



All communications to be addressed to:

Headquarters
15 Carter Street
Lidcombe NSW 2141

Headquarters Locked Bag 17 Granville NSW 2142

Telephone: 1300 NSW RFS e-mail: csc@rfs.nsw.gov.au

Facsimile: 8741 5433



The General Manager Lane Cove Municipal Council PO Box 20 LANE COVE NSW 1595

Your Ref: DA25/2014 Our Ref: D14/0683 DA14031491312 MA

ATTENTION: R H Groth

7 May 2014

Dear Sir/Madam

### Integrated Development for 21//825400 150 Epping Road Lane Cove West 2066

I refer to your letter dated 12 March 2014 seeking general terms of approval for the above Integrated Development in accordance with Section 91 of the 'Environmental Planning and Assessment Act 1979'.

This response is to be deemed a bush fire safety authority as required under section 100B of the 'Rural Fires Act 1997' and is issued subject to the following numbered conditions:

1. The development proposal is to comply with the layout identified on the drawing prepared by Conybeare Morrison International Pty Ltd numbered dwg no. A 011, issue A, dated March 14.

### **Asset Protection Zones**

The intent of measures is to provide sufficient space and maintain reduced fuel loads so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building. To achieve this, the following conditions shall apply:

2. At the commencement of building works and in perpetuity the property surrounding the child care centre and residential buildings shall be managed as an inner protection area (IPA) to the property boundaries, except for the eastern elevation of Building F where 25 metres from the building shall be managed. The IPA shall be maintained as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

### Water and Utilities

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

3. Water, electricity and gas are to comply with sections 4.1.3 and 4.2.7 of 'Planning for Bush Fire Protection 2006'.

### Access

The intent of measures for property access is to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:

4. Property access roads shall comply with sections 4.1.3(2) and 4.2.7 of 'Planning for Bush Fire Protection 2006'.

### **Evacuation and Emergency Management**

The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments. To achieve this, the following conditions shall apply:

5. Arrangements for emergency and evacuation are to comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006' in relation to the development of the child care centre.

### **Design and Construction**

The intent of measures is that buildings are designed and constructed to withstand the potential impacts of bush fire attack. To achieve this, the following conditions shall apply:

- 6. All new fencing shall be non-combustible.
- 7. New construction of the child care centre shall comply with Sections 3 and 5 (BAL 12.5) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.
- 8. Building A's new construction on the south western elevation shall comply with Sections 3 and 8 (BAL 40) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.
  - On the south eastern, north eastern and north western elevations, the new construction shall comply with Sections 3 and 7 (BAL 29) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.
- 9. Building B's new construction on the south western, north western and southern elevations shall comply with Sections 3 and 7 (BAL 29) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

On the northern and eastern elevations, the new construction shall comply with Sections 3 and 6 (BAL 19) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

10. Building C's new construction on the western elevation shall comply with Sections 3 and 8 (BAL 40) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

On the northern, eastern and southern elevations, the new construction shall comply with Sections 3 and 7 (BAL 29) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

11. Building D's new construction on the southern elevation shall comply with Sections 3 and 8 (BAL 40) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

On the northern, eastern and western elevations, the new construction shall comply with Sections 3 and 7 (BAL 29) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

12. Building E's new construction on the south eastern elevation shall comply with Sections 3 and 8 (BAL 40) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

On the south western, north eastern and north western elevations, the new construction shall comply with Sections 3 and 7 (BAL 29) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

### Landscaping

- 13. Landscaping to the site is to comply with the principles of Appendix 5 of 'Planning for Bush Fire Protection 2006'. In this regard the following landscaping principles are to be incorporated into the development:
  - Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways;
  - Grassed areas/mowed lawns/ or ground cover plantings being provided in close proximity to the building;
  - Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come in contact with the building;
  - Maximum tree cover should be less than 30%, and maximum shrub cover less than 20%;
  - Planting should not provide a continuous canopy to the building (i.e. trees or shrubs should be isolated or located in small clusters);

- When considering landscape species consideration needs to be given to estimated size of the plant at maturity;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Avoid climbing species to walls and pergolas;
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and
- Use of low flammability vegetation species.

For any queries regarding this correspondence please contact Matthew Apps on 1300 NSW RFS.

Yours sincerely

Michelle Streater

**Acting Team Leader Development Assessment and Planning** 

The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at <a href="www.rfs.nsw.gov.au">www.rfs.nsw.gov.au</a> and search under 'Planning for Bush Fire Protection, 2006'.

# **ATTACHMENT 3**





# KARIMBLA Constructions Services (NSW) Pty Ltd

### Making Luxury Apartments Affordable

18 August 2014

Rebecka Groth
Lane Cove Council
Council Civic Centre
48 Longueville Rd
LANE COVE NSW 2066



Dear Rebecka,

RE: 150 EPPING ROAD, LANE COVE (DA14/25)

Further to our email correspondence relating to the above matter, please find accompanying this letter:

- 4 x copies amended plans showing changes clouded;
- 1 x attached copy schedule of changes to the plans; and
- USB stick containing the above documents.

Please note that the amended BASIX Certificate is being finalised and will sent to Council tomorrow.

As confirmed in the previously submitted solar access report, 66% of the units achieve 3 hours sunlight between 9am and 3pm at mid-winter. This is considered to be acceptable for the following reasons:

- The proposed development has been designed in accordance with and within the limitations of the
  approved building envelopes in the Major Project approved concept plan;
- The approved concept plan documentation is not explicit about the requirement for 3 hours solar access to the units (as opposed to 2 hours solar access);
- Rooftop communal landscaped spaces have been added to Buildings B, C and D to provide residents
  with generously proportioned sunlit open space. This is consistent with our previous discussions with
  Council;
- The percentage of units that achieve 3 hours of solar access may marginally improve if the hours are extended to before 9am and past 3pm; and
- The solar access provisions of the SEPP 65 Residential Flat Design Code are a 'Rule of Thumb' and were always intended to be a guide only.

We trust this provides you with the information necessary to finalise your assessment of the proposal.

Should you require anything further in this regard, please contact the undersigned.

Yours sincerely,

KARIMBLA CONSTRUCTIONS SERVICES (NSW) PTY LIMITED

TOM HUTCHISON

Senior Development Planner

### TABLE OF CHANGES: 150 EPPING ROAD LANE COVE

				BUILDING			
	Α	В	С	D	Ε	F	G
CARPARK LEVEL 1		V.5	-	CORE MOVED, UNITS RE PLANNED.		t <del>e</del> s:	-5:
CARPARK LEVEL 2	-	se.	¥_	CORE MOVED, UNITS REPLANNED.	<b>+</b> .:	. <del></del> .	-
LEVEL 1 RL 21	.8	~	=	CORE MOVED, UNITS & PARKING LAYOUT RE-PLANNED.		<u>2</u> 1	•
LEVEL 2 RL 25	RECREATION AREA REDUCED TO HAVE 2 EXTRA UNITS WITH SOLAR ACCESS. FLOORPLATE ON NORTH HALF REPLANNED TO GET 1 EXTRA UNIT WITH SOLAR ACCESS.	-	-	CORE MOVED, UNITS & PARKING LAYOUT RE-PLANNED.	-		STOP FOR LIFT FROM MAIN ENTRY LEVEL AODED THIS LEVEL FOR USE BY CHILD CARE.
LEVEL 3 RL 28	5 NORTH+EAST HALF OF FLOORPLATE RE- PLANNED TO GET 3 EXTRA UNITS PER LEVEL WITH SOLAR ACCESS,	MIDDLE UNITS RE- PLANNED AS THROUGH UNITS TO GET SOLAR ACCESS.		CORE MOVED & 1 BED UNITS REMOVED FROM SOUTH SIDE AND MADE 3-BED FOR SOLAR ACCESS & GAIN MORE 3 BEDS IN MIX.	PLANT AREA: ENTRY DRIVEWAY RE-	CHILDCARE MAIN ENTRY MOVED TO WEST SIDE NEAR DEVELOPMENT MAIN ENTRY.	MAIN ENTRY FOR DEVELOPMENT STRENGTHENED AND COVERED.
EVEL 4 RL 32	O NORTH+EAST HALF OF FLOORPLATE RE- PLANNED TO GET 3 EXTRA UNITS PER LEVEL WITH SOLAR ACCESS.	MIDDLE UNITS RE- PLANNED AS THROUGH UNITS TO GET SOLAR ACCESS.	æ	CORE MOVED & 1 BED UNITS REMOVED FROM SOUTH SIDE AND MADE 3-BED FOR SOLAR ACCESS & GAIN MORE 3 BEDS IN MIX.	TO BUILDING 'A' FOR SOLAR ACCESS.	2	MAIN ENTRY ROOFED.
EVEL 5 RL 35. ND ABOVE	1 NORTH+EAST HALF OF FLOORPLATE RE- PLANNED TO GET 3 EXTRA UNITS PER LEVEL WITH SOLAR ACCESS.	MIDDLE UNITS RE- PLANNED AS THROUGH UNITS TO GET SOLAR ACCESS.	. <del>18</del> 6	UNITS REMOVED FROM SOUTH SIDE AND MADE	TO BUILDING 'A' FOR SOLAR ACCESS.	-	-
EVEL 6	2	Δ.	=	EXTRA LEVEL OF UNITS ADDED.	9	, R	Ħ
OOF GARDENS		ROOF GARDEN AND BBQ ADDED.	ROOF GARDEN AND BBQ ADDED.	ROOF GARDEN AND BBQ ADDED.	3E	:=	₹
EVEL 11-12	:=	-	•	1	LEVEL 11 & 12 MIX CHANGED SAME AS BUILDING 'A' TO INCREASE NUMBER OF 3-BED UNITS.	:#	H
EVEL 21-24	MIX CHANGED TO 3x28 & 4x3B PER LEVEL TO INCREASE NUMBER OF 3-BED UNITS.	-	9	-	-	· <u>-</u>	-



150 Epping Road - Lane Cove West Solar Access Assessment

Report Number 610.13357-R2

18 August 2014

Meriton Apartments Pty Ltd Level 11, 528 Kent Street SYDNEY NSW 2000

Version: Revision 2

# 150 Epping Road - Lane Cove West Solar Access Assessment

### PREPARED BY:

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
2 Lincoln Street Lane Cove NSW 2066 Australia

(PO Box 176 Lane Cove NSW 1595 Australia) T: 61 2 9428 8100 F: 61 2 9427 8200

E: sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Meriton Apartments Pty Ltd.

No warranties or guarantees are expressed or should be inferred by any third parties.

This report may not be relied upon by other parties without written consent from SLR Consulting.

SLR Consulting disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

### **DOCUMENT CONTROL**

Reference	Status	Date	Prepared	Checked	Authorised
610.13357-R2	Revision 2	18 August 2014	Sophie Wong Kai In	Neihad Al-Khalidy	Neihad Al-Khalidy
610.13357-R2	Revision 1	11 August 2014	Sophie Wong Kai In	Neihad Al-Khalidy	Neihad Al-Khalidy
610.13357-R2	Revision 0	28 February 2014	Sophie Wong Kai In Peter Hayman	Neihad Al-Khalidy	Neihad Al-Khalidy

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### **APPENDICES**

Appendix A Sun Eye Views – June 21

Appendix B Detailed Solar Access Calculations

### 1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Meriton Apartments Pty Ltd (Meriton) to assess the environmental impact of a proposed new mixed use development at 150 Epping Road, Lane Cove West with respect to the solar access to the residential apartments.

### 1.1 Development Site

The site is bounded on the north by Epping Road and by the building at 166 Epping Road to the northwest. All other sides are bounded by bushland.

Figure 1 Site Location



Image: Nearmap – 27th November 2013

### 1.2 Surrounds

To the north and north east of the site across Epping Road there is some bushland followed by a couple of commercial buildings with residential buildings and the Lave Cove National Park beyond. From the north west to the south west there is parkland and the Lane Cove River, this extends approximately 500-1000 metres away from the site, beyond this is generally residential housing. To the south and south east there is the Lane Cove West Business Park and residential housing. Finally to the east there is some bushland along Epping Road with residential housing behind.

Figure 2 Surrounds

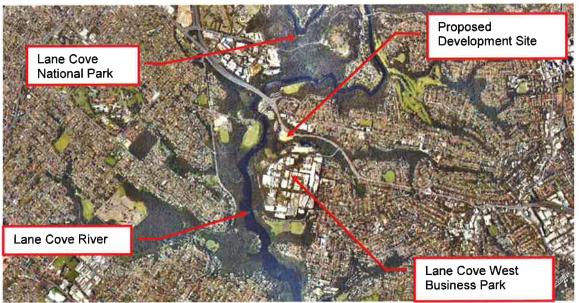


Image: Nearmap - 27th November 2013

### 1.3 Proposed Development Description

The proposed development consists of five main residential buildings along with a childcare centre and some commercial areas for retail or cafes. The tallest of these is building A which rises 24 storeys. There are a total of 368 apartments in the development. The following breakdown has been made using the latest plans provided by Meriton.

- Tower A with 177 apartments
- Building B with 54 apartments
- Building C with 29 apartments
- Building D with 26 apartments
- Tower E with 81 apartments
- A childcare centre, retail area and community spaces on the ground level on Epping Road
- 4 levels of basement car parking

Figure 3 Typical Floor Plan of Proposed Development



Figure 4 3D Impression of Proposed Development (looking southeast)



### 2 SOLAR ACCESS TO RESIDENTIAL BUILDINGS

### 2.1 Daylighting Considerations

The State Environmental Planning Policy (SEPP) 65 supported by the Residential Flat Design Code - Part 03 Building Design, 'Rules of Thumb' is relevant to the assessment of the daylight access into residential components of the proposed development. The above regulation states that:

Living rooms and private open spaces for at least 70 % in a development should receive a
minimum of three hours of direct sunlight between 9.00 am and 3.00 pm in mid-winter. In dense
urban areas a minimum of two hours may be acceptable.)

Specific interest therefore lies in the solar access through the living areas windows and balconies of residential apartment of the proposed development during the winter solstice, June 21 between the hours of 9.00 am and 3.00 pm.

### 2.2 Solar Access Analysis

### 2.2.1 9.00 am - 3.00 pm on the Winter Solstice 21st June

Using AutoCAD sun's eye view diagrams were generated for each 15 minute interval between 9.00 am and 3.00 pm on the Winter Solstice (21<sup>st</sup> June). Sun's Eye View diagrams prepared for each 30 minute interval are shown in **Appendix A**. Detailed hours of direct sunlight calculation to each unit are identified in **Appendix B** 

Results of solar access to the living rooms and private open spaces of apartments in the development on June 21<sup>st</sup> (winter solstice) between the hours of 9.00 am and 3.00 pm inclusive are summarised in the table below.

Table 1 Solar Access Summary for each Residential Building within the development between 9.00am to 3.00pm on June 21

Building	Number of Apartments	Number of Apartments with at least 3hr of direct sunlight	Percentage of Apartments with at least 3hr of direct sunlight
A	177	129	72.9 %
В	54	35	64.8 %
С	29	10	34.4 %
D	26	16	61.5 %
E	81	55	67.9 %
Total	368	245	67 %

The proposed development was found to provide 67% of the apartments with 3 hrs or more sunlight on the Winter Solstice, between the hours of 9.00 am to 3.00 pm at a 'sampling rate' of 15 minute intervals. The above calculations were conducted with the following additional changes to the design:

- Skylights to top floor units without 3 hours sun access (highlighted in yellow in Appendix B); and
- North window to the kitchen of units 03 in Building D (highlighted in blue in Appendix B)

SLR also ran the solar access assessment up till 4.30pm on June 21 and it is observed that 75% of the apartments receive at least 3 hrs of sunlight on the Winter Solstice, between the hours of 9.00 am to 4.30 pm.

### 3 CONCLUSION

SLR Consulting Pty Ltd (SLR) has been commissioned by Meriton Apartments Pty Ltd (Meriton) to prepare a Solar Access Study for the residential apartments in the proposed redevelopment at 150 Epping Road, Lane Cove for compliance with SEPP 65.

The State Environmental Planning Policy (SEPP) 65 supported by the Residential Flat Design Code-Part 03 Building Design, 'Rules of Thumb' is relevant to the assessment of the daylight access into residential components of the proposed development. The above regulation states that:

 Living rooms and private open spaces for at least 70 % in a development should receive a minimum of three hours of direct sunlight between 9.00 am and 3.00 pm in mid-winter. In dense urban areas a minimum of two hours may be acceptable.

Specific interest therefore lies in the solar access through the living areas windows and balconies of residential apartment of the proposed development during the winter solstice, June 21 between the hours of 9.00 am and 3.00 pm.

Using AutoCAD, sun's eye view diagrams were generated for each 15 minute interval between 9.00 am and 3.00 pm on the Winter Solstice (21st June)

On the basis of the current Solar Access Analysis of the development, SLR has concluded the following:

### Solar Access of the Proposed Development

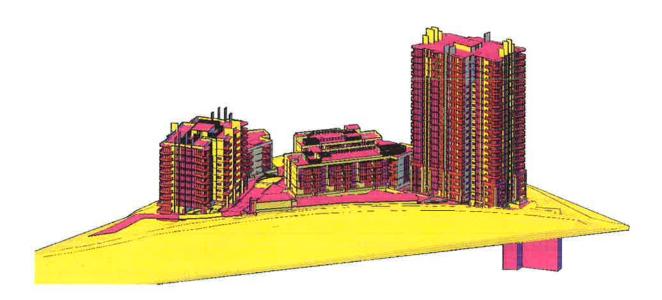
The proposed development was found to provide 67% of the residential development with 3 hrs or more sunlight on the Winter Solstice, between the hours of 9.00 am to 3.00 pm at a 'sampling rate' of 15 minute intervals.

The proposed development was found to provide 75% of the residential development with 3 hrs or more sunlight on the Winter Solstice, between the hours of 9.00 am to 4.30 pm at a 'sampling rate' of 15 minute intervals.

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9.00am



9.30am



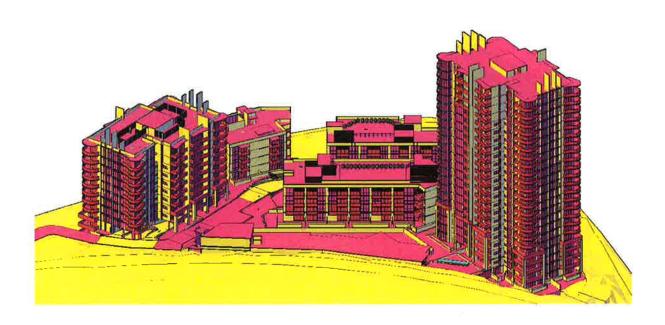
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10.00am



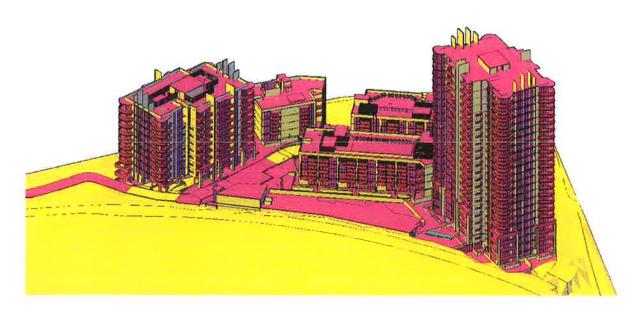
10.30am



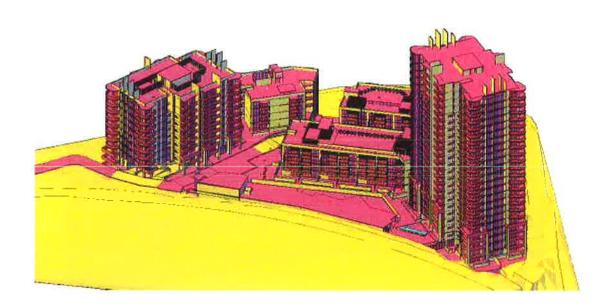
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11.00am



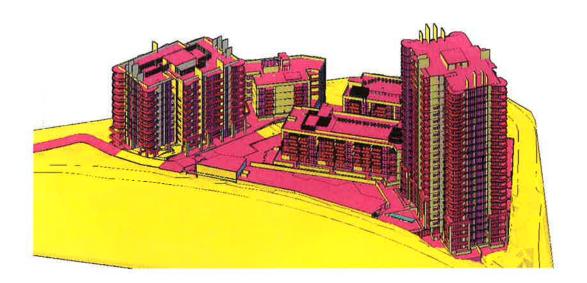
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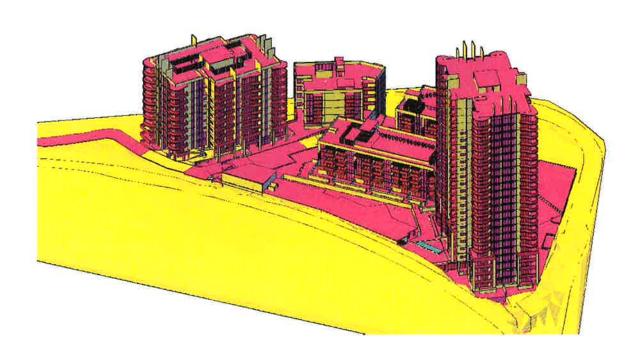
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11.30am



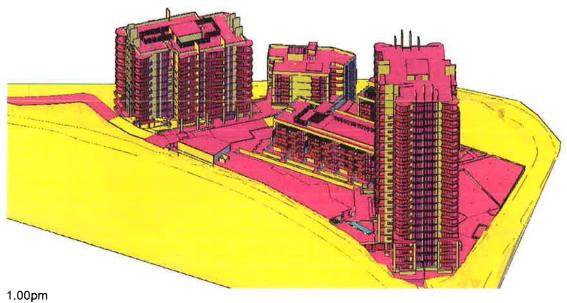
12.00pm



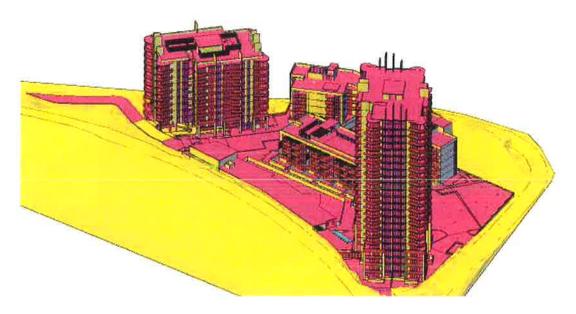
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12.30pm





