

DA ACOUSTIC REPORT

12 – 24 Stanley Street, Kogarah

ID: 11047 R01v1 26 April 2018

Prepared For: Kogarah 048 Service Pty Ltd

Suite 4001, Level 40, Australia Square. 264 George Street, Sydney NSW 2000

Email: suki.li@polyglobal.com

DOCUMENT INFORMATION

Author:

Joel Parry-Jones

Checked By:

Sri Harsha Eati



Issue: R01

1

Version:

Date	Version	То	Email
5/04/2018	A DRAFT	Suki Li	suki.li@polyglobal.com
26/04/2018	1	Suki Li	suki.li@polyglobal.com

Prepared By: PJ Knowland Pty. Ltd. *t/a PKA Acoustic Consulting*

PO Box 345, Lane Cove NSW 1595

ABN 87 256 407 546, ACN 621 896 204

T (02) 9460 6824 · E admin@pka.com.au



CONTENTS

1.0	IN	TRODUCTION	5
2.0	SL	JMMARY	5
3.0	SI	TE DESCRIPTION	6
4.0	N	DISE SURVEY	7
	4.1	Methodology	7
	4.2	Instrumentation	7
	4.3	Results	8
5.0	N	DISE CRITERIA	9
	5.1	Georges River Council Acoustic Requirements	9
	5.2	Sound Insulation Requirements for Walls and Floors	10
	5.3	NSW EPA Noise Policy for Industry (NPfI)	12
	5.4	EPA NSW Interim Construction Noise Guidelines (ICNG)	14
	5.5	Construction Vibration Criteria	15
6.0	RI	COMMEDNATIONS	16
AP	PEND	DIX A DRAWINGS USED TO PREPARE REPORT	17
AP	PEND	DIX B NOISE DATA LOGGER RESULTS	18

This firm is a member of the Association of Australian Acoustical Consultants.

The work reported herein has been carried out in accordance with the terms of membership. We stress that the advice given herein is for acoustic purposes only, and that the relevant authorities should be consulted with regard to compliance with regulations governing areas other than acoustics.

6

LIST OF FIGURES

Figure 3-1 Site Location

LIST OF TABLES

Table 3-1 Site Surroundings and nearest sensitive residential receivers	6
Table 4-1 Noise Logger Results	8
Table 5-1 Walls – Deemed-to-Satisfy Provisions	10
Table 5-2 Floors – Deemed-to-Satisfy Provisions	11
Table 5-3 Walls – Verification Methods	11
Table 5-4 Floors – Verification Methods	11
Table 5-5 Noise Criteria - Amenity for receiver buildings	12
Table 5-6 NPfI Project Noise Trigger Levels at residential boundaries facing Stanley Street	13
Table 5-7 NPfI Project Noise Trigger Levels at residential boundaries facing Stanley Lane	13
Table 5-8 Noise Levels Residential Receivers (Extract from EPA ICNG)	14
Table 5-9 EPA NSW Interim Construction Noise Guidelines Criteria for site	14

1.0 INTRODUCTION

PKA Acoustic Consulting (PKA) has been commissioned by Kogarah 048 Service Pty Ltd (Client) to prepare DA acoustic report for submission to Georges River (Council) for the proposed multi-residential development (site) at 12 – 24 Stanley Street, Kogarah.

The purpose of this DA acoustic report is to establish the following:

- Existing ambient (background) noise levels at the site and surrounding residential receivers
- Mechanical plant noise breakout goals for future detailed design
- Internal wall and floor/ceiling footprints to comply with sound insulation requirements of the Building Code of Australia (BCA) and Council's DCP regarding Impact Isolation of floors

The preparation of this report is based on the following:

- Discussions with Poly Australia regarding the scope and proposed building constructions
- Preliminary architectural drawings prepared by Scott Carver Architects. Appendix B presents the list of drawings the report is based on.
- Site inspections, acoustic surveys and calculations conducted by PKA

2.0 SUMMARY

An acoustic assessment has been conducted in accordance with the acoustic requirements of Georges River Council, the NSW EPA Interim Construction Noise Guidelines (ICNG) and the NSW EPA Noise Policy for Industry 2017 (NPfI) to set noise goals for the development on the surroundings.

Un-attended noise measurements were conducted by placing noise monitors on site to obtain ambient noise levels. Based on the measurement results and the specifications required by the relevant Australian Standards and guidelines, noise goals have been established to comply with the Georges River Council acoustic requirements, BCA 2016 Part F5, future mechanical plant noise requirements and construction noise in the later of the stages of the development.

