		45	<u> </u>	
D	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	10	55	48	-	İ	54	-		50	-	
E	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	10	55	48	-		53	-		48	-	
	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES RES	10	55	48			49	-		46	-	<b></b>
A B	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065 11 NICHOLSON PL, CROWS NEST NSW 2065	217 219	RES	10 10	55 55	47 47	-		47 52	-		44 48	-	<b>H</b>
E	SHOP 1 75 WILLOUGHBY RD, CROWS NEST NSW 2065	542	RES	25	70	47	-		45	-		52	-	
D	2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	350	RES	10	55	47	-		48	-		46	-	
E	11 ERNEST ST, CROWS NEST NSW 2065	772	RES	10	55	47	-		48	-		48	-	
A D	11 LAMONT ST, WOLLSTONECRAFT NSW 2065 SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	388 88	RES RES	10 25	55 70	47 47		+	47 51	-		46 47	-	<del>                                     </del>
	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	10	55	47			47	-		48		
	58/13 ERNEST ST, CROWS NEST NSW 2065	194	RES	10	55	47	-	İ	44	-		52	-	
Α	39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	10	55	47	-		50	-		51	-	
B D	88 WILLOUGHBY RD, CROWS NEST NSW 2065 LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	639 311	RES RES	25	70	46	-		40	-		55 47	-	<b></b>
	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065  LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES	20 10	65 55	46 46	-		51 50	-		52	-	<del> </del>
	9/3-9 LAMONT ST, WOLLSTONECRAFT NSW 2065	465	RES	10	55	46			41	-		42		
Α	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	25	70	46	-		48	-		40	-	
В	1/76 WILLOUGHBY RD, CROWS NEST NSW 2065	354	RES	25	70	46	-		32	-		51	-	
A A	4/6 RIVER RD, WOLLSTONECRAFT NSW 2065 3/2A NICHOLSON ST, WOLLSTONECRAFT NSW 2065	498 644	RES RES	10 10	55 55	45 45	-	<del>                                     </del>	44 43	-	ļ	41 44	-	<del> </del>
D	70-76 ALEXANDER ST. CROWS NEST NSW 2065	561	RES	10	55	45 45	-	<del> </del>	35	-		44	-	
C	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	10	55	45	-		26	-		35	-	
В	NORTHMARK 19/52 CHRISTIE ST, ST LEONARDS NSW 2065	170	RES	10	55	45	-		43	-		43	-	
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES RES	25	70	45	-		51	-		43	-	<b></b>
A E	SE 2 LEVEL 25 WILLOUGHBY RD, CROWS NEST NSW 2065 HUME APARTMENTS 8/20-26 HUME ST. WOLLSTONECRAFT NSW 2065	485 30	RES	10 10	55 55	44 44		-	49 46	-		48 47	-	$\vdash$
В	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	10	55	44	-		54	-		49	-	
В	39A WILLOUGHBY RD, CROWS NEST NSW 2065	325	RES	10	55	44	-		51	-		51	-	
D	19 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	487	RES	10	55	44	-		32	-		31	-	
E	449A PACIFIC HWY, CROWS NEST NSW 2065 114 WILLOUGHBY RD, CROWS NEST NSW 2065	758 765	RES RES	10 10	55 55	44 44	-	<b>!</b>	50 41	-	1	41 50	<u> </u>	
D	114 WILLOUGHBT KD, CKOWS NEST NSW 2005	705	VES	10	- 55	44	-	1	41	-		υC	-	

		Арр	pendix D.2 Evening	Scenarios	4, 7 an	d 9 Summary of C	onsultation Requir	red under Conditio	n E41/E42					
Receiver NCA	Receiver Address	ID	Receiver Type	Assumed Façade	NML		4 Ventilation			Delivery Day/Even	1		vices, finish, fitout	
				Loss		Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	20	65	27	-		60			72	7	LB
Α	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	20	65	41	-		70	5	LB	71	6	LB
С	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	20	65	28			67	2		69	4	1
			MED, RES and											
В	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	20	65	37	-		63			69	4	
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	20	65	36			70	5	LB	69	4	
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	20	65	42			69	4		68	3	
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10	55	26	-		57	2		67	12	LB
E	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	10	55	25	-		54	-		63	8	LB
A	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25	70	26			49	-		60	-	
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10	55	25	-		68	13	LB	59	4	
E	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	25	70	25	-		65	-		57	-	
E	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	25	70	25	-		66	-		55	-	
A	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	25	70	29	-		53	-		55	-	
С	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	10	55	22	-		61	6	LB	54	-	
A	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	10	55	20	-		59	4	LB	53	-	
Α	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	10	55	17	-		48	-		53	-	
A	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	20	65	10	-		48	-		52	-	
E	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	25	70	24	-		64	-		52	-	
D	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	20	65	7	-		45	-		52	-	
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	21	-		58	3		51	-	
D	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	10	55	10	-		54	-		51	-	
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	25	70	22	-		60	-		51	-	
D	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	10	55	15	-		55	-		50	-	
С	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	10	55	20	-		56	1		50	-	
A	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	25	70	22	-		62	-		50	-	
Α	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	25	70	22	-		59	-		50	-	
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	25	70	22	-		62	-		50	-	
E	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	10	55	23	-		58	3		50	-	
E	1303/599 PACIFIC HWY, ST LEONARDS NSW 2065	125	RES	10	55	7	-		47	-		49	-	
В	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	10	55	22	-		55	-		49	-	
E	449A PACIFIC HWY, CROWS NEST NSW 2065	758	RES	10	55	22	-		61	6	LB	49	-	
D	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	25	70	23	-		54	-		49	-	
С	500 Pacific Hwy St Leonards NSW 2065	1	RES	20	65	24	-		43	-		48	-	
Α	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	25	70	23			56			48	-	1
E	61 HUME ST, CROWS NEST NSW 2065	179	RES	10	55	10	-		46	-		48	-	1
D	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	20	65	23	-		54	-		48	-	
E	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES	10	55	10	-		46	-		48	-	
E	63 HUME ST, CROWS NEST NSW 2065	442	RES	10	55	10	-		48	-		48	-	1
В	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	10	55	19	-		43	-		47	-	1
A	204/29 ALBANY ST, CROWS NEST NSW 2065	599	RES	10	55	8	-		48			47	-	
D	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	10	55	13	-		58	3		47	-	
E	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	10	55	16	-		56	1		46	-	
D	1405/2 ATCHISON ST, ST LEONARDS NSW 2065	117	RES	10	55	14	-		44			45	-	
Α	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAFT I	268	RES	10	55	21	-		51	-		45	-	



## APPENDIX D.3 - ADDITIONAL MITIGATION MEASURES PER E41/E42 FOR SITE A, B, C FOR NIGHT WORKS

						жрр	eliu x D 3 in gili	. ocenar os	rc and 3 Sum	mary of Consu	tat on Requi	red under Cor	dton E41 E4	2									
						1c L	inewide works	N ght								Mob e Cr. ons 2, 3, 4,							
Rece ve NCA	Rece ver Address	ID	Rece ver Type	Assumed Façade Loss																			7
						Pred cted No se Level	Exceedance	M t gat on package	Pred cted No se Leve dB(A)	Exceedance	M t gat on package	Pred cted No se Leve dB(A)	Exceedance	M t gat on package	Pred cted No se Leve dB(A)	Exceedanc e	M t gat on package	Pred cted Noise Leve	Exceedance	Mitigation package Pred cted No se Level	Exceedance	M t gat on package Pred cted No se Leve	Exceedanc Mtgaton package
			MED, RES and			GOIAN												GDIA.		doiAi		don.	
B A	22-26 CLARKE ST, CROWS NEST NSW 2065 5/545-553 PACIFIC HWY. ST LEONARDS NSW 2065	464 562	Recording Studio RES	20	65 65	68	3	LB	51 54	-		40 42	-		56 45	-		47 41	-	44	-	49 47	-
Â		541	RES	20	65	58	-		40	-		27	-		43	-		52	1	46		46	-
A		719	RES	20	65	56	-		41	-		46			42			52	-	52	-	50	-
E A		791 35	RES RES	25 10	70 55	54 52	-		38 35	-		34 27	-		42 40			36 50	-	39	-	41 45	-
C		35 594	RES	20	65	52	- :		52			48	- :		40			47	- :	42	1 :	45 51	-
E	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	20	65	51	-		24	-		23	-		30	-		26	-	33	-	34	-
A		514	RES	10	55	51	-		36			26	-		39			48	-	40	-	44	-
E F	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES RES	10	55 65	50	-		39 57	-		41 46			38			48	-	48	-	46 47	-
E		232 608	RES	20 25	70	50 49	-		37	-		27			45 43		1	48		34	-	47	-
D	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	20	65	49	-		25	-		19	-		37	-		35	-	24	-	34	-
B		1	RES	20	65	48	-		29	-		18 41	-		16	-		28 45	-	22 45	-	36 44	-
F	342-346 PACIFIC HWY, CROWS NEST NSW 2065 3/455 PACIFIC HWY, CROWS NEST NSW 2065	94 731	RES RES	25 25	70	48	-		39 35	-		41 35			36 25		-	45	-	45	-	44	-
D		122	RES	10	55	48	-		27	-		31			37			35	-	25	-	35	
В	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	25	70	47			39			41			37			44	-	45	-	42	
D		445	RES	25	70	47	-		35	-		36			25	-		42	-	43	-	42	
D	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 330 PACIFIC HWY, CROWS NEST NSW 2065	5 68	RES RES	10 25	55 70	46 46	-		27 37	-		33 40	-		32 36		-	34 37	-	38	-	40 42	-
A		202	RES	10	55	46	-		33	-		37			43			32	1	46	-	50	
D	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	358	RES	10	55	46	-		23	-		28	-		29			31	-	32	-	28	-
A		268	RES	10	55	46	-		30	-		26			25	-		29	-	33	-	37	
E C		343 487	RES RES	25 10		46 46	-		35 23	-		38 25	<del></del>		36 27			37 29	-	43 29	-	41 30	-
A		559	RES	25		45	-		34	-		37			36			39	-	42	-	41	-
E	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES		55	45	-		25	-		27	-		25			35	-	32	-	33	-
A		101	RES	10	55	45	-		30	-		29			30			30	-	40	-	32	-
E D		601 76	RES RES	10 10	55 55	45 45	-		25 25	-		23 23	-		26 26		-	29 25	-	27	-	30 28	-
C		325	RES	10	55	45	-		31	-		28			25			27	-	23	-	29	-
A	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	10	55	45			24	-		26	-		27			25	-	27	-	32	-
D		595	RES	10	55	45	-		45	-		37			38			34	-	31	-	33	-
A		758 384	RES RES	10 10	55 55	45 45	-		34 34	-		35 40			25 41			41 45		42 47	-	41 50	-
В		728	RES	10	55	44	-		27	-		28	-		26	-		31	1	27		28	-
В		13	RES	10	55	44	-		44			23			25	-		22	-	19	-	33	-
		354	RES RES	25		44	-		23	-		31			28	-		27	-	29	-	30	-
A D		750 192	RES	10 10	55 55	44	-		24 35	-		25 21			40 25			27	-	33 26	-	30 26	-
E		565	RES	10	55	43	-		29	-		23			27	-		27	<b>.</b>	22	-	25	-
A		790	RES	10	55	43	-		34			31			36	-		36	-	41	-	40	-
A D		639 219	RES RES	25 10	70 55	43 43	-		25 34	-		34 29	-:-		29 32			24 29	+ :	29	-	28 39	-
E		311	RES	20	65	43	-		34	<b>-</b>		30			32 24			29	+ :	40	+	39	
A		524	RES	10	55	43	-		23	-		39	-		26	-		41		29	-	47	-
E	3/5 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	340	RES	10	55	43	-		24			26			25	-		30	-	30	-	29	-
A	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 8 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41 198	RES RES	10 10	55 55	43	-		33	-		31 17			32	-		23		33	-	30	-
A A		724	RES	10	55	43	-		24	<b>-</b>		21			23			22 24	-	26	-	24 26	-
		162	RES	25		42	-		34			21			21			24		41		39	-
A	16 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	776	RES	10	55	42	-		24	-		16			21			22	-	21	-	23	-
E	61/13 ERNEST ST, CROWS NEST NSW 2065 3 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	15 707	RES RES	10	55 55	42 42	-		28	-		35 21			33 22	-		23 25	-	31 24	-	29	-
D D		707	RES	10	55	42	-		21	-		21 33	-		22	-	1	25	-	24	1 - 1	27	-
E		148	RES	25	70	42	-		24	-		28			29	-		24	-	28	-	30	-
E	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	10	55	42	-		31	-		22			34			37	-	27	-	28	-
D	7/2B NICHOLSON ST, WOLLSTONECRAFT NSW 2065	258	RES	10	55	42	-		22	-		23			24	-	1	23	-	28	-	24	-