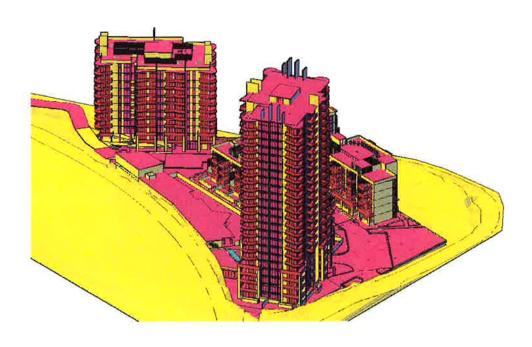


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2.00pm



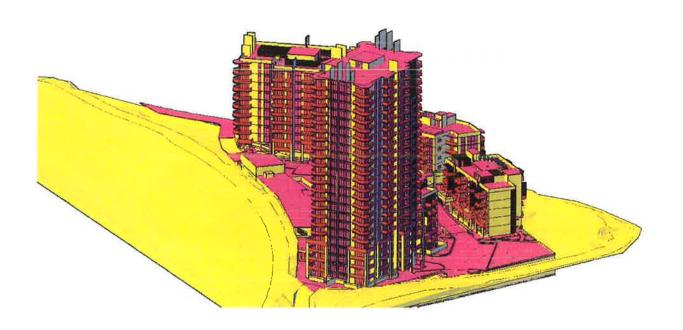
SLR Consulting Australia Pty Ltd

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3.00pm



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Page 8 of 9 Sun Eye Views – June 21



4.00pm



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Page 1 of 1 Solar Access Detailed Calculations on June 21

3hr sunlight betw 9.00 16.30																																										0						
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	0.25 0			+	1	0.25 0				+	ш.		0.25 0			-	_L	0.25 0	L			Н	Ш.	0.25			1	+		0.25 0				+	1.1	0.25	4.	1 -		+	- 1	1.1	0.25 0		1		+	
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14:15		0.25	11	+		0.25		1	ш	+			0.25			+	- 1	0.25		- 1		Н		0.25				+	ш	ш	0.25			+		0.25		1	1. 1	+			0.25 0			+	+	1
14:00 14		0.25		+		0.25	-1	4.	ы	+	f	1 1	0.25	4.		+	+		0.25		4	H	+			0.25		+	Н		0.75	1		+	H		0.25			+	+	11	025				+	+
13:45 1	1111	0.25		+	H			0.25		$^{+}$	-		0.25				+		0.25		1		t			0.25			Н		0.25			t	Н		0.25	ш	ш	+	+	ш	0.25				+	+
13:30 1		0.25		+	t	L. I		0.25	1 1	+	+	L	0.25			+	+		0.25	2010	4-	Н	+	- 1	1 1	0.25	ш.	H	Н		0.00	1		╁	Н	- 1	0.25			+	+		0.25	Jan.	100		+	+
13:15 1		0.25		t	H	- 1	-	0.25	1 1	+	t		0.25			+	+	Ť		0.25	1	H	+	F		0.25		t	Н	H		0.25		t	H	+		0.25		+	H	H			0.25		ł	ł
13:00 1		0.25		+	H	ш	Щ.	0.25	ш	+	t	ш	0.25	1	ш	+	+	H	0.25	ш.	1	H	+	+	L	0.25		H	Н	H	Ц.,	0.25	L.L	t		+		0.25		+	+	H		L.	0.25	+	+	ł
12:45 1		0.25	101	+	+			0.25		+	t	ш	0.25	Н	1 1	+	+	t	0.25		-	H	+	+	1 1	0.25	-	H	H	+		0.25		t	H	+				+	+	H		0.25		+	+	ł
12:30 1		0.25		t	t			0.25		+	t	ш	0.25	1	ш	+	+	H	0.25		1	Н	$^{+}$	+		0.25	-		Н	+		0.25		$^{+}$	Н	+		0.25	ш	+	+	Н			0.25	+	+	t
12:15		0.25		$\dagger$	H			0.25	L	†	t	ш	0.25	_	Ш	$\dagger$	t		0.25			H	+			0.25	4.	H	Н	+		0.25		$^{+}$	Н	+		0.25		+	$\forall$	H	_	4	0.25	-	+	t
12:00				52.0				1	1 1	0.25	270	ы	S K	25		0.25	Cy o	1	52	e k	32	0.25	270			52	3 2	0.25	0.25	1	35	52	52 52	0.25	0.25	t	52	52	25	0.25	0.25	Ħ	18	255	8	0.25	0.25	75.0
11:45	0.25	0.25	0.25 0.25	0.25		200	0.25	0.25	0.25	0.25		Н	0.25					H				0.25 0			0.25			0.25		+				0.25		+	0.25	0.25	0.25	0.25	0.25	H				0.25		
11:30	0.25	0.25	0.25	0.25		-	44-	-		2 2 2		ш	0.25	-		-1	-1	4 4			4.1	0.25	-1-		1		-	0.25		+	-15		35	0.25			0.25	0.25	0.25	50 20	0.25	H			1 1	6.25	100	
11:15	0.25	0.25	0.25	0.25						0.25			0.25									0.25						0.25		$\dagger$		11		0.25		+	0.25	0.25	0.25	0.25	0.25	H				0.25		
11:00	0.25	0.25	0.25	0.25	Н	36.0	56.0	0.25	0.25	0.25			0.25									0.25						0.25		+				0.25			-	1		-1	0.25		444	4-	1 1	0.25	-1	
10:45			0.25			30.00	0.25	0.25	0.25	0.25		_	0.25			- 1						0.25		t	0.25	0.25	0.25	0.25	0.25	†		1 1		0.25	-	ı	1		45.1	_	0.25		11.00		1 1	0.25	-60	
10:30	0.25	0.25	0.25	0.25	H	90.0	0.25	0.25	0.25	0.25	H		0.25					H	0.25	0.25	0.25	0.25	0.43	t	0.25	0.25	0.25	0.25	0.25	+	ш.	1.1	ш.	0.25	L I	T	0.25	0.25	0.25	0.25	0.25	T				0.25		
10:15	0.25	0.25	0.25	0.25	П	30.0	0 25	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.43	H	0.25	0.25	0.25	0.25	0.453	t	0.25	0.25	0.25	0.25	0.25	Ť	1	1 1	- 1	0.25		t	0.25	0.25	0.25	0.20	0.25	П				0.25		
10:00	0.25	0.25	0.25	0.25	H					0.25			0.25			- 1			- 1			0.25		H	0.25	0.25	0.25	0.25	0.25	1			- 1	0.25		1	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	+
9:45			0.25							0.25			0.25						- 1	1	10.0	0.25	4.0					0.25		1	1	1 1	- 1	0.25	-	+				- 14	0.25			_		0.25		1
9:30			0.25			- 1	- 1	1000		0.25			0.25	0.25	0.25	070						0.25						0.25		1				0.25		1	0.25	0.25	0.25	25.0	0.25	T				0.25		
9:15			0.25							0.25			0.25							diam.		0.25			10.0		400	0.25			41	1 1		0.25		1			45.4	- 100	0.25		100	1 -	11	0.25	1.	и.
9:00						1							İ						1			1	İ							Í			1			İ										1		1
12.01	2.03	12.04	3.01	3.02	3,03	3.04	3.06	13.07	13.08	4.02	14,03	4 04	4.06	4.07	14.08	5,00	5.03	15.04	5.05	5.07	5.08	6.01	6.03	6.04	6.05	8.07	6.08	17.01	7.02	7.03	7.05	7.06	7.07	3.01	8.02	8.04	8.05	3.05	8.07	9.01	A.09.02	9.03	9.05	906	20.6	8.08	0.02	20.0
A.02	AB	A.0	A A	A.O.	A.0	4 4	N K	A O	A.0	A A	A.O	A O	A	A.O	A.O	2 4	A.O.	A.0	V V	A	Α.0	A S	V	A	A.O	AA	Ą	A.0	A.0	A A	A O	A.0	A A	A.O	A O	A A	A.O.	A.O	A O	Ž	A	A.0	AA	A.05	A O	A A	A.1	4

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3hr sunlight betw 9.00					-	0 1	-		-			0	-						0						0			-	-		0													0	55						0	I I
of sunlight betw 9am 4.30bm	7.5	7.5	e.	m	26	3.25	7.5	2.5	7.5	7		2.5	3.25	7.5	7.5		m		3.25	7.5	7.5	7.5	7	3 (4)	2.5	3.25	7.5	7.5			2.5	3,25	7.5	7.5		, 63	63	2.5	7.5	7.5	7.5		3 63	25	3.25	7.5	7.5	100			2.5	3,25
2hr of sunlightb etw 9.00-	==		-		c	0		Ì		1	ľ	0	0			ľ	1		0 0				-	-	0	0			1		0	0	4				1	0 0						0	0			·		-	0	0
ht 9.00-		T	-		c	ā	-	-	-		Ī	0	0		Ī	ľ	-		0	-			1	-	0	0	Ī			Ī	0	0	-	Ī	ľ	1	T	0 0	-	-	+		ľ	0	o	Ī		T	-	- 0	0	lo
hr of 3hr ht sunlig 9am- betw 3	9	ID III	m	63	e) =	1.75	ιĐ	9	9	2 6	2 (2)	-	1,75	10 1	D W	0	m	17	1.75	9	9	g)	200	7 (1)	+	1.75	9	9	6	13 1	7	1,75	9	9 1	0 67	, (c)	es	1 75	9	9	9	m	2 62	-	1.75	00 0	a e	2 (7)	67	63	-	1.75
Total hr of sunlight betw 9am- 16:30 30m	52	51 52	1		30	25	52	52	52	1		52	52	50 5	0 %	3		-	25.0	S	52	52	1	1	52	52	52	55	Ц	1	25	52	52	25	0			25	3 50	35	52	1	+	SZ	52	522	g x	g	Н	Ц	52	36
16:18		0.25 0.25				0.25 0.25				1		1	-	0.25 0.25					0.25 0.25	13			+	1	П	0.25 0.25				+		0.25 0.25				-		0.25 0.25				+	+		ш	0.25 0.25			H		0.25 0.25	
16:00 16:		0.25 0		$\perp$	Щ.,	0.25 0	L.			+	-	1	l. I	0.25 0	- 1.1		Н	-1	0.25 0	1			+		0.25 0	ы.		L		+	1.	0.25 0		- 1		H	ш	0.25 0		J.,	ш	+	+	Д.,	LJ	0.25			H		0.25 0	
15:45 16		0.25				0.25				ł	ŀ			0.25		1	H		0.25				+	-	0.25	- 1				+	4	0.25	- 1	-1	-	H		0.25		1_		+	+		ш	0.25	-10		Н		0.25	
15:30 1:		0.25		+		0.25				+		0.25	ı	0.25	- 1		Н	ш.	0.25	ш	ш		+		ш	0.25		ш		+		0.25			_	+	ш	0.25			ш	+	$^{+}$			0.25			H		0.25	
15:15		0.25		H	-1-	0.25	ш			t	t	ш		0.25	- 1		Н	- 1	0.25				t			0.25			H	t	-	0.25		- 1	1	t		0.25	ш	J.		1	t	A	1 1	0.25	-1.		H		0.25	
15:00		0.25		ı	96.0	0.25	0.25	0.25	0.25	t	Ī	0.25		0.25			П	- 1	0.25	1			İ	t	0.25	0.25	0.25	0.25		İ		0.25				T		0.25	0.25	0.25	0.25	1	T			0.25	-	100	Ħ		0.25	
14:45		0.25		İ	30.0	0.25	0.25	0.25	0.25	İ	İ	0.25	0.25	0.25	0.00	24.5	П	-	0.25	0.25	0.25	0.25	t	T	0.25	0.25	0.25	0.25		İ	0.25	0.25	0.25	0.25	67.0	İ	H	0.25	0.25	0.25	0.25		Ť	0.25	0.25	0.25	0.35	24.0	Ħ		0.25	-
14:30	0.25	0.25			96.0	0.25	0.25	0.25	0.25	Ť	T			0.25			П	-	0.25	0.25	0.25	0.25	T			0.25						0.25		- 1				0.25	0.75	0.25	0.25		T	1	1 1	0.25	- 1		П		0.25	
14:15		0.25			96.0	0.25	ы					_		0.25	-			000	0.25		1.0					0.25	100				0.25	0.25		-1				0.25	1	-				0.25	1 1	0.25	- L				0.25	
14:00		0.25					0.25					1 1	ш	0.25	-					0.25						0.25								0.25					0.25	_						0.25						
13:45		0.25	1				0.25					ш		0.25	-10	1			1	0.25					ш	0.25	100	l. I				LЛ		0.25					0.25	L					ш	0.25						
13:30		0.25				0.26	5 0.25			1		Ц		50.00		1			0.26	5 0.25				L		0.25					1	1		0.25	-		Ц	20.00	5 0.25					L	1 1	6 0.25	-		Ц			
	5 0.25				1	L	5 0.25					Ц		5 0 25	л.		Ц	1			5 0.25		1	ļ	Ц	_L	5 0.25			1	1	ш		5 025	ц.		Ц	_	Ш	1	5 0.25	1	1	L		5 0.25			Ц	Ц	1	
13:00		25 0.25		4	1	L	25 0.25	_ 1		-	L	Н		25 0.25			Ц	-	-	1 1	0.25 0.25		-	1	Н	-	25 0.25		1	-	1	1 1	_	25 0.25	-		Ц	1		1	25 0.25	4	+	H	ы	25 0.25	-		Н	H	1	
30 12:45		0.25 0.25			1	+	0.25 0.25			+	_	Н	ш	0.25 0.25			Н	-	+		0.25 0.2		-	+	Н		0.25 0.25		_		+			0.25 0.25		L		-		1	0.25 0.25	+	+	H		0.25 0.25	- 1		H	H	+	
12:15 12:30		0.25		+	+	-	0.25 0.	- 1		+	-	Н		0.25 0	4	_	H	+	+		0.25 0.		+	╀	H	- 1	0.25 0			+	+			0.25		H	Н	+	1.	1	0.25 0	+	+	H	ш	0.25	- 40		H	H	+	
2:00		0.25		35	g	ł			0.25	25	125	Н					0.25	325	+				220	0.25	H	-11	0.25 0		3.25	250	3	1 1			1	0.25	7.25	+	L			325	0.25	H			-10		0.25	525	+	
11:45 12	ш	0.25	1. 1		-1-		ш		0.25	1	J.	ш		ш.		.I.	0.25	wal.	+	L				0.25	ш		0.25					1 1			ч.	0.25	u J	+	Ц.,	Ι	ш		0.25						0.25		+	
11:30	1 1	0.25			- 1	100			0.25	111	100		100				0.25	- 1	t					0.25			0.25					1 1	_		-	0.25		$\dagger$				- 1	0.25						0.25		+	
11:15	0.25	0.25	0.25	0.25	9			- 1	0.25		1			0.25	0.75	0.25	0,25	0.25	t	1 1				0.25			0.25									0.25		+				- 1	0.25						0.25		1	
11:00	0.25	0.25	0.25	0.25	G.		1 1	- 1	0.25	-10		-		0.25	0.25	0.25	0.25	0.25	t	E d	-	- 1	- 1	0.25			50					1	_		-	0.25							0.25			920	0.25	0.25	0.25	0.25	1	
10:45	0.25	0.25	0.25	0.25	CZ.	T	0.25	0.25	0.25	0.25	0.25	П		0.25	0.25	0.25	0.25	0.25	t	0.25	0.25	0.25	0.25	0.25			0.25									0.25		Ī	0.25	0.25	0.25	0.25	0.25	T		0.25	0.25 A.25	0.25	0.25	0.25	1	
10:30	0.25	0.25	0.25	0.25	CZD				0.25					0.25	0.25	0.25	0.25	0,25	T					0.25			0.25						0.25	0.25	0.25	0.25	0.25	1					0.25			0.25	6.26	0.25	0.25	0.25		
10:15	0.25	0.25	0.25	0.25	67.0				0.25					0.25	0.25	0.25	0.25	0.25						0.25			0.25									0.25					1		0.25	и т	П	0.25	0.25	0.25	0.25	0.25		
10:00	0.25	0.25	0.25	0.25	670				0.25					0.25	0.25	0.25	0.25	0.25		1 1		/-	-	0.25	-		0.25									0.25							0.25			0.25	0.20	0.25	0.25	0.25		
9:45	0.25	0.25	0.25	0.25	0.43				0.25					0.25	0.25	0.25	5 0.25	0.25						0.25		0.25	5 0.25	0.25	5 0.25	0.70	2		5 0.28	0 25	0.25	5 0.25	5 0.25						5 0 25			0 25	0.25	0.25	5 0.25	5 0.25		
	5 0.25					1	ш	- 4	5 0,25	- 1	-	ш		5 0.2	5 0 25	5 0.25	5 0.25	5 0.25				_	-	5 0.25			5 0.25						5 0.25	0 0 0	5 0 28	5 0.25	5 0.2		100	1	1 -1	- t	5 0 25	1		5 0.2	400	5 02	5 0.25	5 02		
	0,25	0.25	0.2	0.20	0.2		0.2	0.2	0.25	0.2	0.2	Ц		0.2	0.0	0.2	0.25	0.2	1	0.2	0.2	0.2	0.2	0.25		100	0.25	0.2;	0.2	0.2	7		0.2	0.2	0.5	0.25	0.2	-	0.2	0.2	0.2	02	0.25	L		0.2	0.2	0.2	0.25	0.2	1	
9:00	1	+		+	+		Н		1	-		$\parallel$	-	+	-	-		1	-			+	+			1				+	-		+	+	-			+	+	-		+	+	H		+	+	+	$\parallel$		1	
	A.10.05	A 10.07	90.0	A 11.01	1.03	1.04	1,05	106	1.07	2.01	2.02	2,03	2.04	2.05	207	2.08	3,01	3.02	3 04	3.05	3.06	3.07	3.08	4.02	4.03	4.04	4.06	4.07	4.08	200	5.03	5.04	5.05	5.06	5.08	5.01	6.02	6.03	5.05	9.06	5.07	6.08	7.02	7.03	7.04	7.05	A 17.07	A 17.08	8.01	A.18.02	8.03	
- E	A.1	A 1	A.1	A A	A 1	A 1	A.1	A	A d	A A	A.T.	A.1	A	A.	A	A	A.1	V	A	A.1	A	¥.	A	A 1	A	A 4	Y.	A 1,	A	C C	A.1	A	4	A.	4	Α.	A 1	A	Y T	A.1	A.1	A.1	A 1	A.1	A.1	A d	Y V	V	A.1	A.1	A.	10.0

