

ENDORSEMENT CITY & SOUTHWEST ACOUSTIC ADVISOR

Review of	Construction Noise and Vibration Impact Statement Addendum: Victoria Cross Station North Shed Demolition	Document reference:	SYDNEY METRO CITY & SOUTHWEST-TSE WORKS Construction Noise and Vibration Impact Statement Addendum: Victoria Cross Station North Shed Demolition TH511-02 01.04.03 F05 VC North Shed Demolition (r1) Dated 2 October 2020
Prepared by:	Larry Clark Alternate Acoustics Advisor		
Date of issue:	6 October 2020		

As approved Alternate Acoustics Advisor for the Sydney Metro City & Southwest project, I have reviewed the Construction Noise and Vibration Impact Statement (CNVIS) addendum for the Victoria Cross Station North Shed Demolition, as required under A27 (d) of the project approval conditions.

The CNVIS addendum is to deconstruct the acoustic shed at the Victoria Cross North (VXN) construction site. No other site activities will occur at the same time. The construction activities are proposed to be carried out during standard construction hours only. The works will take 10 weeks in non-consecutive periods, from early October to mid-December 2020.

In response to my comments on the CNVIS Addendum, John Holland CPB Ghella advice is that:

- affected sensitive receivers have been consulted and no specific mitigation measures were identified (Condition of Approval E33);
- the potentially affected Wynona Girls High School was consulted about the works, with the greatest potential impact being on those students undertaking the HSC in late October/November. Wynona confirmed to TSE that they will be having the students undertake the exams at another location (i.e. offsite) as they do not have the capacity to have the exams in house. No other issues have been raised with TSE in relation to the works by the school (Condition of Approval E34);
- consultation determined that there were no issues in relation to the appropriateness of the current respite hours, so these respite hours will continue to be imposed (Condition of Approval E38).

I am satisfied that the CNVIS Addendum is technically valid and that it includes appropriate noise and vibration mitigation and management. On this basis I endorse the CNVIS Addendum.



Larry Clark, City & Southwest Alternate Acoustics Advisor

2 October 2020

TH511-02 01.04.03 F05 VC North Shed Demolition (r1)

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Sydney Metro Chatswood to Sydenham – TSE Works - Victoria Cross Station - North Shed Demolition - CNVIS Addendum

1 Introduction

1.1 Overview of works

This technical memorandum is an addendum to the report *Construction Noise and Vibration Impact Statement: Victoria Cross Constructions sites*¹ (Victoria Cross CNVIS) and has been prepared on behalf of John Holland CPB Ghella Joint Venture (JHCPBG) in accordance with the Construction Noise and Vibration Management Plan (CNVMP) [SMCSWTSE-JCG-TPW-EM-PLN-002012]² for the Design and Construction of the Tunnel and Station Excavation (TSE) Works of the Sydney Metro City & Southwest Project (the Project).

JHCPBG is proposing to deconstruct the acoustic shed at the Victoria Cross North (VXN) construction site. The construction activities are proposed to be carried out during standard construction hours only.

This memorandum has been prepared to address the potential construction noise and vibration impacts from the demolition of the acoustic shed at the VXN worksite. These work activities have been assessed in isolation as no other site activities will occur at the same time. The construction works are detailed in Section 2.1 below.

¹ TH511-02 01.04.03 F01 VC CNVIS (r7), dated 21 September 2018

² Sydney Metro City & Southwest – TSE Works Construction Noise and Vibration Management Plan (SMCSTSE-JCG-TPW-EN-PLN-002012)

2 Construction noise assessment

2.1 Construction activities

Table 2-1 presents the list of plant and equipment that are proposed to be used during the acoustic shed deconstruction works along with the associated sound power levels.