								Appendix D	0.3 N ght Scenario 6	Summary of Cons	sultation Requ re	d under Condit on	E41/E42							
													oncrete Pour s 1, 2, 3, 4 and 5)							
Receiver NCA	Receiver Address	ID	Receiver Type	Assumed Façade Loss	NML								3						5	
					No s	edicted se Level E B(A)	Exceedance	M t gat on package	Predicted No se Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	M t gation package	Predicted No se Leve dB(A)	Exceedance	M t gat on package
E	2/55 BURLINGTON ST, CROWS NEST NSW 2065	562	RES	20	65	69	4	LB	65	0		54	-		57			52		
			MED, RES and																	1
A	6/5-7 LITHGOW ST, WOLLSTONECRAFT NSW 2065	464	Recording Studio	20	65	68	3	LB	65	-		56	-		69	4	LB	58		
A	TNHS 2 9 LITHGOW ST, WOLLSTONECRAFT NSW 2065	594	RES	20	65	65	-		68	3	LB	61	-		62			57	-	
С	76 ALBANY ST, CROWS NEST NSW 2065	232	RES	20		65	0	-	73	8	LB, M	60			59			54		
D	204/29 ALBANYST, CROWS NEST NSW 2065	181	RES	20		56	-		39			33	-		51	-		45		
E	61/13 ERNEST ST, CROWS NEST NSW 2065	122	RES	10	55	55			41			45			51			46		
A	120 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	103	RES	20	65	55			38	-		37	-		43			37		
D	102 WILLOUGHBY RD, CROWS NEST NSW 2065	125	RES	10	55	54	-		36			40	-		50			45		
A	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10		54			52	-		55	-		53			57	2	LB
D	21 DEVONSHIRE ST, CROWS NEST NSW 2065	608	RES	25	70	53	-		50	-		41	-		57	-		58		
D	138 ALEXANDER ST, CROWS NEST NSW 2065	719	RES	20		53			54	-		57	-		56			62		
A	7/23-25 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	202	RES	10	55	52	-		44			51	-		55			43	-	
A	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	94	RES	25	70	52			53			51			49			56		T
E	59 BURLINGTON ST, CROWS NEST NSW 2065	631	RES	25	70	51	-		53	-		52	-		51	-		55		
E	53 ERNEST ST, CROWS NEST NSW 2065	268	RES	10		51			44	-		40	-		37			39		
E	66 HAYBERRY ST, CROWS NEST NSW 2065	541	RES	20	65	51	-		54	-		41	-		56	-		62		
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10		50			49	-		40	-		55	0		60	5	LB, M
A	11/116 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	68	RES	25	70	50			51			52	-		51	-		47		
E	19 HAYBERRY ST, CROWS NEST NSW 2065	343	RES	25	70	50	-		49	-		51			50	-		47		
D	133 CHANDOS ST, CROWS NEST NSW 2065	514	RES	10	55	50			50	-		40	-		54			59	4	LB
A	2A CHRISTIE ST, WOLLSTONECRAFT NSW 2065	559	RES	25	70	50	-		48	-		49	-		50	-		49		
D	82 WILLOUGHBY RD, CROWS NEST NSW 2065	101	RES	10		50			44	-		44	-		43			41		
E	58/13 ERNEST ST, CROWS NEST NSW 2065	170	RES	10	55	50	-		43	-		31	-		34	-		31		
E	16 HAYBERRY ST, CROWS NEST NSW 2065	790	RES	10		49			48			43	-		49	-		48		
A	61 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	219	RES	10		49	-		48			41	-		46	-		39		
A	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	88	RES	25		49	-		48			40			43			38		
A	55 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	311	RES	20		48			48			41			41	-		37		
С	23 ALBANY ST, CROWS NEST NSW 2065	86	RES	10		47	-		44			36	-		48			47		
E	21A FALCON ST, CROWS NEST NSW 2065	350	RES	10		47			42			33			37	-		41		
E	14 HAYBERRY ST, CROWS NEST NSW 2065	716	RES	10		46			30			42			45	-		40		
A	SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	13	RES	10		45	-		58	3	LB	36	-		39			32		
A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	5	RES	10		42			40			47			44	-		44		
A	8 BALFOUR ST, WOLLSTONECRAFT NSW 2065	498	RES	10		42			28			35			32	-		34		
D	5/65 HOLTERMANN ST, CROWS NEST NSW 2065	518	RES	10		42			32			36			31	-		35		
В	NORTHMARK 40/52 CHRISTIE ST, ST LEONARDS NSW 2065	340	RES	10		42	-		38			36	-		39			41		
D	2/60 ERNEST ST, CROWS NEST NSW 2065	217	RES	10		41			35			45			47	-		43		
E	397A PACIFIC HWY, CROWS NEST NSW 2065	352	RES	10		41	-		30			33	-		31			33		
A	13-15 LITHGOW ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	41	-		59	4	LB	51	-		51	-		44		

								Appendix [	D.3 Night Scenario	Summary of Con	sultation Required	d under Condition E	41/E42	
									5 To	ower Cranes Indivi	dual			
Receiver NCA	Receiver Address	ID	Receiver Type	Assumed Façade Loss	NML		Site A			Site B			Site C	
						Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package
			MED, RES and											
A	6/5-7 LITHGOW ST, WOLLSTONECRAFT NSW 2065	464	Recording Studio	20	65	66	1	LB	52	-		44	-	
A	TNHS 2 9 LITHGOW ST, WOLLSTONECRAFT NSW 2065	594	RES	20	65	63	-		53	-		54	-	
С	76 ALBANY ST, CROWS NEST NSW 2065	232	RES	20	65	61	-		52	-		51	-	
Е	2/55 BURLINGTON ST, CROWS NEST NSW 2065	562	RES	20	65	58	-		48	-		52	-	
E	66 HAYBERRY ST, CROWS NEST NSW 2065	541	RES	20	65	56	-		62	-		38	-	
D	138 ALEXANDER ST, CROWS NEST NSW 2065	719	RES	20	65	56	-		64	-		52	-	<b>└</b>
A	7/23-25 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	202	RES	10	55	55	-		53	-		50	-	
D	11 DEVONSHIRE ST, CROWS NEST NSW 2065	384	RES	10	55	55	-		52	-		39		
D	21 DEVONSHIRE ST, CROWS NEST NSW 2065	608	RES	25	70	54	-		58	-		46	-	
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10	55	53	-		59	4	LB	45	-	
D	133 CHANDOS ST, CROWS NEST NSW 2065	514	RES	10	55	52	-		58	3	LB	45	-	
A	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10	55	52	•		58	3	LB	50	•	
E	53 ERNEST ST, CROWS NEST NSW 2065	268	RES	10	55	51	-		48	-		45	-	
A	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	94	RES	25	70	51	-		57	-		50	-	
A	120 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	103	RES	20	65	51			40			40	•	
E	13-19 WILLOUGHBY RD, CROWS NEST NSW 2065	148	RES	25	70	51	-		41	-		55	-	
D	82 WILLOUGHBY RD, CROWS NEST NSW 2065	101	RES	10	55	51	-		45	-		50	-	
E	59 BURLINGTON ST, CROWS NEST NSW 2065	631	RES	25	70	50	-		56	-		49	-	
A	22 CHRISTIE ST, WOLLSTONECRAFT NSW 2065	475	RES	10	55	50	-		45	-		47	-	
A	11/116 SHIRLEY RD, WOLLSTONECRAFT NSW 2065	68	RES	25	70	50	-		55	-		49	-	
A	13-15 LITHGOW ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	50	-		40	-		45	-	
В	583 PACIFIC HWY, ST LEONARDS NSW 2065	15	RES	10	55	49	-		50	-		49	-	
E	93 FALCON ST, CROWS NEST NSW 2065	791	RES	25	70	49	-		44	-		45	-	
E	19 HAYBERRY ST, CROWS NEST NSW 2065	343	RES	25	70	49	-		55	-		48	-	
A	2A CHRISTIE ST, WOLLSTONECRAFT NSW 2065	559	RES	25	70	49	-		54	-		48	-	
E	85 FALCON ST, CROWS NEST NSW 2065	704	RES	10	55	49	-		46	-		45	-	
A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	5	RES RES	10	55	48	-		54	-		50	-	
E	16 HAYBERRY ST, CROWS NEST NSW 2065	790	RES	10	55	48	-		53	-		48	-	
E	38 WILLOUGHBY RD, CROWS NEST NSW 2065	41		10	55	48	-		49	-		46	-	
D	2/60 ERNEST ST, CROWS NEST NSW 2065	217	RES RES	10	55 55	47	-	-	47	-		44	-	<b>├</b>
A	61 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	219	RES	10		47	-	-	52	-		48	-	
D	34 HOLTERMANN ST, CROWS NEST NSW 2065	542 350	RES	25	70	47	-	-	45			52	-	
E	21A FALCON ST, CROWS NEST NSW 2065		RES	10	55	47		-	48	-		46		<b>├</b>
D E	81 ATCHISON ST, CROWS NEST NSW 2065 53 ERNEST ST, CROWS NEST NSW 2065	772 388	RES	10 10	55 55	47 47			48 47			48 46		$\vdash$
			RES				-			-			-	<del>                                     </del>
A E	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065  11 ALEXANDER ST, CROWS NEST NSW 2065	88 524	RES	25 10	70 55	47 47	-		51 47	-		47 48	-	<del>                                     </del>
	77 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	194	RES	10	55	47	-		47	-		48 52		
E	77 SINCLAIR ST, WOLLSTONECRAFT NSW 2005 75 BURLINGTON ST, CROWS NEST NSW 2065	728	RES	10	55	47		1	50			52		<b>├</b>
E	2/50 FALCON ST, CROWS NEST NSW 2065	639	RES	25	70	46	-		40	-		55	-	$\vdash$
A	55 SINCLAIR ST, WOLLSTONECRAFT NSW 2065	311	RES	20	65	46		1	51	-		47		<b>├</b>
	72 BURLINGTON ST, CROWS NEST NSW 2065	750	RES	10	55	46		1	50	-		52		
	12 DUNLINGTON ST, CROWS NEST NOW 2005	750	INLO	10	ວວ	40			50	-		52		1

						Appendix	D.3 Nght Scenari	ios 4, 8, 9 and 1:	2 Summary of Cons	u tat on Requ red	under Condition I	E41/E42								
Receiver				Assumed			4 Vent at on			8 Delivery Ngh		9 Se	ervices, finish, f tou	t	12a G	irder Delivery Site	A	12b - G	rder De very S to	e B
NCA	Receiver Address	ID	Receiver Type	Façade Loss	NML	Predicted No se Level dB(A)	Exceedance	M t gat on package	Predicted No se Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	Mitigation package	Predicted Noise Level dB(A)	Exceedance	M t gation package	Predicted Noise Level dB(A)	Exceedance	Mt gat on package
E	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	20	65	27	-		53	-		72	7	LB, M	56			62		u
A	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	20	65	41			64			71	6	LB, M	61			52		
E	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	20	65	28	-		60			69	4	LB	56			64		
c	22-26 CLARKE ST. CROWS NEST NSW 2065	464	MED, RES and Recording Studio	20	65	37			56			69	4	LB	66	1	LB	52		
A	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	20	65	36			64			69	4	LB	63	- :	LU	53		_
R	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	20	65	42			62			68	3	LB	58			48		+
F	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	10	55	26			50			67	12	IB.M	53			59	4	LB
F	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	10	55	25			47			63	8	LB. M	52			58	3	LB
F	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	25	70	26			43			60		LD, III	54			58		
A	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	10	55	25			61	6	LB. M	59	4	LB	52			58	3	LB
A	342-346 PACIFIC HWY CROWS NEST NSW 2065	94	RES	25	70	25			59		,	57			51			57		_
A	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	25	70	25			59			55			50			56		
В	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	25	70	29			46			55			49			44		_
A	2/17 HUME ST. WOLLSTONECRAFT NSW 2065	202	RES	10	55	22			55			54			55			53		
A	29 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	384	RES	10	55	20			53			53			55			52		
В	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	10	55	17	-		42			53			42			41		
В	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	20	65	10	-		42			52			51			40		
A	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	25	70	24			57			52			50			55		
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	20	65	7	-		38			52			39			43		
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	10	55	21	-		52			51	-		50			40		
A	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	10	55	10	-		47			51	-		47			47		
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	25	70	22			54			51			49			55		
A	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	10	55	15	-		49			50	-		48			54		
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	10	55	20	-		49			50	-		45			26		
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	25	70	22	-		56			50	-		43			51		
A	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	25	70	22	-		53			50	-		49			54		
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	25	70	22	-		55			50	-		45			51		
A	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	10	55	23	-		52			50	-		48			53		



### **APPENDIX E - ADDITIONAL NOISE AND VIBRATION MITIGATION**

MEASURE	DESCRIPTION	ABBREVIATION
Alternative	Alternative accommodation options may be provided for	AA
accommodation	residents living near construction works that are likely to	
	incur unreasonably high impacts over an extended period	
	of time. Alternative accommodation will be determined on	
	a case-by-case basis.	
Monitoring	Where it has been identified that specific construction	M
	activities are likely to exceed the relevant noise or vibration	
	goals, noise or vibration monitoring may be conducted at	
	the affected receiver(s) or a nominated representative	
	location (typically the nearest receiver where more than	
	one receiver have been identified). Monitoring can be in	
	the form of either unattended logging or operator attended	
	surveys. The purpose of monitoring is to inform the	
	relevant personnel when the noise or vibration goal has	
	been exceeded so that additional management measures	
1. 2.11	may be implemented.	ID
Individual	Individual briefings are used to inform stakeholders about	IB
briefings	the impacts of high noise activities and mitigation	
	measures that will be implemented. Communications	
	representatives from the contractor would visit identified	
	stakeholders at least 48 hours ahead of potentially	
	disturbing construction activities. Individual briefings	
	provide affected stakeholders with personalised contact	
	and tailored advice, with the opportunity to comment on the	
Letter box	project.	LB
	For each Sydney Metro project, a newsletter is produced and distributed to the local community via letterbox drop	LD
drops	and the project mailing list. These newsletters provide an	
	overview of current and upcoming works across the project	
	and other topics of interest. The objective is to engage and	
	inform and provide project-specific messages. Advanced	
	warning of potential disruptions (e.g. traffic changes or	
	noisy works) can assist in reducing the impact on the	
	community. Content and newsletter length is determined	
	on a project-by-project basis. Most projects distribute	
	notifications monthly. Each newsletter is graphically	
	designed within a branded template.	
Project specific	The purpose of a project specific respite offer is to provide	RO
respite offer	residents subjected to lengthy periods of noise or vibration	
	respite from an ongoing impact.	
Phone calls	Phone calls and/or emails detailing relevant information	PC
and emails	would be made to identified/affected stakeholders within 7	
	days of proposed work. Phone calls and/or emails provide	
	affected stakeholders with personalised contact and	
	tailored advice, with the opportunity to provide comments	
	on the proposed work and specific needs etc.	
Specific	Specific notifications would be letterbox dropped or hand	SN
notifications	distributed to identified stakeholders no later than 7 days	
	ahead of construction activities that are likely to exceed the	
	noise objectives. This form of communication is used to	
	support periodic notifications, or to advertise unscheduled	
	works.	