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E ត្រៀបដែលស្រីស្រីស្រីស្រីស្រីស្រីស្រីស្រីស្រីស្រី	3hr sunlight h betw 9.00- 16.30	10					-					•	0					0		0	-	-										***	0		-							•		0	0	0	0	0	0	0		1	-					0	0	
A	Total of sunlight betw 4.30p	7.5	67					7.5	7.5		3				2.2	7.5	67	2.5					7.5	7.5	4					15.	_	9					2,	4 6	7.5	7.5	7.5	7.5	7									3.5	3,75	4.25	4.5	4.75				
Fig.   Fig.	2hr of sunlightt etw 9,00 1500																	0													-									-																				
The content of the	3hr sunlight betw 9.00 15.00																																																						3					
Column   C	Total hr of sunlight betw 9am- 3pm					36.4		9	9	8	2			2	0 4	9		2.5	~		1,75	1.75	9			2	175	1 75			4			1,75	1.75	Φ,				9	9	9	9	50	0.5	٥			3	0.5		3.5	3.75	4.25	4.5	4,75	4.75			4.63
The color of the	16:30	0.25	П	T	20.0	50.0	0.25	0.25	0.25				0.25	0.23	0.05	0.25				0.25	0.25	0.25	0.25	0.25	T	0.00	0.25	0.25	0.25	0.25			0,25	0.25	0.25	0.25	0,25		0.25	0.25	0.25	0.25	0.25	0.25	0.25			T		0.25							T	Ī	T	
The color of the			1 1		_ [	J.		LJ	LU.	ш		- 1	- 1	Щ.,	-1	1				-4	ш	- 1	_1	ш	Ī		Л.,	ы	1.0			Charles	I		!				0.25	0.25	0.25	0.25	0.25	0.25	0.25		I											Ī		
The column   The	16:00				0.35	0.26	0.25	0.25	0.25				0.25	0.35	0.25	0.25			- 1	-1	- 1	-1	-1	1			1	1	1	1			0.25	0.25	0.25	0.25	0.25		0.25	0.25	0.25	0.25	0.25	0,25	0.25					0.25								Ī		
						Ц.,	Ь.					- 1	_ L	ш.	л.	1.							- 1					1						ı		- 1			J.,	L.,	Ш			U.	Л.	Ī	I	Ī	100	0.25										
			1 - 1		-1	1	1	ы				- 1	_	-	-10	1	-		- 4	_	- 1	-1	_	ч.		1	1	1	ь	1					-1		4.	Ī					-1	1	-			Ţ	-1									I	J	
No. 10   N	15:15			Ī	90.0	0.25	0.25	0.25	0.25		I									_ I		_		ш.	Ī	A 26	0.25	0.25	0.25	0.25			0.25	0.25	0.25	0.25	Q		0.25	0.25	0.25	0.25	0.25	0.25	0.25				100	0.25										
A   A   B   B   B   B   B   B   B   B	15:00	0.25			200	0.75	0.25	0.25	0.25			-1	ш	л.	ш	ь.	ш			0.25	0.25	0.25	0.25	0.25	Ī	30.0	0.25	0.25	0.25	0.25				ш					0.25	0.25	0,25	0.25	0.25	0.25	0.25		Ī		100	0.25					Ī			Ī		
No. 10   N			11		50.0	0.25	0.25	0.25	0.25		I	1	0.25	20.0	0.25	0.25				0.25	0.25	0.25	0.25	0.25	Ī	-	1	1		1			0.25	0.25	0.25	0.25	970		0.25	0.25	0,25	0.25	0.25	0.25	C7n	Ī			200	0.25					I			I	Ī	
1		025		T	36.0	0.25	0.25	0.25	0.25		T		0.25	25.0	0.25	0.25			- 1	- 1	- 1	- 1	- 1		Ī	0.25	0.25	0.25	0.25	0.25					- 1			Ī	0.25	0.25	0.25	0.25	0.25	Ī	1	Ī	Ī	Ī	T	Ī	1		Ī	1	Ī	Ī	T	Ī	Ī	
A		0.25			95.0	0.25	0.25	0.25	0.25			1	0.25	0.25	0.25	0.25			1	0.25	0.25	0.25	070	0.0	Ī	0.25	0.25	0.25	0.25	0.25			0.25	0.25	0.25	0.25	250		0.25	0.25	0.25	0,25	0.25		Ī	Ī		Ī	T						T	T	T			
Value   Valu		_	1.1	T	I	0.25	0.25	0.25	0.25		T		200	0.25	0.25	0.25					0.25	0.0	0	0.50	T	Ī	0.25	0.25	0.25	0.25					- 1	- 1		T	0.25	0.25	0.25	0.25	0.25	T	1	T	T	T	T	Ī		Ī	T		T	T	T	Ī	T	
Mark						0.25	0.25	0.25	0.25				20.00	0.25	0.25	0.25					0.25	0.25	0.50	0.43	Ī	Ī	0.25	0.25	0.25	0.25				0.25	0.25	0.25	4.25		0.25	0.25	0.25	0.25	0.25	Ī	Ī	Ī	Ī	Ī	Ī							0.25	0.25		1	
Mail			1 1	Ī		0.25	0.25	0.25	0.25		I		30.0	0.25	0.25	0.25		Ī	Ī	1	0.25	0.25	67.0	9	Ī	Ī	0.25	0.25	0.25	0.25				0.25	0.25	0.25	070		0.25	0.25	0.25	0.25	0.25	Ī		Ī	Ī	Ī	Ī	Ī					0.25	0.25	0.25		Ī	
A   1900   A   1900	13:15	0.25	П	Ī	Ī	Ī	0.25	0.25	0.25	Ī	Ī	1	Ī	0.05	0.25	0.25		Ī	Ī	Ī	1	0	0.00	0.45	Ī	Ī	Ī		0.25	0.25	Ī			Ī		500	0.23	T	0.25	0.25	0.25	0.25	0.25	1	Ī	1	Ī		Ī	1	Ī	Ī		0.25	0.25	0.25	0.25		20.0	M. Serve
A   1910   A   1910	13:00	0.25			Ī	Ī	0.25	0.25	0.25		Ī		Ī	96.0	0.25	0.25			1		Ī	200	0.63	0.25	0.50	Ī			0.25	0.25	0.25					0.25	52.0	n n	0.25	0.25	0.25	0.25	0.25	Ī	1	1	Ī		T	Ī				0.25	0.25	0.25	0.25	Ī	90.0	Ministra
March   Marc	12:45	0.25		Ť	Ť	T	0.25	0.25	0.25	1	T	Ť	Ť	96.0	0.25	0.25		T	1	Ì	Ť	1	0.00	0.25	0.60	T	T		0.25	0.25	0.25			T		200	0.25	0.62	0.25	0.25	0.25	0.25	0.25	Ť	Ť	T	Ī	T	Ť	Ť	Ī		0.25	0.25	0.25	0.25	0.25	Ī	30.00	V-6-4
with the control of the cont	12:30	0.25		T	T	T	0.25	0.25	0.25	1	T	T	T	96.0	0.25	0.25		Ī	1	Ī	T	24.0	0 0	000	200	T	Ī	Ī	0.25	0.25	0.25	Ī		Ī	1	200	0.25	3	0.25	0.25	0.25	0.25	0.25	Ī	Ť	1	T	Ī	T	1	0	0.25	0.25	0.25	0.25	0.25	0.25	Ī	90.0	200
unit         990         915         840         1100         1116         11	12:15	0.25		1	Ī	T	0.25	0.25	0.25	1	1	İ	Ť	0.05	0.25	0.25		Ť	1	Ť	Ť	100	0.20	200	27.0	Ť		Ī	0.25	0.25	0.25			Ī		0.25	0.25	200	0.25	0.25	0.25	0.25	0.25	Ť	Ť	1	Ť	Ť	1	T	-	0.25	0.25	0,25	0.25	0.25	0.25	İ	200	200
wink         \$1.00         \$1.55         \$1.50         \$1.55         \$1.50		0.25	0.25	0.25	240	T	0.25	0.25	0.25	0.25	0.25	0.53	Ī	96.0	0.25	0.25	0.25	100	20	İ	T	200	0.50	0.25	0.25		T		0.25	0.25	0.25	0.25		T	1	0.20	0.25	0.25	0.25	0.25	0.25	0.25	9.25	t	t	İ	t	Ť	t	90.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	90.0	20.00
unit         \$100         \$145         \$100         \$145         \$100         \$145         \$130         \$141,006           A.1306         A.	11:45	0.25	0.25	0.25	2	T	0.25	0.25	0.25	0.25	0.25	0,25	Ť	96.0	0.25	0.25	0.25	100	670	1	1	30.0	0.00	0.00	0.35				0.25	0.25	0,25	0.25		1	1	0.20	27.0	0.25	0.25	0.25	0.25	0.25	0.25	t	Ť	İ	Ť	Ť	t	200	0.43	0.25	0.25	0.25	0.25	979	0.25	Ī	20.0	20.00
unit         9:00         9:15         9:40         10:00         10:16         10:30         10:48         11:16           A.18 of         A.18 of         0.25		0.25	0.25	25		İ	0.25	0.25	0.25	0.25	0.25	0.25	t	0.25	0.25	0.25	0.25	0.25	3	1	Ť	30,0	20.00	200	0.25		Ī		0.25	0.25	0.25	0.25			100	623	0.25	0.25	6.25	0.25	0.25	0.25	0.20	1	t	1	Ť	t	1	30.0	67.0	0.25	50	52	0.25	525	0.25	T	200	2
Mail	11:15	0.25	0.25	0.75	2	Ī	0.25	0.25	0.25	0.25	0.25	07.0	t							†	†								0.25	0.25	0.25	0.25		1										t	t	t	t	t	t									t	200	1
A.18 of   A.18	11:00	0.25	0.25	0.25		İ							İ	0.25	0.25	0.25	0.25	0.25	0.63	1	Ť						T					- 1		1	100	0.25	0.25	0.25	0.25	0.25	0.25	0.25	070	t	t	Ť	Ť	t	t	30.0	000	0.25	0.25	0.25	0.25	0.25	0.25	t	20.0	2
No. 18	10:45	0.25	0.25	0.25		T							t							1	1	20.00	0.70	200	0.25	t	T	l				_		1	000	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.20	t	t	t	t	t	t	30.0	0	0.25	0.25	07.0	0.25	0.25	0.25	t	30.0	2000
unit         9:00         9:15         9:30         9:45         10:00         10:15           A.18 076         0.25	10:30	0.25	0.25	0.25	2	t	0.25	0.25	0.25	0.25	0.25	0.23	t			land.			al.	t	†	20.00	0.00	0.25	96.0				0.25	0.25	0.25	0.25		1	100	0.25	0.25	0.25	0.25	0.25	0.25	0.25	670	t	t	t	t	t	t	200	0	0.25	0.25	0.45	0.25	0.25	0.25	t	90.0	5
No. 10   N	10:15	0.25	0.25	0.25		İ	0.25	0.25	0.25	0.25	0.20	0.43	t	100	1		- 1		- 1	t	t								0.25	0.25	0.25	0.25		1	200	200	0.25	0.25	0.25	0.25	0.25	0.25	0.43	t	İ	t	t	t	t	30.00	000	0.25	0.23	C)	0.25	0.25	025	t	35.0	2
A.18 06	00:0	0.25	0.25	0.25		Ī	0.25	0.25	0.25	0.25	200	27.0	t				- 1		- 1	t	†	20.00	2000	26.0	0.25	H					- 1	- 1		1	900	0.70	0.25	0.25	0.25	0.25	0.25	0.25	6270	t	t	t	t	t	t	36.0	6770	0.25	0.23	0.25	0.23	929	570	t	30.0	24.0
A 18 0	9:45	0.25	0.25	0.25		İ							t							t	t	30.0	36.00	35.0	0.25	l							1	+	200	25.0	0.25	0.25	0.25	0.25	0.25	0.25	0.63	t	t	t	t	t	t		- 84		- 1	- 1	83 B.			t	0.36	2
A.18 06 A.18 0		- 1		-	1	H		- 1				-1	t	100			- 1		-	+	+							100			-1		1	+	50.0	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0,43	+	1	1	1	+	1	30.0	0.20	0.25	0.00	0.25	0.25	0.25	0.25	1		н
Unit A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 18 006  A 22 006  A		4.0	esta de la	All the	4	F			- 4	to be	- 4		t	10.0	100		V-10-	- 1	-1	1	+										-21		1	+	20.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0,25	+	+	t	+	1	+	-11	- 10	м.	- 11			40	- 11	+	ъ.	4
		İ	1		İ				1	1										1	1	1													1	1						1		1			1		1	1			1	1		1		1	1	1
	90	8,07	8.08	9 02	9.03	9.04	9.05	9.06	200	9.00	0.0	200	900	0.05	90.0	20:0	80 0	10.		1 00	200	100	1.06	202	2.01	2.02	2.03	2.04	2.05	2.06	3.07	3.01	3.02	3,03	200	3.06	1.07	1.01	4.02	4.03	4.04	4.05	90	201	200	303	202	205	2.04	200	3.02	2,03	\$0.0	202	3.06	3.0/	3.00	3 40	2 4 4	
		A.1	A.1	A 18	A	A.1.	A.1	A.1		A 20	A A	0.20	AZ	A.2	A.2	A.2	A 2.	A.2	A C A	A 2	A. 7. 6	0 0	0.2	A	A Z	A.2	A 2	A.2.	A.2	A.2.	A.2	A.2.	A.2	A.2	A.A.	A 2	A.Z.	A.2	A.2	A 2	A.2	A.2			0 0	0 0	8.0	BO	B	0 0		200	200	0.0	200	0.0	0 0	0 0	0.0	1

610.13357 Epping Rd solar access 20140818.xks

3hr sunlight betw 9,00- 16,30																																																
of sunlight betw 9am 4.30pm	2	3.5	3.75	425	4.75	4.75	00	4,25	0 0	3 60	3,5	3.75	4.5	4.75	4.75	0	4.25	0 0	3.43	3.5	3.75	4.25	4,75	4.75	3.5	4.25	4.5	3.5	1.75	0	0	2.75	2	0	0	2.75	2.5	2.25	00	4.5	4	3.75		4.75	4.5	4.5	4.63	4.5
2hr of sunlightb etw 9.00-	0				ľ	*	00	•	oc		Ī		ľ			0		0 0	-	Ī	1		ľ			Ī	1	- 0	0	0	0	0	0	00	0	0	1	0	00	·			0	0 -		ĺ	Ī	
light w 9.00-	0	Ī	=		T	5	00	Ī	00	-	٦	1		-	- 0	0	-	a		Ī			Ī	-	T	Ī	-	0	0	0	0	0	0	00	0	0 0	0	0	0 0	-	1	Ī	0	0	Ī		1	
- A	0.5	3.5	3.75	4.55	4.75	4.75	00	4.25	0 4	3 6	3.5	3.75	4.5	4.75	4.75	0 0	4.25	0	3	3.5	3.75	4.25	4.75	4.75	4 40	4.25	63	2 2	1.25	0	0 0	1,75	1,5	0.0	0	175	2	1,75	50	es	es u	3.25	0	3.25	3.5	9.76	0,75	ų
Total hr of sunlight betw 9am- 16:30 3pm	0.25	ļ		-	-	Н	-		90.0	3	H	-	-		-	-		90.0	3	-		-	-		+	L	25	0.25	67		200	Q		+		0.25	-	H	-	0.25	1	ŀ		0.25		+	-	
16:15		+	4	+	╀	Н	+	H	25.0	ш	Н	+	+		+	+	H	900	_	H		+	╀	Н	+	╀		0.25 0	1	H	200		H	+		0.25 0	H	Н	+	0.25 0	+	+	Н	0.25 0		+	+	
		H	4	+	+	H	+	H	25.0		Н	+	╀	-	4	+	H	000	4	H	4	+	1	Н	+	$\perp$	Щ	0.25	1	Н	ш.	0.25	H	+	ш	0.25 0	1	Н	+	0.25 0	52	╀	H		0.25	+	+	
16:00		ŀ	4	+	╀	H	+	H	35.0		Н	+	+		4	+	H	950		$\vdash$	-	+	H	Н	+	╞		0.25 0.0	1	H	_	0.25 0	1	+		0 250 0		H	+	0.25 0.	_	+	H			+	+	
	0.25 0.25	ļ	4	+	1	Н	+	Н	_L	Ш	Н	+	1		4	+	Н	000	Ш.		4	-	H	Н	+	L		0.25		Н		0.25 0	ш	52	ш	0.25 0		52	+			0.25	Н		25 0.25	55	0	
		Ŧ	_	1	-	Н	+	Н	36.0	ь	Н	1	1		4	+	Н	_	1	H	4	+	1	Н	+	H		- 1	- 1.5	ы	_	0.25	ы		ш	0.25		ы	+	ш		0.25 0		25	0.25 0.25	25 0	C2	
00 15:15		1		-	1	Н	-	Н	35 0 35 0	ш	$\prod$	+	1		4	-	H	30.0		H	4	+	-	H	+	H	-	0.25 0.25		1 1	- 1	0.25 0.			ш	0.25 0			+	ш		0.25 0	ш		0.25 0.	-	-1	
45 15:00		+		1	H	Н	-	H	90.0	Ш	H	+	1		4	+	H	90.00	4.	H	4	+	L	H	+	+		0.25 0.				0.25 0	ш		ш	0.25 0	Ш.	ш	-			0.25 0	ш		0.25 0.		- 1	
	0.25	ł	-	+	H	H	+	H	-	1	Н	+	+		+	+	Н	+	-	H	-	+	╀	Н	+	╀		0.25 0		1	-	0.25 0	1 1	0	П	0 25 0			+			0.25 0	Н	52	0.25 0	25	0.25	
15 14:30	Н	H	4	+	1	Н	+	Н	+	ł	Н	+	ļ	H	4	+	Н	+	ł	H	4	+	+	Н	+	╀		0.25 0		ш		0.25 0		+	Ш	0.25			+	0.25 0					0,25 0		2	ı
00 14:15		ł	4	+	+	H	+	H	+	H	Н	+	╀	H	+		H	+	ł	H	+	+	╀	Н	+	╀			0.25	ш	-	0.25 0		+		0.25 0	-	H	+	Ш	0.25 0		H	55.00	0.25 0			ı
45 14:00		ļ	4	+	25	0.25	+	Н	+	ł	Н	+	+	0.25	25	+	Н	+	ļ	H	4	+	25	0.25	+	╄		0.25 0		H		0.25 0	1 1	+	ш	0.25 0		H	ł		0.25 0		H		0.25 0		-	
30 13:45	Н	ł	4	155	0.25 0.		+	Н	4	ļ	Н	+	0.25		- 1	-	Н	4	+	H	4	×	0.25 0		+	╀		0.25 0.	_	Н		0.25 0	ш	+	ш	0.25 0	Ы.	H	+	0.25 0		+	H	0.25	ш	-	1	
15 13:30	Н	H	- 5	0.25		Ш	+	0.25	+	Ļ	H	1	1	0.25 0.		-	0.25	+	+	H	4	0.25	1		+	0.25	0	0.25 0	-	H		0.65	H	+		0.25 0.0	-	H	+	0.25 0	0	ł	H	0.25	ш	+		
13:15	H	H		0.25 0		Ш	+	0.25 0	1	ļ	Н		0.25	L. I		-	0.25 0.	1	-	H	ш	0.25 0.0	1	ш	52	0.25 0.		0	+	Н	+	1	Н	+	Н	1	╀	Н	+	0	+	H	Н	-	Н	+	-	
13:00	H	H		0.25 0		11	+	0.25 0	+	+	Н		0.25			ŀ	0.25 0.	+	+	H	0.25		1			0.25 0.		+	+	H	+	+	H	+	Н	+	╀	H	+	Н	+	+	H	+	Н	+	+	
30 12:45	H			0.25 0	1.	ш	-	0.25 0	1	Ļ	ш		0.25			+	0.25 0.	+	+	1		- 1			0.25 0		ш	+	+	Н	+	+	Н	+	Н	+	+		+	Н	+	ł	H	+	Н	+	+	
15 12:30	H			0.25	150		+	0.25 0.	+	H	1 1		0.25 0			+	0.25 0.	+	+						0.25 0.0		Н	+	+	H	+	+	H	+	Н	+	╀	Н	+	Н	+	ł	H	+	Н	+	+	
00 12:15	9						+	53	4	155						+	52	1	K						0.25 0			+	╀	H	+	ł	H	ł	H	+	H	133	+	H	+	35		+	Н	100	2	
45 12:00	20	0.25 0.25	25	25 0	25 0	25 0	+	0.25 0.	+	25	25 0.25	25 0	355	25 0.	25 0.	+	0.25 0,	+							0.25			+	+	Н	+	H	H	+	Н	+	H	0.25 0.	+	Н	+	0.25 0.	ш	+	Н		0.25 0	
30 11:45		0.25 0.					╀	0.25 0.	+	25 0.	25 0.25	52 0	25 0	25 0.	25 0.	+	0.25 0.	+	25.0	25 0	25 0	25 25	28	25 0	2 25	25	52	+	+	Н	+	+	H	+	Н	+		0.25 0	+	H	100	0.25		+	H	0.25	_	ı.
15 11:30		н				ш	+	0.25 0.	+	25	25 0.25	20 0	25 0	25 0.	25 0	+	0.25 0.	+	2	25	25 0	25 0	252	25 0	0.25 0.25	255	25 0	+	+	Н	+	ł	Н	+	Н	+	Ш	0.25 0	+	Н		0.25	ш	+	H	0.25	22	
11:15	9	25 0.25	25 0	25 0	25 0.	25 0.	+	0.25 0	+	25 0.	25 0.25	25 0.	25 0	25 0.	25 0.	+	0.25 0.	+	. I	4								+	+	H	+	+	H	+	Н	+	0	0	+	Н	_	0.25	ш	+	Н	52 0	0.25	
45 11:00	90	0.25 0.25	25	2 2	25	25	+	0.25 0.	+	25 0	25 0.25	52 5	3 52	25 0	25 0	+	0.25 0.	+	25	25 0	25 0	25 0	25	25 0	0.25 0.25	25 0	25 0	+	+	H	+	H	H	+	Н	+	H	H	+	Н		0.25	ш	+	25	25 0.25	D C2	
30 10:45		ш				1.1	-	0.25 0.	+	25	0.25 0.25	200	2 52	25 0	25 0	-	0.25 0.	4										+	-	H	+	H	Н	+	Н	+	+	H	+	ы		0.25 0	1 1	+	0.25 0.25	25 0	C2	
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10:15		25 0.25					+	0.25 0.25	+	25	25 0.25	25	2 50	25 0	25	1	25 0.25	200	25.0	8	25	SX	25 0	52	25 0.25	25	25 0	+	-	H	+	+	H	+	Н	+	+	H	+	ш		0.25		25	25 0.25	25	25 0	
9:45 10:00	9	25 0.25	25	2 5	25 0.	25 0.			+	25 0.	0.25 0.25	25 0	2 50	25 0.	25 0	+	25 0.25	900	25.0	25 0.	25 0.	25 0.0	25 0.	25 0.	25 0.25	25 0	25 0		-	H	+	+	H	+	Н	+	+	H	+	1 1	-1	0.25 0		25	0.25 0.25	52	22	
	9	25 0.25	25	0 0	35	25		25 0.25	+	0	25 0.	20 5	0 50	25 0.	25 0.	-	25 0.25	_							25 0 25			-		Н	4	+	H	+	Ц	+	+	H	-	o	0	0	H	25	25 0	25	22	
9:30	5	25 0.25	50.0	0 2	5 0.	55 0.3		25 0.25	1	50 07	25 0.25	25	200	55 0.5	55		25 0.25	9000	20	0.0	25	2 0	25	52	25 0.25	20	25 0.	1	-	H	4	+	$\coprod$	+	Н	+	1	H	+	Н	1	1	H	35	25 0.25	25	22	
9:15	- 6	0.25	0	000	0	0		0.25	1	0.2	0.25	0	0.5	0.5	0	-	0.25	9000	0	0.7	0	0 0	0	0	0.25	0	0	4	-	Н	+	+	H	+	$\ $	+	+	$\parallel$	-	Н	4	+	H	0	0.25	0	0	
9:00		$\parallel$	1	1		$\parallel$		Ц	1	L	Ц	1	-		1		Ц	1	1			1	-	$\sqcup$	1	-				Ц	1	1	$\coprod$	1		+	-	$\prod$	1	Ц	1	1	$\coprod$	1	Н	1		
	5 5	28	2 2	9 9	77	88	200	5	2 2	72	33	3 5	3/2	20	88	0		12	2	33	3	2 %	25	88	8 5	11	12	5 5	03	8	90	5 2	03	2 2	90	200	93	94	8 8	10	20 20	2 4	95	90	20	03	8	
Ę.	9.04	0.00	3.04.0	0.00	3.04.0	8.04.6	806	100	906	3.05	3.05.0	3.05.1	8.05.0	B.05.t	B.05.08	8.05.1	B.05.	8.05	B OF C	9.06	3.06.4	8.06.1	3.06	908	90.0	8	3.06	C.01.01	10	6	10	20	C.02	C 02 04	C.02	800	83	.03	8	9	8	18	8	9 8	C.05	C.05	0.05	

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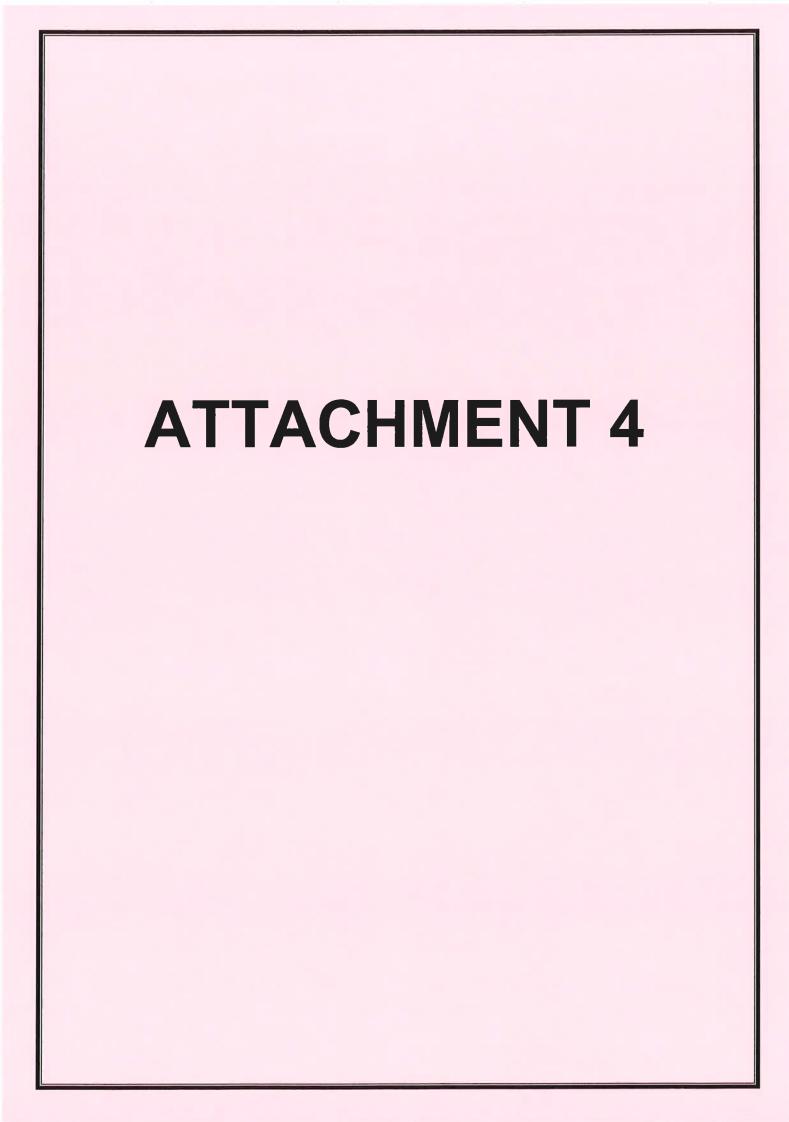
Page 5