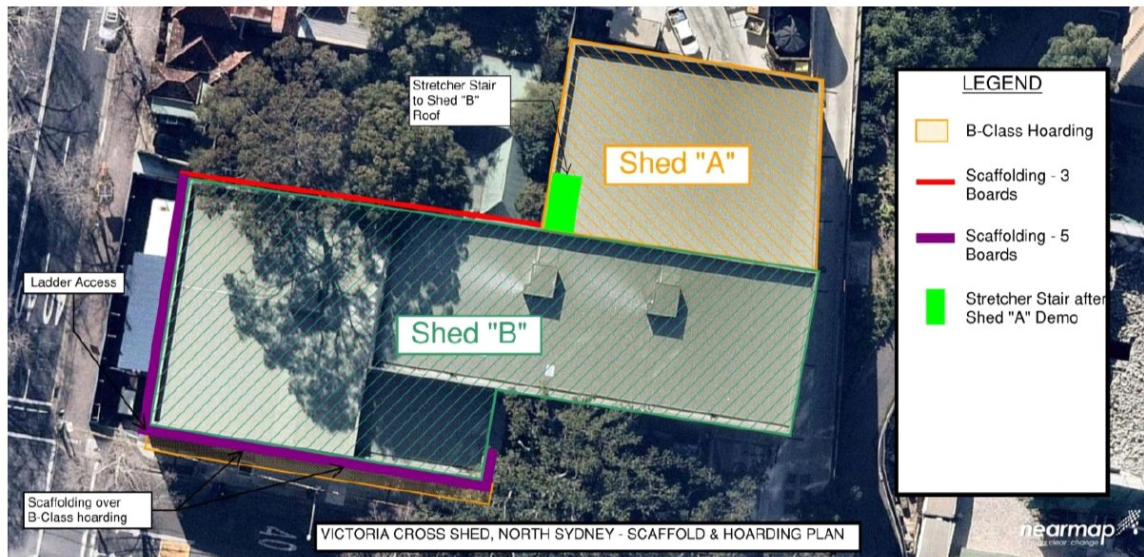
The works will include:

- The preliminary works: installation of B-class hoarding along the western, northern and eastern boundaries of Shed A and scaffolding around the Shed A and Shed B (Figure 1.).
- The demolition works: deconstruction of the acoustic Shed A and Shed B.

Table 2-1: Construction activities and applicable sound power levels

Construction activity (Works time period)	Key plant and equipment	Qty	Sound power level, dB(A)		Comments
			L _{Aeq 15min}	L _{Amax}	
Preliminary works (Standard construction hours)	EWP	1	95	98	-
	Hiab truck	1	98	102	-
	Forklift	1	99	103	-
	Power hand tools	4	107	111	-
	Delivery trucks	8 p.h.	106	111	8 delivery trucks per hour
	Generator	1	94	95	5 KVA Generator
Demolition works (Standard construction hours)	EWP	1	95	98	-
	Mobile crane	1	104	108	-
	Hiab truck	1	98	102	-
	Forklift	1	99	103	-
	Excavator with shear attachment	1	108	113	-
	Excavator with bucket attachment	1	103	108	-
	Delivery trucks	8 p.h.	106	111	8 delivery trucks per hour
Power hand tools	4	107	111	-	

Figure 1: Demolition of the shed at VXN worksite and location of B-class hoarding and scaffoldings



2.2 Predicted noise levels

2.2.1 Construction

Predicted noise levels associated with the acoustic shed deconstruction works at the nearest noise sensitive receivers to the work site are presented in Table 2-2. Detailed predicted noise levels are presented in APPENDIX B.

The impacts are summarised for the **Day Period (from 7am to 6pm)** as follows:

- ◆ Noise levels predicted to be below internal NMLs in Project Planning Approval (PPA) Conditions E37/E38
- Noise levels predicted to be above internal NMLs in Project Planning Approval (PPA) Conditions E37/E38

Table 2-2: Summary of predicted noise levels at noise sensitive receivers

Activity	VXN Preliminary and Demolition works			
Assessment period	Day (7am to 6pm)			
NCA / Work area	Shed A Preliminary Works	Shed A Demolition Works	Shed B Preliminary Works	Shed B Demolition Works
VC_01	◆	◆	◆	◆
VC_02	◆	◆	◆	◆
VC_03	□	□	□	□
VC_04	◆	◆	◆	◆
VC_05	◆	◆	□	□
VC_06	◆	◆	◆	◆

Activity	VXN Preliminary and Demolition works			
VC_07	◆	◆	◆	◆
OSR ¹	◆	◆	◆	◆

Notes: 1. OSR includes all commercial, industrial and other non-residential sensitive receivers. Residential receivers are included in VC_01 to VC_07.

The summary results presented in Table 2-2 show that predicted noise levels are expected to be below the internal noise level of the PPA Conditions E37/38 at all receivers except for two receivers in NCA VC_03 and VC_05. There are two residential receivers that are predicted to be above the PPA Conditions E37/E38:

- a residential receiver (a detached house on the eastern side of the property) at 243 Miller Street, North Sydney (NCA VC_03) during preliminary and demolition works for Shed A and Shed B;
- a residential high-rise building at 237 Miller Street, North Sydney (NCA VC_05) during preliminary and demolition works for Shed B.