Providing our recommendations detailed in Section 6.0 are implemented, the proposed development at 12 -24 Stanley Street, Kogarah will comply with the acoustic requirements of Georges River Council.

3.0 SITE DESCRIPTION

The proposed residential development multi storey building is located at 12-24 Stanley Street, Kogarah. The site is bound by residential properties on all sides. The residential development will have 4 basement levels and 11 storeys of residential apartments. At this stage, based on the provided architectural plans, the mechanical plant room is to be located on the ground floor near the east boundary.

The site location is shown in Figure 3-1 and the nearest sensitive residential receivers are shown in Table 3-1 below.



Figure 3-1 Site Location

Table 3-1 Site Surroundings and nearest sensitive residential receivers

Orientation	Description
North	Stanley Street, other single storey residential premises across the road – residential receivers RR1
East	Residential receiver – 14 Kogarah Street – RR2
South	Stanley Lane, residential premises across the road – RR3
West	Residential receiver 24 Victoria Street, Kogarah – RR4

4.0 NOISE SURVEY

4.1 Methodology

Unattended noise monitoring was conducted on site between 13th March and 23rd March 2018 to record the ambient and traffic noise levels. Two noise monitors were deployed as follows:

- Logger 1: On the east side of the proposed development on the front yard of 12 Stanley Street to measure the ambient noise and possible traffic noise intrusion from the Princes Highway.
- Logger 2: On the east side of the proposed development on the back yard of 12 Stanley Lane to measure the existing ambient noise.

The monitors were programmed to store the Ln percentile noise levels for each 15-minute sampling period. Measurements were made of L_{min} , L_{max} , L_{90} , and L_{eq} and were later retrieved for analysis.

The positions of the noise monitors are shown in Figure 3-1. The results and summary of the noise monitoring are listed in graphical form in Appendix B of this report.

During the retrieval site visit, it was observed that Logger 1 had been tampered with, where the microphone had been disconnected by an unknown individual. This restricted the available data to only 3 full days, however the ambient noise was consistent enough that the available data was suitable.

During noise monitoring, the weather was mostly calm and dry. For periods where adverse weather conditions prevailed, noise data was excluded.

The noise data was reviewed and exclusions were performed where extraneous noise events occurred that notably deviated from the norm.

4.2 Instrumentation

Noise measurements were conducted using the following equipment:

- Sound analyser Acoustic Research Laboratory, Serial number 15-301-475.
- Sound analyser Acoustic Research Laboratory, Serial number 16-207-017.
- Sound calibrator B&K 4230, Serial number 11419.

The instruments were calibrated before and after the noise measurements and there were no adverse deviations between the two.

The analysers are type 1 and comply with AS IEC 61672.2-2004. The instruments carry traceable calibration certificates.

4.3 Results

The results of the acoustic survey show the site is not affected by high road traffic noise. This is due to a combination of distance from the Princes Highway and nearby multi-storey apartment complexes shielding line-of-sight to the highway. Acoustic mitigation measures will not be necessary and standard construction and glazing will be sufficient to meet the relevant indoor noise requirements.

Table 4-1 Noise Logger Results

Reference	Period	L _{A90} Rating Background Level (RBL) dB	L _{Aeq} Ambient Noise Level dB
1 4	Day	42	54
Logger 1 Facing Stanley Street	Evening	43	53
Tacing Stanley Street	Night	37	54
	Day	37	47
Logger 2 Facing Stanley Lane	Evening	38	48
	Night	34	45

5.0 NOISE CRITERIA

5.1 Georges River Council Acoustic Requirements

The Georges River Council DCP "E4 – Kogarah North Precinct" dated January 2018 provides the following acoustic requirements that are relevant to the proposed development.

27. ACOUSTIC PRIVACY

Objectives

A. Ensure acoustic privacy for occupants and neighbours.

Controls

(i) The location of driveways, open space and recreation areas and ancillary facilities external to the dwelling must be carefully planned to ensure minimal noise impact on adjoining residential properties.

(ii) Bedrooms of one dwelling should not share walls with living rooms or garages of adjacent dwellings. Bedrooms of one dwelling may share walls with living rooms of adjacent dwellings provided appropriate acoustic measures are documented.

(iii) Where party walls are provided they must be carried to the underside of the roof.