610,13357 Epping Rd solar access 20140818.xls

3hr sunlight betw 9.00- 16.30																											122											
sunlight betw 9am 4.30pm	00	0 +	1.25	5.75	5	1.25	575	S	1.25	575	5.5	5.25	4.5	5.75	0	0	0	3.5	0	0	3.5	0	5.25	40	6.5	(C)	0.0	0 50	9	io u	32	0 0	5.75	9	9 9	3.5	U.S.	7
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3hr sunlight betw 9.00- 15.00	000	00	0	0 +		0			0		1		6		00	000	0	1000	•	0	- 0	0	0	1			o	0			-	0	0	1		-	- 6	
Total hr of 3 sunlight s betw 9am- b 3pm 0	00	0 -	1.25	4.25	4,5	125	4.25	4.5	1.25	3.5	4.5	4.25	10	4.5	0 6	0 0	0	3.5	•	0	3.5	0	0	9	0 10	3.5	0	5.25	ω	rD c	3,5	C D	5 25	9	10 to	3,5	9	0
Tot Sur bet 16:30 3pr			H	0.25	0.25	07:0	0.25	0.25	0.65	0.25	0.25	0.25	0.25	0.25	+	H	Н	+		H	+	H			+		H		H	+	H	H	+	H		H	ł	
16:15	Ш		Ħ	0.25	0,25	Ħ	0.25	0.25	070	0.25	0.25	0.25	0.25	0.25	1	Ħ		T		H	t	П	t		l		Ħ	t	H	t		Ħ	t	H	t	H	t	
16:00		11		0.25	Ħ		0.25			0.25	0.25	0.63	0.25	0.25	1	Ħ	Ħ	İ		Ħ	İ	Ħ	T	İ	Ť	T	Ħ	İ	Ħ	Ť	Ħ	Ħ	T	Ħ	T		Ť	
15:45				0.25	ш		0.25				0.25		0.25		Ī												П		П			П	T		Ī		Ī	
15:30				0.25			0.25		$\perp$	0.25		100	0.25												0.25					0.25					0.25			
15:15	Ш	Ц	Ц	5 0.25		Ц	5 0.25	Ц	.11	5 0 25	ш		0.25	11.1		Ц	Ц			Ц		Ц		un u	0.25		Ц			0.25		Ц			0.25			
15:00	Ш			0.25		ш	5 0.25	Ц		5 025	Ц		5 0.25	9											5 0.25					5 025				5 0 25			1	
30 14:45	Ш	11		+		Н	0.25	Ц		5 0.25	Ц		5 0.25	Н	4	H	Ц	1	4	Ц		Ц		5 0 25	10		Н	1		5 0.25		Ц		mi	5 0.25		ļ	
14:15 14:30	Н	#	H	+		H	+	Н	1.1	0.25 0.25	Н		0.25 0.25	H	+	H	H	4	4	H	-	H	-1-1	0.25 0.25		+	Н	52	0.25 0.2	25 0.25	ш	H	52	25 0.25			1	
14:00 14:	Н	+	H	+		H	+	H	H	-	H	0.25	o'	H	+	$\vdash$	Н	+	+	H	+	H		0.25 0.		+	H		0.25			H		0.25 0.25		+	ł	
13:45	Н	H	H	+		H	+		H	+	H	25 0	+	H	+	H	H	+	+	H	+	H		0.25 0	Ш	+	H		0.25 0		ш	H		0.25 0		+	+	
13:30	Н	$^{\dagger}$	H	H	0.25	H	+	0.25	H	+	0.25	0.25		0.25	+	Н	Н	+	+	H	+	H	-1 1	0.25	1.1	+	H		0.25			H			0.25	+	ł	İ
13:15	Н	36.0	070		0.25	H		0.25	770		0.25			0.25	t	H	H	+	t	H	+	H		0.25		$^{+}$	H		0.25		ш	H		0.25		1	t	I
13:00	H	98.0	29 00		0.25	1.1	0.25		3	0.25	L. L.		0.25	0.25	t		H	+	$\dagger$	H	Ħ	+	1	0.25	1.4	t	Ħ		0.25	J.J.		H	100			+	t	
12:45	П	36.0	20.00	0.25	0.25		0.25	0.25		0.25	0.25	0.25	0.25	0.25	Ť		Ħ		Ť	Ħ	Ħ	İ		0.25	1	t		0.25	0.25	0.25	i	Ħ		0.25		Ť	t	
12:30		0.25	0.25	0.25	0.25	0.25	0,25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	Ī		Ħ	0.25	T		0.25		0.25	0.25	0.25	0.25	I	0.25	0.25	0.25	0.25	I	0.25	0.25	0.25	0.25	2	
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11:30	Ш		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	625	0.25	L			523			67.5			- 1		0.25		11.11			0.25	11	-	0.25	1.1			
0 11:15	Щ	0.25			5 0.25		5 0.25			5 0.25			-	1 1	ļ		1	5 0.25		-	0.50		5 0.25	5 0 25	5 0.2	5 0.25	Ц				5 0.25			5 0 25				
11:00	4	92 0 25			5 0.25		5 0 25			52.0	5 02			5 0.25	H	1		5 025	1		0.23	1	5 02	5 0 2	5 02	5 0.25	Ц				5 0.25			5 0 25				
30 10:45	4	25 0 25	1 1		0.25 0.25		25 0.25	0.25 0.2		25 0.25	0.25 0.25			0.25 0.25	H	-	1	25 0.25	1	1.1	070	+	25 0.2	25 0.2	25 0.2	0.25 0.25	$\parallel$	1 1		100	25 0.25			25 0.25		100	1	
15 10:30	-	0.25 0.25		-1-1	0.25 0.	1 1		0.25 0	1.1	1 1	0.25 0	1 1		0.25 0.	H	+		0.25 0.25	+	200	N 070	+		-		_	- 1			-	25 0.25		-	25 0.25				
10:00 10:15		0.25		1.1	0,25 0			0.25 0		11	0.25 0	1 1		0.25 0	H	+		0.25	+	ш	0 0	+	25 0	25 0	25 0	0.25 0.25	+	25 0	25 0	25 0	0.25 0.25	-		0.25 0.25				
9:45 10	+	0.25		1 1	0.25 0		4.4	0.25 0			0.25 0			0.25 0	H	+		0.25	+		0.62	+	0.25 0	125 0	7.25 0	0.25 0	H	3.25 0	0.25 0	125 0	0.25 0	+		0.25 0				
9:30		0.25			0,25			0.25			0.25			0.25	H	+		0.25	+	300		+	0.25	0.25	0.25	0.25	H				0.25 0			0.25 0				
5: 5:		0.25	1.1	100	0.25			0.25		4.4	0.25	1 1	14-	0.25	H	+	1	0.25	+	35.0		+	0.25	0.25	0.25	0.25	H	0.25	0.25	0.25	0.25	+		0.25				
9:00										1							j		0											15								
011	102	202	31	02	28	05	22	28	35	25	2 2	90	72	23	22	333	20	2 2	312	22	2 2	22	33	2	98	188	202	13	46 4	92	20	5 2	13	20 42	9	88	Ξ.	
Unit D.L01	D.01.02	D 02	D.03	0.03	D.03	D.04	200	0.05	D.05	0.05	D.06.0	0.06	D.06.0	D.06.	E.01.	E 02.0	E.02	E 02	E 03.0	E.03.	E.03.	E 04	E.04.0	E 04 C	E.04	E 04.	E.05.	E 05.0	E 05.1	E 05 (	E.05.0	E.06.0	E.06.03	E.06.0	E 06 C	E.06.0	E.07.0	
Block														ú	4			П										П		П							П	

3hr sunlight betw 9.0	16.30																																										2
	4.30pm	9	6.5	3.5	3.5		0	5.25	9	6	6.5	3.5	3,5	٥	0	5.25	0 9	0	0.0	3.5			5,25	9	Ф	6.5	3.5			5.75	6.5	3.5	36		5.25	5.25	5.75	6.5	0.5	0 4			
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9ht 9.00-	00.61	Ī	-	-	-	0	0	•			Ī		-	0	0	ĺ	Ī	ľ	Ì		0	0		Ī	Ī				9		-	Ī	0	0					Î	ľ			245
I hr of ight 9am-	·	9	9	3.5	3.5	O	0	5.25	9	9	9	3.5	3.5	0	0	2,25	0 0	0 0	0 4	3.5	O	0	5.25	9	9	9	3.5	3.5	0.23	5.75	9	3.5	0	0	5.25	5.25	5,75	9	C u	0	n		otal
F # & .	16:30 3pm	İ	H												1	+	t		l			t						1	+	İ								1		†	t		-
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		0.25	0.25					0.25	0.25	0.25	0.25					0.20	200	200	0.40			Π	$\simeq$	0.25		0.25		I	-1	0.25							0.25	-24	_	070	4		
		0.25	0.25					0.25	0.25	0.25	0.25					0.25	20.00	20.0	0.65			Π	0.25	0.25	0.25	0.25			_	0.25							0.25		1	0.50			
	0.25	0.25	0.25					0.25	0.25	0.25	0.25			Ī		0.23	200	0.70	0.43				0.25	0.25	0,25	0.25			-1	0.25							0.25		- 1	070		I	
			0.25					ш	0.25						_[	0.25	1	10	d.					0.25		0.25				0.25								- 1	- 1	0.63			
	0.25	0.25	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	0.25		-1	0.25		-	1	4			0.25	0.25	0.25	0.25	0.25	0.25		0.25	L	U.,						0.25	. L	070	0.25		
į	0.25	0.25	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	0.25		1	0.25	200	200	200	0.25		T	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	0.50	0.23	Ī	
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	0.25	0.25	0.25	0.25	0.25	Γ		0.25	0.25	0.25	0.25	0.25	0.25	T	1	0.23	200	200	200	0.25		T	0.25	0.25	0.25	0.25	0.25	0.25	20.00	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	0	0.63	T	1
į	0.25	0.25	0.25	0.25	0.25	Г		0.25	0.25	0.25	0.25	0.25	0.25	Ī	1	020	0.00	000	0.00	0.25		T	0.25	0.25	0.25	0.25	0.25	0.25	90.00	0.25	0.25	0.25	П		0.25	0.25	0.25	0.25	0.25	0.70	673	T	1
	0.25	0.25	0.25	0.25	0.25	Г		0.25	0.25	0.25	0.25	0.25	0.25	T	1	0.25	200	0.20	20.00	0.25		T	0.25	0.25	0.25	0.25	0.25	0.25	200	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.23	200	0.25	Ť	1
	0.25	0.25	0.25	0.25	0.25	Г		0.25	0.25	0.25	0.25	0.25	0.25	1	1	200	200	25.0	30.00	0.25	Ī	T	0.25	0.25	0.25	0.25	0.25	0.25	200	0.25	0.25	0.25			0.25	0.25	0.25	025	0.25	0	0.20	T	1
	0.25	0.25	0.25	0.25	0.25	l		0.25	0.25	0.25	0.25	0.25	0.25	1	1	0.00	200	000	20.00	0.25		T	0.25	0.25	0.25	0.25	0.25	0.25	200	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	010	0.25	T	1
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10<sup>th</sup> of September 2014,

Attention: Rebecka Groth
Assessing officer, Senior Town Planner
Lane Cove Council
PO Box 20 Lane Cove
NSW 1595

Your ref: DA 14/25

Dear Rebecka,

RE: Development Proposal 150 Epping Road Lane Cove, Supplementary SEPP 65 advice concerning solar access on revised proposal

I refer to your letter of the 20<sup>th</sup> of June 2014 requesting my comment on the revised proposal, and to my report of 18 March 2014.

The following comments have been prepared based on the drawings and documents supplied by Council. The documents are contained in a bundle with the title response to Council's letters 10 June 2014.

I make particular reference to the solar access issue, which was raised as one of the principal concerns in the previous proposal.

The applicant has supplied views from the sun along with tables identifying each apartment and the solar access purported to be achieved.

We have examined these documents and generally agree with the applicant's claims. We feel, however, that in some cases, the sun would be striking the façade of the building concerned at such a glancing angle that the light would not enter the building. In some cases, the units concerned are overshadowed.

The applicant claims to achieve 3 hours of direct sunlight between 9 AM and 3 PM on 21 June to 66% of the units. We have counted 64.3%

The applicant claims to achieve 2 hours of direct sunlight on 21 June to 69% of the units. We have counted 67.6%

TIMOTHY WILLIAMS & ASSOCIATES PTY LIMITED A.B.N. 82 084 003 592 tim@twarch.com.au 48 Ross Street Glebe NSW 2037 AUSTRALIA Tel. 61 2 9660 0667 Nominated Architect Timothy Williams NSW 5187



These figures, even according to the applicants calculations, still fall short of the 70% rule of thumb in the Residential Flat Design Code, which has been adopted as a standard in Council's DCP.

### Conclusion

The proposal does not meet the objectives of the principles of amenity or resource, energy and water efficiency.

Tim Williams Architect AIA

marihen

TIMOTHY WILLIAMS & ASSOCIATES PTY LIMITED A.B.N. 82 084 003 592 tim@twarch.com.au 48 Ross Street Glebe NSW 2037 AUSTRALIA Tel. 61 2 9660 0667 Nominated Architect Timothy Williams NSW 5187

# ATTACHMENT 5





31 March 2014

Our Ref: SYD14/00251

Your Ref: RG

RECEIVED

" 7 APR 2014

The General Manager Lane Cove Council PO Box 20 LANE COVE NSW 1595 RECORDS

Attention: Rebecka Groth

### MIXED USE DEVELOPMENT 150 EPPING ROAD, LANE COVE

Dear Sir/Madam,

I refer to your letter dated 12 March 2014 (Council Ref: RG) with regard to the abovementioned development proposal, which was referred to Roads and Maritime Services (Roads and Maritime) for comment under State Environmental Planning Policy (Infrastructure) 2007.

Roads and Maritime has reviewed the above subject development application and provides the following comments to Council for its consideration:

- 1. It is noted that the access to the above development on Epping Road has been agreed upon during the Master Planning stage. However, detailed plans of the final access off Epping Road needs to be submitted to Roads and Maritime for review and approval prior to the issue of occupation certificate for this development and prior to the commencement of any road works.
- 2. A Construction Traffic Management Plan detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be submitted to Roads and Maritime for determination prior to the issue of a construction certificate.
- 3. The swept path of the longest vehicle (to service the site) entering and exiting the subject site, as well as manoeuvrability through the site, shall be in accordance with AUSTROADS. In this regard, a plan shall be submitted to Council for approval, which shows that the proposed development complies with this requirement.
- 4. The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004.
- 5. All construction activity associated with the proposed development is to be contained on site as no construction zones will be permitted on Epping Road in the vicinity of the site.
- 6. A Road Occupancy License should be obtained from TMC for any works that may impact on traffic flows on Epping Road during construction activities.
- 7. Should the post development storm water discharge from the subject site into the Roads and Maritime system exceed the pre-development discharge, detailed design plans and hydraulic calculations of any charges are to be submitted to the Roads and Maritime for approval, prior to the commencement of works.

Details should be forwarded to:

Sydney Asset Management Roads and Maritime Services PO BOX 973 Parramatta CBD 2124

- 8. The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements, aisle widths, aisle lengths, and parking bay dimensions) should be in accordance with AS 2890.1- 2004.
- 9. The proposed development should be designed such that road traffic noise from adjacent public roads is mitigated by durable materials, in accordance with EPA criteria for new land use developments (The Environmental Criteria for Road Traffic Noise, May 1999). The RMS's Environmental Noise Management Manual provides practical advice in selecting noise mitigation treatments.
- 10. The excavation of the site will require separate approval from Roads and Maritime.
- 11. Any proposed landscaping and/or fencing must not restrict sight distance to pedestrians and cyclists travelling along the footpath.
- 12. All redundant driveways shall be removed and replaced with kerb and gutter to Roads and Maritime requirements.
- 13. All vehicles are to enter and leave the site in a forward direction.
- 14. All works/regulatory signposting associated with the proposed development are to be at no cost to the RMS.

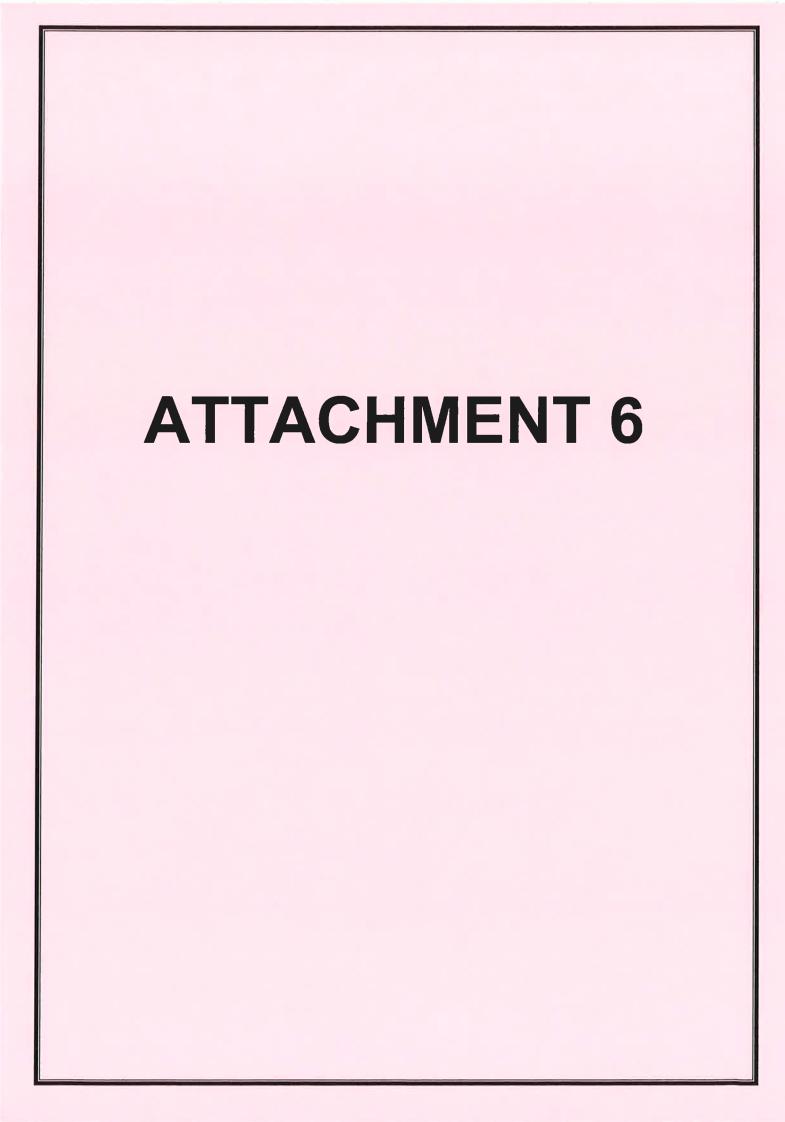
Any inquiries can be directed to Jana Jegathesan by telephone on 8849 2313.

Yours sincerely

Pahee Rathan

Senior Land Use Planner

**Network and Safety Management** 







28 May 2014

General Manager Lane Cove Council 48 Longueville Rd LANE COVE NSW 2066

Attention: Ms Rebecka Groth

Dear Rebekah

Re: 150 Epping Road, Lane Cove, Development Application DA 14/25

This letter is written on behalf of Karimbla Construction Services (NSW) Pty Ltd who is the applicant for the above development application (DA). It responds certain matters addressed in Council's letter dated 24 April 2014, specifically the letter of objection by Ingredion.

Ingredion raises objections in relation to air quality impact and acoustic considerations. A response to the objections follows

### 1. Air quality impact

Ingredion is concerned that future residents within the proposed development will limit their manufacturing operations. In response to this objection, it is noted that:

- a) Ingredion's submission acknowledges that their facility emits odours beyond its boundary which it is not permitted to do under the conditions of its environment protection licence. This must be taken into account when considering their objection to the DA. The proposal cannot be required to design for a facility that is in breach of its statutory requirements.
- b) Mixed use development of the site (including approximately 400 apartments) was approved by the Concept Approval (Application No. 10\_0148). The site has therefore been assessed as appropriate for residential development.
- c) The recommendations put forward by Ingredion are not achievable as follows:
  - i. Position air conditioning in-takes on the northern or eastern sides of all buildings Each unit will be provided with an individual split system air conditioning unit. As such, it will not be practical to locate each of the associated condensers on the northern or eastern sides of the buildings
  - ii. Enclose balconies on all buildings, particularly for the north-west, south-west and western façades Enclosure of the proposed balconies cannot be implemented as:
    - the design would then not be compliant with SEPP 65 Residential Flat Design Code,
    - the design quality of the buildings may be diminished as the balconies form an integral part of the proposed architecture
    - the gross floor area of the development would exceed the allowable limits determined by the Concept Approval.

### 2. Acoustic considerations

Acoustic Logic has considered the acoustic issues raised by Ingredion. As detailed in the attached (updated) Acoustic Report under the heading Section 3.2 – Industrial Noise:

Given the distance of the industrial premises from the site and the impact of Epping Road, a major Sydney arterial roadway, noise emissions from the industrial premises were inaudible above traffic noise. All measurements of industrial noise have been utilised in the design of the building façade. Section 3.3 details the façade construction required to comply with industrial noise goals presented in Section 3.2.1.

The Acoustic Report considers noise impacts from the Ingredion facility and concludes that the recommended treatments will ensure compliance with the relevant acoustic objectives. The applicant is willing to accept a condition of consent requiring compliance with the recommendations set out in the Acoustic Report by Acoustic Logic.

Please feel free to contact the undersigned should you require any additional information.

Yours sincerely

Sandra Robinson BTP (Hons) MPIA

Director







**MANAGING DIRECTORS** 

MATTHEW PALAVIDIS VICTOR FATTORETTO

**DIRECTORS** 

MATTHEW SHIELDS BEN WHITE



## 150 Epping Road, Lane Cove West Development Application Acoustic Report

**SYDNEY** 

A: 9 Sarah St Mascot NSW 2020

T: (02) 8339 8000 F: (02) 8338 8399 SYDNEY MELBOURNE BRISBANE CANBERRA LONDON DUBAI SINGAPORE GREECE

www.acousticlogic.com.au ABN: 11 068 954 343

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### **DOCUMENT CONTROL REGISTER**

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Attention To	Karimbla Constructions Services (NSW) Pty
	Limited
	Mr Tom Hutchison

Revision	Date	Document Reference	Prepared	Checked	Approved
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0	24/02/2014	20130454.2/2402A/R0/TA	TA		TA
1	24/02/2014	20130454.2/2402A/R1/TA	TA		TA
2	24/02/2014	20130454.2/2402A/R2/TA	TA		TA

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### 1 INTRODUCTION

This report presents our assessment of the acoustic impacts on the proposed residential development to be located at 150 Epping Road, Lane Cove

This report will:

- Present an external noise impact assessment (primarily traffic) and recommend acoustic treatments to ensure compliance with Department of Planning and Council guidelines; and
- Formulate and present noise emission guidelines to ensure that ongoing operational noise emissions are in compliance with Council guidelines.