Measures for managing potential noise impacts are provided in Section 2.3. For more detailed predictions, see APPENDIX B.

2.3 Noise mitigation and management

2.3.1 Consultation with affected receivers (PPA Condition E38)

Based upon the assessment, consultation with receivers with predicted internal $L_{Aeq(15minute)}$ noise levels greater than 60 dB(A) during the 7am to 8pm day-time period (i.e. 243 Miller Street and 237 Miller street) will be undertaken to determine appropriate hours of respite in accordance with PPA Condition E38.

2.3.2 Specific mitigation measures

The following specific mitigation measures are to be incorporated during the construction works:

- B-class hoarding will be erected during the preliminary works to reduce noise levels during the demolition works.
- Where feasible and reasonable, schedule the deconstruction methodology so that use of louder equipment (e.g. grinders) are located such that the existing shed elements act as a barrier between the construction noise source the nearest sensitive receivers.

2.3.3 Noise monitoring

Attended noise monitoring will be undertaken at the locations identified in Table 2-3 to verify that noise levels from construction works are not above the levels predicted in this memorandum.

Table 2-3: Nominated verification monitoring locations

NCA	Nominated receiver address	Predicted noise levels, $L_{Aeq,15min}$, dB(A)			
		Shed A		Shed B	
		Preliminary works	Demolition works	Preliminary works	Demolition works
VC_05	237 Miller Street, North Sydney	61	61	74	73
VC_03	243 MILLER STREET NORTH SYDNEY	88	78	84	83

Note: Monitoring on private property is subject to owner consent and where relevant, occupier consent. If property access is denied, monitoring will still be carried out outside property boundaries, where it is safe to do so.

If verification monitoring shows that the external noise levels are consistently (i.e. on 2 or more consecutive monitoring days) above the predicted levels, investigation will be undertaken to understand the cause of the exceedance and relevant reasonable and feasible mitigation measures will be implemented.

2.3.4 Consultation with affected receivers (PPA Condition E33 and E34)

As outlined in Section 5.4.1 of the Victoria Cross CNVIS, consistent with requirements in PPA Conditions E33 and E34, JHCPBG has commenced and will continue to consult with potentially affected stakeholders including business and residential receivers regarding specific mitigation measures applicable to the construction works at the Victoria Cross site.

As predicted noise levels from the proposed works are identified to potentially exceed the ICNG NMLs of nearby OSRs (i.e. 168 Walker Street, 54 McLaren Street and 255 Miller Street), further notification or consultation for these works should be considered.

3 Construction related road traffic assessment

Potential construction traffic impacts from VXN construction site due to heavy vehicle movements was covered in Section 8 of the *Victoria Cross CNVIS*. A maximum of 15 heavy vehicle movements per hour during the daytime period was assessed in the *Victoria Cross CNVIS* and predicted to have minimal impact on the main roads used to access the site.

JHCPBG would require a maximum of 8 heavy vehicle movements per hour during the standard construction hours accessing the VXN construction site via McLaren Street. Considering the reduction in heavy vehicles movements during the works, the proposed truck movements are expected to have negligible impact on the roads used to access the site.

4 Construction vibration, ground-borne noise and cumulative impacts

The proposed works are not vibration intensive and so construction vibration or ground-borne noise impacts are considered to be negligible.

No other works other than those discussed in this addendum are proposed to be occurring concurrently so no additional cumulative airborne noise impacts are expected.

5 Conclusion

This technical memorandum is an addendum to the report Victoria Cross CNVIS to review the potential noise and vibration impacts for the proposed VXN acoustic shed deconstruction works. These works are programmed to be undertaken during standard construction hours only.

Noise levels are predicted to achieve the PPA Condition PPA Conditions E37/E38 at all nearby noise sensitive receivers, except for two residential receivers where consultation will be required in accordance with PPA Condition E38.

Noise mitigation and management measures are presented in Section 2.3. Noise monitoring will be undertaken to verify compliance with the predicted noise levels.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
02/10/2029	Initial issue	0	1	R. Zhafranata	M. Tabacchi	M. Tabacchi

Important Disclaimer:

The work presented in this document was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001.

This document is issued subject to review and authorisation by the Team Leader noted by the initials printed in the last column above. If no initials appear, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for the particular requirements of our Client which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Renzo Tonin & Associates. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

In preparing this report, we have relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, we have not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

We have derived data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination and re-evaluation of the data, findings, observations and conclusions expressed in this report.