(iv) All residential development except dwelling houses are to be insulated and to have an Impact Isolation between floors to achieve an Acoustical Star Rating of 5 in accordance with the standards prescribed by the Association of Australian Acoustical Consultants (AAAC). An Acoustic Report is to be submitted at Development Application stage & post construction stage to ensure that the above standards have been achieved.

Discussion Regarding (iv) Impact Isolation between Floors

The recently updated DCP includes an additional acoustic requirement for residential floors to achieve a 5 Star Rating. This amendment is similar to other Councils that are compensating for the widely recognised poor BCA floor impact standard that typically results in noise complaints from occupants above hard flooring.

The AAAC 5 Star Rating of $L_{nT,w} \le 45$ is 17dB more stringent than the BCA's minimum and therefore requires significant acoustic detailing in the CC stage to ensure that compliance can be achieved post construction.

For a hard floor to achieve a 5 Star Rating we anticipate that the floor/ceiling footprint would require a minimum 400mm and involve the following:

- min. 60mm build-up including acoustic underlay beneath screed
- 200mm concrete slab
- min. 110mm suspended resilient ceiling with cavity insulation
- min. 2 x 13mm fire-rated plasterboard linings

Control (iv) is worded in such a way that doesn't comment or exclude wet areas such as kitchens, bathrooms, laundries. Without further clarification from Council we recommend the entire apartment floor (likely including balconies) must achieve the 5 Star Rating.

5.2 Sound Insulation Requirements for Walls and Floors

The BCA 2016, in Volume 1 Section F5 "Sound Transmission and Insulation" states that walls and floors separating places of occupancy *"must provide insulation against the transmission of airborne and impact generated sound sufficient to prevent illness or loss of amenity to the occupants"*.

The following summarises the sound insulation requirements for the project based on the BCA and the Georges River Council requirements.

Table 5-1 Walls – Deemed-to-Satisfy Provisions

Wall Description	BCA Reference	Airborne	Impact
Separating sole-occupancy units (SOUs) habitable areas	F5.5(a)(i)	$R_w + C_{tr} \ge 50$	
Separating SOUs wet to habitable areas	F5.5(a)(i) F5.5(a)(iii)	$R_w + C_{tr} \ge 50$	Discontinuous Construction
Separating SOUs with corridor, stairway, lobby or different classification	F5.5(a)(ii)	R _w ≥ 50	
Separating SOUs with plantroom or lift shaft	F5.5(a)(ii) F5.5(a)(iii)	R _w ≥ 50	Discontinuous Construction
Separating SOU habitable area with services from another SOU	F5.6(a)(i)	$R_w + C_{tr} \ge 40$	
Separating SOU wet area with services from another SOU	F5.6(a)(ii)	$R_w + C_{tr} \ge 25$	
Doors separating SOU with corridor, stairway, lobby	F5.5(b)	R _w ≥ 30	

Wall Type	Reference	Discontinuous Construction Requirement
Masonry	F5.3(c)(i)	Wall having a minimum 20mm cavity between the 2 separate leaves, with resilient wall ties if necessary
Other than masonry	F5.3(c)(ii)	Wall having a minimum 20mm cavity with no mechanical linkage except at the periphery

Table 5-2 Floors – Deemed-to-Satisfy Provisions

Floor Description	BCA Reference	Airborne	Impact* (Note below)
Separating sole-occupancy units (SOUs)	F5.4(a)(i)	$R_w + C_{tr} \ge 50$	L _{n,w} ≤ 45
Separating SOUs with plantroom, lift shaft, corridor, stairway, lobby or different classification	F5.4(a)(ii)	$R_w + C_{tr} \ge 50$	L _{n,w} ≤ 45
Separating SOU habitable area with services from another SOU	F5.6(a)(i)	$R_w + C_{tr} \ge 40$	
Separating SOU wet area with services from another SOU	F5.6(a)(ii)	$R_w + C_{tr} \ge 25$	

Table 5-3 Walls – Verification Methods

Wall Description	BCA Reference	Airborne
Separating sole-occupancy units (SOUs)	FV5.2(a)	$D_{nT,w} + C_{tr} \ge 45$
Separating SOUs with plantroom, lift shaft, corridor, stairway, lobby or different classification	FV5.2(b)	D _{nT,w} ≥ 45
Doors separating SOUs with corridor, stairway, lobby	FV5.2(c)	D _{nT,w} ≥ 25

Table 5-4 Floors – Verification Methods

Floor Description	BCA Reference	Airborne	Impact
Separating sole-occupancy units (SOUs)	FV5.1(a) FV5.1(b)	$D_{nT,w} + C_{tr} \ge 45$	L _{nT,w} ≤ 45*

*AAAC 5-Star Requirement as per Section 5.1

5.3 NSW EPA Noise Policy for Industry (NPfI)

Multi-storey residential apartment buildings are typically assessed according to the Industrial Noise Policy (2000) which has been superseded by NSW EPA Noise Policy for Industry 2017 (NPfI). PKA has adopted the NPfI for this project.