Table 27 - Additional Mitigation Measures Matrix (AMMM) - Airborne construction noise standard hours— adjusted to account for Sydney Metro CNVS Addendum A

PRED	ICTED LAEQ(15MINUTE) NOISE	0 TO 10	10 TO 20	20 TO 30	> 30 DB
LEVEL ABOVE BACKROUND RBL		DB	DB	DB	
PRED	ICTED LAEQ(15MINUTE) NOISE		≥ 10 DB	> 10 DB	> 20 DB
LEVEL EXCEED THE ANML BY				TO 20	
				DB	
TIME PERIOD MITIGATION MEASURES				S	
Standard	Mon-Fri (7.00 am - 6.00 pm)	-	-	M, LB	M, LB
	Sat (8.00 am - 6.00 pm)				
	Sun/Pub Hol (Nil)				

Table 28 - Additional Mitigation Measures Matrix (AMMM) - Airborne construction noise out of hours— adjusted to account for Sydney Metro CNVS Addendum A

account for	Sydney Metro Chv3 Addendam A				
PREDI	CTED LAEQ(15MINUTE) NOISE	0 TO 10	> 10 DB	> 20 DB	> 30 DB
LEVEL ABOVE BACKROUND RBL		DB	TO 20 DB	TO 30 DB	
PREDI	CTED LAEQ(15MINUTE) NOISE	< 5 DB	5 TO 15	15 25	> 25 DB
	L EXCEED THE ANML BY		DB	DB	
				'	
Т	IME PERIOD		MITIGATION	<b>MEASURES</b>	
OOHW	Mon-Fri (6.00 pm - 10.00 pm)	-	LB	LB, M	M, IB, LB,
		-	1		
	Mon-Fri (6.00 pm - 10.00 pm)	-	1		M, IB, LB,
	Mon-Fri (6.00 pm - 10.00 pm) Sat (6.00 pm - 10.00 pm)	-	1		M, IB, LB, PC, RO,
	Mon-Fri (6.00 pm - 10.00 pm) Sat (6.00 pm - 10.00 pm) Sun/Pub Hol (8.00 am - 6.00	LB,	1	LB, M	M, IB, LB, PC, RO,
OOHW 1	Mon-Fri (6.00 pm - 10.00 pm) Sat (6.00 pm - 10.00 pm) Sun/Pub Hol (8.00 am - 6.00 pm)	-	LB	M, IB, LB, PC, RO,	M, IB, LB, PC, RO, SN AA, M, IB, LB, PC,
OOHW 1	Mon-Fri (6.00 pm - 10.00 pm) Sat (6.00 pm - 10.00 pm) Sun/Pub Hol (8.00 am - 6.00 pm) Mon-Fri (10.00 pm - 7.00 am)	-	LB	LB, M	M, IB, LB, PC, RO, SN

## AW EDWARDS

Table 29 - AMMM - Ground-borne construction noise

Table 29 - Alvilvilvi - Ground-borne construction noise					
			ATION MEA LAEQ(15MINUTE) EXCEEDANG 10 TO 20 DB	NOISE LEVEL	
Standard	Mon-Fri (7.00 am - 6.00 pm) Sat (8.00 am - 6.00 pm) Sun/Pub Hol (Nil)	LB	LB	M, LB, SN,	
OOHW 1	Mon-Fri (6.00 pm - 10.00 pm) Sat (6.00 pm - 10.00 pm) Sun/Pub Hol (8.00 am - 6.00 pm)	LB	M, LB, SN,	M, IB, LB, PC, RO, SN	
OOHW 2	Mon-Fri (10.00 pm - 7.00 am) Sat (10.00 pm - 8.00 am) Sun/Pub Hol (6.00 pm - 7.00 am)	M, LB, SN,	AA, M, IB, LB, PC, RO, SN	AA, M, IB, LB, PC, RO, SN	

Table 30 - AMMM - Ground-borne vibration

14010 00 711711	MINI - GIOUTIU-DOTTIE VIDIALIOTI		
	TIME PERIOD	MITIGATION MEASURES	
		PREDICTED VIBRATION LEVELS	
		EXCEED MAXIMUM LEVELS	
Standard	Mon-Fri (7.00 am - 6.00 pm)	M, LB, RO	
	Sat (8.00 am - 6.00 pm)		
	Sun/Pub Hol (Nil)		
OOHW 1	Mon-Fri (6.00 pm - 10.00 pm)	M, IB, LB, PC, RO, SN	
	Sat (6.00 pm - 10.00 pm)		
	Sun/Pub Hol (8.00 am - 6.00		
	pm)		
OOHW 2	Mon-Fri (10.00 pm - 7.00 am)	AA, M, IB, LB, PC, RO, SN	
	Sat (10.00 pm - 8.00 am)		
	Sun/Pub Hol (6.00 pm - 7.00		
	am)		



### **APPENDIX F - GLOSSARY**

Term	Definition
ABL	Assessment Background Level is the single figure background level
	representing each assessment period – day, evening and night – over each
	24hour period of monitoring. The ABL is determined by the tenth percentile
	method as prescribed in EPA policies.
Adverse weather	Weather effects that enhance noise (wind and temperature inversions) that
	occur at a site for a significant period of time (wind occurring more than
	30% of the time in any assessment period in any season and/or
	temperature inversions occurring more than 30% of nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a
	given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated.
'A' Weighted	A spectrum adaption that is applied to measured noise levels to
	approximate human hearing. A-weighted levels are used as human hearing
	does not respond equally at all frequencies.
Background noise	Background noise is the term used to describe the underlying noise level
	present in the ambient noise, measured in the absence of the noise under
	investigation, when extraneous noise is removed. It is described as the
	average of the minimum noise levels measured on a sound level metre and
	is measured statistically as the A-weighted noise level exceeded for 90% of
	a sample period.
0001	This is represented as the L90 noise level (see below).
CCSI	Critical State Significant Infrastructure
CEMF	Construction Environmental Management Framework (Appendix B of the
OEMB	Submissions and Preferred Infrastructure Report)
CEMP	Construction Environmental Management Plan
	A document setting out the management, control and monitoring measures to be implemented during construction of a development, to avoid or
	minimise the potential environmental impacts identified during an
	environmental impact assessment process.
CNVMP	Construction Noise and Vibration Management Plan
CNVIS	Construction Noise and Vibration Impact Statement
CNVS	Sydney Metro Construction Noise and Vibration Strategy (Inc. Addendum A
01110	v2)
DECC	Department of Environment and Climate Change (now EPA (see below))
dB	Decibel—a unit of measurement used to express sound level. It is based
45	on a logarithmic scale which means a sound that is 3 dB higher has twice
	as much energy. We typically perceive a 10 dB increase in sound as a
	doubling of that sound level.
dB(A)	'A' Weighted sound level in dB.
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPL	Environment Protection Licence
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar
	to the nature of the sound generator. For example, the sound of a tiny bell
	has a high pitch and the sound of a bass drum has a low pitch. Frequency
	or pitch can be measured on a scale in units of Hertz (Hz).
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A
F	sequence of impulses in rapid succession is termed repetitive impulsive
	noise.





Term	Definition
Intermittent noise	The level suddenly drops to that of the background noise several times
miermiliem noise	during the period of observation. The time during which the noise remains
	at levels different from that of the ambient is one second or more.
Lmax	The maximum sound pressure level measured over a given period.
Lmin	The minimum sound pressure level measured over a given period.
L10	The sound pressure level that is exceeded for 10% of the time for which the
210	sound is measured.
L90	The level of noise exceeded for 90% of the time. The bottom 10% of the
200	sample is the L90 noise level expressed in units of dB(A).
Leq	The 'equivalent noise level' is the summation of noise events and
- 1	integrated over a selected period of time.
NCA	Noise Catchment Area
OOHW	Out-of-hours work (construction works outside of standard construction
	hours)
POEO Act	Protection of the Environment Operations Act 1997
Project Planning	Critical State Significant Infrastructure Sydney Metro & Southwest
Approval	Chatswood to Sydenham Infrastructure Approval dated 9 January 2017
-	(Application no. SSI 15_7400)
RBL	The Rating Background Level for each period is the median value of the
	average background values for the period over all of the days measured.
	There is an RBL value for each period (day, evening and night).
Reflection	Sound wave changed in direction of propagation due to a solid object
	obscuring its path.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into
Sound level meter	thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure
	levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a
Count prossure level	standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of
200 201101 10101	the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.
	0 , , , , , , , , , , , , , , , , , , ,



### APPENDIX G - TOWER CRANE NOISE VERIFICATION REPORT



MEMORANDUM PA 4302

### Project: Crows Nest Construct Only

### **MEMORANDUM**

lob No: **0645** 

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Date 5-Oct-21 Pages: 5

### Purpose

To address the requirement of the Planning Secretary in correspondence to Sydney Metro dated 19 November 2019, to provide a validation report for the operational noise of the tower cranes being used on the Crows Nest site.

### Objective

Report the operational noise level of the tower cranes being used on the Crows Nest site and outline the mitigation and management measures that have been implemented to minimise noise impacts.

### Background information

On 11 October 2019, Sydney Metro submitted an Out of Hours Works Application (OOHWA) to the Planning Secretary for consideration in accordance with condition E47 and the approved Sydney Metro City and Southwest Out of Hours Strategy. Sydney Metro provided additional information on 6 November 2019.

On 19 November 2019, the Planning Secretary issued correspondence approving the OOHWA subject to the works being carried out in accordance with the information provided in the application and supporting documents.

In the correspondence dated 19 November 2019, the Planning Secretary requested a copy of the noise verification results of the tower cranes that would be used during the out of hours, and any additional mitigation or management measures that would be implemented.

In correspondence dated 19 January 2021, the tower crane supplier confirmed the following physical sound attenuation works had been carried out:

- Sound proofing barrier had been installed on the engine housing;
- An 8" cowl muffler residential critical class installed; and
- A shroud had been fitted in front of the radiator of the tower crane in Site B to deflect any noise in an upward direction.

The nearest sensitive noise receiver for the operation of the tower cranes are residential apartments at 22-26 Clarke Street,



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with the building façade approximately 20m from the tower crane. The roof height of this receiver has a reduced level (RL) of  $\sim$ 1 10m and the underside of the crane decks has a RL of  $\sim$ 1 19m.

### Noise verification methodology

Noise verification of the tower cranes was undertaken in accordance with the testing procedure for other construction plant as stated in Appendix C of the approved Construction Noise and Vibration Management Plan (CNVMP). This procedure requires the following:

- A Type I sound level meter (SLM);
- Field calibration before and after the noise measurement period;
- Machinery to be operated at high idle speed;
- The item of plant should be tested in isolation, without any other noisy plant on site operating;
- Measure overall A-weighted noise level of the plant for L<sub>Aeq,T</sub> where "T" is representative of the typical operating cycle of the plant; and
- Where the plant tested or noise measurements are taken within 3.5 metres of large walls or cliffs, then a reflection correction of up to -2.5dB(A) shall be applied to remove the effect of increased noise due to sound reflections from such structures.

### Noise verification results

Noise verification of the tower crane has been undertaken during three separate scenarios:

- 1. Sample event 1 on 23 February 2021 (~34 metres from tower crane);
- 2. Sample event 2 on 25 March 2021 (~20 metres from tower crane);
- 3. Sample event 3 on 25 March 2021 (~20 metres from tower crane);
- 4. Sample event 4 on 23 September 2021 (~30 metres from tower crane);
- 5. Sample event 5 on 23 September 2021 (~20 metres from tower crane); and
- 6. Sample event 6 on 23 September 2021 (~20 metres from tower crane).

The A-weighted sound power level has been calculated using the following equation:  $Lw = Lp + [20 \times log 10 (r)] + 11 dB$ 

A + 11 dB factor has been used in the case of the Tower Crane which is more representative of a spherical source. Where a noise measurement has been taken within 3.5 metres of a large walls or building, then a reflection correction of up to - 2.5dB(A) has been applied to remove the effect of increased noise due to sound reflections from such structures.

#### Where.

Lp = is the measured sound pressure level; and r = is the distance to the source.

#### Sample event 1

- 1. Date and time: Tuesday 9 February 2021,
- 2. Activity: The tower crane in Site B was lifting equipment from Hume Street down into Site A.
- 3. Monitoring location: Comer of Clarke Lane and Hume Street.
- 4. Monitoring location within 3.5m of large wall or cliff: Yes, apply reflection correction.
- 5. Test conducted by: Andrew Parker, Resonate Acoustics.
- 6. Distance from noise source: ~34 metres.
- 7. Meteorological conditions: Overcast; average temperature 20°C; wind direction NE; average wind speed 1.6km/hr.
- 8. Noise environment: Hard surfaces (asphalt road, concrete buildings).
- 9. Sound level meter (SLM) type: Type 1
- 10. SLM serial number, make and model: 3001238, Bruel & Kjaer 2250
- 11. Field calibration completed: Yes
- 12. Equipment noise isolated: Yes
- 13. Measurement period representative of typical operating cycle: Yes
- 14. Measurement start time: 13:09
- 15. Measurement end time: 13:12
- 16. **Measurement period:** 3 minutes total, however split into four separate measurements to capture steady state crane noise without extraneous noise sources.
- 17.  $L_{Aeq(T)}$ : 70 dB(A) was the highest steady state  $L_{Aeq}$  measured.
- 18. Calculated A-weighted sound power level (SWL): 108 dB(A)



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#### Sample event 2

- 1. Date and time: Thursday 25 March 2021, 10h00
- 2. Activity: The tower crane in Site A was idling under load (~70 tonnes).
- 3. Monitoring location: Clarke Lane, between Site A and C.
- 4. Monitoring location within 3.5m of large wall or cliff: Yes, apply reflection correction.
- 5. Test conducted by: Darren Green, A W Edwards.
- 6. Distance from noise source: ~20 metres.
- 7. Meteorological conditions: Clear skies; average temperature 22°C; wind direction S; average wind speed 0.6km/hr.
- 8. Noise environment: Hard surfaces (asphalt road, concrete buildings).
- 9. Sound level meter (SLM) type: Type I
- 10. SLM serial number, make and model: #772983, Rion, NL-31
- 11. Field calibration completed: Yes
- 12. Equipment noise isolated: Yes
- 13. Measurement period representative of typical operating cycle: Yes
- 14. Measurement start time: 10h00
- 15. Measurement end time: 10h05
- 16. Measurement period: 5 minutes
- 17. LAeq(T): 62.8 dBA (inclusive of reflection correction)
- 18. Calculated A-weighted sound power level (SWL): 100 dBA

### Sample event 3

- 1. Date and time: Thursday 25 March 2021, 10h20
- 2. Activity: The tower crane in Site A was lifting heavy load ( $\sim$ 70 tonnes).
- 3. Monitoring location: Clarke Lane, between Site A and C.
- 4. Monitoring location within 3.5m of large wall or cliff: Yes, apply reflection correction.
- 5. Test conducted by: Darren Green, A W Edwards.
- 6. **Distance from noise source:** ~20 metres.
- 7. Meteorological conditions: Clear skies; average temperature 22°C; wind direction S; average wind speed 0.6km/hr.
- 8. Noise environment: Hard surfaces (asphalt road, concrete buildings).
- 9. Sound level meter (SLM) type: Type 1
- 10. SLM serial number, make and model: #772983, Rion, NL-31
- 11. Field calibration completed: Yes
- 12. Equipment noise isolated: Yes
- 13. Measurement period representative of typical operating cycle: Yes
- 14. Measurement start time: 10h20
- 15. Measurement end time: 10h35
- 16. Measurement period: 15 minutes
- 17. LAeq(T): 68.6 dBA (inclusive of reflection correction)
- 18. Calculated A-weighted sound power level (SWL): 106 dBA

#### Sample event 4

- 1. Date and time: Thursday 23 September 2021, 21h45
- 2. Activity: The tower crane in Site A was idling.
- 3. Monitoring location: Clarke Lane, between Site A and C.
- 4. Monitoring location within 3.5m of large wall or cliff: Yes, apply reflection correction.
- 5. Test conducted by: Darragh O'Brien, A W Edwards.
- 6. Distance from noise source: ~30 metres.
- 7. **Meteorological conditions:** Clear skies; average temperature 17°C; wind direction W; average wind speed 2.2 km/hr.
- 8. Noise environment: Hard surfaces (asphalt road, concrete buildings).
- 9. Sound level meter (SLM) type: Type I
- 10. SLM serial number, make and model: #00219948, Rion, NL-52
- 11. Field calibration completed: Yes
- 12. Equipment noise isolated: Yes
- 13. Measurement period representative of typical operating cycle: Yes
- 14. Measurement start time: 21h45