We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the 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 point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise 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 meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A-weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
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 or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times 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.
L _{Max}	The maximum sound pressure level measured over a given period.
L _{Min}	The minimum sound pressure level measured over a given period.

L ₁	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L ₁₀	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L ₉₀	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L _{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain L _{eq} sound levels over any period of time and can be used for predicting noise at various locations.
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 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 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 the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

APPENDIX B Detailed predicted noise levels

The impacts presented in the following table are identified by colour coding of the text.

Table B.1: Predicted construction noise levels

VXN Shed demolition

Receiver		Predicted noise levels, dB(A)					E37/38				
		Day (Standard)									
NCA	Address	ICNG NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B	External equivalent NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B
VC_07	80 BERRY STREET NORTH SYDNEY	75	44	46	43	45	70	44	46	43	45
VC_07	77 BERRY STREET NORTH SYDNEY	75	39	36	49	49	70	39	36	49	49
VC_06	80 BERRY STREET NORTH SYDNEY	64	39	40	35	37	70	39	40	35	37
VC_06	88 BERRY STREET NORTH SYDNEY	64	42	43	46	47	70	42	43	46	47
VC_06	173 WALKER STREET NORTH SYDNEY	64	35	36	36	34	70	35	36	36	34
VC_06	175 WALKER STREET NORTH SYDNEY	64	34	35	-	-	70	34	35	-	-
VC_06	177 WALKER STREET NORTH SYDNEY	64	-	-	-	-	70	-	-	-	-
VC_06	179 WALKER STREET NORTH SYDNEY	64	-	-	38	-	70	-	-	38	-
VC_06	11 HAMPDEN STREET NORTH SYDNEY	64	-	-	45	45	70	-	-	45	45
VC_06	15 HAMPDEN STREET NORTH SYDNEY	64	-	-	-	-	70	-	-	-	-
VC_06	17 HAMPDEN STREET NORTH SYDNEY	64	-	-	34	-	70	-	-	34	-
VC_06	16 HAMPDEN STREET NORTH SYDNEY	64	-	38	46	48	70	-	38	46	48
VC_06	191-195 WALKER STREET NORTH SYDNEY	64	59	57	56	55	70	59	57	56	55
VC_06	191-195 WALKER STREET NORTH SYDNEY	64	53	52	50	51	70	53	52	50	51
VC_06	197 WALKER STREET NORTH SYDNEY	64	54	55	56	57	70	54	55	56	57
VC_06	199 WALKER STREET NORTH SYDNEY	64	59	59	59	59	70	59	59	59	59
VC_06	95A RIDGE STREET NORTH SYDNEY	64	46	51	53	53	70	46	51	53	53