The NPfI policy sets out two separate criteria to ensure environmental noise objectives are met. The first criterion considers intrusive noise to residential properties and the second is set to ensure the amenity of the land use is protected. The lower value of both criteria is considered to be the Project noise trigger level, which is the limit of the LAeq 15min noise level that must not be exceeded for the corresponding period of the day.

Intrusiveness Criterion

The intrusiveness of a stationary noise source may be considered acceptable if the average of the maximum A-weighted levels of noise, $L_{Aeq 15 minute}$ from the source do not exceed by more than 5dB the Rating Background Level (RBL) measured in the absence of the source. This applies during all times of the day and night. There also exists an adjustment factor to be applied as per the character of the noise source. This includes factors such as tonal, fluctuating, low frequency, impulsive, intermittent etc. qualities of noise. The RBL is determined in accordance with Section 2.3 of the NSW EPA NPfI. The intrusiveness criterion is $L_{Aeq 15 minute} < RBL+5$.

Amenity Criterion

To limit continuing increases in noise levels, the maximum ambient noise level within an area from commercial noise sources should not normally exceed the levels as specified in Table 2.2 of the policy for the specified time of the day. NSW EPA Noise Policy for Industry recommends the following Amenity Noise Levels for various receiver premises.

Table 5-5 Noise Criteria - Amenity for receiver buildings

All values in dB(A)

Type of receiver	Time of day	Recommended Amenity Noise Level L _{Aeq (period)}
Residential	Day	55
(Sub-Urban)	Evening	45
	Night	40

To ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows:

Project amenity noise level for development = recommended amenity noise level minus 5 dB(A).

To standardise the time periods for the intrusiveness and amenity noise levels, this policy assumes that the Amenity $L_{Aeq, 15min}$ will be taken to be equal to the $L_{Aeq, period} + 3$ decibels (dB).

Tables below presents the results of the ambient noise monitor measurements. The ambient and background noise levels listed can be used in the future stages prior to the selection and installation of mechanical equipment to comply with the conditions set by council in the future development stage.

The assessment periods are defined by the NSW NPfI are as follows:

Period	Monday to Saturday	Sundays and Public Holidays
Day	07:00 to 18:00	08:00 to 18:00
Evening	18:00 to 22:00	18:00 to 22:00
Night	22:00 to 07:00	22:00 to 08:00

Table 5-6 NPfI Project Noise Trigger Levels at residential boundaries facing Stanley Street

All values in dB(A)

Receiver		Measured	Acceptable	NSW Nois Industr	Project Noise		
Туре	Period	RBL (L _{A90})	Levels L _{Aeq(period)}	Amenity L _{Aeq15min}	Intrusiveness L _{Aeq15min}	Levels L _{Aeq15min}	
Residential (Urban)	Day	42	55	53	47	47	
	Evening	43	45	43	48	43	
	Night	37	40	38	42	38	

Table 5-7 NPfI Project Noise Trigger Levels at residential boundaries facing Stanley Lane

All values in dB(A)

Receiver		Measured	Acceptable	NSW Nois Industr	Project Noise		
Туре	Period	RBL (L _{A90})	Levels L _{Aeq(period)}	Amenity L _{Aeq15min}	Intrusiveness L _{Aeq15min}	Levels Levels	
Residential (Urban)	Day	37	55	53	42	42	
	Evening	38	45	43	43	43	
	Night	34	40	38	39	38	

5.4 EPA NSW Interim Construction Noise Guidelines (ICNG)

The NSW EPA Interim Construction Noise Guideline (ICNG) is used for the assessment.

The document aims at managing noise from construction works regulated by the EPA. Details of noise limits are presented in the following Table 5-8.

Table 5-8 Noise Levels Residential Receivers (Extract from EPA ICNG)

Time of day	Management level L _{Aeq (15 min)}	Application				
		The noise affected level represents the point above which there may be some community reaction to noise.				
Recommended standard hours:	Noise affected RBL + 10 dB	Where the predicted or measured L _{Aeq (15 min)} is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level.				
Monday to Friday 7 am to 6 pm		The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.				
Saturday 8 am to 1 pm No work on Sundays or public holidays	Highly noise affected 75 dB	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.				
Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.				