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- 15. Measurement end time: 21h50
- 16. **Measurement period:** 5 minutes
- 17. LAeq(T): 63.7 dBA (inclusive of reflection correction)
- 18. Calculated A-weighted sound power level (SWL): 104 dBA

#### Sample event 5

- 1. Date and time: Thursday 23 September 2021, 21h50
- 2. Activity: The tower crane in Site A was idling.
- 3. Monitoring location: Clarke Lane, between Site A and C.
- 4. Monitoring location within 3.5m of large wall or cliff: Yes, apply reflection correction.
- 5. Test conducted by: Darragh O'Brien, A W Edwards.
- 6. **Distance from noise source:** ~20 metres.
- 7. **Meteorological conditions:** Clear skies; average temperature 17°C; wind direction W; average wind speed 2.2 km/hr.
- 8. Noise environment: Hard surfaces (asphalt road, concrete buildings).
- 9. Sound level meter (SLM) type: Type I
- 10. SLM serial number, make and model: #00219948, Rion, NL-52
- 11. Field calibration completed: Yes
- 12. Equipment noise isolated: Yes
- 13. Measurement period representative of typical operating cycle: Yes
- 14. Measurement start time: 21h50
- 15. Measurement end time: 21h55
- 16. Measurement period: 5 minutes
- 17. LAeq(1): 65.5 dBA (inclusive of reflection correction)
- 18. Calculated A-weighted sound power level (SWL): 103 dBA

#### Sample event 6

- 19. Date and time: Thursday 23 September 2021, 21h55
- 20. Activity: The tower crane in Site A was idling.
- 21. Monitoring location: Clarke Lane, between Site A and C.
- 22. Monitoring location within 3.5m of large wall or cliff: Yes, apply reflection correction.
- 23. Test conducted by: Darragh O'Brien, A W Edwards.
- 24. Distance from noise source: ~20 metres.
- 25. **Meteorological conditions:** Clear skies; average temperature 17°C; wind direction W; average wind speed 2.2 km/hr.
- 26. Noise environment: Hard surfaces (asphalt road, concrete buildings).
- 27. Sound level meter (SLM) type: Type |
- 28. SLM serial number, make and model: #00219948, Rion, NL-52
- 29. Field calibration completed: Yes
- 30. **Equipment noise isolated:** Yes
- 31. Measurement period representative of typical operating cycle: Yes
- 32. Measurement start time: 21h55
- 33. Measurement end time: 22h00
- 34. Measurement period: 5 minutes
- 35. LAea(T): 65.0 dBA (inclusive of reflection correction)
- 36. Calculated A-weighted sound power level (SWL): 102 dBA

#### Verified operational crane noise

The estimated SWL of the tower cranes used in the construction noise and vibration impact statement (CNVIS) ranged between Lw 92 dBA and Lw 98 dBA.

The verified SWL of the tower cranes ranged between Lw 100 dBA and Lw 108 dBA, with the average Lw being 104 dBA.

The CNVIS for the out of hours application for pre-cast girder deliveries, using the estimated SWL, recommended the following mitigation and management measures:

- Letterbox drop prior to the works;
- Attended and unattended noise monitoring during the works;
- Individual briefings;



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- Specific notifications; and
- Respite periods between delivery campaigns.

Based on the verified SWL, the estimated noise levels exceed the noise management levels and trigger the following mitigation and management measures:

- Letterbox drop prior to the works;
- Attended and unattended noise monitoring during the works;
- Individual briefings;
- Specific notifications; and
- Respite periods between delivery campaigns.

#### Conclusion

The verified sound power levels of the tower cranes are greater than the estimated levels used in the CNVIS; however, the verified sound power levels do not trigger any additional mitigation and management measures as the original out of hours application identified mitigation and management measures that were above and beyond those required. Since no new or additional mitigation and management measures are triggered, the out of hours for pre-cast girder deliveries is considered to still be relevant and applicable.

- Over Size Over Mass (OSOM) Precast Girder delivery to Crows Nest Station Out of Hours Work Application (TfNSW, November 2019).
- Crows Nest Station Construction Noise and Vibration Impact Statement: Out-Of-Hours Girder Deliveries (Renzo Tonin & Associates, October 2019).

A W E RFI:

Client Instruction No.

Client Transmittal No.

For A W Edwards Pty Limited

PROJECT MANAGER

A W Edwards Pty Limited

ACN 000 045 849 ABN 76 000 045 849 Head Office: 131 Sailors Bay Road PO Box 99 Northbridge NSW 2063 Telephone: (02) 9958 1474 Site Office: 28 Clarke Street Crows Nest NSW



DETAILS											
LOCATION OF CONST	TRUCTION	ACTIVITY:		MONITORING LOCATION:							
Tower Crane 3				Tower Crane 3							
(Site B)				(Site B)							
DATE & TIME OF TES	Т:			TEST CONDUC	TED BY:						
15:27				D. O'BRIEN							
CONSTRUCTION ACT				DISTANCE FRO	OM NOIS	E SOURCE:					
TOWER CRANE 3 FUL	LL THROT	TLE		2M							
METEROLOGICAL CONDITIONS <sup>1</sup> : Clear, Calm											
ļ		11.14	BA 1		14/15/15	DIDECTION					
WIND SPEED: Nor	<u>1e</u>	Light	Moderate	e Strong	N/A	DIRECTION:					
	T2.				1477						
NOISE ENVIRONMENT <sup>2</sup> : Hard											
SOUND LEVEL METER RECORD											
SOUND LEVEL METE	R: Ser	al #:		Make:	Model:						
	002	19948		RION		NL-52					
FIELD CALIBRATION	(external):	Start:			End:						
		94			94						
TEST PROCEDURE:		AS 1055.	.1:1997 and <i>F</i>	AS 2659.2:1983							
NOISE CATCHMENT	ARFA No:										
NOISE SATORIMENT A	**************************************	N/A									
NOISE LEVELS (LA90)											
Day RBL/NM	L		Evening RB	L/NML		Night RBL/NML					
59/69			55/60			50/55					
PREDICTED NOISE LE	EVELS										
	105 L <sub>Aeq15mi</sub>	1		NOISE ESTIMATE	REFERE	ENCE: CNVIS (Rev L)					
RESULTS											
SUBJECTIVE ASSESSMENT (mark all that apply)											
Construction noise in	audible	Constru	ction noise sor	metimes audible	Const	ruction noise audible at most times					
Construction	on noise cle	arly audible		Constru	ction nois	e is dominant noise source					
			⊠								
Impulsive Constructio		ble (e.g. rock-	breaker)	Tonal Cons	struction no	oise audible (e.g. cutting steel)					

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated n	oise level <sup>3</sup> :			N/	<b>A</b> dE	3A					
SOUND LEVEL METER ASSESSMENT											
Start time: (	tart time: (24hr clock) 15:27 End time: (24hr clock) 15:29 Duration of measurement							n of measurement	2min		
File Name	05	1-0007	Se	elect time weigh	nting "Fas	t" n	not slow	Sele	ect frequen	cy weighting "A" not (	C or Linear
L <sub>Amax</sub> :		97.1 d	97.1 dBA L <sub>Aeq15min</sub> : 96.2 dBA L <sub>A90</sub> :							95.8 dBA	
Exceedance	of NML:		N/A L <sub>Aeq15min</sub> Difference to prediction: N/A							N/AL <sub>Aeq15min</sub>	
Exceedance	of RBL4:			N/A	L <sub>Aeq15min</sub>	Di	fference t	o pred	diction:		N/A L <sub>Aeq15min</sub>
SITE ACT	IVITIES/	MONITO	RIN	G COMMEN	TS:						
Tower Crane	3 noise isol	ated.									
Tower crane	3 operating	for duration	of m	neasurement (mo	oving and u	unde	er load)				

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



A NC	CTIVITY:	MONITORING LOCATION:							
		Tower Crane 3							
		(Site B)							
		TEST CONDUC	TED DV						
			IED BT:						
		_	OM NOIS	F SOURCE:					
OTTL	.E	2M	)W 14010	L GOORGE.					
METEROLOGICAL CONDITIONS¹: Clear, Calm									
L	Light Moderate	Strong	WINE	DIRECTION:					
			N/A						
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
erial	l #:	Make:		Model:					
0219	948	RION	1	NL-52					
al):	Start:		End:						
	94		94						
	AS 1055.1:1997 and A	AS 2659.2:1983							
o:	N/A								
	Evening RB	L/NML		Night RBL/NML					
	55/60			50/55					
15min		NOISE ESTIMATE	REFERE	NCE: CNVIS (Rev L)					
SUBJECTIVE ASSESSMENT (mark all that apply)									
	Construction noise son	metimes audible Construction noise audib		ruction noise audible at most times					
clearl	y audible	Construction noise is dominant noise source							
		×							
udible	e (e.g. rock-breaker)	Tonal Cons	struction no	oise audible (e.g. cutting steel)					
	RD erial 0219 II):	Light Moderate  RD  erial #: 0219948  il): Start: 94  AS 1055.1:1997 and /  O: N/A  Evening RB  55/60  5min  k all that apply)  Construction noise so	Tower Crane 3 (Site B)  TEST CONDUC D. O'BRIEN  DISTANCE FRO 2M  NS1:  Light Moderate Strong  RD  erial #: 0219948 RION  II): Start: 94  AS 1055.1:1997 and AS 2659.2:1983  o: N/A  Evening RBL/NML 55/60  Smin NOISE ESTIMATE  k all that apply)  Construction noise sometimes audible  Clearly audible Constru	Tower Crane 3 (Site B)  TEST CONDUCTED BY: D. O'BRIEN  DISTANCE FROM NOISI 2M  NS1:  Light Moderate Strong WIND N/A  RD  erial #: 0219948 RION  II): Start: 94 94  AS 1055.1:1997 and AS 2659.2:1983  O: N/A  Evening RBL/NML 55/60  Smin NOISE ESTIMATE REFERE  k all that apply)  Construction noise sometimes audible Const					

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated	noise I	evel³:			N/	<b>/A</b> dE	3A					
SOUND LE	EVEL M	ETER A	ASSESSME	ENT								
Start time: (24hr clock) 15:29 End time: (24hr clock) 15:31						Duratio	n of measurement	2min				
File Nan	ne	051	8000-	Sel	lect time weigl	hting "Fas	st" n	ot slow	Sele	ect frequen	cy weighting "A" not C	or Linear
L <sub>Amax</sub> :			97.8 dE	ВА	L <sub>Aeq15min</sub> :			96.6	dBA	L <sub>A90</sub> :		96.1 dBA
Exceedan	ce of N	ML:	IL: N/A L <sub>Aeq15min</sub> Difference to prediction:								N/AL <sub>Aeq15min</sub>	
Exceedan	ce of R	BL <sup>4</sup> :			N/A	L <sub>Aeq15min</sub>	Dif	fference t	o pred	diction:	1	V/A L <sub>Aeq15min</sub>
SITE ACTIVITIES / MONITORING COMMENTS:												
Tower Cra	ne 3 noi	se isola	ated.									
Tower crar	ne 3 ope	erating f	for duration	of me	easurement (mo	oving and ι	unde	er load)				
												-

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



A NC	CTIVITY:	MONITORING LOCATION:								
		Tower Crane 3								
		(Site B)								
		TEST CONDUC	TED DV.							
			IED BT:							
			M NOIS	F SOURCE:						
OTTL	.E	2M	,	L GOORGE.						
METEROLOGICAL CONDITIONS¹: Clear, Calm										
ı	Light Moderate	Strong	WIND	DIRECTION:						
			N/A							
NOISE ENVIRONMENT <sup>2</sup> : Hard										
SOUND LEVEL METER RECORD										
erial	l #:	Make:		Model:						
0219	948	RION		NL-52						
al):	Start:		End:							
	94		94							
	AS 1055.1:1997 and A	AS 2659.2:1983								
o:	N/A									
	Evening RB	L/NML		Night RBL/NML						
	55/60			50/55						
I5min		NOISE ESTIMATE	REFERE	NCE: CNVIS (Rev L)						
SUBJECTIVE ASSESSMENT (mark all that apply)										
	Construction noise sor	netimes audible Construction no		ruction noise audible at most times						
clearl	y audible	Construction noise is dominant noise source								
		×								
udible	e (e.g. rock-breaker)	Tonal Cons	truction no	oise audible (e.g. cutting steel)						
	RD erial 0219 II):	Light Moderate  RD  erial #: 0219948  il): Start: 94  AS 1055.1:1997 and A  o: N/A  Evening RB  55/60  5min  k all that apply)  Construction noise sor	Tower Crane 3 (Site B)  TEST CONDUC D. O'BRIEN  DISTANCE FRO 2M  NS1:  Light Moderate Strong  RD  erial #: Make: 0219948 RION  II): Start: 94  AS 1055.1:1997 and AS 2659.2:1983  o: N/A  Evening RBL/NML 55/60  Smin NOISE ESTIMATE  k all that apply)  Construction noise sometimes audible  Clearly audible Constru	Tower Crane 3 (Site B)  TEST CONDUCTED BY: D. O'BRIEN  DISTANCE FROM NOISI 2M  NS1:  Light Moderate Strong WIND N/A  RD  erial #: 0219948 RION  II): Start: 94 94  AS 1055.1:1997 and AS 2659.2:1983  O: N/A  Evening RBL/NML 55/60  Smin NOISE ESTIMATE REFERE  k all that apply)  Construction noise sometimes audible Const						

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated	noise level	3:		N/	<b>A</b> dE	3A					
SOUND LEVEL METER ASSESSMENT											
Start time	(24hr cloci	15:3	15:31 End time: (24hr clock) 15:33 Durati						Duration	of measurement	2min
File Nan	ne 0	51-0009	Select time weighting "Fast" not slo			ot slow	Select frequency weighting "A" not C or Linear				
L <sub>Amax</sub> :		97.	97.8 dBA L <sub>Aeq15min</sub> : 96.7 dBA L <sub>A90</sub> :							96.4 dBA	
Exceedan	ce of NML:		N/A L <sub>Aeq15min</sub> Difference to prediction: N/A						N/AL <sub>Aeq15min</sub>		
Exceedan	ce of RBL4:			N/A	L <sub>Aeq15min</sub>	Dif	ference t	o pred	diction:		N/A L <sub>Aeq15min</sub>
SITE AC	TIVITIES	/ MONIT	TORIN	IG COMMEN	TS:						
Tower Cra	ne 3 noise is	olated.									
Tower crar	ne 3 operatin	g for durat	tion of n	measurement (mo	oving and ι	unde	r load)				