VC_06	93 RIDGE STREET NORTH SYDNEY	64	-	45	49	49	70	-	45	49	49
VC_06	93 RIDGE STREET NORTH SYDNEY	64	-	-	-	-	70	-	-	-	-
VC_06	95 RIDGE STREET NORTH SYDNEY	64	-	-	-	-	70	-	-	-	-
VC_06	91 RIDGE STREET NORTH SYDNEY	64	-	-	-	34	70	-	-	-	34
VC_06	89 RIDGE STREET NORTH SYDNEY	64	-	-	-	-	70	-	-	-	-
VC_06	87 RIDGE STREET NORTH SYDNEY	64	-	-	-	-	70	-	-	-	-
VC_06	85 RIDGE STREET NORTH SYDNEY	64	36	36	40	35	70	36	36	40	35
VC_06	209 WALKER STREET NORTH SYDNEY	64	-	35	40	37	70	-	35	40	37
VC_06	207 WALKER STREET NORTH SYDNEY	64	-	35	35	36	70	-	35	35	36
VC_06	205 WALKER STREET NORTH SYDNEY	64	42	48	46	47	70	42	48	46	47
VC_06	2 HAMPDEN STREET NORTH SYDNEY	64	36	36	56	56	70	36	36	56	56
VC_06	4 HAMPDEN STREET NORTH SYDNEY	64	-	-	49	45	70	-	-	49	45
VC_06	6 HAMPDEN STREET NORTH SYDNEY	64	-	-	40	41	70	-	-	40	41
VC_06	8 HAMPDEN STREET NORTH SYDNEY	64	-	-	41	40	70	-	-	41	40
VC_06	10 HAMPDEN STREET NORTH SYDNEY	64	-	-	42	40	70	-	-	42	40
VC_06	12 HAMPDEN STREET NORTH SYDNEY	64	-	-	41	41	70	-	-	41	41
VC_06	14 HAMPDEN STREET NORTH SYDNEY	64	-	-	44	44	70	-	-	44	44
VC_06	185 WALKER STREET NORTH SYDNEY	64	48	48	61	60	70	48	48	61	60
VC_05	237 MILLER STREET NORTH SYDNEY	69	61	61	74	73	70	61	61	74	73
VC_05	39 MCLAREN STREET NORTH SYDNEY	69	58	57	70	68	70	58	57	70	68
VC_05	225 MILLER STREET NORTH SYDNEY	69	44	47	61	61	70	44	47	61	61
VC_05	45 MCLAREN STREET NORTH SYDNEY	69	61	55	63	62	70	61	55	63	62
VC_05	138 WALKER STREET NORTH SYDNEY	69	53	52	56	56	70	53	52	56	56
VC_05	150 WALKER STREET NORTH SYDNEY	69	49	46	53	54	70	49	46	53	54
VC_05	231 MILLER STREET NORTH SYDNEY	69	37	50	62	62	70	37	50	62	62
VC_05	150 WALKER STREET NORTH SYDNEY	69	34	-	45	43	70	34	-	45	43
VC_04	31 MCLAREN STREET NORTH SYDNEY	59	41	43	62	61	70	41	43	62	61
VC_04	29 MCLAREN STREET NORTH SYDNEY	59	36	41	58	57	70	36	41	58	57
VC_04	27 MCLAREN STREET NORTH SYDNEY	59	35	41	56	52	70	35	41	56	52
VC_04	21-23 MCLAREN STREET NORTH SYDNEY	59	34	38	49	49	70	34	38	49	49
VC_04	11 MCLAREN STREET NORTH SYDNEY	59	-	-	43	42	70	-	-	43	42
VC_04	9 MCLAREN STREET NORTH SYDNEY	59	-	35	48	46	70	-	35	48	46
VC_04	5 MCLAREN STREET NORTH SYDNEY	59	-	35	48	45	70	-	35	48	45
VC_04	3 MCLAREN STREET NORTH SYDNEY	59	-	-	41	42	70	-	-	41	42
VC_03	243 MILLER STREET NORTH SYDNEY	64	88	78	84	83	70	88	78	84	83
VC_03	59-61 RIDGE STREET NORTH SYDNEY	64	50	52	51	51	70	50	52	51	51
VC_03	267 MILLER STREET NORTH SYDNEY	64	61	61	60	60	70	61	61	60	60
VC_03	9 RIDGE STREET NORTH SYDNEY	64	-	-	34	35	70	-	-	34	35
VC_03	13-15 RIDGE STREET NORTH SYDNEY	64	-	39	39	42	70	-	39	39	42
VC_03	13-15 RIDGE STREET NORTH SYDNEY	64	35	37	40	41	70	35	37	40	41
VC_03	2-22 CUNNINGHAM STREET NORTH SYDNEY	64	36	37	39	39	70	36	37	39	39
VC_03	176 WALKER STREET, NORTH SYDNEY	64	-	-	-	38	70	-	-	-	38
VC_03	81 RIDGE STREET NORTH SYDNEY	64	36	40	43	42	70	36	40	43	42