This assessment has been based on architectural drawings A001 – 015 dated 13 December 2013 prepared by Conybeare Morrison Architects.

### 2 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The proposed site is located at 150 Epping Road, Lane Cove. The site is bounded by commercial buildings on the eastern and western boundaries. The south of the proposed development is bounded by currently undeveloped vacant land. The north of the site is bounded by Epping Road, which carries medium to high volumes of traffic.

The proposed development consists of:

- Five residential buildings;
- A child care centre; and
- A small retail building

It is noted that n noise impact assessment has previously been prepared for the child care centre (ref: 20130454.1/2905A/R1/TA). This report is attached in Appendix Two.

A site description is presented in Figures 1 & 2.

Attended traffic noise measurements

Unattended noise logger location



Figure 1 – Site Description

Site Location



Figure 2 – Proposed Site

### 3 NOISE INTRUSION ASSESSMENT

A detailed site inspection was conducted and traffic noise was identified as the prevailing noise source impacting the site.

### 3.1 TRAFFIC

### 3.1.1 Acoustic Criteria

Item 3 of Schedule 3 of the Department of Planning Instrument of Approval states the following:

"a) A detailed Noise Management Assessment, prepared by a suitably qualified acoustic consultant in accordance with the NSW Industrial Noise Policy. The noise assessment shall identify which buildings or parts of buildings require acoustic treatment to habitable spaces to provide satisfactory indoor noise levels. The assessment is to include all noise sources surrounding the site including traffic and industrial activities. The mitigation measures to minimise noise impacts (eg. landscape buffers, building design, and construction techniques) are to inform the detailed design stage of the development."

### 3.1.1.1 NSW Department of Planning

The NSW Department of Planning's policy, Development Near Rail Corridors And Busy Roads — Interim Guideline, sets out internal noise level criteria adapted from the State Environmental Planning Policy (Infrastructure) 2007 (the 'Infrastructure SEPP') for developments with the potential to be impacted by traffic or rail noise and vibration.

The Infrastructure SEPP defines busy roads that are subject to an acoustic assessment as:

"Roads specified in Clause 102 of the Infrastructure SEPP: a freeway, tollway or a transitway or any other road with an average annual traffic (AADT) volume of more than 40,000 vehicles (based on the traffic volume data provided on the website of the RTA).

Any other road – with an average annual daily traffic (AADT) volume of more than 20,000 vehicles (based on the traffic volume data published on the website of the RTA).

Any other road – with a high level of truck movements or bus traffic."

The Infrastructure SEPP sets out the following criteria for internal noise levels from and traffic noise:

"For Clauses 87 (Rail) and 102 (Road):

"If the development is for the purpose of a building for residential use, the consent authority must be satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:

in any bedroom in the building: 35dB(A) at any time 10pm-7am

anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time."

For commercial and retail occupancies, recommended noise levels in AS2107-2000 "Recommended Design Sound Levels and Reverberation Times for Building Interiors" will be adopted.

Pursuant to this, the following assessment criteria would apply to the proposed development for traffic noise intrusion.

Table 1 - Traffic Noise Criteria for All Spaces

Space/Activity Type	Noise Level dB(A) L <sub>eq</sub>
Bedrooms	35 (9 hour)
Living Areas	40 <sub>(15 hour)</sub>
Retail Areas	50 <sub>(9 Hour)</sub>

### 3.1.2 Traffic Noise Measurements

### 3.1.2.1 Noise Descriptors

Traffic noise constantly varies in level, due to fluctuations in traffic speed, vehicle types, road conditions and traffic densities. Accordingly, it is not possible to accurately determine prevailing traffic noise conditions by measuring a single, instantaneous noise level. To accurately determine the effects of traffic noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters. These parameters are used to measure how much annoyance would be caused by a particular noise source.

In the case of environmental noise three principle measurement parameters are used, namely  $L_{10}$ ,  $L_{90}$  and  $L_{eq}$ .

The  $L_{10}$  and  $L_{90}$  measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The  $L_{10}$  parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced at the source.

Conversely, the  $L_{90}$  level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The  $L_{90}$  parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the  $L_{90}$  level.

The  $L_{\rm eq}$  parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period.  $L_{\rm eq}$  is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of traffic noise.

### 3.1.2.2 Traffic Noise

Attended traffic noise measurements of Epping Road were obtained on Avenue on 21 November 2013 during the morning peak hour for traffic. Measurements were obtained in line with the proposed façade of the development. A Norsonic 140 Sound Level Analyser was used for the noise measurements. The analyser was set to fast response and calibrated before and after the measurements using a Norsonic 1251 calibrator. No significant drift was noted.

Unattended noise monitoring of the Epping Road was also conducted between 21 and 29 October 2013. Monitoring was conducted using an Acoustic Research Laboratories Pty Ltd noise monitor. The monitor was programmed to store 15-minute statistical noise levels throughout the monitoring period. The noise monitors were calibrated at the beginning and the end of the measurement using a Rion NC-73 calibrator; no significant drift was detected. Measurements were taken on A-frequency weighting and fast time response.

### 3.1.2.3 Measured Noise Levels

Location

**Epping Road Façade** 

The results of traffic noise and train noise monitoring at are detailed in the table below.

Time Period Traffic Noise Level

67dB(A)L<sub>Aeq (15hr)</sub>

 $64dB(A)L_{Aeq\ (9hr)}$ 

Table 2 - Measured Traffic Noise Levels

Day

Night

### 3.1.3 Recommendations

The constructions necessary to attenuate the traffic noise to a level complying with Table 1 above are set out in section 3.3. The predicted noise levels have been based on the expected level and spectral characteristics of the external noise, the area of building elements exposed to traffic noise, the absorption characteristics of the rooms and the noise reduction performance of the building elements.

### 3.2 INDUSTRIAL NOISE

An assessment of noise impacts from the industrial site to the northwest of the proposed development is presented is this section of the report.

### 3.2.1 Australian Standard 2107:2000

Industrial noise impacts should comply with Australian Standard 2107:2000. AS2107 sets out recommended design sound levels for different areas of occupancy within residential apartments. The following table presents the design internal noise levels from industrial noise.

**Table 3 - Industrial Noise Criteria** 

Space type	Time	Criteria
Sleeping Areas	Night time only - 10pm-7am	35dB(A)L <sub>eq (1 hour)</sub>
Living Areas	Daytime – 7am-10pm	45dB(A)L <sub>eq (1 hour)</sub>

### 3.2.2 Industrial Noise Measurements

Measurements were performed generally in accordance with the Australian Standard AS1055 – Description and Measurement of Environmental Noise – General Procedures.

### 3.2.2.1 Measurement Period, Location and Equipment

Measurements of industrial noise from the industrial premises located to the northwest of the site were recorded using an Acoustic Research Laboratories Pty Ltd noise logger. The logger was programmed to store 15-minute statistical noise levels throughout the monitoring period. The equipment was calibrated at the beginning and the end of the measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode. Unattended measurements were conducted between 21 and 29 October 2013.

In addition to the unattended monitor placed on site, attended measurements of industrial noise were obtained on the northern side of Epping Road with a clear line of site to the industrial premises.

### 3.2.2.2 Measured Noise Levels

Given the distance of the industrial premises from the site and the impact of Epping Road, a major Sydney arterial roadway, noise emissions from the industrial premises were inaudible above traffic noise. All measurements of industrial noise have been utilised in the design of the building façade. Section 3.3 details the façade construction required to comply with industrial noise goals presented in Section 3.2.1.

### 3.2.3 Sleep Arousal for Peak Noise Events

As the site approximately 300m northwest of the site operates 24 hours a day, an assessment of potential sleep arousal has been conducted.

Sleep arousal is a function of both the noise level and the duration of the noise.

In accordance with the Industrial Noise Policy, to assess potential sleep arousal impacts a two stage test is carried out:

• Step 1 - An "emergence" test is first carried out. That is, the L<sub>1</sub> noise level of any specific noise source should not exceed the background noise level (L<sub>90</sub>) by more than 15 dB(A) outside a resident's bedroom window between the hours of 10pm and 7am. If the noise events are within this, then sleep arousal impacts are unlikely and no further analysis is needed. This is consistent with the Noise Guide for Local Government. The guideline level is set out below.

Table 4 - Sleep Arousal Emergence Criteria (6am-7am)

Location	Background Noise Level dB(A)L <sub>90</sub>	Emergence Level dB(A) L <sub>1(1min)</sub>
All Potentially Affected Residential Properties	46 (10pm-7am)	61

• Step 2 - If there are noise events that could exceed the emergence level, then an assessment of sleep arousal impact is required to be carried out taking into account the level and frequency of noise events during the night, existing noise sources, etc. This test takes into account the noise level and number occurrences of each event with the potential to create a noise disturbance. As is recommended in the explanatory notes of the EPA Industrial Noise Policy, this more detailed sleep arousal test is conducted using the guidelines in appendix B of the EPA Environmental Criteria for Road Traffic Noise. Appendix B states that maximum internal noise levels below 50–55dBA are unlikely to cause awakening reactions, and that one or two noise events per night with maximum internal noise levels of 65–70 dB(A) are not likely to affect health and wellbeing significantly. For the purposes of this assessment, a maximum internal noise goal of 55dB(A) has been adopted.

The loudest typical peak noise event associated with the 24 hour operation of the industrial premises will peak noise event associated with the trucks. These peak noise events be the discharge of an air pressure value in the truck braking system, which has been measured by this office to generate a noise level of 110dB(A)L<sub>1(1min)</sub>.

All predictions take into account the relative position of noise source and noise receiver, distance attenuation and air absorption. All predictions are based on a direct line of site between the industrial site and the proposed residential properties in Tower A (i.e no screening).

Predicted noise levels are as follows:

**Table 5 - Sleep Arousal Emergence Test** 

Receiver Location	Noise Source	Predicted Noise Level	Emergence Acoustic Criteria	Arousal Impact Test Required?
Tower A Properties	Truck Release Valve	<50dB(A)L <sub>1(1min)</sub>	61dB(A)L <sub>1(1min)</sub>	No further assessment required

All peak noise events associated with the proposed loading dock comply with the sleep arousal acoustic goals.

### 3.3 RECOMMENDED TREATMENT

The treatments set out in this section will ensure compliance with acoustic objectives set out in sections 3.1 and 3.2 of this report.

Calculations take into account the size and orientation of windows, barrier effects, façade transmission loss and room sound absorption characteristics where applicable.

### 3.3.1 Recommended Glazing

The recommended glazing assemblies are presented below. In all cases, the selected glazing type reduces internal noise levels to within the nominated criterion for the various space types.

The proposed glazing thickness will satisfy all acoustic requirements. Thicker glazing may be required for structural, safety or other purposes. Where it is required to use thicker glazing than scheduled, this will also be acoustically acceptable.

It is recommended that only window systems having test results indicating compliance with the required ratings obtained in a certified laboratory be used where windows with acoustic seals have been recommended.

Table 6 - Glazing Requirements - Building A

Facade	Room	Glazing	Acoustic Seals
Northeast / Northwest	Bedrooms	10.38mm laminated	Yes
	Living Rooms	10.38mm laminated	Yes
Southeast / Southwest	Bedrooms	6.38mm laminated	Yes
	Living Rooms	6.38mm laminated	Yes

Table 7 - Glazing Requirements - Building B

Facade	Room	Glazing	Acoustic Seals
North	Bedrooms	10.38mm laminated	Yes
	Living Rooms	10.38mm laminated	Yes
East/West	Bedrooms	10mm	Yes
	Living Rooms	6.38mm laminated	Yes
South	Bedrooms	6mm	Yes
	Living Rooms	6mm	Yes

Table 8 - Glazing Requirements - Building C

Facade	Room	Glazing	Acoustic Seals
North	Bedrooms	6.38mm laminated	Yes
	Living Rooms	6mm	Yes
East/West	Bedrooms	6mm	Yes
	Living Rooms	6mm	Yes
South	Bedrooms	6mm	Yes
	Living Rooms	6mm	Yes

Table 9 - Glazing Requirements – Building D

Facade	Room	Glazing	Acoustic Seals
North	Bedrooms	10mm	Yes
	Living Rooms	6.38mm laminated	Yes
East/West	Bedrooms	6.38mm laminated	Yes
	Living Rooms	6.38mm laminated	Yes
South	Bedrooms	6mm	Yes
	Living Rooms	6mm	Yes

Table 10 - Glazing Requirements - Building E

Facade	Room	Glazing	Acoustic Seals
Northeast / Northwest	Bedrooms	10.38mm laminated	Yes
	Living Rooms	10.38mm laminated	Yes
Southeast / Southwest	Bedrooms	6.38mm laminated	Yes
	Living Rooms	6.38mm laminated	Yes

Table 11 - Glazing Requirements -Retail / Commercial

Facade	Glazing	Acoustic Seals
Retail	10mm glass	Yes

In addition to complying with the minimum scheduled glazing thickness, the STC rating of the glazing fitted into operable frames and fixed into the building opening should not be lower than the values listed in the table below. Where nominated, this will require the use of acoustic seals equal to Schlegel Q-lon series around the full perimeter of operable frames. The frame will need to be sealed into the building opening using a flexible sealant equal to Selleys Proseries Fireblock. Note that mohair seals in windows and doors are not acceptable where acoustic seals are required.

**Table 12 - Minimum STC of Glazing** 

Glazing Assembly	Acoustic Seals	Minimum STC of Installed Glazing	
6.38mm Laminated	Yes	31	
10mm glass	Yes	33	
10.38mm Laminated	Yes	35	

### 3.4 ROOF/CEILING CONSTRUCTION

The roof is generally constructed of concrete slab. This does not need any additional acoustic treatment.

### 3.5 EXTERNAL WALLS

All external walls are proposed to consist of precast concrete panels. These do not required upgrading to achieve internal acoustic goals.

### 3.6 EXTERNAL DOORS

Any glass door should be constructed using glazing thickness set out in Table 6 - 11. Full perimeter acoustic seals around the doors are required.

### 3.6.1 Mechanical Ventilation

As internal noise levels cannot be achieved with windows open, it is required that an alternative outside air supply system or air conditioning be installed in accordance with AS 1668.2 requirements. The mechanical ventilation system that is installed should be acoustically designed such that the acoustic performance of the recommended constructions are not reduced by any duct or pipe penetrating the wall/ceiling/roof. Noise emitted to the property boundaries by any ventilation system shall comply with Council requirements.

### 4 NOISE EMISSION ASSESSMENT

### 4.1 BACKGROUND NOISE MONITORING

The long-term unattended monitor was used for background noise measurement as well, supplementary attended measurements were taken within the existing site and towards the south of the site. Background noise levels at the rear of the site are determined using the difference between the attended measurement and unattended measurements. The rating background noise levels are presented below.

Table 13 - Measured Background Noise Levels

Location	Period/Time	Background Noise Level dB(A) L <sub>90(period)</sub>
Epping Road, Lane Cove	Day (7am-6pm)	57
	Evening(6pm-10pm)	54
	Night(10pm-7am)	46

### 4.2 ACOUSTIC OBJECTIVES

The following documents are used to establish the noise emission criteria for the development site:

- Lane Cove Council DCP
- EPA Industrial Noise Policy

### 4.2.1 Lane Cove Council

Lane Cove Council DCP states the following with respect to noise emissions from residential development:

d) The noise generated by mechanical equipment of any sort must not exceed the background noise level by more than 5dB (A) when measured in or on the lot adjacent to the equipment. Where sound levels are exceeded, sound proofing measures will be required.

### 4.2.2 EPA Industrial Noise Policy

The EPA Industrial Noise Policy, has two criteria which need to be satisfied namely Intrusiveness and Amenity.

The EPA Industrial Noise Policy sets out acceptable noise levels for various localities. Table 2.1 on page 16 of the policy indicates 4 categories to distinguish different residential areas. They are rural, suburban, urban and urban/industrial interface. Under the policy the nearest residence would be assessed against the urban criteria.

Noise levels are to be assessed at the property boundary or nearby dwelling, or at the balcony or facade of an apartment.

### 4.2.2.1 Intrusiveness Criterion

The guideline is intended to limit the audibility of noise emissions at residential receivers and requires that noise emissions measured using the  $L_{eq}$  descriptor not exceed the background noise

level by more than 5dB(A). Where applicable, the intrusive noise level should be penalised (increased) to account for any annoying characteristics such as tonality.

Background noise levels adopted are presented in Section 4.1. Noise emissions from the site should comply with the noise levels presented below when measured at nearby property boundary.

### 4.2.2.2 Amenity Criterion

The guideline is intended to limit the absolute noise level from all noise sources to a level that is consistent with the general environment.

The EPA's Industrial noise policy sets out acceptable noise levels for various localities. Table 2.1 on page 16 of the policy indicates 4 categories to distinguish different residential areas. They are rural, suburban, urban and urban/industrial interface. This site is categorised by the residential receivers as suburban.

For the purposes of this condition:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
- Evening is defined as the period from 6pm to 10pm.
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and public holidays.

**Table 14 – EPA Amenity Noise Levels** 

Type of Receiver	Time of day	Recommended Noise Level dB(A)L <sub>eq(period)</sub>	
		Recommended	Maximum
Residential - Urban	Day	60	65
	Evening	50	55
	Night	45	50
Commercial		65	70

### 4.2.3 Noise Emission Objectives

Based on the requirements stated in the sections above Table 12 provides a summary of the assessment criteria applicable to the future residential development at the project site. The assessment criteria are also based on the ambient noise monitoring conducted at the site.

Table 15 - Environmental Noise Emission Criteria

Time Period	Assessment Background Noise Level dB(A)L <sub>90</sub>	Amenity Criteria dB(A) L <sub>eq</sub>	Intrusiveness Criteria Background + 5 dB(A) L <sub>eq(15min)</sub>
Day	57	60	62
Evening	54	50	59
Night	46	45	51

### 4.3 ASSESSMENT OF NOISE EMISSIONS

Detailed plant selection has not been undertaken at this stage, as plant selections have not been determined. Detailed acoustic review should be undertaken at CC stage to determine acoustic treatments to control noise emissions to satisfactory levels. Satisfactory levels will be achievable through appropriate plant selection and location and, if necessary, standard acoustic treatments such as duct lining, acoustic silencers and enclosures.

Noise emissions from all services plant to the closest residential receiver should comply with the noise emission criteria in Section 4.2.

### 5 CONCLUSION

This report provides the results of our assessment of traffic noise intrusion into the proposed residential development to be located at 150 Epping Road, Lane Cove. Provided the recommendations of Section 3 of this report are adopted, noise intrusion into the development will be in compliance with Department of Planning and Council noise requirements.

Additionally, this report establishes and presents noise emission goals for the operation of the development. Future mechanical plant should comply with the noise emission goals presented within this report.

We trust this information is satisfactory. Please contact us should you have any further queries.

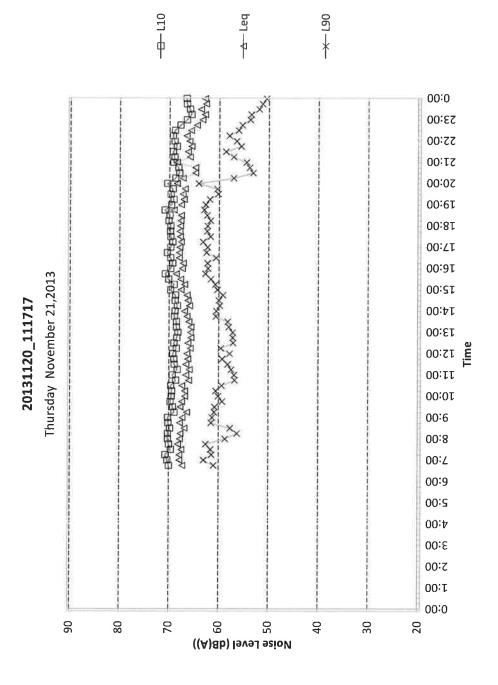
Yours faithfully,

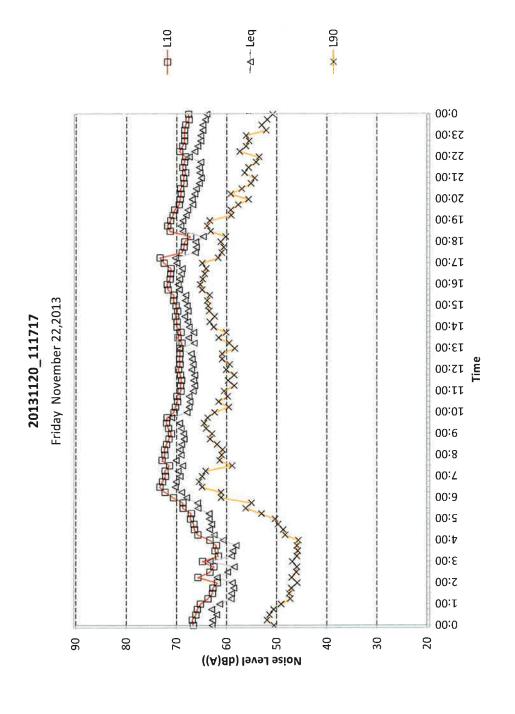
Thomas Aubusson

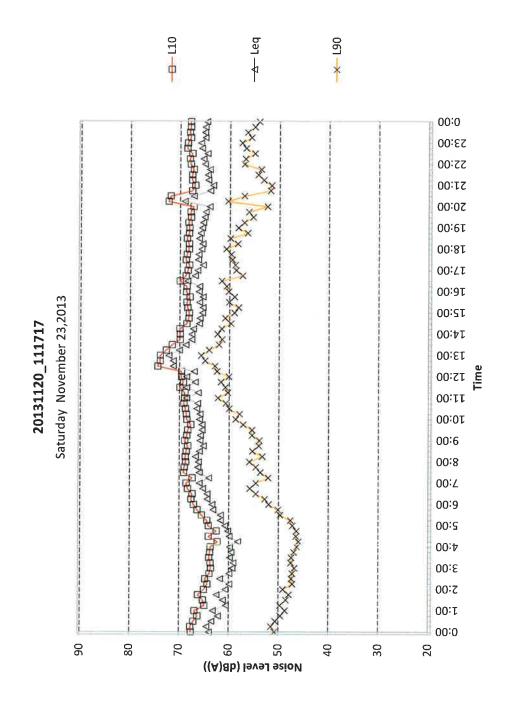
Acoustic Logic Consultancy Pty Ltd

### Appendix One – Unattended Monitoring Data

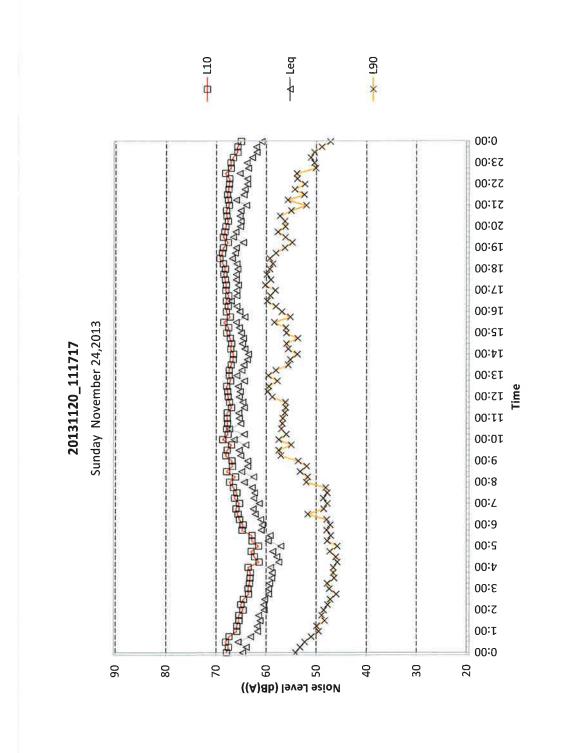
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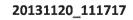