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



DETAILS										
LOCATION OF CON	ISTRUC <sup>*</sup>	TION A	CTIVITY:		MONITORING LOCATION:					
Tower Crane 3					Tower Crane 3					
(Site B)					(Site B)					
DATE & TIME OF TE	EQT.				TEST CONDUC	TEN BV				
15:33	L31.				D. O'BRIEN	IED BI.				
CONSTRUCTION AC	CTIVITY				DISTANCE FRO	OM NOIS	F SOURCE:			
TOWER CRANE 3 F	_		.E		2M		L GOORGE.			
METEROLOGICAL CONDITIONS¹: Clear, Calm										
WIND SPEED: NA	<u>lone</u>	ı	Light	Moderate	Strong	WINE N/A	DIRECTION:			
NOISE ENVIRONME	ENT <sup>2</sup> :									
Hard										
SOUND LEVEL METER RECORD										
SOUND LEVEL MET	Serial	#:		Make:		Model:				
	00219948						NL-52			
FIELD CALIBRATIO	N (exter	nal):	Start:			End:				
			94			94				
TEST PROCEDURE	:		AS 1055.	1:1997 and <i>F</i>	AS 2659.2:1983					
NOISE CATCHMEN	T AREA	No:	N/A							
NOISE LEVELS (LA9	90)									
Day RBL/N	NML			Evening RB	L/NML		Night RBL/NML			
59/69				55/60			50/55			
PREDICTED NOISE	LEVELS	S								
	105 L	Aeq15min			NOISE ESTIMATI	E REFERE	NCE: CNVIS (Rev L)			
RESULTS										
SUBJECTIVE ASSESSMENT (mark all that apply)										
Construction noise	e inaudible	е	Construc	ction noise sor	ometimes audible Construction noise audible at m		ruction noise audible at most times			
Constru	uction nois	se clearl	y audible		Constru	ction nois	e is dominant noise source			
	X									
Impulsive Construc	ction noise E		e (e.g. rock-b	oreaker)	Tonal Cons	struction no	oise audible (e.g. cutting steel)  ☐			

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



			N/	'A dE	3A						
SOUND LEVEL METER ASSESSMENT											
: (24hr clock) 15:33 End time: (24hr clock) 15:35 Duration of measurement							n of measurement	2min			
e 05 <sup>-</sup>	1-0010	Sele	ect time weigl	hting "Fas	t" n	ot slow	Sel	ect frequen	cy weighting "A" not	C or Linear	
	95.3 dE	95.3 dBA L <sub>Aeq15min</sub> : 93.3 dBA L <sub>A90</sub> :							92.7 dBA		
e of NML:		N/A L <sub>Aeq15min</sub> Difference to prediction: N/A							N/AL <sub>Aeq15min</sub>		
e of RBL <sup>4</sup> :			N/A	L <sub>Aeq15min</sub>	Dif	fference to	o pred	diction:		N/A L <sub>Aeq15min</sub>	
IVITIES /	MONITOR	RING	COMMEN	TS:							
e 3 noise isol	ated.										
3 operating	for duration of	of mea	asurement (mo	oving and u	unde	er load)					
	e of NML: e of RBL <sup>4</sup> :  FIVITIES / e 3 noise isol	(24hr clock) 15:33 e 051-0010 95.3 dE e of NML: e of RBL <sup>4</sup> :  FIVITIES / MONITOR e 3 noise isolated.	15:33	e 051-0010 Select time weight 95.3 dBA LAeq15min:  e of NML: N/A  e of RBL4: N/A  TIVITIES / MONITORING COMMEN  e 3 noise isolated.	15:33   End time: (24hr clock)   15:33   End time: (24hr clock)	15:33   End time: (24hr clock)	15:33   End time: (24hr clock)   15:35	Company of the content of the cont	Company of the content of the cont	Company of the content of the cont	

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



DETAILS										
LOCATION OF CON	ISTRUC <sup>*</sup>	TION A	CTIVITY:		MONITORING LOCATION:					
Tower Crane 3					Tower Crane 3					
(Site B)				(Site B)						
DATE & TIME OF TE	EQT.				TEST CONDUC	TED BV				
15:35	_31.				D. O'BRIEN	,160 61.				
CONSTRUCTION AC	CTIVITY				DISTANCE FRO	OM NOIS	E SOURCE:			
TOWER CRANE 3 F	_		.E		2M		L GOORGE.			
METEROLOGICAL CONDITIONS¹: Clear, Calm										
WIND SPEED: N/A	<u>lone</u>	ı	Light	Moderate	Strong	WINE N/A	DIRECTION:			
NOISE ENVIRONME Hard	ENT <sup>2</sup> :					•				
SOUND LEVEL METER RECORD										
SOUND LEVEL MET	ΓER:	Serial	#:		Make:		Model:			
	00219948						NL-52			
FIELD CALIBRATION	N (exter	nal):	Start:			End:				
			94			94				
TEST PROCEDURE:	:		AS 1055.	1:1997 and <i>F</i>	AS 2659.2:1983					
NOISE CATCHMENT	T AREA	No:	N/A							
NOISE LEVELS (LA9	90)									
Day RBL/N	NML			Evening RB	L/NML		Night RBL/NML			
59/69				55/60			50/55			
PREDICTED NOISE	LEVELS	S								
	105 L	Aeq15min			NOISE ESTIMAT	E REFERE	ENCE: CNVIS (Rev L)			
RESULTS										
SUBJECTIVE ASSESSMENT (mark all that apply)										
Construction noise	e inaudible	е	Construc	ction noise sor	ometimes audible Construction noise audible at r		ruction noise audible at most times			
Constru	action nois	se clearl	y audible		Constr	uction nois	e is dominant noise source			
Impulsive Construc	ction noise		e (e.g. rock-l	oreaker)	Tonal Con	struction n	oise audible (e.g. cutting steel) □			

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



oise level <sup>3</sup> :			N/	A dE	3A						
SOUND LEVEL METER ASSESSMENT											
ne: (24hr clock) 15:35 End time: (24hr clock) 15:37 Duration of measurement							n of measurement	2min			
05	1-0011	Se	elect time weigh	nting "Fas	t" n	ot slow	ot slow Select frequency weighting "A" not C or Linear				
	97.5	97.5 dBA L <sub>Aeq15min</sub> : 93.9 dBA L <sub>A90</sub>						L <sub>A90</sub> :		92.7 dBA	
of NML:		N/A L <sub>Aeq15min</sub> Difference to prediction:							N/AL <sub>Aeq15min</sub>		
e of RBL4:			N/A	L <sub>Aeq15min</sub>	Dif	fference to	pred	diction:		N/A L <sub>Aeq15min</sub>	
IVITIES /	MONITO	RIN	G COMMEN	TS:							
e 3 noise isol	ated.										
3 operating	for duration	n of m	neasurement (mo	oving and u	unde	er load)					
	(24hr clock) e 05 e of NML: e of RBL <sup>4</sup> : TIVITIES / e 3 noise isol	VEL METER ASSESSM (24hr clock) 15:35 e 051-0011 97.5 0 e of NML: e of RBL <sup>4</sup> : TIVITIES / MONITO e 3 noise isolated.	VEL METER ASSESSMENT   (24hr clock)   15:35	VEL METER ASSESSMENT (24hr clock) 15:35 End time: (2 e 051-0011 Select time weigh 97.5 dBA LAeq15min: e of NML: N/A e of RBL4: N/A TIVITIES / MONITORING COMMENT e 3 noise isolated.	VEL METER ASSESSMENT  (24hr clock) 15:35 End time: (24hr clock)  97.5 dBA LAeq15min:  e of NML: N/A LAeq15min  IVITIES / MONITORING COMMENTS:  e 3 noise isolated.	VEL METER ASSESSMENT (24hr clock) 15:35 End time: (24hr clock)  97.5 dBA LAeq15min:  Pe of NML: N/A LAeq15min Diff  N/A LAeq15min Diff  TIVITIES / MONITORING COMMENTS:  Pe 3 noise isolated.	VEL METER ASSESSMENT   (24hr clock)   15:35   End time: (24hr clock)   15:37	VEL METER ASSESSMENT  (24hr clock) 15:35 End time: (24hr clock) 15:37  e 051-0011 Select time weighting "Fast" not slow Select time weighting "Fas	VEL METER ASSESSMENT  (24hr clock) 15:35 End time: (24hr clock) 15:37 Duration  9 051-0011 Select time weighting "Fast" not slow Select frequence  97.5 dBA LAeq15min: 93.9 dBA LA90:  e of NML: N/A LAeq15min Difference to prediction:  N/A LAeq15min Difference to prediction:  TIVITIES / MONITORING COMMENTS:  e 3 noise isolated.	VEL METER ASSESSMENT  (24hr clock) 15:35 End time: (24hr clock) 15:37 Duration of measurement  9 051-0011 Select time weighting "Fast" not slow Select frequency weighting "A" not on the second of th	

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



N ACTIV	ITY:		MONITORING LOCATION:						
			Tower Crane 3						
			(Site B)						
			TEST CONDUC	TED DV					
				IED BT:					
				OM NOIS	F SOURCE:				
TTLE			2M		L GOORGE.				
METEROLOGICAL CONDITIONS <sup>1</sup> : Clear, Calm									
Light	Мс	derate	Strong	WIND	DIRECTION:				
				N/A					
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
erial #:			Make:		Model:				
219948			RION	1	NL-52				
-	rt:			End:					
				94					
AS	1055.1:199	7 and A	AS 2659.2:1983						
D: N/A									
•									
	Eveni	ing RB	L/NML		Night RBL/NML				
		55/60			50/55				
imin			NOISE ESTIMATE	E REFERE	NCE: CNVIS (Rev L)				
SUBJECTIVE ASSESSMENT (mark all that apply)									
С	onstruction n	oise sor	netimes audible Construction		ruction noise audible at most times □				
learly aud	ible		Construction noise is dominant noise source						
			☒						
udible (e.g	. rock-breake	er)	Tonal Cons	struction no	pise audible (e.g. cutting steel)  ☐				
	DITTLE  NS¹:  Light  RD  erial #: D219948  I): Sta 94  AS  O: N/A	RD erial #: 0219948 I): Start: 94 AS 1055.1:199 D: N/A  Even Smin clearly audible	DITLE  NS1:  Light Moderate  RD  erial #: 0219948  I): Start: 94  AS 1055.1:1997 and A  O: N/A  Evening RB  55/60  Smin  k all that apply)  Construction noise son	Tower Crane 3 (Site B)  TEST CONDUC D. O'BRIEN  DISTANCE FRO 2M  NS1:  Light Moderate Strong  RD  erial #: Make: 0219948 RION  I): Start: 94  AS 1055.1:1997 and AS 2659.2:1983  D: N/A  Evening RBL/NML 55/60  NOISE ESTIMATION  Rational Research Additional Research Ad	Tower Crane 3 (Site B)  TEST CONDUCTED BY: D. O'BRIEN  DISTANCE FROM NOIS 2M  NS1:  Light Moderate Strong WINE N/A  RD  Prial #: D219948 RION  I): Start: 94 94  AS 1055.1:1997 and AS 2659.2:1983  D: N/A  Evening RBL/NML 55/60  Smin NOISE ESTIMATE REFERE Reference Strong WINE N/A  Construction noise sometimes audible Const				

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated noise level <sup>3</sup> : N/A dBA											
SOUND LE	SOUND LEVEL METER ASSESSMENT										
Start time:	(24hr cloci	() 15:37	7	End time: (2	End time: (24hr clock) 15:3				Duration	of measurement	2min
File Nan	ne 0	51-0012	Select time weighting "Fa			st" no	not slow Select frequence			cy weighting "A" not (	or Linear
L <sub>Amax</sub> :		93.	8 dBA	L <sub>Aeq15min</sub> :			92.9 dBA <b>L<sub>A90</sub>:</b>				92.6 dBA
Exceedan	ce of NML:	N/A	/A L <sub>Aeq15min</sub> Difference			pred	diction:		N/AL <sub>Aeq15min</sub>		
Exceedance of RBL <sup>4</sup> : N/A L <sub>Aeq15mi</sub>						Diff	erence to	pred	diction:		N/A L <sub>Aeq15min</sub>
SITE AC	TIVITIES	/ MONIT	ORIN	IG COMMEN	TS:						
Tower Crai	Tower Crane 3 noise isolated.										
Tower cran	Tower crane 3 operating for duration of measurement (moving and under load)										

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



TEST CONDUCTED BY: D. O'BRIEN									
DISTANCE FROM NOISE SOURCE:									
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
Construction noise audible at most times									
Construction noise is dominant noise source									
☒									
Tonal Construction noise audible (e.g. cutting steel)									

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated	noise level <sup>3</sup>			N/	' <b>A</b> dB	A				
SOUND LE	SOUND LEVEL METER ASSESSMENT									
Start time:	(24hr clock	) 15:15	5	End time: (24hr clock		15:17		Duratio	n of measurement	2min
File Nam	ne Os	51-0001	Select time weighting "Fa			t" not slow	Sel	ect frequen	ey weighting "A" not C or Linear	
L <sub>Amax</sub> :		84.5	5 dBA	L <sub>Aeq15min</sub> :		83.6 dBA <b>L<sub>A90</sub>:</b>			83.4 dBA	
Exceedand	e of NML:			N/A	N/A L <sub>Aeq15min</sub> Difference to predic			diction:		N/A L <sub>Aeq15min</sub>
Exceedand	e of RBL⁴:			N/A	N/A L <sub>Aeq15min</sub> Difference to prediction:			diction:		N/A L <sub>Aeq15min</sub>
SITE AC	TIVITIES /	MONIT	ORIN	G COMMEN	TS:					
Tower Crar	ne 3 noise isc	olated.								
Tower cran	e 3 idling for	duration o	of meas	urement						

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



D. O'BRIEN  DISTANCE FROM NOISE SOURCE:									
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
N/A									
Construction noise audible at most times									
Construction noise is dominant noise source									
X									
Tonal Construction noise audible (e.g. cutting steel)									