Assuming the construction is proposed during normal daytime working hours 7am to 6 pm, the noise criteria are presented in the following Table 5-9.

Receivers	Daytime Background, dB(A)	Noise affected level (Criterion), dB(A)
Residential	58	68

The "Highly Noise Affected" criterion has a set level of 75 dB(A).

A more detailed assessment of the construction noise can be made when a construction management plan is available during the later stages of the development and the council approval process.

5.5 Construction Vibration Criteria

In the event that demolition and excavation is proposed, there is the potential for vibration impact on the neighbouring buildings' amenity and on structures. The EPA ICNG states that human comfort (amenity) vibration is to be measured and assessed in accordance with *Assessing Vibration – a technical guideline* (DECC 2006).

In general, structural damage due to vibration can be of concern when hammering, blasting, vibration rolling, crushing, piling and other vibration inducing construction works are carried out.

The EPA ICNG does not have specific structural vibration damage criteria however the RTA Environmental Noise Management Manual (2001) recommends the use of the following Standards:

- British Standard BS 7385: Part 2: Evaluation and Measurement for Vibrations in Buildings Part 2 Guide to Damage Levels from Ground-Borne Vibration
- AS 2187.2 Explosives-Storage, transport and use, Part 2: Use of Explosives
- German Standard DIN 4150, Part 3: Structural Vibration in Buildings: Effects on Structures

6.0 **RECOMMEDNATIONS**

1. Walls and Floors

All walls and floors separating sole occupancy units must comply with the construction ratings listed in Sections 5.1 and 5.2 of this report.

Council's DCP Clause 27 Control (iv) requires residential floors achieve a AAAC 5 Star Rating. This requires significant acoustic detailing and an allowance of 400mm floor/ceiling footprint as discussed in Section 5.1.

2. External Façade

Acoustic mitigation measures will not be necessary and standard construction and glazing will be sufficient to meet the relevant indoor noise requirements.

3. Mechanical Noise Mitigation

The selection and placement of any outdoor mechanical equipment such as condenser units, exhausts serving car parks and toilets, roller doors for access etc. must be designed to acoustically comply with the criteria established in Section 5.3 of this report.

Note

The preliminary architectural drawings show the mechanical plant located on the east side on the ground floor of the apartment buildings. Due to the proximity to residential receivers RR3 and the low background noise, it is highly likely that the proposed location for the mechanical plant will require significant acoustic treatment and low noise setback mode (night-mode) during the night-time hours. If possible, relocation to another location away from residential receivers is recommended.

4. Construction Noise and Vibration

If a Construction Noise and Vibration Management Plan is required prior to and during the construction of the proposed building, the plan must consider the noise and vibration criteria established in Sections 5.4 and 5.5 of this report.

All recommendations must be checked by respective assessing representatives to ensure compliance with other non-acoustic requirements.

- 1. The acoustic systems shown in the descriptions is one that satisfies the acoustic requirements only. No representation is given that it is fit for any other purpose. The build-up must be checked and designed by others to verify that it complies with all necessary fire rating, structural, waterproofing, durability and any other non-acoustic requirements.
- 2. Any additional construction or fixtures must be acoustically detailed to seal to the room and ceiling construction without derating the R_w ratings required in either instance.

APPENDIX A DRAWINGS USED TO PREPARE REPORT

This report was prepared using drawings provided by Scott Carver Architects, project number 20170107.

No.	Rev.	Date
DA000	G	23/2/18
DA001	В	23/2/18
DA002	В	23/2/18
DA003	В	23/2/18
DA100	C	23/2/18
DA101	I	23/2/18
DA102	К	23/2/18
DA103	К	23/2/18
DA104	S	23/2/18
DA105	0	23/2/18
DA106	М	23/2/18
DA107	Μ	23/2/18
DA108	М	23/2/18
DA109	0	23/2/18
DA110	F	23/2/18
DA111	G	23/2/18
DA112	F	23/2/18
DA113	F	23/2/18
DA114	Q	23/2/18
DA115	В	23/2/18
DA201	E	23/2/18
DA202	E	23/2/18
DA203	D	23/2/18
DA204	D	23/2/18
DA205	A	23/2/18
DA206	A	23/2/18
DA221	E	23/2/18
DA222	E	23/2/18
DA225	В	23/2/18
DA250	В	23/2/18
DA901	A	23/2/18
DA902	A	23/2/18
DA903	A	23/2/18
DA920	A	23/2/18
DA921	A	23/2/18
DA930	A	23/2/18