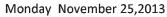


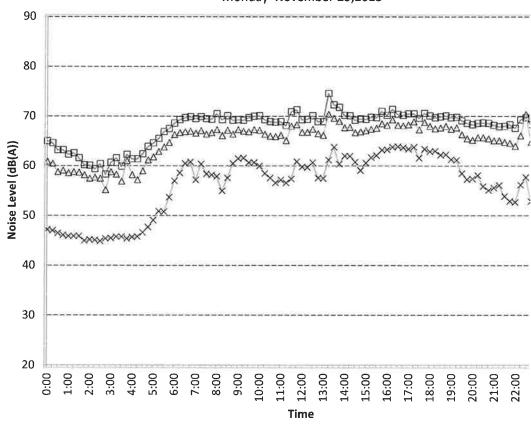


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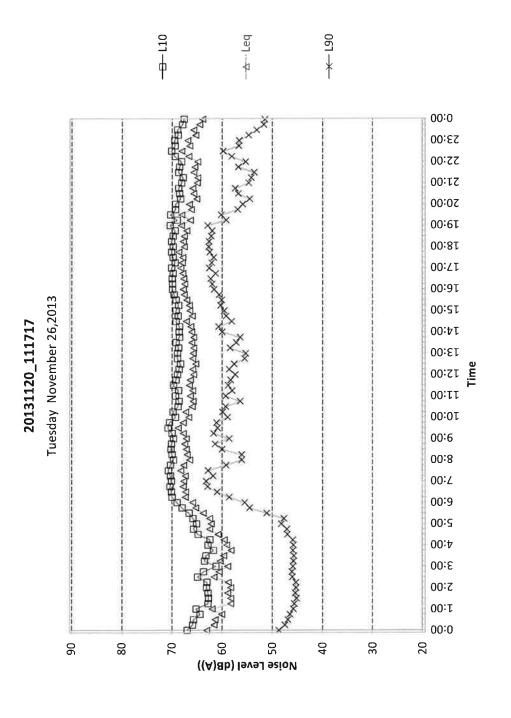




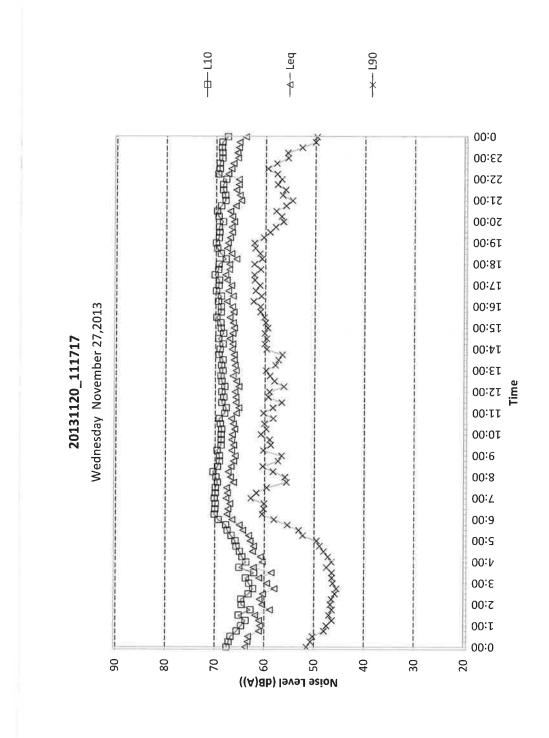


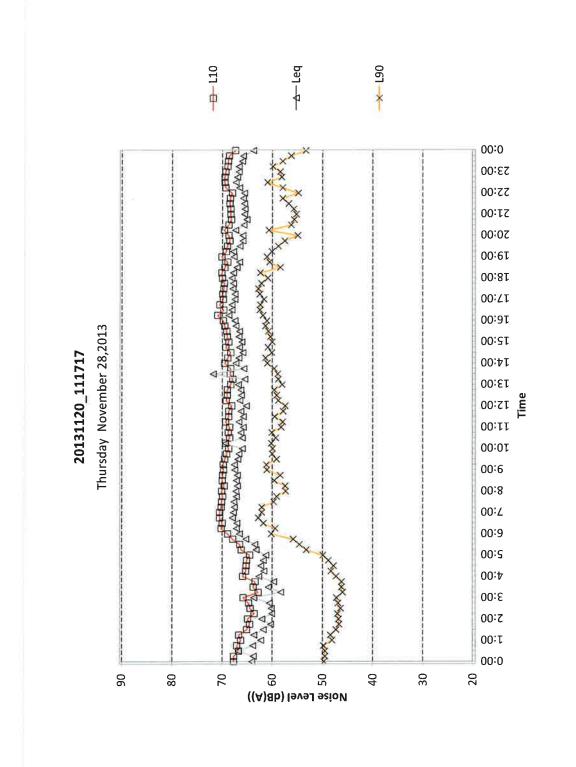


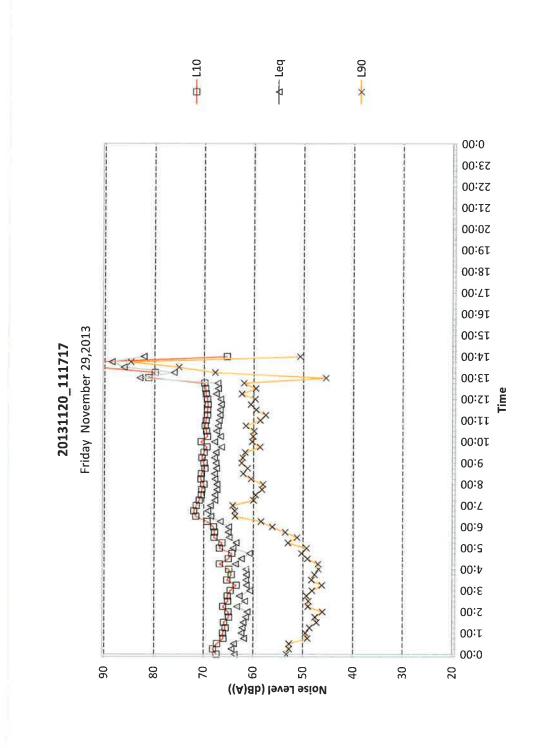
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# Appendix Two – Child Care Acoustic Assessment

#### **MANAGING DIRECTORS**

MATTHEW PALAVIDIS VICTOR FATTORETTO

**DIRECTORS** 

MATTHEW SHIELDS BEN WHITE



# 150 Epping Road, Lane Cove West

**Child Care Acoustic Assessment** 

**SYDNEY** 

A: 9 Sarah St Mascot NSW 2020

T: (02) 8339 8000 F: (02) 8338 8399 SYDNEY MELBOURNE BRISBANE CANBERRA
LONDON DUBAI SINGAPORE GREECE

www.acousticlogic.com.au ABN: 11 068 954 343

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### **DOCUMENT CONTROL REGISTER**

Project Number	20130454.1		
Project Name	150 Epping Road, Lane Cove West		
Document Title	Child Care Acoustic Assessmen		
Document Reference	20130454.1/2905A/R1/TA		
Issue Type	Email		
Attention To	Meriton Apartments Pty Ltd		
	Mr Joe Bevacqua		

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	29/05/2013	20130454.1/2905A/R0/TA	TA		TA
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#### 1 INTRODUCTION

This report presents our environmental noise assessment for the proposed childcare centre to be located within the residential development at 150 Epping Road, lane Cove.

The following have been assessed in the report:

- Noise intrusion from traffic on Epping Road.
- Noise emission from proposed outdoor play areas.
- Noise emission from proposed indoor play activities.

Noise emissions will be assessed with reference to relevant Lane Cove Council acoustic guidelines.

Where necessary, building and/or management controls will be recommended in order to reduce noise emissions to acceptable levels.

The assessment is based on the architectural drawings A103 and A205 provided by Connybeare Morrison International dated 6 June 2013.

#### **2 SITE DESCRIPTION**

The proposed childcare centre is located at the ground level of the 150 Epping Road development.

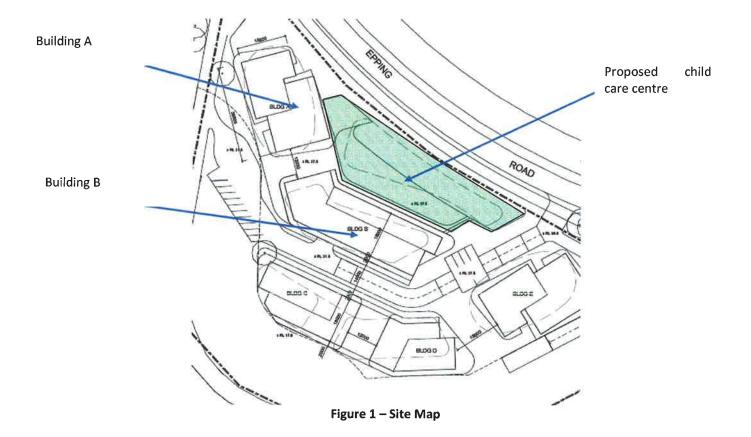
The north of the child care centre is Epping Road, which is elevated approximately 5m above the level of the proposed child care centre. The east, south and west of the site will be bounded by future residential development.

Proposed operating hours for the childcare centre is 6am – 8pm seven days a week. Outdoor play area will be limited to 8am to 6pm.

The nearest sensitive noise receivers are:

- Receiver 1: Residential apartments in Building A overlooking the outdoor play area
- Receiver 2: Residential apartments in Building B facing the outdoor play area.

The proposed layout is presented in Figure 1.



#### 3 NOISE DESCRIPTORS

Environmental noise constantly varies in level, due to fluctuations in local noise sources including road traffic. Accordingly, a 15 minute measurement interval is normally utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In the case of environmental noise three principle measurement parameters are used, namely  $L_{10}$ ,  $L_{90}$  and  $L_{eq}$ .

The L<sub>10</sub> and L<sub>90</sub> measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L<sub>10</sub> parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the  $L_{90}$  level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The  $L_{90}$  parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source depends on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the  $L_{90}$  level.

The  $L_{eq}$  parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period.  $L_{eq}$  is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of industrial noise.

#### 4 NOISE EMISSION ASSESSMENT

#### 4.1 BACKGROUND NOISE MEASUREMENTS

Daytime background noise levels for the site have been presented in the AECOM Acoustic Assessment Report with reference 60196533 dated 8 March 2011.

The following table presents the resultant background noise levels at locations representative of nearby sensitive receivers adjacent to the proposed child care centre.

**Table 1 - Noise Objectives for All Receivers** 

Location Time of Day		Measured Background Noise Level dB(A) L <sub>90(15,min)</sub>
Future Buildings A & B	Day (7am – 6pm)	58
	Evening (6pm – 8pm)	54
	Night-Shoulder Period (6am – 7am)	54

#### 4.2 NOISE EMISSION CRITERIA FOR THE PROPOSED CHILDCARE CENTRE

In the absence of any specific noise criteria within the Lane Cove Council Child Care Centre DCP, the criteria adopted by the Land and Environment Court shall be adopted for the assessment of noise emissions from the proposed child care centre.

#### 4.3 DECISIONS OF THE LAND AND ENVIRONMENT COURT

The Association of Australian Acoustical Consultants adopts a "background+10dB(A)" noise emission goal for the use of outdoor spaces of child care centres.

This more lenient goal is in recognition that:

- Noise from children playing is not typically considered as intrusive as industrial noise (or other noise sources typically required to comply with a "background+5dB(A)" criteria), and should therefore not be held to the same criteria;
- There are very limited building controls that can practically be implemented for control of noise from outdoor areas; and
- The outdoor play areas are used only for limited periods of the day, at times when nearby properties are typically less noise sensitive.

The AAAC guidelines recommend a "background +10dB(A)" criteria for periods of 2 hours per day, and "background+5dB(A)" for other periods, or other noise sources at the site (vehicle, plant noise, noise from internal areas).

These criterion have also been adopted by the Land and Environment Court in a number of decisions, including *Mesabo Pty Limited v Mosman Municipal Council* [2004] NSWLEC 492.

#### 4.4 NOISE EMISSION GOALS TO BE ADOPTED FOR THIS PROJECT

For this assessment, we propose that:

- Outdoor play areas be permitted to generate a noise level of 10dB(A)L<sub>eq</sub> above the background noise level for up to 2 hours per day.
- All other noise sources must not generate a noise level exceeding background levels by more than 5dB(A)L<sub>eq</sub>.

A summary is presented below:

Table 2 – Noise Emission Objectives at Residential Receivers

Location	cation Time of day Background Level		Noise Emission Objective		
		dB(A)L <sub>90</sub>	Outdoor Play Areas (2 hours per day) dB(A)L <sub>eq (15min)</sub>	Other Noise Sources dB(A)L <sub>eq (15min)</sub>	
Residences in Building A and B	6:00am-7.00am (early morning)	54	64	59	
	Day (7am to 6pm)	58	68	63	
	Evening (6pm to 8pm)	58	68	63	

#### 4.5 NOISE EMISSION PREDICTIONS

### 4.5.1 Typical Outdoor Playing Noise Data

#### 4.5.1.1 Outdoor Play Area Noise Measurements

Outdoor play area noise measurements were undertaken at Child Care Centre, 8 Central Avenue Mosman by this office on the 11<sup>th</sup> February 2005. Details of the measurements are presented below. Noise measurements were taken of the 3 to 6 year age group (8 children) at play. This group represents the most active of the age groups and hence are likely to generate the maximum noise levels. Although noise measurements have not been conducted for the 0-2 year age group, it would be expected that they would be likely to generate lower levels of sound than the older age group

#### 4.5.1.2 Measurement Location

Measurements were taken during the morning play session within the outdoor play area with 8 children present.

The measurements were taken at noted distances to the children playing with the measured levels presented below.

#### 4.5.1.3 Measurement Equipment

Noise measurements were obtained using a CEL-593 Type 1 Sound Level Analyser, set to A-weighted fast response. The sound level meter was calibrated at the beginning and the end of the measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode.

#### 4.5.1.4 Measured Noise Levels

The measured activity noise levels from the 8 children playing are listed below in table below.

Table 3 - Measured Children Activity Noise Levels dB(A) LA10

LOCATION	Activity	Distance	NOISE LEVEL
	Bikes + Sandpit play	3m	66
Outdoor Play Area	Blocks + Sandpit play	4m	64
	Stepping Blocks + Sandpit play	4m	57
	Play gym + Sand pit play	3-4m	65

#### 4.5.2 Predicted Noise Levels

#### 4.5.2.1 Outdoor Noise

Noise emissions from the play areas are predicted based on the following assumptions:

- The measured typical children's play noise data above
- Play areas are assumed to be operating at the nominated capacity, and the children are distributed evenly across the outdoor play area.
- Based on the information provided by the client, the approximate children distribution is as follows:
  - Option 1: maximum 26 children aged from 2-5 years old at the outdoor play area
  - Option 2: maximum 27 children aged from 0-2 years old plus maximum 15 children aged from 2-5 years old at the outdoor play area.
- Outdoor playing time will be restricted to between 8am and 6pm
- The recommended constructions and management controls presented in Section 6 of this report have been implemented in the building.

The noise level at the nearest residents was predicted using the above data and by taking into account any expected noise reduction provided by the building fabric, distance losses, directivity, barrier effects, number of children playing etc.

Noise levels are predicted to the balconies of the residences in Buildings A and B.

Table below shows the predicted noise levels from the children in outdoor play area.

Table 4 - Predicted Noise Levels from Outdoor Play

Receptor	Predicted Noise Level L <sub>eq, 15min</sub> dB(A)	Criteria L <sub>eq, 15min</sub> dB(A)	Complies
Building A: Apartments overlooking the outdoor area	53 External	68 External	Yes
Building B: Apartments overlooking the outdoor area	65 External	68 External	Yes

#### 4.5.2.2 Indoor Noise

Noise Levels generated from indoor structured activities (i.e. lessons) are based on a raised speech sound power level of 78dB(A) for the teacher.

The noise level at the nearest residents was predicted using the above data and by taking into account any expected noise reduction provided by the building fabric, distance losses, directivity, barrier effects, etc. Table below shows the predicted noise levels from lessons.

Table 5 - Predicted Noise Levels from Indoor Play

Receiver	Predicted Noise Level L <sub>eq, 15min</sub> dB(A)*	Criteria L <sub>eq, 15min</sub> dB(A)	Complies
Building A	25	68	Yes
Building B	36	68	Yes

#### 5 NOISE INTRUSION ASSESSMENT

Noise intrusion to the proposed child care centre will be assessed to comply with the requirements of AS2107:2000.

#### 5.1.1 Australian Standard 2107:2000

Australian Standard 2107:2000 details the following control for external noise intrusion to childcare facility. The applicable criteria from that standard are as follows:

Table 6 – Recommended Design Sound Level

Type of Occupancy/Activity	Recommended Design Sound Level dB(A) Leq, 1hour
Sleeping Rooms	35
Indoor Play Areas	40
Outdoor Play Areas (external)	55

#### 5.2 MEASUREMENTS OF TRAFFIC NOISE

Measurements of traffic noise at the site have been presented in the AECOM Acoustic Assessment Report with reference 60196533 dated 8 March 2011. These daytime traffic noise levels are presented below:

Table 7 - Measured Noise Levels dB(A) Leq

LOCATION	TRAFFIC NOISE LEVEL  dB(A) L <sub>eq(15 hours)</sub>		
	Day time 7am-10pm		
150 Epping Road	68		

#### 6 RECOMMENDED TREATMENTS – BUILDING AND MANAGEMENT

These recommendations are indicative and based on current architectural plans. A second review of noise emissions should be conducted based on the selected child care operator's fitout plan.

The following building and management controls are required to control:

- Noise intrusion from traffic noise.
- Noise emission from outdoor play and indoor activities.

The development will comply with the criteria listed in Section 4.2 and 5.1 provided the following building and management controls are adopted:

- The number of children within the outdoor play area should be limited to 50 at any one time.
- Minimum 6mm glass with acoustic seals around perimeter is required, with minimum STC of 29.
- Signs reminding staff and visitors to minimise noise at all times shall be installed at ingress/egress points from the child care centre.
- Management is to ensure children are supervised at all times to minimise noise generated by the children whenever practical and possible.
- Install a contact phone number at the front of the centre so that any complaints regarding centre operation can be made.
- A secondary acoustic review of the child care centre should be conducted once there is an operator and a fit out plan for the child care centre is developed.

#### 7 CONCLUSION

Potential noise impacts from the proposed childcare centre to be located at the ground floor of the 150 Epping Road have been assessed at the nearest potentially affected receivers.

The assessment of noise impacts on neighbouring properties indicates that the proposed childcare centre will comply with the criteria of the Association of Australian Acoustical Consultants and the Land and Environment Court provided that the acoustic treatments/management controls presented in section 6 of this report are adopted.

Noise emissions will therefore be sufficiently controlled/managed to prevent adverse impact on nearby properties and will therefore be satisfactory.

Additionally, an assessment of noise intrusion to the child care centre as a result of traffic on Epping Road has been conducted. Recommendations to the child care centre façade have been determined to result in compliance with AS2107:2000.

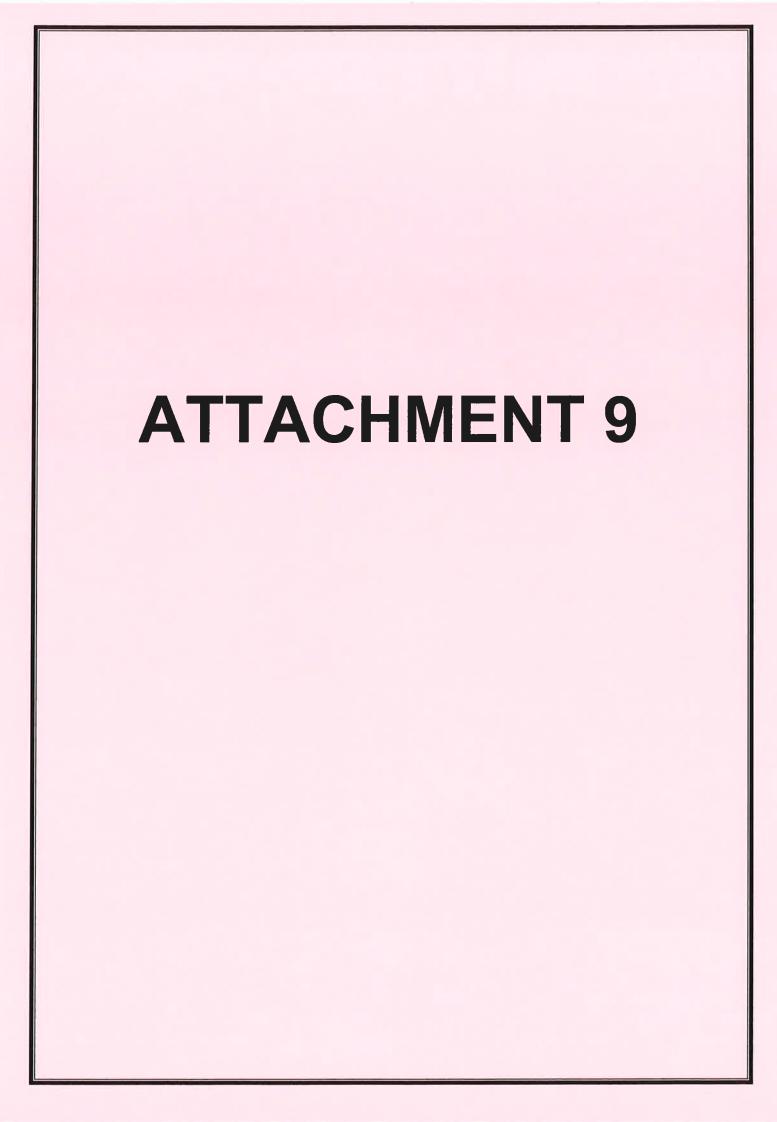
We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Consultancy Pty Ltd

Tom Aubusson

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# **PLANNING AGREEMENT**

150 Epping Road, Lane Cove NSW (Lot 21 DP 825400)

Lane Cove Council (Council)
ABN 42 062 211 626

and

Meriton Property Services Pty Ltd (Developer) ABN 69 115 511 281

and

Karimbla Properties (No.35) Pty Ltd (Landowner) ABN 77 160 519 415

Sh. M. 00

# **Details**

2014 Date

Parties:

Name ABN

Lane Cove Council 42 062 211 626

Description

Council

Notice details

Address

48 Longueville Road, Lane Cove NSW 2066

Fax

02 9911 3600

02 9287 2777

Attention

General Manager, Mr Craig Wrightson

Name

Meriton Property Services Pty Ltd

ABN

69 115 511 281 Developer

Description Notice details

Address

Level 11, 528 Kent Street, Sydney NSW

2000

Fax Attention

General Manager, Mr Peter Spira

Name

Karimbla Properties (No. 35) Pty Ltd

ABN

77 160 519 415

Description

Landowner

Notice details

Address

Level 11, 528 Kent Street, Sydney NSW

2000

Fax

02 9287 2777

Attention

General Manager, Mr Peter Spira

# **Background**

- The Landowner owns the Land. Α
- В The Land benefits from a Concept Approval (MP10 0148) for a mixed use development which requires the parties to enter a Planning agreement in relation to the Development Application.
- As contemplated by section 93F of the Act, the parties wish to enter into an C Agreement in connection with the Development Application on the terms and conditions of this Agreement.