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



oise level <sup>3</sup> :		Estimated noise level <sup>3</sup> : N/A dBA								
SOUND LEVEL METER ASSESSMENT										
24hr clock)	15:17		End time: (24hr clock		<b>(</b> )	15:19		Duration	n of measurement	2min
05	1-0002	Select time weighting "Fas			t" n	ot slow	Sel	ect frequenc	y weighting "A" not C or Linear	
	91.7 dE	ЗА	L <sub>Aeq15min</sub> :		84.1 dBA <b>L<sub>A90</sub>:</b>			L <sub>A90</sub> :	83.4 dBA	
of NML:		N/A L <sub>Aeq15m</sub>					o pred	diction:		N/AL <sub>Aeq15min</sub>
Exceedance of RBL <sup>4</sup> : N/A L <sub>Aeq15min</sub>						ference t	o pred	diction:		N/A L <sub>Aeq15min</sub>
SITE ACTIVITIES / MONITORING COMMENTS:										
3 noise isol	ated.									
3 idling for o	duration of m	easu	rement							
	ZEL METER  Z4hr clock)  05  of NML: of RBL <sup>4</sup> :  IVITIES /	24hr clock) 15:17 051-0002 91.7 dE of NML: of RBL <sup>4</sup> :  IVITIES / MONITOR	### Clock   15:17   15	24hr clock	Zehr clock) 15:17 End time: (24hr clock) 15:17 End time: (24hr clock) 91.7 dBA LAeq15min: N/A LAeq15min: N/A LAeq15min IVITIES / MONITORING COMMENTS: 3 noise isolated.	Zehr clock) 15:17 End time: (24hr clock)  91.7 dBA Laeq15min:  N/A Laeq15min Diff  Of RBL4: N/A Laeq15min Diff  IVITIES / MONITORING COMMENTS:	Zehr clock) 15:17 End time: (24hr clock) 15:19  15:17 End time: (24hr clock) 15:19  15:19 Select time weighting "Fast" not slow  91.7 dBA LAeq15min: 84.1  15:19 Select time weighting "Fast" not slow  91.7 dBA LAeq15min: 0 Difference to N/A LAeq15min Diff	Zehr clock) 15:17 End time: (24hr clock) 15:19  91.7 dBA Laeq15min: 84.1 dBA  of NML: N/A Laeq15min Difference to predict of RBL4: N/A Laeq15min Difference	Zehr clock) 15:17 End time: (24hr clock) 15:19 Duration  9 051-0002 Select time weighting "Fast" not slow Select frequence  91.7 dBA LAeq15min: 84.1 dBA LA90:  10 of NML: N/A LAeq15min Difference to prediction:  10 of RBL4: N/A LAeq15min Difference to prediction:  11 N/A LAeq15min Difference to prediction:  12 of RBL4: N/A LAeq15min Difference to prediction:	Zehr clock) 15:17 End time: (24hr clock) 15:19 Duration of measurement  91.7 dBA Laeq15min: 84.1 dBA Layo:  N/A Laeq15min Difference to prediction:

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



D. O'BRIEN  DISTANCE FROM NOISE SOURCE:									
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
N/A									
Construction noise audible at most times									
Construction noise is dominant noise source									
☒									
Tonal Construction noise audible (e.g. cutting steel)									

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated	noise leve	l <sup>3</sup> :		N/	/A dB	SA.					
SOUND LE	SOUND LEVEL METER ASSESSMENT										
Start time:	(24hr cloc	k) 15:1	9	End time: (2	24hr clock	) 15:21		Duratio	n of measurement	2min	
File Nam	е	051-0003	-0003 Select time weighting			t" not slow	Sel	ect frequen	cy weighting "A" not C	y weighting "A" not C or Linear	
L <sub>Amax</sub> :		84	.3 dBA	L <sub>Aeq15min</sub> :		83.4	4 dBA	L <sub>A90</sub> :		83.1 dBA	
Exceedance	e of NML:			N/A	N/A L <sub>Aeq15min</sub> Difference to prediction:				N/AL <sub>Aeq15min</sub>		
Exceedance	e of RBL <sup>4</sup>	:		N/A	N/A L <sub>Aeq15min</sub> Difference to prediction:			1	V/A L <sub>Aeq15min</sub>		
SITE ACT	<b>FIVITIES</b>	/ MONI	TORIN	IG COMMEN	TS:						
Tower Cran	Tower Crane 3 noise isolated.										
Tower crane	Tower crane 3 idling for duration of measurement										

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



ACTIVITY:	MONITORING LOCATION:								
	Tower Crane 3								
	(Site B)								
	2M	JIVI INOIS	L SOUNCE.						
31:									
Light Moderate	e Strong	WIND	DIRECTION:						
		N/A							
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
ial #:	Make:		Model:						
19948	RION		NL-52						
Start:		End:							
94		94							
AS 1055.1:1997 and a	4S 2659.2:1983								
N/A	N/A								
Evening RE	BL/NML		Night RBL/NML						
55/60	)		50/55						
n	NOISE ESTIMATE	E REFERE	ENCE: CNVIS (Rev L)						
all that apply)									
Construction noise so	metimes audible	Const	Construction noise audible at most times						
arly audible	Construction noise is dominant noise source								
	$\boxtimes$								
ible (e.g. rock-breaker)	Tonal Construction noise audible (e.g. cutting steel)								
	D rial #: 219948 :: Start: 94  AS 1055.1:1997 and december of the start of the star	Tower Crane 3 (Site B)  TEST CONDUC D. O'BRIEN  DISTANCE FRO 2M  S1:  Light Moderate Strong  Make: 219948 RION  Start: 94  AS 1055.1:1997 and AS 2659.2:1983  N/A  Evening RBL/NML 55/60  NOISE ESTIMATION  all that apply)  Construction noise sometimes audible carly audible  Constru	Tower Crane 3 (Site B)  TEST CONDUCTED BY: D. O'BRIEN  DISTANCE FROM NOIS 2M  S1:  Light Moderate Strong WINE N/A  Make: 219948 RION  Start: 94 94  AS 1055.1:1997 and AS 2659.2:1983  N/A  Evening RBL/NML 55/60  NOISE ESTIMATE REFERE  all that apply)  Construction noise sometimes audible Construction noise early audible  Construction noise						

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated noise level <sup>3</sup> : N/A dBA										
SOUND LEVEL	SOUND LEVEL METER ASSESSMENT									
Start time: (24h	r clock)	15:21	End time: (	24hr clock)	15:23		Duratio	n of measurement	2min	
File Name	051	-0004	O004 Select time weighting "Fas			Sel	ect frequen	cy weighting "A" not C	or Linear	
L <sub>Amax</sub> :		86.2 dB	A L <sub>Aeq15min</sub> :		80.8	dBA	L <sub>A90</sub> :		79.3 dBA	
Exceedance of	NML:		N//	N/A L <sub>Aeq15min</sub> Difference to pred			diction:		N/AL <sub>Aeq15min</sub>	
Exceedance of	RBL⁴:		N//	N/A L <sub>Aeq15min</sub> Difference to prediction:			1	V/A L <sub>Aeq15min</sub>		
SITE ACTIVI	SITE ACTIVITIES / MONITORING COMMENTS:									
Tower Crane 3 r	Tower Crane 3 noise isolated.									
Tower crane 3 ic	lling for d	uration of me	easurement							

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



DETAILS										
LOCATION OF CONS	STRUCT	ION A	CTIVITY:		MONITORING LOCATION:					
Tower Crane 3					Tower Crane 3					
(Site B)					(Site B)					
DATE & TIME OF TE	CT.									
DATE & TIME OF TES	51:				TEST CONDUC D. O'BRIEN	IED BY:				
CONSTRUCTION ACT	TIVITV.									
TOWER CRANE 3 IDI					DISTANCE FROM NOISE SOURCE: 2M					
		ONO1-								
METEROLOGICAL CONDITIONS <sup>1</sup> : Clear, Calm										
						1,,,,,,	DIDECTION			
WIND SPEED: No	<u>one</u>	L	_ight	Moderate	e Strong	N/A	DIRECTION:			
	MT2.					IN/A				
NOISE ENVIRONMENT <sup>2</sup> : Hard										
SOUND LEVEL METER RECORD										
SOUND LEVEL METE		Serial	#-		Make:		Model:			
0021					RION	NL-52				
FIELD CALIBRATION	nal):	Start:			End:					
	•	94			94					
TEST PROCEDURE:			AS 1055.1	AS 1055.1:1997 and AS 2659.2:1983						
NOISE CATCHMENT	AREA	No:	N/A							
NOISE LEVELS (LA90)	)					1				
Day RBL/NI	ML		E	Evening RB	L/NML		Night RBL/NML			
59/69				55/60			50/55			
PREDICTED NOISE L	LEVELS	<b>3</b>								
	105 L <sub>A</sub>	eq15min			NOISE ESTIMATE	REFERE	NCE: CNVIS (Rev L)			
RESULTS										
SUBJECTIVE ASSESSM	/IENT (m	ark all	that apply)							
Construction noise i	inaudible	•	Construc		metimes audible	Const	ruction noise audible at most times			
Construct			y audible		Construction noise is dominant noise source					
					⊠					
Impulsive Construction			e (e.g. rock-b	reaker)	Tonal Cons	struction no	pise audible (e.g. cutting steel)			
		I								

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated	noise le	evel³:			N/	'A dE	ВА						
SOUND LE	SOUND LEVEL METER ASSESSMENT												
Start time: (24hr clock) 15:2					End time: (2	24hr clock	<b>(</b> )	15:25		Duratio	n of measurement	2min	
File Nam	ne	051	-0005 Select time weighting "Fa			hting "Fas	st" n	ot slow	Sel	ect frequen	cy weighting "A" not C	weighting "A" not C or Linear	
L <sub>Amax</sub> :			91.1 dBA <b>L<sub>Aeq15min</sub>:</b>					81.5 dBA <b>L<sub>A90</sub>:</b>			79.5 dBA		
Exceedance of NML:					N/A	N/A L <sub>Aeq15min</sub> Difference to p			o pre	diction:		N/AL <sub>Aeq15min</sub>	
Exceedance of RBL4:					N/A	N/A L <sub>Aeq15min</sub> Difference to prediction:			1	V/A L <sub>Aeq15min</sub>			
SITE AC	TIVITI	ES/N	IONITO	RIN	IG COMMEN	TS:							
Tower Crar	Tower Crane 3 noise isolated.												
Tower cran	Tower crane 3 idling for duration of measurement												

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



TEST CONDUCTED BY: D. O'BRIEN									
DISTANCE FROM NOISE SOURCE:									
NOISE ENVIRONMENT <sup>2</sup> : Hard									
SOUND LEVEL METER RECORD									
Construction noise audible at most times									
Construction noise is dominant noise source									
X									
Tonal Construction noise audible (e.g. cutting steel)									

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated	noise l	level³:			N/	<b>/A</b> dE	ВА								
SOUND LE	EVEL M	IETER A	ASSESSM	ENT											
Start time:	(24hr	clock)	15:25		End time: (2	24hr clock	<b>(</b> )	15:27		Duratio	n of measurement	2min			
File Nan	ne	051	-0006	S	elect time weigl	hting "Fas	st" n	ot slow	Sel	ect frequen	cy weighting "A" not C	or Linear			
L <sub>Amax</sub> :			89.5 d	ВА	L <sub>Aeq15min</sub> :			80.8	dBA	L <sub>A90</sub> :		79.5 dBA			
Exceedan	ce of N	ML:			N/A	L <sub>Aeq15min</sub>	Di	fference t	o pre	diction:		N/AL <sub>Aeq15min</sub>			
Exceedan	ce of R	BL <sup>4</sup> :			N/A	L <sub>Aeq15min</sub>	Di	fference t	o pre	diction:	1	V/A L <sub>Aeq15min</sub>			
SITE ACTIVITIES / MONITORING COMMENTS:															
Tower Crane 3 noise isolated.															
Tower crar	Tower crane 3 idling for duration of measurement														
	Tower crane 3 idling for duration of measurement														

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



DETAILS														
LOCATION OF CO	ONSTRUC	TION A	ACTIVITY:	MONITORING LOCATION:										
Tower Crane 3				Southern Capp	ing Bear	n (wall of 473 Pacific Highway)								
(Site B)				(Site B)										
DATE & TIME OF	TEST:			TEST CONDUC	TED BY:									
16:00				D. O'BRIEN										
CONSTRUCTION	_			DISTANCE FROM NOISE SOURCE:										
TOWER CRANE 3		ROTTI	LE (TURNING &	20M (30M 3D DISTANCE)										
	•	".O.N.O.1												
METEROLOGICAL CONDITIONS <sup>1</sup> : Clear, Calm														
WIND SPEED:	<u>None</u>	l	Light Moderate	e Strong		DIRECTION:								
N/A					N/A									
NOISE ENVIRONI	MENT <sup>2</sup> :													
Hard														
SOUND LEVEL M	ETER REC	CORD		T										
SOUND LEVEL M	IETER:	Seria		Make:	Model:									
		00219	9948	RION		NL-52								
FIELD CALIBRAT	ION (exte	rnal):	Start:											
			94		94									
TEST PROCEDUR	RE:		AS 1055.1:1997 and A	AS 2659.2:1983										
NOISE CATCHME	NT AREA	No:	N/A											
NOISE LEVELS (														
NOISE LEVELS (I														
Day RBI	L/NML		Evening RB	SL/NML		Night RBL/NML								
59/6	69 		55/60			50/55								
PREDICTED NOIS	SE LEVEL	S												
	78 L <sub>A</sub>	eq15min		NOISE ESTIMATE	REFERE	NCE: OOH 10								
RESULTS														
SUBJECTIVE ASSE	SSMENT (n	nark all	that apply)											
Construction no	oise inaudibl	е	Construction noise so	metimes audible	Construction noise audible at most times									
Cons	struction nois	se clearl	ly audible	Constru	ction noise	e is dominant noise source								
		]				X								
Impulsive Const	ruction nois	e audibl	e (e.g. rock-breaker)	Tonal Cons	truction no	pise audible (e.g. cutting steel)								
		]												

 $<sup>^{\</sup>mathrm{1}}$  i.e. temperature, humidity, cloud cover

<sup>&</sup>lt;sup>2</sup> e.g. hard/soft groundcover, built or natural solid barrier



Estimated r	oise level <sup>3</sup> :			N/	<b>A</b> dB	8A									
SOUND LEV	/EL METER	ASSESSME	NT												
Start time:	(24hr clock)	16:00		End time: (2	4hr clock	:)	16:15		Duration	of measurement	15min				
File Name	9 05	2-0001	Se	elect time weigh	nting "Fas	t" no	t slow	Sele	ect frequenc	y weighting "A" not (	C or Linear				
L <sub>Amax</sub> :		82.3 dE	3A	L <sub>Aeq15min</sub> :			67.3	dBA	L <sub>A90</sub> :		63 dBA				
Exceedance	e of NML:			7.3	L <sub>Aeq15min</sub>	Diff	erence t	o prec	liction:	-1	0.7 L <sub>Aeq15min</sub>				
Exceedance	e of RBL4:			N/A	L <sub>Aeq15min</sub>	Diff	erence t	o prec	liction:	-1	0.7 L <sub>Aeq15min</sub>				
SITE ACT	SITE ACTIVITIES / MONITORING COMMENTS:														
Tower crane	Tower crane 3 operating for duration of measurement (moving and under load)														
Tower crane 3 operating for duration of measurement (moving and under load)  Concrete pour occurring at Clarke Lane South concrete pour location for duration of measurement															
Pacific High	way noise au	ıdible													
General site	activities tak	ing place – c	delive	eries via Pacific	Highway,	steel 1	fixing, sc	affoldii	ng installatio	n, fit-out works below sl	ab				
				ed to contribute the activities listed		the to	tal noise	during	this monitor	ring period, the remaining	ng 50%				

<sup>&</sup>lt;sup>3</sup> At the nearest receiver, listen to the ambient and construction noise, without using any noise monitoring equipment take note of how loud you perceive the construction noise to be e.g. breathing 10dBA/freight train passing 80dBA/thunder 120dBA

<sup>&</sup>lt;sup>4</sup> RBL Exceedance shall be completed for all OOHW activities to confirm compliance with the Construction Noise & Vibration Strategy



#### APPENDIX H - STRUCTURE CONSTRUCTION OOH SCENARIO



Monday, 12 December 2022

Project number: S200740 Reference: S200740LT9

Darren Green Element Environment PO Box 1563 Warriewood NSW 2102

Dear Darren,

Sydney Metro Crows Nest Station
CNVIS Addendum Letter – Structure Construction Scenario

#### 1 Introduction

Resonate Consultants Pty Ltd (Resonate) has prepared construction noise level predictions in support of the Construction Noise and Vibration Impact Statement (CNVIS) for the Crows Nest Station. Revision M of the CNVIS is currently under review by Sydney Metro, Acoustic Advisor and Environmental Representative. An out of hours application is currently under preparation by AW Edwards and this letter provides an additional set of construction noise level predictions for the Structure Construction Scenario presented in the CNVIS.