Table B.1: Predicted construction noise levels

VXN Shed demolition

Receiver		Predicted noise levels, dB(A)									
		Day (Standard)					E37/38				
NCA	Address	ICNG NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B	External equivalent NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B
VC_03	72-80 RIDGE STREET NORTH SYDNEY	64	37	40	43	40	70	37	40	43	40
VC_03	63 RIDGE STREET NORTH SYDNEY	64	58	56	56	56	70	58	56	56	56
VC_02	172 PACIFIC HIGHWAY NORTH SYDNEY	65	-	-	-	-	70	-	-	-	-
VC_02	170 PACIFIC HIGHWAY NORTH SYDNEY	65	-	-	-	-	70	-	-	-	-
VC_02	168 PACIFIC HIGHWAY NORTH SYDNEY	65	-	-	-	-	70	-	-	-	-
VC_02	166 PACIFIC HIGHWAY NORTH SYDNEY	65	-	-	35	-	70	-	-	35	-
VC_02	10A CHURCH STREET NORTH SYDNEY	65	-	38	45	44	70	-	38	45	44
VC_02	10 CHURCH STREET NORTH SYDNEY	65	-	39	43	42	70	-	39	43	42
VC_02	8A CHURCH STREET NORTH SYDNEY	65	-	42	44	43	70	-	42	44	43
VC_02	8 CHURCH STREET NORTH SYDNEY	65	-	40	41	41	70	-	40	41	41
VC_02	6 CHURCH STREET NORTH SYDNEY	65	-	40	43	41	70	-	40	43	41
VC_02	2 CHURCH STREET NORTH SYDNEY	65	-	41	43	43	70	-	41	43	43
VC_02	8 MCLAREN STREET NORTH SYDNEY	65	-	-	38	37	70	-	-	38	37
VC_02	239-241 PACIFIC HIGHWAY NORTH SYDNEY	65	42	45	50	50	70	42	45	50	50
VC_02	225-229 PACIFIC HIGHWAY NORTH SYDNEY	65	45	50	52	52	70	45	50	52	52
VC_02	211-223 PACIFIC HIGHWAY NORTH SYDNEY	65	42	47	51	51	70	42	47	51	51
VC_02	12 BERRY STREET NORTH SYDNEY	65	-	-	-	-	70	-	-	-	-
VC_01	25-29 BERRY STREET NORTH SYDNEY	65	-	-	36	37	70	-	-	36	37
VC_01	23 BERRY STREET NORTH SYDNEY	65	-	-	-	-	70	-	-	-	-
VC_01	19-21 BERRY STREET NORTH SYDNEY	65	-	-	-	-	70	-	-	-	-
OSR	65 BERRY STREET NORTH SYDNEY	70	-	-	46	48	80	-	-	46	48
OSR	15 ANGELO STREET NORTH SYDNEY	55	-	35	55	55	80	-	35	55	55
OSR	50 BERRY STREET NORTH SYDNEY	70	-	-	44	47	80	-	-	44	47
OSR	199 MILLER STREET NORTH SYDNEY	60	-	-	48	47	80	-	-	48	47
OSR	56 BERRY STREET NORTH SYDNEY	70	34	-	48	50	80	34	-	48	50
OSR	66 BERRY STREET NORTH SYDNEY	70	40	36	50	52	80	40	36	50	52
OSR	53 BERRY STREET NORTH SYDNEY	70	-	-	50	50	80	-	-	50	50
OSR	177 PACIFIC HIGHWAY NORTH SYDNEY	70	44	45	51	52	80	44	45	51	52
OSR	100 MILLER STREET NORTH SYDNEY	70	40	38	47	48	80	40	38	47	48
OSR	213 MILLER STREET NORTH SYDNEY	70	-	-	53	55	80	-	-	53	55
OSR	196 MILLER STREET NORTH SYDNEY	70	46	53	67	66	80	46	53	67	66
OSR	25 MCLAREN STREET NORTH SYDNEY	60	35	37	44	44	80	35	37	44	44
OSR	25 MCLAREN STREET NORTH SYDNEY	60	34	38	53	49	80	34	38	53	49
OSR	196A MILLER STREET NORTH SYDNEY	55	39	40	61	61	80	39	40	61	61
OSR	15 ANGELO STREET NORTH SYDNEY	55	34	34	50	50	80	34	34	50	50
OSR	243 MILLER STREET NORTH SYDNEY	70	67	68	75	74	80	67	68	75	74
OSR	255 MILLER STREET NORTH SYDNEY	55	65	62	63	62	80	65	62	63	62
OSR	34 MCLAREN STREET NORTH SYDNEY	55	35	40	51	50	80	35	40	51	50
OSR	34A Maclaren Street North Sydney	55	35	39	49	44	80	35	39	49	44
OSR	34B MCLAREN STREET NORTH SYDNEY	55	-	35	47	42	80	-	35	47	42
OSR	168 WALKER STREET NORTH SYDNEY	60	72	70	73	72	80	72	70	73	72
OSR	41 MCLAREN STREET NORTH SYDNEY	70	65	61	68	67	80	65	61	68	67
OSR	221 MILLER STREET NORTH SYDNEY	75	47	45	58	57	80	47	45	58	57
OSR	54 MCLAREN STREET NORTH SYDNEY	60	73	71	70	69	80	73	71	70	69
OSR	76 BERRY STREET NORTH SYDNEY	70	37	38	39	41	80	37	38	39	41
OSR	100 MILLER STREET NORTH SYDNEY	70	-	-	46	46	80	-	-	46	46
OSR	51 BERRY STREET NORTH SYDNEY	70	-	-	47	47	80	-	-	47	47
OSR	70-74 BERRY STREET NORTH SYDNEY	75	-	-	-	-	80	-	-	-	-
OSR	3 WARD STREET NORTH SYDNEY	70	-	-	-	34	80	-	-	-	34
OSR	22 WARD STREET NORTH SYDNEY	75	49	41	56	58	80	49	41	56	58
OSR	5 WARD STREET NORTH SYDNEY	70	-	-	-	34	80	-	-	-	34
OSR	7 WARD STREET NORTH SYDNEY	70	-	-	-	34	80	-	-	-	34
OSR	9 WARD STREET NORTH SYDNEY	70	-	-	-	34	80	-	-	-	34
OSR	11 WARD STREET NORTH SYDNEY	75	-	-	34	35	80	-	-	34	35
OSR	201 MILLER STREET NORTH SYDNEY	70	41	-	53	55	80	41	-	53	55
OSR	269 MILLER STREET NORTH SYDNEY	50	59	57	55	58	80	59	57	55	58
OSR	255 MILLER STREET NORTH SYDNEY	55	73	71	70	68	80	73	71	70	68
OSR	255 MILLER STREET NORTH SYDNEY	55	71	69	66	67	80	71	69	66	67
OSR	255 MILLER STREET NORTH SYDNEY	55	66	63	61	61	80	66	63	61	61
OSR	255 MILLER STREET NORTH SYDNEY	55	67	64	62	63	80	67	64	62	63