APPENDIX B NOISE DATA LOGGER RESULTS

11047 Stanley Street (12-24), Kogarah

Project Address: 12-24 Stanley Street, Kogarah

Logger Location: Front boundary of 12 Stanley Street

		Background Noise Levels L _{A90} dB						
		Day	time	Evening		Nighttime		
		07:00	- 18:00	18:00 - 22:00		22:00 - 07:00		
		Measured	Corrected	Measured	Corrected	Measured	Corrected	
Tuesday	13/03/2018			39.3	39.3	32.8	32.7	
Wednesday	14/03/2018	39.7	39.6	46.0	46.0	38.4	37.4	
Thursday	15/03/2018	41.6	41.5	46.0		36.8	36.7	
Friday	16/03/2018	43.3	43.3	43.4	43.3	37.3	37.3	
Saturday	17/03/2018							
Rating Background Level (RBL)		42	42	45	43	37	37	

PKA Acoustic Consulting

		Existing Noise Levels L _{Aeq} dB						
		Day	time	Eve	ning	Nighttime		
		07:00 ·	- 18:00	18:00 -	22:00	22:00 -	- 07:00	
		Measured	Corrected	Measured	Corrected	Measured	Corrected	
Tuesday	13/03/2018			51.1	51.1	51.1	51.4	
Wednesday	14/03/2018	55.0	55.1	53.7	53.7	56.1	53.8	
Thursday	15/03/2018	53.4	53.5	64.2		56.1	55.9	
Friday	16/03/2018	53.9	53.9	67.1	52.9	52.8	52.8	
Saturday	17/03/2018							
Average Noise Level (L _{Aea})		54	54	63	53	55	54	





PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 19 of 32

Kogarah 048 Service Pty Ltd





PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 20 of 32





PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 21 of 32









11047 Stanley Street (12-24), Kogarah

Project Address: 12-24 Stanley Street, Kogarah

Logger Location: Rear boundary of 12 Stanley Lane

			Background Noise Levels L _{A90} dB						
			Day	time	Eve	ning	Nighttime		
			07:00	- 18:00	18:00 -	- 22:00	22:00 - 07:00		
			Measured	Corrected	Measured	Corrected	Measured	Corrected	
	Tuesday	13/03/2018			38.5	38.5	33.7	33.6	
	Wednesday	14/03/2018	38.1	38.1	39.7	39.7	31.3	31.3	
	Thursday	15/03/2018	36.8	36.8	42.5		34.1	34.0	
	Friday	16/03/2018	39.4	39.4	38.0	38.0	31.1	31.1	
	Saturday	17/03/2018	36.9	36.9	38.4	38.4	36.4	36.4	
	Sunday	18/03/2018	36.9	37.6	37.5	37.5	36.6	36.3	
	Monday	19/03/2018	34.2	34.2	37.4	37.4	34.5	34.5	
R	ating Backgrou	ind Level (RBL)	37	37	38	38	34	34	

PKA Acoustic Consulting

		Existing Noise Levels L _{Aeq} dB					
		Day	time	Evei	ning	Night	time
		07:00 -	18:00	18:00 -	22:00	22:00 -	- 07:00
		Measured	Corrected	Measured	Corrected	Measured	Corrected
Tuesday	13/03/2018			46.1	46.1	44.7	44.4
Wednesday	14/03/2018	47.6	47.7	47.9	47.9	41.7	41.4
Thursday	15/03/2018	45.9	45.8	50.5		42.2	42.1
Friday	16/03/2018	49.3	49.3	49.6	49.6	40.5	40.5
Saturday	17/03/2018	46.6	46.6	47.3	47.3	48.0	48.0
Sunday	18/03/2018	46.1	47.5	50.5	50.5	45.2	44.7
Monday	19/03/2018	45.2	45.2	45.7	45.7	48.3	48.3
Average Nois	e Level (L _{Aeq})	47	47	49	48	45	45





PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 25 of 32

Kogarah 048 Service Pty Ltd





PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 26 of 32





PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 27 of 32













PKA11047 R01v1 DA Acoustic Report — [v1] | 26-Apr-2018| Page 30 of 32







PO Box 345, Lane Cove 1595 +612 9460 6824 — admin@pka.com.au