# **Operative Provisions**

# It is agreed

# 1. Definitions and Interpretation

#### 1.1 Definitions

The following words have these meanings in this Agreement:

- (a) Act means the Environmental Planning and Assessment Act 1979 (NSW) (as amended) and includes any regulations made under that Act.
- (b) **Agreement** means this planning agreement and includes any schedules, annexures and appendices to this planning agreement.
- (c) Approval means any approvals, consents, Section 96 Modifications, part 4A of the Act certificates or approvals, certificates, Construction Certificates, occupation certificates, Complying Development Certificates, permits, endorsements, licences, conditions or requirements (and any variation to them) which may be required by Law for the commencement and carrying out of the Development.
- (d) Authority means any government, local government, statutory, public, ministerial, administrative, fiscal or other authority or body, and includes the Joint Regional Planning Panel or such other consent authority as may be lawfully appointed and authorised to grant an Approval, including an accredited certifier defined under the Act.
- (e) Bank Bill Rate means the average bid rate for Bills having a tenor of 90 days as displayed on the "BBSY" page of the Reuters Monitor System on the day the relevant payment is due (Due Date). However, if the average bid rate is not displayed by 10:30 AM on the Due Date or if it is displayed but there is an obvious error in the rate, Bank Bill Rate means:
  - (i). the rate the Council calculates as the average of the bid rates quoted at approximately 10:30 AM on the day by each of five or more institutions chosen by the Council which provides rates for display on the "BBSY" page of the Reuters Monitor System for Bills of a 90 day tenor which are accepted by that institution (after excluding the highest and the lowest, or in the case of equality, one of the highest and one of the lowest bid rates); or
  - (ii). where the Council is unable to calculate the rate under paragraph (a) because it is unable to obtain the necessary number of quotes, the rates set by the Council in good faith at approximately 10:30 AM on the day, having regard, to the extent possible, to the rates otherwise bid for Bills of the 90 day tenor at around that time.

The rate calculate or set must be expressed as a percentage rate per and be rounded up to the nearest fourth decimal place.

The Council may calculate a rate under paragraph (a) or (b) before 11 AM on

the due date, but if the average bid rate appears on the "BBSY" page by 11 AM and there is no obvious error in it, the "BBSY" page rate applies as the Bank Bill Rate under this agreement despite any calculation by the Council under paragraph (a) or (b).

- (f) **Business Day** means any day except for Saturday or Sunday or a day which is a public holiday in Sydney.
- (g) Complying Development Certificate means a complying development certificate referred to in section 85 of the Act.
- (h) Consent Authority means an Authority having the function to determine the Development Application.
- (i) Concept Approval means MP10\_0148 (as modified) that applies to the Land.
- (j) Construction Certificate means a construction certificate issued pursuant to the Act.
- (k) Council's Obligation means the obligations of Council in regard to the Development Contributions as outlined in Column 2 of Schedule 1.
- (l) Dedicated Land means the land identified at item 1 in Column 1 of Schedule 1 to be dedicated to Council in accordance with this Agreement.
- (m) Development means the development of the Land in accordance with the Development Consent as modified or amended from time to time.
- (n) Development Application means the application for development consent associated with the Land submitted to the Consent Authority for a mixed use development for approximately 400 residential apartments, community floor space, retail floor space, a child care centre and approximately 596 parking spaces.
- (o) **Development Consent** means the consent granted by the Consent Authority to the Development Application, has the same meaning as in the Act and includes any amendment or modification of the Development Consent, including a Section 96 Modification.
- (p) **Development Contributions** means the Dedicated Land and Monetary Contributions as referred to in the Development Contributions Schedule and includes the contribution amounts attributed to the Dedicated Land and Monetary Contributions.
- (q) **Development Contributions Schedule** means Schedule 1 of this Agreement.
- (r) **Explanatory Note** means the Explanatory Note set out in Schedule 2 of this Agreement.
- (s) Force Majeure means any physical or material restraint beyond the reasonable control of the Party claiming force majeure.
- (t) **GST** has the meaning as in the GST Law.
- (u) GST Law means A New Tax System (Goods and Services Tax) Act 1999 (Cth) and any other Act or regulation relating to the imposition or

- administration of GST.
- (v) Interest Rate in relation to interest payable on any payment due under this agreement means the rate which is the Bank Bill Rate plus a margin of 2% per annum.
- (w) Item means the item number referred to in Schedule1.
- (x) **Just Terms Act** means the Land Acquisition (Just Terms Compensation) Act 1991.
- (y) Land means the whole of the Land comprised in the certificate of title for Lot 21 DP 825400, known as 150 Epping Road, Lane Cove NSW.
- (z) Law means:
  - (i). the common law including principles of equity, and
  - (ii). the requirement of all statutes, rules, ordinances, codes, instruments, regulations, proclamations, by-laws or consent by an Authority,

that presently apply or as they may apply in the future.

- (aa) **Monetary Contributions** means the works and their corresponding value determined as at the date of this Agreement, adjusted in accordance with clause 6.2 and described in Items 2 6 of Column 1 of Schedule 1.
- (bb) **Monetary Contribution Portion** means each part of the Monetary Contributions set out separately in Items 2 6 of Column 1 of Schedule 1.
- (cc) Novation Deed means the draft deed generally in the form set out in Annexure A utilising the terms Existing Landowner and New landowner or Existing Developer and New Developer as may be required;
- (dd) Plans and Documents means relevant supplementary information supporting this Agreement as outlined in Schedule 3.
- (ee) Registration on Title means the registration of this Agreement under section 93H of the Act in the folio of the Register kept under the Real Property Act in relation to the Land, and Registered on Title refers to the state of the Agreement being so registered.
- (ff) **Schedule 1** means the schedule identified as Schedule 1 attached to and forming part of this Agreement.
- (gg) **Section 96 Modification** means any modification of the Development Consent pursuant to section 96 of the Act.
- (hh) **Subdivision Plan** means the plan identified in Schedule 3.
- (ii) Sunset Date means the date on which the Development Consent lapses.

# 1.2 Interpretation

In the interpretation of this Agreement, the following provisions apply unless the context otherwise requires:

- (a) headings are for convenience only and do not affect interpretation.
- (b) "person" includes an individual, the estate of an individual, a corporation, an

- Authority, an association or a joint venture (whether incorporated or unincorporated), a partnership and a trust.
- (c) a reference to a party includes that party's executors, administrators, successors and permitted assigns, including persons taking by way of novation.
- (d) a reference to a party to the Agreement includes a reference to servants, representatives, agents, and contractors of the party.
- (e) a reference to a document (including this Agreement) is to that document as varied, novated, ratified, supplemented or replaced from time to time.
- (f) a reference in this Agreement to any Law, legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision.
- (g) a word importing the singular includes the plural (and vice versa), and a word indicating a gender includes every other gender.
- (h) a reference to a party, clause, schedule, exhibit, attachment or annexure is a reference to a party, clause, schedule, exhibit, attachment or annexure to or of this Agreement, and a reference to this Agreement includes all schedules, exhibits, attachments and annexures to it.
- (i) if a word or phrase is given a defined meaning, any other part of speech or grammatical form of that word or phrase has a corresponding meaning.
- (j) "includes" in any form is not a word of limitation.
- (k) the Explanatory Note set out in this Agreement is not to be used to assist in construing the Agreement.
- (I) a reference to "\$" or "dollar" is to Australian currency.

# 1.3 Compliance with New Laws

If a Law is changed or a new Law comes into force (both referred to as "New Law"), and the Developer is obliged by the New Law to perform certain works or pay an amount which it is required to do in accordance with this Agreement, then, to the extent that the relevant obligation is required under the New Law and the Agreement, compliance with the New Law will constitute compliance with the relevant obligation under this Agreement.

# 2. Planning Agreement under the Act

The Parties agree that this Agreement is a planning agreement within the meaning of section 93F(1) of the Act and governed by Part 4 of the Act.

# 3. Application of this Agreement

The Agreement applies to the Land and the Development.

# 4. Operation of this Agreement

- (a) This Agreement takes effect on the date of this Agreement after execution by both parties, subject to clause 4(b).
- (b) This Agreement will remain in force until:
  - (i) it is terminated by operation of Law; or
  - (ii) all obligations are performed or satisfied; or
  - (iii) the Sunset Date is reached, or
  - (iv) the Development Consent is surrendered in accordance with the Act; or
  - it is otherwise discharged or removed in accordance with the terms of this Agreement.
- (c) If a legal challenge to the Development Consent by a third party results in the Development Consent being rendered invalid or unenforceable, then the Developer may, in its absolute discretion, either terminate this Agreement or request the Council to consider changes to its terms.
- (d) This Agreement does not impose an obligation on the Council to grant or modify any Development Consent.
- (e) For avoidance of doubt, clause 4(d) does not affect any obligation of the consent authority (under section 79C(1)(a)(iiia) of the Act) to take this Agreement into consideration.

#### 5. Condition Precedent

The obligations of the Developer under this Agreement are conditional on the granting of Development Consent.

# 6. Development Contributions

## 6.1 Nature, extent and timing

- (a) The Developer must make the Development Contributions (as adjusted) in Column 1 of Schedule 1 at the point in time set out in the corresponding Column 3 of Schedule 1 of the relevant Item.
- (b) Nothing in this Agreement precludes a Developer from electing to make a Development Contribution earlier than it is required to do so.
- (c) If the Development Contributions specified in Column 1 of Schedule 1 is not paid at the point in time set out in Column 3 of Schedule 1 then the amount may be treated as liquidated damages and recoverable as a debt due and payable in a court of competent jurisdiction.

# 6.2 Review of Monetary Contributions

(a) The Monetary Contributions (comprising all of the Monetary Contribution Portions) will be reviewed annually on each Review Date specified to an amount represented by A in the following formula:

$$A = B \times C$$

Where:

B = the Monetary Contribution Portion payable immediately before the Review Date;

- C = the Consumer Price Index ("the Index") (Sydney All Groups) Number ("the CPI Number") as issued by the Australian Bureau of Statistics ("ABS") for the last quarter before the Review Date; and
- D = the CPI Number for the same quarter ending twelve (12) months before the Review Date.

If the Index is discontinued then, for the purposes of this clause, the CPI Number is to be the CPI Number of the price index which replaces the Index or, if there is no substitute then of any price index kept by the ABS which the Lessor may select at its absolute discretion ("the New Index") to which the Lessor may make the appropriate arithmetical adjustment for differences between the Index and the New Index, if required.

Where the **Review Date** means the date falling on the annual anniversary of the date of this Agreement.

(b) The Monetary Contributions (comprising all of the Monetary Contribution Portions) determined in accordance with this clause must not be lower than the Monetary Contributions (comprising all of the Monetary Contribution Portions) otherwise payable immediately prior to the Review Date.

# 7. Application of the Act to the Development

- (a) This Agreement does not exclude the application of:
  - (i). sections 94 and 94A of the Act; or
  - (ii). any Affordable Housing Levy; or
  - (iii). any other monetary contributions required under the Act;

in connection with any Development Consent or Approval that is granted in respect of the Development Application or the Land, including any Section 96 Modifications.

(b) The obligations of the Developer under this Agreement involve a contribution to or provision of public amenities and services over and above those which would otherwise be imposed under section 94 and section 94A of the Act.

# 8. Registration

- (a) The Parties will take all practical steps to procure:
  - (i) the consent of each person who:
    - (A) has an estate or interest in the Land registered under the *Real Property Act* 1900 (NSW); or
    - (B) is seized or possessed of an estate or interest in the Land; and
  - (ii) the execution of any documents; and
  - (iii) the production of the relevant duplicate certificates of title,

to enable the registration of this Agreement under the *Real Property Act* 1900 (NSW) in the relevant folios of the register for the Land in accordance with section 93H of the Act.

- (c) The Parties will take all practical steps to procure the lodgement of this Agreement with the Registrar-General as soon as reasonably practicable after the Agreement is entered into by the Parties.
- (d) The Parties agree that on registration by the Registrar General the Agreement will be binding on and enforceable against the owners of the Land from time to time as if each owner of the Land for the time being had entered into this Agreement.

# 9. Dealing with the Land

# 9.1 When land is taken to be dedicated

- (a) A Development Contribution that is the dedication of land is taken to have been made (and made free of cost) if:
  - (i). the land is dedicated as a public reserve and vests in the Council for an estate in fee simple under section 49(1) of the Local Government Act 1993;
  - (ii). the Council is given an instrument by the Developer, in registrable form, that (when registered) will effect the transfer of the title to the land to the Council.

# 9.2 Ancillary obligations of the parties in relation to the dedication of land

- (a) When the Council has been given an instrument by the Developer under clause 9.1(a)(ii), the Council must promptly do all things reasonably necessary to enable registration of the instrument of transfer to occur.
- (b) The Developer must ensure that the land to be dedicated under this Agreement is free of all encumbrances and affectations (whether registered or unregistered and including without limitation any charge or liability for rates, taxes and charges), when the Developer transfers that land to the

Council under this Agreement.

- (c) Despite clause 9.2(b), if, despite having used its best endeavours, the Developer cannot ensure that the land to be dedicated is free from any relevant encumbrance and affectation, then:
  - (i). the Developer may request that the Council agree to accept the land subject to those encumbrances and affectations; and
  - (ii). if the encumbrance or affectation:
    - a. does not prevent the future use of the land for the public purpose for which it is to be dedicated under this Agreement; and
    - b. is not a charge against the land

the Council must not withhold its agreement unreasonably; and otherwise, the Council may withhold its agreement at its absolute discretion.

# 9.3 No requirement to carry out work, etc

- (a) The Council acknowledges that this Agreement does not require the Developer:
  - to remove any fixtures or chattels, rubbish of any description or any debris affixed or present on the Dedicated Land prior to the date of this Agreement; or
  - (ii). carry out any work in relation to the Dedicated Land or the improvements erected on it, including any work in relation to defects (whether latent or patent).

## 9.4 The Developers Discretion to deal with the Land

(a) Subject to clause 9.2(b) & (c), and clause 17, the Parties acknowledge and agree that nothing in this Agreement abrogates, fetters or in any way prevents the Landowner from selling, transferring, assigning, subdividing, mortgaging, charging, encumbering or otherwise dealing with the Land (excluding, after dedication, the Dedicated Land).

#### 10. GST

# 10.1 Interpretation

In this clause 10:

(a) Words and expressions which are not defined in this Agreement but which have a defined meaning in GST Law have the same meaning as in the GST Law.

## 10.2 Consideration GST exclusive

Unless otherwise expressly stated, all sums payable or consideration to be provided under this Agreement are exclusive of GST.

# 10.3 Stamp Duty and GST

The Council must pay all stamp duty and other duties, levies or charges including GST payable on or in respect of its Obligations.

### 11. Default

#### 11.1 Notice

In the event a party considers another party has failed to perform and fulfil an obligation under this Agreement, it may give notice in writing to that party (**Default Notice**) giving all particulars of the matters in respect of which it considers default has occurred and by such notice require the default to be remedied within a reasonable time.

#### 11.2 Reasonable Time

In determining a reasonable time, regard must be had to both the nature of the default and the work or other action required to remedy it and whether or not the continuation of the default constitutes or causes a public nuisance or raises other circumstances of urgency or emergency.

# 11.3 Suspension of time-dispute

If a party disputes the Default Notice it may refer that dispute to dispute resolution under clause 12 of this Agreement.

# 12. Dispute Resolution

# 12.1 Notice of Dispute

If a party claims that a dispute has arisen under this Agreement (**Claimant**), it must give written notice to the other party (**Respondent**) stating the matters in dispute and designating as its representative a person to negotiate the dispute (**Claim Notice**). No party may start court proceedings (except for proceedings seeking interlocutory relief) in respect of a dispute unless it has first complied with this clause 12.

# 12.2 Response to Notice

Within 10 business days of receiving the Claim Notice, the Respondent must notify the Claimant of its representative to negotiate the dispute.

# 12.3 Negotiation

- (a) The nominated representative must:
  - meet to discuss the matter in good faith within 5 business days after service by the Respondent of notice of its representative;

(ii) use reasonable endeavours to settle or resolve the dispute within 15 business days after they have met.

#### 12.4 Further Notice if Not Settled

If the dispute is not resolved within 15 business days after the nominated representatives have met, either party may give to the other a written notice calling for determination of the dispute (**Dispute Notice**) by mediation under clause 12.5 or by expert determination under clause 12.6.

#### 12.5 Mediation

- (a) If a party gives a dispute Notice calling for the dispute to be mediated:
  - (i) the parties must agree to the terms of reference of the mediation within 5 business days of the receipt of the Dispute Notice (the terms shall include a requirement that the mediation rules of the Institute of Arbitrators and Mediators Australia (NSW Chapter) apply);
  - (ii) the Mediator will be agreed between the parties, or failing agreement within 5 business days of receipt of the Dispute Notice, either party may request the President of the Institute of Arbitrators and Mediators Australia (NSW Chapter) to appoint a mediator;
- (b) the Mediator appointed pursuant to this clause 12.5 must:
  - (i) have reasonable qualifications and practical experience in the area of the dispute; and
  - (ii) have no interest or duty which conflicts or may conflict with his function as mediator, he being required to fully disclose any such interest or duty before his appointment;
- (c) the Mediator shall be required to undertake to keep confidential all matters coming to his knowledge by reason of his appointment and performance of his duties:
- (d) the parties must within 5 business days of receipt of the Dispute Notice notify each other of their representatives who will be involved in the mediation;
- (e) the parties agree to be bound by a mediation settlement and may only initiate judicial proceedings in respect of a dispute which is the subject of a mediation settlement for the purpose of enforcing that mediation settlement;
- (f) each party will bear their own professional and expert costs incurred in connection with the mediation.

# 12.6 Expert Determination

- (a) If the dispute is not resolved under clause 12.3 or 12.5, the dispute may, by agreement between the parties, both acting reasonably having regard to the nature of the dispute, be resolved by expert determination, in which event:
  - (i) the dispute must be determined by an independent expert in the

relevant field:

- (A) agreed upon and appointed jointly by the Council and the Developer; or
- (B) in the event that no agreement is reached or appointment made within 30 business days, appointed on application of a party by the then current President of the Law Society of New South Wales;
- (ii) the expert must be appointed in writing and the terms of appointment must not be inconsistent with this clause;
- (iii) the determination of the dispute by such expert will be made as an expert and not as an arbitrator and will be in writing and contain the reasons for the determination;
- (iv) the expert will determine the rules for the conduct of the process but must conduct the process in accordance with the rules of natural justice;
- (v) each party will bear its own costs in connection with the process and the determination by the expert together with an equal proportion of the expert's fees and costs; and
- (vi) any determination made by an expert pursuant to this clause is final and binding upon the parties except where the determination is in respect of, or relates to, termination or purported termination of this Agreement by any party, in which event the expert is deemed to be giving a non-binding appraisal and any party may commence litigation in relation to the dispute if it has not been resolved within 20 business days of the expert giving his or her decision.

## 12.7 Litigation

If the dispute is not finally resolved in accordance with this clause 12, either party is at liberty to litigate the dispute.

## 13. Notices

- (a) Any notice, consent, information, application or request that must or may be given or made to a Party under this Agreement is only given or made if it is in writing and sent in one of the following ways:
  - (i) delivered or posted to that Party at its address set out on page 3 of this Agreement; or
  - (ii) faxed to that Party at its fax number on page 3 of this Agreement.
- (b) If a Party gives another Party 3 Business Days' notice of a change of its address, or fax number, any notice, consent, information, application, or request is only given or made by that other Party if it is delivered, posted, or faxed to the latest address or fax number.
- (c) Any notice, consent, information, application or request is to be treated as given or made at the following time:

- (i) if it is delivered, when it is left at the relevant address;
- (ii) if it is sent by post, 2 Business Days after it is posted;
- (iii) if it is sent by fax, as soon as the sender receives from the sender's fax machine a report of an error free transmission to the correct fax number.
- If any notice, consent, information, application or request is delivered, or an error free transmission report in relation to it is received, on a day that is not a Business Day, after 5pm on that day in the place of the Party to whom it is sent, it is to be treated as having been given or made at the beginning of the next Business Day.

### 14. General

### 14.1 Entire agreement

This Agreement contains everything to which the Parties have agreed in relation to the matters it deals with. No Party can rely on an earlier document, anything said or done by another Party, agent or employee of the Party, before this Agreement was executed, except as permitted by Law.

### 14.2 Further acts

Each party must promptly sign and execute all documents and do all things that another Party from time to time reasonably requests to effect, perfect or complete this Agreement and all transactions incidental to it, including giving an approval or consent.

## 14.3 Governing Law and Jurisdiction

This Agreement is governed by the law of New South Wales. The Parties submit to the non-exclusive jurisdiction of its courts and courts of appeal from them. The Parties will not object to the exercise of jurisdiction by those courts on any basis.

## 14.4 Joint and individual liability and benefits

Except as otherwise set out in this Agreement, any agreement, covenant, representation or warranty under this Agreement by two or more persons binds them jointly and each of them individually, and any benefit in favour of two or more persons is for the benefit of them jointly and each of them individually.

#### 14.5 No fetter

Nothing in this Agreement is to be construed as requiring a Council to do, or refrain from doing, anything that would cause it to be in breach of any of its obligations at Law, and without limitation, nothing in this Agreement is to be construed as limiting or fettering in any way the exercise of any statutory discretion or duty.

### 14.6 Representations and warranties

The Parties represent and warrant that they have power to enter into this Agreement and comply with their obligations under this Agreement and that entry into this Agreement will not result in the breach of any Law.