Table B.1: Predicted construction noise levels

VXN Shed demolition

Receiver		Predicted noise levels, dB(A)					E37/38				
		Day (Standard)									
NCA	Address	ICNG NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B	External equivalent NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B
OSR	116 MILLER STREET NORTH SYDNEY	70	-	-	50	51	80	-	-	50	51
OSR	1 RIDGE STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	5 RIDGE STREET NORTH SYDNEY	70	-	-	34	-	80	-	-	34	-
OSR	7 RIDGE STREET NORTH SYDNEY	70	-	36	38	38	80	-	36	38	38
OSR	11 WEST STREET NORTH SYDNEY	70	-	37	37	39	80	-	37	37	39
OSR	7-9 WEST STREET NORTH SYDNEY	70	38	42	45	45	80	38	42	45	45
OSR	3 WEST STREET NORTH SYDNEY	70	39	41	44	42	80	39	41	44	42
OSR	3 CUNNINGHAM STREET NORTH SYDNEY	70	-	35	36	35	80	-	35	36	35
OSR	1 CUNNINGHAM STREET NORTH SYDNEY	55	34	34	39	35	80	34	34	39	35
OSR	220 MILLER STREET NORTH SYDNEY	70	46	49	57	56	80	46	49	57	56
OSR	1 JAMES PLACE NORTH SYDNEY	70	49	54	58	57	80	49	54	58	57
OSR	52 RIDGE STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	53-57 RIDGE STREET NORTH SYDNEY	70	39	42	44	44	80	39	42	44	44
OSR	248 MILLER STREET NORTH SYDNEY	70	42	44	47	48	80	42	44	47	48
OSR	246 MILLER STREET NORTH SYDNEY	70	42	43	48	49	80	42	43	48	49
OSR	244 MILLER STREET NORTH SYDNEY	70	46	45	51	49	80	46	45	51	49
OSR	242 MILLER STREET NORTH SYDNEY	70	44	44	50	50	80	44	44	50	50
OSR	240 MILLER STREET NORTH SYDNEY	70	44	44	51	50	80	44	44	51	50
OSR	232 MILLER STREET NORTH SYDNEY	70	42	47	55	53	80	42	47	55	53
OSR	1 JAMES PLACE NORTH SYDNEY	70	43	43	54	50	80	43	43	54	50
OSR	35 RIDGE STREET NORTH SYDNEY	60	51	49	58	54	80	51	49	58	54
OSR	34 MCLAREN STREET NORTH SYDNEY	55	48	46	52	52	80	48	46	52	52
OSR	24 CUNNINGHAM STREET NORTH SYDNEY	55	39	40	46	44	80	39	40	46	44
OSR	160 PACIFIC HIGHWAY NORTH SYDNEY	70	-	37	40	40	80	-	37	40	40
OSR	156-158 PACIFIC HIGHWAY NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	33 BERRY STREET NORTH SYDNEY	55	36	41	48	49	80	36	41	48	49
OSR	120 PACIFIC HIGHWAY NORTH SYDNEY	70	-	-	36	37	80	-	-	36	37
OSR	112 PACIFIC HIGHWAY NORTH SYDNEY	70	-	-	-	34	80	-	-	-	34
OSR	7 NAPIER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	5 NAPIER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	3 NAPIER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	1 NAPIER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	110 PACIFIC HIGHWAY NORTH SYDNEY	70	-	-	34	36	80	-	-	34	36
OSR	100 pacific highway, north sydney	70	-	-	38	40	80	-	-	38	40
OSR	1 WHEELER LANE NORTH SYDNEY	70	-	-	34	36	80	-	-	34	36
OSR	121 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	123 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	153 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	157 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	161 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	165 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	201-203 WALKER STREET NORTH SYDNEY	55	49	53	56	55	80	49	53	56	55
OSR	71 RIDGE STREET NORTH SYDNEY	55	37	39	36	37	80	37	39	36	37
OSR	12 MCLAREN STREET NORTH SYDNEY	55	-	34	46	44	80	-	34	46	44
OSR	10 MCLAREN STREET NORTH SYDNEY	55	-	37	39	40	80	-	37	39	40
OSR	1 MCLAREN STREET NORTH SYDNEY	70	-	41	50	48	80	-	41	50	48
OSR	201 PACIFIC HIGHWAY NORTH SYDNEY	70	38	42	49	50	80	38	42	49	50
OSR	80 MOUNT STREET NORTH SYDNEY	70	-	-	35	37	80	-	-	35	37
OSR	90-100 MOUNT STREET NORTH SYDNEY	70	39	-	44	43	80	39	-	44	43
OSR	88 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	86 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	102 WALKER STREET NORTH SYDNEY	70	-	-	37	39	80	-	-	37	39
OSR	110 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	118 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	122 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-
OSR	124 WALKER STREET NORTH SYDNEY	70	37	-	44	44	80	37	-	44	44
OSR	21 Ridge Street North Sydney	70	-	35	42	43	80	-	35	42	43
OSR	21-37 Ridge Street Sydney	70	-	-	34	36	80	-	-	34	36
OSR	21-37 Ridge Street Sydney	70	-	-	-	-	80	-	-	-	-
OSR	176 WALKER STREET NORTH SYDNEY	55	63	61	60	61	80	63	61	60	61