The results presented in this letter identify specific activities and work areas within Site A, Site B and Site C such that predicted noise levels would remain less than or equal to the Noise Management Levels (NMLs) for the daytime and evening out of hours work periods.

Works would continue to be monitored on site by AW Edwards to confirm noise levels remain within the NMLs.

#### 2 Predicted Noise Levels

#### 2.1 Work Areas

The overall site was separated into the zones shown in Figure 1 for the purpose of the Structure Construction Scenario. In order for the predicted noise levels to meet the NMLs it was necessary to reduce the work areas in Site A to the zones shown in Figure 1.

The following should be noted:

- Site A
  - The northern extent was reduced by approximately 20m from the northern boundary and the eastern and western extents were reduced by approximately 10m from the respective boundaries and was modelled as above ground works.
- Site B
  - The Structure Construction Scenario was modelled as open (i.e. not be a slab) and 10m below ground.
- Site C
  - The Structure Construction Scenario was modelled as above ground works.





Figure 1 Work zones

# 2.2 Construction works assumptions

The following assumptions have been made in order to meet the daytime and evening out of hours NMLs:

- Total maximum Sound Power Level from a localised point within the work area in question is listed below.
  - Site A1: 97 dB(A)
  - Site A2: 94 dB(A)
  - Site A3: 99 dB(A)
  - Site B1: 101 dB(A)
  - Site B2: 101 dB(A)
  - Site B3: 101 dB(A)
  - Site C: 106 dB(A)
- The assumed plant, equipment, duty factors and specific recommendations are described in Table 1.



**Table 1 Plant Assumptions** 

Plant / Activity	Duty Factor (Specific for Site A2 in Brackets)	Time Corrected Sound Power Level dB(A)	Site A1	Site A2	Site A3	Site B (All Areas)	Site C (All Areas)
Hand Tools	100%	94	✓	<b>√</b>	✓	<b>√</b>	<b>√</b>
Hand Tools (electric)	10%	92	<b>✓</b>	<b>√</b>	<b>✓</b>	✓	<b>✓</b>
Welding Equipment	10% (8%)	95 (94)	✓	<b>√</b>	✓	<b>√</b>	✓
Tracked Mobile Crane	50% (40%)	95 (94)	<b>√</b>	<b>√</b>	<b>✓</b>	<b>√</b>	<b>✓</b>
Elevated Work Platform	25% (40%)	92 (94)	<b>✓</b>	<b>√</b>	<b>√</b>	✓	<b>✓</b>
Angle Grinder	7%	102	<b>X</b> <sup>1</sup>	<b>X</b> <sup>1</sup>	<b>X</b> <sup>1</sup>	<b>X</b> <sup>1</sup>	<b>√</b> <sup>2</sup>
Circular Saw	10%	101	<b>X</b> <sup>1</sup>	<b>X</b> <sup>1</sup>	<b>X</b> <sup>1</sup>	<b>X</b> <sup>1</sup>	<b>√</b> <sup>2</sup>
Comment on Concurrent Activities	-	-	Elevated     Work     Platform     not     concurrent     with other     activities     Tracked     Mobile     Crane not     concurrent     with other     activities     Welding     not     concurrent     with other     activities	Only one activity to occur at any one location at a time.	Elevated     Work     Platform     not     concurrent     with other     activities     Tracked     Mobile     Crane not     concurrent     with other     activities	-	

<sup>(1)</sup> Can be conducted in Site A and Site B if conducted within an enclosed area with no line of site to any noise sensitive receivers or relocate to the Site C area designated for these activities.

<sup>(2)</sup> These activities should be conducted in an area where line of site to noise sensitive receivers is broken wherever practical. Site A and Site B grinding or sawing activities conducted on Site C should be conducted in a designated area with line of site broken to sensitive receivers in order to minimise potential noise impacts.



#### 2.3 Predicted noise levels

Predicted noise levels compared to the out of hours NMLs for the Structure Construction Scenario are presented in the attached spreadsheet (App C1-3 structure 20221212 SWLs.xls).

	Appendix C.1A Day Standard Hours Scenario 2a Detailed Predicted Noise Levels Based on ICNG (External NML)																		
Receiver NCA	Receiver Address	ID	Receiver Type				2a Structure Construction zones												
				External NML dB(A)		ite A1 reduced scope of works (SWL 97 dB(A))		ced scope of _ 94 dB(A))		uced scope of /L 99 dB(A))	101 dB(A))		f Site B2 reduced scope o works, 10m below (SWL 101 dB(A))		Site B3 redu works, 10m be dB(	ced scope of elow (SWL 101 (A))	Site C reduction works (SWL	iced scope of L 106 dB(A))	
						Exceedance		Predicted Noise Level Exceedance dB(A)		Exceedance	Predicted Noise Level Exceedance dB(A)		Predicted Noise Level Exceedance dB(A)			Exceedance		Exceedance	
_			MED and		dB(A)				dB(A)						dB(A)		dB(A)		
B C	306/10-12 CLARKE ST, CROWS NEST NSW 2065 20 Clarke St, Crows Nest NSW 2065	282 1002	Recording Studio Recording Studio	45 45	50 55	5 10	50 60	5 15	58 65	13 20	64 49	19	64 54	19 9	61 53	16 8	74 68	29 23	
В	SE 102 35 HUME ST, CROWS NEST NSW 2065	780	COM	70	45	-	48	-	57	-	45	-	42	-	42	-	68	-	
D	35 Clarke St Crows Nest NSW 2065	1001	EDU	65	39	-	38	-	50	-	37	-	37	-	35	-	67	2	
E	1/45-47 HUME ST, CROWS NEST NSW 2065	579	COM	70	43	-	41	-	54	-	38	-	33	-	33	-	66	-	
A	41 HUME ST, CROWS NEST NSW 2065 39 HUME ST, CROWS NEST NSW 2065	137 242	COM	70 70	38 40	-	35 40	-	50 53	-	39 39	-	34	-	35 34	-	66 65	-	
A	SE 101 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	375	COM	70	53	-	52	-	59	-	50	-	51	-	49		62		
Е	SE 201 LEVEL 382 PACIFIC HWY, CROWS NEST NSW 2065	57	COM	70	54	-	54		60	-	46	-	50		49		61	-	
E	374 PACIFIC HWY, CROWS NEST NSW 2065	456	COM and Heritage	70	50	-	50	-	56	-	49	-	49	-	48	-	61		
A	52-54 WILLOUGHBY RD, CROWS NEST NSW 2065	516	COM	70	34	-	41	-	46	-	36	-	38	-	40	-	61	-	
A D	14/360 PACIFIC HWY, CROWS NEST NSW 2065 388 PACIFIC HWY, CROWS NEST NSW 2065	693 280	COM	70 70	49 55	-	47 55	-	54 60	-	53 44	-	54 47	-	53 48	-	61 61	-	
D	4/41 OXLEY ST, CROWS NEST NSW 2065	547	COM	70	51	-	42		46	-	33	-	40	-	41	-	60	<del>-</del>	
В	51 HUME ST, CROWS NEST NSW 2065	107	COM	70	41	-	36	-	44	-	36	-	35	-	31	-	60	-	
Е	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	69	46	-	47	-	53	-	57	-	59	-	56	-	60	-	
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	69	56	-	55	-	59	-	40	-	45	-	46	-	60	-	
	OR OR OLABICS OF OROUGH MEST MONE CORE	40.4	MED, RES and			4.5		45		4-			40					l l	
A B	22-26 CLARKE ST, CROWS NEST NSW 2065 21/360 PACIFIC HWY, CROWS NEST NSW 2065	464 426	Recording Studio COM	45 70	60 44	15 -	60 43	15	60 50	15	41 47	-	46 48	1	47 48	2	59 57	14 -	
F	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	69	42	-	43		49	-	39	-	39	-	39	-	56	-	
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	69	58	-	55	-	56	-	37	-	42	-	43	-	56	-	
E	LEVEL 46 WILLOUGHBY RD, CROWS NEST NSW 2065	452	COM	70	28	-	30	-	39	-	36	-	38	-	39	-	55	-	
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	69	44	-	41	-	49	-	46	-	47	-	46	-	55		
D A	28-34 CLARKE ST, CROWS NEST NSW 2065 204/29 ALBANY ST, CROWS NEST NSW 2065	690 599	MED and Heritage RES	70 69	64 24	-	60 32	-	56 39	-	40 32	-	45 32		46 27	-	55 54	-	
A A	107/6-8 CLARKE ST, CROWS NEST NSW 2065	610	Recording Studio	45	45	0	45		52	7	59	14	62	17	63	18	54	9	
Ē	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	69	42	-	39	_	47	-	44		42	- ''	39	-	54	-	
D	SE 7 65 HUME ST, CROWS NEST NSW 2065	747	COM	70	26	-	33	-	39	-	30	-	32	-	26	-	54	-	
В	53 HUME ST, CROWS NEST NSW 2065	539	COM	70	40	-	31	-	35	-	30	-	30	-	29	-	54	-	
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	69	43	-	40	-	48	-	45	-	46	-	41	-	54	-	
E B	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065 330 PACIFIC HWY, CROWS NEST NSW 2065	562 68	RES RES	69 69	58 42	-	53 39	-	54 45	-	41 43	-	45 40	-	48 38	-	53 53	<del>-</del>	
D	UNIT 707 9 ALBANY ST. ST LEONARDS NSW 2065	620	COM	70	44		39		42	-	32	-	34	-	36	-	53	-	
D	55 HUME ST, CROWS NEST NSW 2065	754	COM	70	27	-	31	-	40	-	31	-	33	-	28	-	53	-	
Е	2/59 HUME ST, CROWS NEST NSW 2065	696	COM	70	26	-	34	-	40	-	31	-	32	-	26	-	53	-	
В	58 WILLOUGHBY RD, CROWS NEST NSW 2065	627	COM	70	28	-	38	-	43	-	35	-	36	-	36	-	53	-	
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343 442	RES RES	69 69	41	-	38 33	-	44 39	-	41	-	39 29	-	37 27	-	52	-	
E A	63 HUME ST, CROWS NEST NSW 2065 LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES RES	69	26 29	-	33 34		39	-	30 31	-	33	-	35	-	52 52	-	
A	104 WILLOUGHBY RD, CROWS NEST NSW 2065	121	COM	70	29	-	24		31	-	30	-	29	-	30	-	52	-	
A	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	69	39	-	40	-	45	-	38	-	41	-	40	-	51	-	
D	47/460 PACIFIC HWY, ST LEONARDS NSW 2065	502	EDU	65	52	-	49	-	50	-	32	-	37	-	40	-	51	-	
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	69	41	-	38	-	45	-	40	-	38	-	37	-	51		
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541 384	RES RES	69 69	46 37	-	45 40	-	50 47	-	59 38	-	60 37	-	58 36	-	51	-	
E B	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065 LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	384 524	RES	69	28	<del>-</del>	40 35		47	1	35	-	36	<del></del>	36	1	51 51	-	
В	454-456 Pacific Hwy, St Leonards NSW 2065	1000	COM	70	53	-	49	-	50	-	34	-	39	-	40	-	51	-	
D	39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	69	34	-	33		38	-	33	-	34	-	35	-	51	-	
В	61 HUME ST, CROWS NEST NSW 2065	179	RES	69	26	-	33	-	39	-	31	-	32	-	27	-	50	-	
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	69	35	-	35	-	42	-	39	-	39	-	38	-	50		
B E	472-486 Pacific Hwy St Leonards NSW 2065 1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	791 394	RES RES	69 69	45 34	-	42 34	-	46 46	-	38 34	-	43 34	-	43 34	-	50 50	-	
F	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	69	35	-	34 35	-	46	<del></del>	34	-	40	<del></del>	40	-	50	-	
C	452 PACIFIC HWY, ST LEONARDS NSW 2065	277	COM	70	50	-	49		47	-	32		36	<u> </u>	37	-	50		