Table B.1: Predicted construction noise levels

VXN Shed demolition

Receiver		Predicted noise levels, dB(A)										
		Day (Standard)					E37/38					
NCA	Address	ICNG NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B	External equivalent NML	Preliminary -Shed A	Demolition - Shed A	Preliminary -Shed B	Demolition - Shed B	
OSR	176 WALKER STREET NORTH SYDNEY	55	35	43	47	46	80	35	43	47	46	
OSR	176 WALKER STREET NORTH SYDNEY	55	53	54	54	55	80	53	54	54	55	
OSR	176 WALKER STREET NORTH SYDNEY	55	52	59	62	62	80	52	59	62	62	
OSR	29 maclaren street, north sydney	70	44	50	58	57	80	44	50	58	57	
OSR	200 MILLER STREET NORTH SYDNEY	70	57	56	68	67	80	57	56	68	67	
OSR	15 angelo street, north sydney	55	37	44	48	47	80	37	44	48	47	
OSR	34 MCLAREN STREET NORTH SYDNEY	55	41	42	47	46	80	41	42	47	46	
OSR	15 ANGELO STREET NORTH SYDNEY	55	-	-	49	49	80	-	-	49	49	
OSR	229 MILLER STREET NORTH SYDNEY	55	53	48	62	61	80	53	48	62	61	
OSR	100 MILLER STREET NORTH SYDNEY	70	-	-	44	44	80	-	-	44	44	
OSR	94 PACIFIC HIGHWAY NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	92 PACIFIC HIGHWAY NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	105-153 MILLER STREET NORTH SYDNEY	70	-	-	41	42	80	-	-	41	42	
OSR	105-153 MILLER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	105-153 MILLER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	105-153 MILLER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	141 WALKER STREET NORTH SYDNEY	70	-	-	34	35	80	-	-	34	35	
OSR	141 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	153 WALKER STREET NORTH SYDNEY	70	-	-	-	-	80	-	-	-	-	
OSR	9 NAPIER STREET NORTH SYDNEY	55	-	-	-	-	80	-	-	-	-	
OSR	116 PACIFIC HIGHWAY NORTH SYDNEY	55	-	-	36	38	80	-	-	36	38	
OSR	65 BERRY STREET NORTH SYDNEY	55	-	-	-	-	80	-	-	-	-	
OSR	105-153 MILLER STREET NORTH SYDNEY	55	-	-	-	-	80	-	-	-	-	