	Appendix C.1B Day OOH Scenario 2a Detailed Predicted Noise Levels Based on ICNG (External NML)																	
Receiver NCA	Receiver Address	ID	Receiver Type		2a Structure Construction zones													
				External NML dB(A)	Site A1 re			iced scope of L 94 dB(A))	Site A3 reduced scope of works (SWL 99 dB(A))		Site B1 reduced scope of works, 10m below (SWL 101 dB(A))		Site B2 reduced scope of works, 10m below (SWL 101 dB(A))		Site B3 reduced scope of works, 10m below (SWL 101 dB(A))		Site C redu works (SW	iced scope of L 106 dB(A))
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	l Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
	an an all abuse at about a prot how ones		MED, RES and										40		4-7			1
A	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	64	60	-	60	-	60	-	41	-	46	-	47	-	59	
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	64	56	-	55	-	59	-	40	-	45	-	46	-	60	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES RES	64	58	-	55	-	56	-	37	-	42	-	43	-	56	-
E F	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562 719	RES	64 64	58 46	-	53 47	-	54 53	-	41 57	-	45 59	-	48	-	53 60	-
	471 PACIFIC HWY, CROWS NEST NSW 2065	719 541	RES	64	46	-	47	-	50	-	59	-	60	-	56 58	-	51	
D F	8/473 PACIFIC HWY, CROWS NEST NSW 2065 469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	64	46	-	45 44	-	50	-	55	-	52	-	58 48	-	48	<del></del>
F	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	64	45	-	44	-	49		49	-	47	-	48	-	46	<del></del>
F	33/1 ALBANY ST. ST LEONARDS NSW 2065	103	RES	64	46	-	43	-	49 45	-	31	-	36	-	38	-	36	<del>-</del>
F	2/17 HUME ST. WOLLSTONECRAFT NSW 2065	202	RES	64	40	-	43	-	49		39	-	39	-	39	-	56	-
B	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	64	45	-	43	-	49	-	38	-	43	-	43	1	50	<del></del>
F	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	64	45	-	42	-	46		46	-	47	-	45	-	55	-
F	463 PACIFIC HWY, CROWS NEST NSW 2005	514	RES	64	43	-	41		49	-	50	-	49		45		46	<del></del>
D	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	64	43	-	40		48	-	45	-	46	-	41	-	54	
F	29 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	384	RES	64	37	_	40	_	47	-	38	-	37		36	<u> </u>	51	<del></del>
F	12/35-51 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	595	RES	64	42	-	40	_	43	-	31	-	32	-	34	-	48	
A	25 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	5	RES	64	39	-	40	-	45	-	38	-	41	_	40	-	51	
F	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	64	42	-	39	-	47	-	44	-	42	-	39	-	54	-
A	12/35-51 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	13	RES	64	41	-	39	-	42	-	31	-	32	-	32	-	34	-
F	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	64	39	-	39	-	43	-	33	-	37	-	37	-	36	-
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	64	42	-	39	-	45	-	43	-	40	-	38	-	53	
A	23 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	101	RES	64	38	-	39	-	42	-	37	-	38	-	36	-	44	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	64	41	-	38	-	44	-	41	-	39	-	37	-	52	-
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	64	41	-	38	-	45	-	40	-	38	-	37	-	51	-
Α	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	64	31	-	38	-	39	-	34	-	36	-	35	-	39	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	64	41	-	37	-	41	-	34	-	38	-	39	-	44	-
Α	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	64	40	-	37	-	43	-	37	-	36	-	35	-	48	-
Α	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	64	40	-	36	-	42	-	35	-	33	-	34	-	41	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAF	268	RES	64	40	-	36	-	37	-	36	-	37	-	37	-	40	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	64	41	-	36	-	40	-	37	-	41	-	40	-	42	-
В	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	64	39	-	36	-	42	-	36	-	34	-	34	-	43	-
Α	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	64	32	-	36	-	41	-	33	-	32	-	32	-	46	-
Е	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	64	39	-	36	-	41	-	35	-	33	-	32	-	41	-
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	64	35	-	35	-	43	-	39	-	40	-	40	-	50	-
Е	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	64	35	-	35	-	42	-	39	-	39	-	38	-	50	-

	Appendix C.2 Evening Scenario 2a Detailed Predicted Noise Levels Based on ICNG (External NML)																	
D																		
Receiver NCA	Receiver Address	ID	Receiver Type		2a Structure Construction zones													
				External														
				NML		luced scope	Site A2 redu	iced scope of	Site A3 red	iced scope of		duced scope	Site B2 reduced scope of works, 10m below			ced scope of	Site C reduc	ced scope of
				dB(A)	of works (S)	WL 97 dB(A))	works (SW	L 94 dB(A))	works (SW	L 99 dB(A))	of works, 10m below (SWL 101 dB(A))		(SWL 101 dB(A))		works, 10m 101 d		works (SWL 106 dB(A))	
					Predicted		Predicted		Predicted		Predicted		Predicted		Predicted		Predicted	
					Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance	Noise Level dB(A)	Exceedance
			MED. RES and		GD(A)		ub(A)		UD(A)	•	GD(A)		GD(A)		UD(A)		ub(A)	
D	22-26 CLARKE ST, CROWS NEST NSW 2065	464	Recording Studio	60	60	-	60	-	60	-	41	-	46	-	47	-	59	-
E	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065	594	RES	60	56		55	-	59	-	40	-	45	-	46	-	60	-
В	224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	60	58		55	-	56	-	37	-	42	-	43	-	56	-
Α	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	60	58	-	53	-	54	-	41	-	45	-	48	-	53	-
Α	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	60	46	-	47	-	53	-	57	-	59	-	56	-	60	-
E	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	60	46	-	45	-	50	-	59	-	60	-	58	-	51	-
D	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	60	45	-	44	-	50	-	55	-	52	-	48	-	48	-
D	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	60	45	-	43	-	49	-	49	-	47	-	44	-	46	-
D	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	60	46	-	43	-	45	-	31	-	36	-	38	-	36	-
Α	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	60	42	-	43	-	49	-	39	-	39	-	39	-	56	-
Α	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	60	45	-	42	-	46	-	38	-	43	-	43	-	50	-
D	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	60	44	-	41	-	49	-	46	-	47	-	46	-	55	-
В	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	60	43	-	41	-	49	-	50	-	49	-	45	-	46	-
E	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	60	43	-	40	-	48	-	45	-	46	-	41	-	54	-
С	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES	60	37	-	40	-	47	-	38	-	37	-	36	-	51	-
D	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	60	42	-	40	-	43	-	31	-	32	-	34	-	48	-
Α	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5	RES	60	39	-	40	-	45	-	38	-	41	-	40	-	51	-
С	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065	631	RES	60	42	-	39	-	47	-	44	-	42	-	39	-	54	-
A	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	60	41	-	39	-	42	-	31	-	32	-	32	-	34	-
В	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	60	39	-	39	-	43	-	33	-	37	-	37	-	36	-
D	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	60	42	•	39	-	45	-	43	-	40	-	38	-	53	-
E	23 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	101	RES	60	38	-	39	-	42	-	37	-	38	-	36	-	44	-
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	60	41	-	38	-	44	-	41	-	39	-	37	-	52	-
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	60	41	-	38	-	45	-	40	-	38	-	37	-	51	-
В	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	60	31	-	38	-	39	-	34	-	36	-	35	-	39	-
	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	60	41	-	37	-	41	-	34	-	38	-	39	-	44	-
A	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	60	40	-	37	-	43	-	37	-	36	-	35	-	48	-
D	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	60	40	-	36	-	42	-	35	-	33	-	34	-	41	-
В	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAF	268	RES	60	40	-	36	-	37	-	36	-	37	-	37	-	40	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	60	41		36	-	40	-	37	-	41	-	40	-	42	-
Α	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES	60	39		36	-	42	-	36	-	34	-	34	-	43	-
В	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065	30	RES	55	32		36	-	41	-	33	-	32	-	32	-	46	-
E	SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	88	RES	60	39		36	-	41	-	35	-	33	-	32	-	41	-
	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	60	35	-	35	-	43	-	39	-	40	-	40	-	50	-
D	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	60	35	-	35	-	42	-	39	-	39	-	38	-	50	-

Appendix C.3 Night 2a Detailed Predicted Noise Levels Based on ICNG (External NML)																		
Receiver NCA	Receiver Address	ID	Receiver Type		2a Structure Construction zones													
				External NML dB(A)	Site A1 reduced scope		Site A2 reduced scope of works (SWL 94 dB(A))			uced scope of /L 99 dB(A))	of Site B1 reduced scope of works, 10m below (SWL 101 dB(A))		Site B2 reduced scope of works, 10m below (SWL 101 dB(A))		Site B3 reduced scope of works, 10m below (SWL 101 dB(A))		Site C reduc works (SWL	
					Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Leve dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance	Predicted Noise Level dB(A)	Exceedance
			MED, RES and			_		_		_								
A F	22-26 CLARKE ST, CROWS NEST NSW 2065	464 594	Recording Studio RES	55 55	60 56	5	60 55	5	60 59	5 4	41 40	-	46 45	-	47 46	-	59 60	5
B	218/402-420 PACIFIC HWY, CROWS NEST NSW 2065 224/402-420 PACIFIC HWY, CROWS NEST NSW 2065	232	RES	55	58	3	55 55	-	59 56	1	40 37		45 42		46 43	-	56	1
E	5/545-553 PACIFIC HWY, ST LEONARDS NSW 2065	562	RES	55	58	3	53	-	54	-	41	-	42	-	48	-	53	- 1
	471 PACIFIC HWY, CROWS NEST NSW 2065	719	RES	55	46	-	47	1	53		57	2	59	4	56	1	60	5
D	8/473 PACIFIC HWY, CROWS NEST NSW 2065	541	RES	55	46	<u> </u>	45	<u> </u>	50	-	59	4	60	5	58	3	51	-
E	469 PACIFIC HWY, CROWS NEST NSW 2065	35	RES	55	45	-	44	-	50	-	55	-	52	-	48	-	48	
E	457 PACIFIC HWY, CROWS NEST NSW 2065	608	RES	55	45	-	43	-	49	-	49	-	47	-	44	-	46	-
E	33/1 ALBANY ST, ST LEONARDS NSW 2065	103	RES	55	46	-	43	-	45	-	31	-	36	-	38	-	36	-
E	2/17 HUME ST, WOLLSTONECRAFT NSW 2065	202	RES	55	42	-	43	-	49	-	39	-	39	-	39	-	56	1
	472-486 Pacific Hwy St Leonards NSW 2065	791	RES	55	45	-	42	-	46		38		43		43	-	50	
E	348 PACIFIC HWY, CROWS NEST NSW 2065	10	RES	55	44	-	41	-	49	-	46	-	47	-	46	-	55	-
	463 PACIFIC HWY, CROWS NEST NSW 2065	514	RES	55	43	-	41	-	49	-	50	-	49	-	45	-	46	-
	342-346 PACIFIC HWY, CROWS NEST NSW 2065	94	RES	55	43	-	40	-	48	-	45	-	46	-	41	-	54	-
	29 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	384	RES RES	55	37	-	40	-	47	-	38	-	37	-	36	-	51	-
E	12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	595	RES	55	42	-	40	-	43	-	31	-	32	-	34	-	48	
A F	25 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	5 631	RES	55 55	39 42	-	40 39	-	45 47	-	38 44	-	41 42	-	40 39	-	51 54	-
A	GROUND 338 PACIFIC HWY, CROWS NEST NSW 2065 12/35-51 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	13	RES	55	42		39	-	47	-	31	-	32	<del></del>	39	-	34	
F	1704/599 PACIFIC HWY, ST LEONARDS NSW 2065	181	RES	55	39	<del></del>	39	<del></del>	43	<del></del>	33	<del>                                     </del>	37	<del></del>	37		36	
В	330 PACIFIC HWY, CROWS NEST NSW 2065	68	RES	55	42	<del></del>	39	-	45		43	-	40	<del></del>	38	-	53	
A	23 NICHOLSON ST. WOLLSTONECRAFT NSW 2065	101	RES	55	38	-	39	-	42	-	37	-	38	-	36	-	44	_
D	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	343	RES	55	41	-	38	-	44	-	41	-	39	-	37	-	52	-
E	LEVEL 328 PACIFIC HWY, CROWS NEST NSW 2065	559	RES	55	41	-	38	-	45	-	40	-	38	-	37	-	51	-
A	33 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	665	RES	55	31	-	38	-	39	-	34	-	36	-	35	-	39	-
С	301/599 PACIFIC HWY, ST LEONARDS NSW 2065	122	RES	55	41	-	37	-	41	-	34	-	38	-	39	-	44	-
Α	322 PACIFIC HWY, CROWS NEST NSW 2065	790	RES	55	40	-	37	-	43	-	37	-	36	-	35	-	48	-
A	LEVEL 308 PACIFIC HWY, CROWS NEST NSW 2065	311	RES	55	40	-	36	-	42	-	35	-	33	-	34	-	41	-
С	CROWS NEST TERRACES UNIT 35 7-17 NICHOLSON ST, WOLLSTONECRAF		RES	55	40	-	36	-	37	-	36	-	37	-	37	-	40	-
В	500 Pacific Hwy St Leonards NSW 2065	1	RES	55	41	-	36	-	40	-	37	-	41	-	40	-	42	-
B	11 NICHOLSON PL, CROWS NEST NSW 2065	219	RES RES	55	39	-	36	-	42 41	-	36	-	34	-	34	-	43	-
A F	HUME APARTMENTS 8/20-26 HUME ST, WOLLSTONECRAFT NSW 2065 SHOP 1 GROUND 310 PACIFIC HWY, CROWS NEST NSW 2065	30 88	RES	55 55	32 39		36 36	-	41	-	33 35	-	32 33	-	32 32	-	46 41	
E	3/455 PACIFIC HWY, CROWS NEST NSW 2065	731	RES	55	35		35	-	41	-	35	-	40	-	32 40	-	41 50	-
E	1/455 PACIFIC HWY, CROWS NEST NSW 2065	445	RES	55	35	-	35	-	43	-	39	-	39	-	38	-	50	-
В	5/6-10 LAMONT ST, WOLLSTONECRAFT NSW 2065	475	RES	55	32	-	35	-	42	-	32	-	33	-	31	-	46	
	LA MAISON 8/9-15 HUME ST, WOLLSTONECRAFT NSW 2065	524	RES	55	28	-	35	-	45	-	35	-	36	-	34	-	51	-
A	LEVEL 47A WILLOUGHBY RD, CROWS NEST NSW 2065	750	RES	55	29	-	34	-	39	-	31	-	33	-	35	-	52	-
E	1/31 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	394	RES	55	34	-	34	-	46	-	34	-	34	-	34	-	50	-
В	61 HUME ST, CROWS NEST NSW 2065	179	RES	55	26	-	33	-	39	-	31	-	32	-	27	-	50	-
E	9/4-6 NICHOLSON ST, WOLLSTONECRAFT NSW 2065	41	RES	55	35	-	33	-	37		31		32		32	-	41	
D	39 WILLOUGHBY RD, CROWS NEST NSW 2065	728	RES	55	34	-	33	-	38	-	33	-	34	-	35	-	51	-
	447 PACIFIC HWY, CROWS NEST NSW 2065	162	RES	55	37	-	33	-	38	-	35	-	34	-	33	-	36	-
E	63 HUME ST, CROWS NEST NSW 2065	442	RES	55	26	-	33	-	39	-	30	-	29	-	27	-	52	-
E	17/4 LAMONT ST, WOLLSTONECRAFT NSW 2065	217	RES	55	31	-	33	-	41	-	32	-	32	-	30	-	47	-
D F	61/13 ERNEST ST, CROWS NEST NSW 2065	15	RES RES	55	29	-	32	<del>-</del> -	42 37	-	31	-	32 37	-	33 37	-	47 49	-
	449A PACIFIC HWY, CROWS NEST NSW 2065	758 350		55	35	-	32	-	37	-	38	-		-		-	49 41	
E E	2/126 SHIRLEY RD, WOLLSTONECRAFT NSW 2065 11/38-46 ALBANY ST, ST LEONARDS NSW 2065	264	RES RES	55 55	33 24	-	32 32	-	27	-	32 24	-	31 25	-	32 25	-	41	
	3105/1 MARSHALL AV, ST LEONARDS NSW 2065	379	RES	55	35	-	32	<del>                                     </del>	35	<del>                                     </del>	17	<del>                                     </del>	25	<del>                                     </del>	30	<del> </del>	41	<del></del>
A	12 WILLOUGHBY RD, CROWS NEST NSW 2065	86	RES	55	36	-	32	-	36	-	37	-	33	-	33	-	41	-
	204/29 ALBANY ST, CROWS NEST NSW 2065	599	RES	55	24	-	32	-	39	-	32	-	32	-	27	-	54	-
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