### 14.7 Severability

- (a) If any part of this Agreement can be read in any way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way.
- (b) If any part of this Agreement is illegal, unenforceable or invalid, that part is to be treated as removed from this Agreement, but the rest of this Agreement is not affected.

### 14.8 Release and Discharge

- (a) To the extent the Developer has:
  - (i) satisfied its obligations under this Agreement; or
  - (ii) the Agreement no longer applies as a consequence of any event referred to in clause 4(b) of this Agreement;

the Council will provide a release and discharge of this Agreement with respect to any part of, or the whole of, the Land.

- (b) To the extent the Developer has:
  - (i) satisfied its obligations under this Agreement in respect of that part of the Land: or
  - (ii) the Agreement no longer applies as a consequence of any event referred to in clause 4(b) of this Agreement;

the Council will provide a release and discharge of this Agreement with respect to any part of the Land:

- (iii) if the Developer requests a partial release and discharge of this Agreement for the purpose of selling part of the Land as a Developed Lot; or
- (iv) if the Developer requests a partial release and discharge of this Agreement in connection with the completion of a sale contract for a Developed Lot; or
- (v) if the Developer requests a partial release and discharge of this Agreement to effect the transfer of part of Land to the Council or any other authority pursuant to this Agreement.
- (c) The Council will execute any form, and supply such other information, as is reasonably required to enable the removal of the Agreement from the title to the Land or part of the Land in accordance with this clause 14.8.

## 14.9 Modification, Review and Replacement

- (a) No modification of this Agreement will be of any force or effect unless it is in writing and signed by the Parties to this Agreement.
- (b) The Parties agree that this Agreement may be reviewed or modified in the circumstances using their best endeavours and acting in good faith, and in accordance with this clause 14.9.
- (c) Any review or modification will be conducted in the circumstances and in the matter determined by the Parties and in accordance with the provisions of the Act and Regulations. For clarity, no such review or replacement shall have any force or effect unless and until formal documents are signed by the Parties in accordance with this clause 14.9.

### 14.10 Waiver

The fact that a Party fails to do, or delays in doing, something the Party is required or entitled to do under this Agreement, does not amount to a waiver of any obligation by another Party.

## 14.11 Confidentiality

The Parties agree that the terms of this Agreement are not confidential and this Agreement may be treated as a public document and exhibited or reported without restriction by any Party.

## 14.12 Force Majeure

- (a) If a Party is unable by reason of force majeure to carry out wholly or in part its obligations under the Agreement, it must give to the other Party prompt notice of the force majeure with reasonably full particulars.
- (b) The obligations of the Parties so far as they are affected by the force majeure are then suspended during continuance of the force majeure and any further period as may be reasonable in the circumstances.
- (c) The Party giving such notice under this clause must use all reasonable effort and diligence to remove the force majeure or ameliorate its effects as quickly as practicable.
- (d) If the Parties are unable to agree on the existence of an event of force majeure or the period during which the obligations of the Parties are suspended during the continuance of the force majeure, that dispute must be referred for determination under the Agreement.

## 14.13 Legal and associated costs

Each party is responsible for payment of its own legal costs in connection with the

preparation, execution and enforcement of this Agreement, unless otherwise agreed between the Parties or as may be ordered by a Court of competent jurisdiction.

### 14.14 Counterparts

This Agreement may be executed in counterparts. All counterparts when taken together are to be taken to constitute one instrument.

## 15. Security in relation to the dedication of land

## 15.1 Agreement under the Just Terms Act

- (a) Subject to clause 10.2, if the Developer does not dedicate the land required to be dedicated under this Agreement:
  - (i). at the time at which it is required to be dedicated; or
  - (ii). at any point after that time,

the Developer consents to the Council compulsorily acquiring the land for compensation in the amount of \$1 without having to follow the Pre-acquisition procedures under the Just Terms Act.

(b) Clause 10.1(a) is an agreement for the purposes of section 30 of the Just Terms Act.

## 15.2 Limitations on that agreement

(a) The Council may only acquire land pursuant to clause 10.1 if to do so is reasonable having regard to the circumstances surrounding the failure by the Developer to dedicate the land required to be dedicated under this Agreement.

## 15.3 Ancillary obligations

- (a) If, as a result of the acquisition referred to in clause 10.1, the Council must pay compensation to any person other than the Developer, the Developer must reimburse the Council for that amount, upon a written request being made by the Council.
- (b) The Developer indemnifies and keeps indemnified, the Council against all claims made against the Council under the Just Terms Act as a result of any acquisition by the Council of the whole or any part of the Land under clause 10.1(a).
- (c) The Developer is to promptly do all things necessary, and consents to the Council doing all things necessary, to give effect to this clause 10, including:

- (i). signing any documents or forms;
- (ii). producing certificates of title to the Registrar-General under the Real Property Act; and
- (iii). paying the Council's reasonable costs arising under this clause 10.

## 16. Overdue payments

## 16.1 Interest on overdue money

(a) The Developer agrees to pay interest to the Council on any amount payable by it under this agreement from 28 days after becomes due for payment, during the period that it remains unpaid, on demand from or at times determined by the Council, calculated on daily balances. The rate to be applied to each daily balance is the Interest Rate.

## 16.2 Compounding

(a) Interest which is not paid when due for payment may be capitalised by the Council on the first day of each calendar month. Interest is payable on capitalised interest at the rate and in the manner referred to in this clause 16.1.

## 16.3 Interest on liability merged in judgement order

(a) The Developers obligation to pay the outstanding amount on the date it becomes due for payment is not affected by any other provision of this Agreement.

### 16.4 Tender after termination

(a) If the liability under this Agreement becomes merged in a judgement or order, then the Developer agrees to pay interest to the Council on the amount of that liability as an independent obligation. This interest accrues from the date of liability becomes due for payment both before and after the judgement or order until it is paid, at a rate that is the higher of the rates payable under the judgement order and the rate referred to in this clause 16.

## 17. Transfer, assignment or novation

## 17.1 Consent for transfer of Dedicated Land

- (a) The Developer and the Landowner must not transfer the Dedicated Land or any part of the Dedicated Land to any person without the consent of the Council.
- (b) This clause 17.1 does not apply to the dedication of the Dedicated Land to the Council.

# 17.2 Consent for assignment or novation of this Agreement

- (a) The Developer must not assign or novate to any person its rights or obligations under this Agreement without the consent of the Council.
- (b) For avoidance of doubt, this clause 17.2 does not preclude the transfer of any other part of the Land by the Landowner.

# 17.3 The giving of consent by Council

- (a) The Council must give its consent under clause 9.1(a) or clause 9.2(a) if:
  - (i). the Developer has, at no cost to the Council, first procured the execution by the person to whom:
    - A. the land will be transferred; or
    - B. the rights or obligations under this Agreement are to be assigned or novated,
    - a deed of novation on reasonable terms (being a deed generally in terms of the Novation Deed); and
  - reasonable evidence has been produced to show that the transferee, assignee or novatee is reasonably capable of performing its obligations under this Agreement; and
  - (iii). the Developer is not in material breach of this Agreement.

# 17.4 No requirement for consent when Agreement is registered

- (a) Clause 17.1 and clause 17.2 do not apply in connection with the transfer of the whole of the Land if this Agreement is, at the time of transfer, Registered on Title.
- (b) If clause 17.1 and clause 17.2 do not apply because of clause 17.4(a), the Novation Deed has effect as if has been entered into:
  - (i). by the person who has ceased to own the land (who is taken to be the Existing Owner in the Novation Deed);
  - (ii). by the person has become the owner the land (who is taken to be the New Owner in the Novation Deed); and
  - (iii). by the Council.

### **Execution**

Dated: 13th June 2014

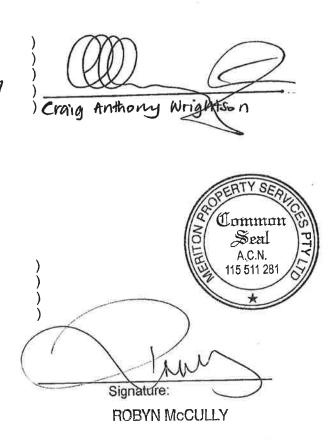
**Executed** as an Agreement

by its duly appointed attorney

<COUNCIL TO INSERT DETAILS>

Power of Attorney registered book .4.637

No.8.11 in the presence of:



MERITON PROPERTY SERVICES PTY LIMITED ACN 115 511 281 in

accordance with section 127 of Corporations Law:

MILLIE STEPHEN

Name:

Signatupeter Spira

Nambirector

Position:

Name:

**SECRETARY** 

Position:

KARIMBLA PROPERTIES (No. 35)
PTY LIMITED ACN 160 519 415 in accordance with section 127 of Corporations Law:

Signature Peter Spira

Name:

DIRECTOR

Position:

Position:

(NO. 35! PT)

## **Schedule 1 Development Contributions Schedule**

## 1. Development Contributions

The Developer undertakes to provide the following Development Contributions as set out and provided for in the Table below.

Column 1  Development Contribution		Column 2	Column 3
		Council's Obligations	Timing
Dec	licated Land		
1,	Dedication to Council of approximately 13,430m² of the Land for the purposes of a public bushland reserve marked as "Dedication Lot" in the Subdivision Plan.  Representing a total value of approximately \$0.	Council is to receive and manage the land in perpetuity as a public bushland reserve.	Land to be dedicated prior to the issue of the first Occupation Certificate for the Development (or as soon as practical for Council to complete works outlined in item 3 below prior to residents occupying the development).
Мо	netary Contributions		
2.	In Lieu of a Monetary Contribution towards the construction of a pedestrian bridge over Epping Road the Developer will make a Monetary Contribution representing a total value of \$2,000,000 to improve public infrastructure facilities in the Lane Cove Council local government area.	Council is to utilise the Monetary Contribution to improve public infrastructure facilities within the Lane Cove Council local government area within 3 years of Council receiving the Contribution.	Monetary Contribution to be paid prior to the issue of first Construction Certificate for the Development.
3.	Monetary Contribution towards the upgrade and embellishment of the existing bushland track and associated seating and signage through the "Dedication Lot".  Representing a total value of \$122,280.	Council is to utilise the Monetary Contribution to upgrade and embellish the existing walking track in the bushland handle to be dedicated in accordance with relevant Australian Standards and similar to other recent upgrades to walking trails in the area. The Obligation is to be fulfilled within 12 months of the land being transferred into Council's ownership.	Monetary Contribution to be paid prior to the issue of first Occupation Certificate for the Development.

Column 1  Development Contribution		Column 2	Column 3
		Council's Obligations	
pu pu tra Re	lonetary Contribution towards the urchase of a community bus for the urposes of providing local community ansport.  epresenting a total value of 100,000.	Council is to utilise the Monetary Contribution to procure a brand new bus to be operated by Council or a nominated person or contractor for the purposes of providing local community transport. The bus must be purchased and operational within 12 months of Council receiving the Monetary Contribution.	Monetary Contribution to be paid prior to the issue of first Occupation Certificate for the Development.
սր th	Ionetary Contribution towards the pgrade of the existing bus stop at to ne east of the Land. Representing a total value of \$53,600.	Council is to utilise the funds to procure and install an all-weather bus stop within 12 months of Council receiving the Monetary Contribution.	Monetary Contribution to be paid prior to the issue of first Occupation Certificate for the Development.
Moneta	ary Contribution Subtotal: \$2,275,880		
Dedica	ated Land and Monetary Contributions	Total: <b>\$2,275,880</b>	

### 2. Development Contributions

- (a) The Development Contributions provided pursuant to Clause 6 and this Schedule must be delivered prior to the issue of first occupation certificate in accordance with the Act, except for the Monetary Contribution towards improvements to infrastructure facilities in the Lane Cove Council local government area, which is to be paid prior to the issue of the first construction certificate.
- (b) The Parties acknowledge and agree that the amounts relating to the Development Contributions pursuant to Clause 6 and this Schedule are estimates only of the actual costs and may not reflect the costs actually incurred.
- (c) The Monetary Contributions are final and Council is responsible for the design, procurement, construction and ongoing management, and liability for all items for which a Monetary Contribution is being made by the Developer.
- (d) Council is to take all steps necessary to fulfil its obligations upon receipt of the Dedication Lot and Monetary Contributions. If Council is unable to fulfil its obligations, then it must advise the Developer in writing of where the Monetary Contributions will be used and they must generate a similar public benefit unless otherwise agreed by the Developer.

## Schedule 2 Explanatory Note

## **Explanatory Note**

# Environmental Planning and Assessment Regulation 2000 (Clause 25E)

### **Planning Agreement**

Under s93F of the Environmental Planning and Assessment Act 1979 (NSW)

#### 1. Parties

Meriton Property Services Pty Limited – ABN 69 115 511 281 Level 11, 528 Kent Street, Sydney NSW 2000 (Developer)

Karimbla Properties (No. 35) Pty Ltd – ABN 77 160 519 415 Level 11, 528 Kent Street, Sydney NSW 2000 (Landowner)

Lane Cove Council – ABN 42 062 211 626 48 Longueville Road, Lane Cove NSW 2066 (Council)

## 2. Description of Subject Land

The subject land is 150 Epping Road, Lane Cove NSW being Lot 21 in DP825400.

The Landowner is the owner of the subject land.

The Developer is the developer of the subject land.

# 3. Description of Proposed Development Application

The proposed development is documented in Development Application No. (TBA) and includes the following:

 a mixed use development for approximately 400 residential apartments, community floor space, retail floor space, a child care centre and approximately 596 parking spaces.

# 4. Summary of Objectives, Nature and Effect of the Draft Planning Agreement

## 4.1 Summary of Objectives

The objectives of the draft Planning Agreement are to:

 dedicate and embellish land to Council for the purposes of public access and recreation known as the "bushland handle"; (b) provide a Monetary Contribution to Council for:

o a pedestrian link over Epping Road;

 the upgrade and embellishment of the existing walking track through the bushland handle;

o the purchase of a community bus;

o the upgrade of a local bus stop to an all-weather facility; and

o the upgrade of the intersection at Mowbray Road and Centennial Avenue.

in order to provide a benefit for the public and the need for additional recreational and transport facilities in the locality as a result of this development and development generally in the Lane Cove West area.

## 4.2 Nature and Effect of the Draft Planning Agreement

The draft Planning Agreement requires the Developer to provide the following Dedicated Land, and Monetary Contributions:

- (a) Dedication to Council of land for the purposes of:
  - creating a new public recreation area known as the bushland handle.
- (b) Monetary Contributions in the order of \$2,275,880, for the purposes of:
  - improvements to public infrastructure facilities in the Lane Cove Council local government area;
  - embellishment of the new public recreation area with a high quality walking trail linking with other walking trail systems provided by Council;
  - purchase of a community bus that will service the local community and be operated by the Council or a nominated representative;
  - upgrade and enhancement of a local bus stop to an all-weather facility;

The estimated value of the Monetary Contributions and Dedicated Land provided by the Developer is \$2,275,880.

The draft Planning Agreement provides that the obligations of the Developer under the draft Planning Agreement will not exclude the application of contributions imposed under section 94, section 94A and section 94EF of the *Environmental Planning and Assessment Act* 1979 (NSW) in connection with the proposed development.

The draft Planning Agreement will not come into effect until and unless consent is granted to the Development Application.

## 5. Assessment of the Merits of the Draft Planning Agreement

## 5.1 The Planning Purposes Served by the Draft Planning Agreement

In accordance with section 93F(2) of the *Environmental Planning and Assessment Act* 1979 (NSW), the Planning Agreement promotes the following public purposes:

- the provision of (or the recoupment of the cost of providing) public amenities or public services;
- (b) the provision of (or the recoupment of the cost of providing) transport or other infrastructure relating to land;
- (c) the funding of recurrent expenditure relating to the provision of public amenities or public services or transport or other infrastructure;
- (d) the conservation and enhancement of the natural environment.

# 5.2 How the Draft Planning Agreement Promotes the Objects of the Environmental Planning and Assessment Act 1979 (NSW)

The draft Planning Agreement promotes the following objects of the *Environmental Planning and Assessment Act* 1979 (NSW):

- (a) the proper management, development and conservation of natural and artificial resources, including natural areas and public infrastructure for the purpose of promoting the social and economic welfare of the community and a better environment;
- (b) the promotion and co-ordination of the orderly and economic use and development of land
- (c) the provision of land for public purposes,
- (d) the provision and co-ordination of community facilities and services; and
- (e) the preservation and protection of the natural environment.

The draft Planning Agreement provides for a reasonable means of achieving those purposes.

- 6. How the Draft Planning Agreement Promotes the Public Interest
- 6.1 How the Draft Planning Agreement Promotes the Elements of the Council's Charter

The draft Planning Agreement promotes Council's Charter under section 8 of the Local Government Act 1993 (NSW) by:

- the provision of adequate, equitable and appropriate services and facilities for the community in the form of providing land and Monetary Contributions that support the provision, upgrade and continuing management of public infrastructure;
- ensuring that the services and facilities are managed efficiently and effectively on behalf of the local community;
- (iii) properly managing, developing, protecting, restoring, enhancing and conserving the environment of the area for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development.

# 6.2 Whether the draft Planning Agreement Conforms with the Council's Capital Works Program

The draft Planning Agreement conforms with Council's Capital Works Program to the extent that it will supplement the Program by providing public land and Monetary Contributions that will provide a public benefit. Also, it will provide contributions that Council would not normally be able to provide such as the pedestrian bridge and the community bus.

# 6.3 Whether the draft Planning Agreement specifies that certain requirements must be complied with before an occupation certificate is issued

The draft Planning Agreement provides that all development contributions including dedication of land and Monetary Contributions, must be delivered prior to the issue of a final occupation certificate for the proposed development in accordance with the *Environmental Planning and Assessment Act* 1979 (NSW). It is the intent of the developer to dedicate the bushland handle as early as possible to allow Council access to complete the upgrade to the existing bushland track so it is operational and publicly accessible upon completion of the Development.

# 7. The Impact of the Draft Planning Agreement on the Public or Any Section of the Public

The draft Planning Agreement impacts on the Public by promoting the Public's interest as outlined above.

### 8. Other Matters

None.

## **Schedule 3 Plans and Documents**

### 1. Plans and Documents

(a) The Development Contributions are generally identified in the following plans and documents, which are **annexed** and provided to show the scope of the Development Contributions and for the purposes of quantifying the Development Contributions.

No.	Plan/Document	Plan Number	Author	Date
1	Plan of proposed subdivision	4008- 40564DP	Lockley Land Title Solutions	04/02/14

## **Deed of Novation**

Lane Cove Council
[Insert name of existing landowner]
[Insert name of new landowner]

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#### **Deed of Novation**

### **Dated**

#### **Parties**

- 1. Lane Cove Council of 48 Longueville Road, Lane Cove NSW 2066 (the Council)
- 2. [Insert name of existing landowner] ACN [insert ACN] of [insert address] (the Existing Landowner)
- 3. [Insert name of new landowner] ACN [insert ACN] of [insert address] (the New Landowner)

### **Background**

- A. The Council and the Existing Landowner have entered into the Agreement.
- B. The Existing Landowner intends to transfer Lot B to the New Landowner.
- C. Existing Landowner has agreed to transfer the Rights and Obligations to the New Landowner.
- D. The New Landowner has agreed to accept the transfer of the Rights and Obligations from the Existing Landowner.
- E. The Council consented to the transfer of the Existing Landowner's Rights and Obligations to the New Landowner and the parties have agreed to enter into this Deed to give effect to their common intentions.

### **Operative provisions**

## 1. Defined meanings

Words used in this document and the rules of interpretation that apply are set out and explained in the definitions and interpretation clause at the back of this document.

### 2. Novation

With effect on and from the Effective Date:

- (a) The New Landowner is substituted for the Existing Landowner under the Agreement as if the New Landowner had originally been a party to the Agreement instead of the Existing Landowner and all references in the Deed of Agreement to the Existing Landowner in any capacity must be read and construed as if they were references to the New Landowner; and
- (b) The New Landowner is bound by, and must comply with, the provisions of the Deed of Agreement and the obligations imposed on the Existing Landowner by the Agreement and the New Landowner enjoys all the rights and benefits of the Existing Landowner under the Agreement (even if an obligation, right or benefit, arose or accrued before the Effective Date).

C. Validated V

### 3. Consent

With effect on and from the Effective Date, the Council:

- (a) consents to the New Landowner being substituted for Existing Landowner on the terms outlined at clause 2 of this deed;
- (b) accepts the assumptions by the New Landowner of all the liabilities of the Existing Landowner under the Deed of Agreement instead of those liabilities being liabilities of the Existing Landowner; and
- (c) agrees to be bound by the terms of the Agreement in every way as if the New Landowner were a party to the Deed of Agreement instead of the Existing Landowner.

# 4. Release and Indemnity

# 4.1 Release and Discharge (the Council)

On and from the Effective Date, the Council releases the Existing Landowner from all Rights and Obligations and from all Claims that it may have against the Existing Landowner under or in respect of the Agreement.

# 4.2 Release and Discharge (the Existing Landowner)

On and from the Effective Date, the Existing Landowner releases the Council from all its obligations under the Deed of Agreement and from all Claims that it may have against the Council under or in respect of the Agreement.

## 4.3 Indemnity

On and from the Completion Date, the New Landowner indemnifies the Existing Landowner from and against all Liabilities and Claims that it may have against the Existing Landowner in respect of the Agreement.

# 5. Representations and Warranties

### 5.1 Power

Each of the Existing Landowner and the New Landowner represent and warrant to the Council and to each other that:

- (a) it is an individual or corporation validly existing under the laws of Australia;
- if it is a corporation that it has the corporate power to enter into and perform its obligations under this Deed and has taken all necessary corporate action to authorise execution, delivery and performance of this Deed;
- (c) this Deed is valid and binding upon it and is enforceable against it in accordance with its terms; and
- (d) if it is a corporation that no application or order has been made for the winding up or liquidation of it, no action has been taken to seize or take possession of any of its assets,

Name/Signature	Name/Signature

there are no unsatisfied judgments against it and it is able to pay its debts as and when they come due and payable.

## 5.2 Reliance by the Council

The Existing Landowner and the New Landowner each acknowledge that the Council has entered into this Deed in reliance on the representations and warranties detailed in clause 5.1.

## 6. General provisions

#### 6.1 Landowner Costs

The Existing Landowner and the New Landowner must pay their own costs in relation to:

- (a) the negotiation, preparation, execution, performance, amendment or registration of, or any consent given or made; and
- (b) the performance of any action by that party in compliance with any liability arising, under this Deed, or any agreement or document executed or effected under this Deed, unless this

### 6.2 The Council's Costs

Deed provides otherwise.

The Existing Landowner and the New Landowner are jointly and severally responsible for the Council's reasonable legal costs in relation to the negotiation, preparation and execution of this Deed, but are not otherwise liable for the Council's costs in relation to the:

- (a) performance, amendment or registration of, or any consent given or made; and
- (b) the performance of any action by that party in compliance with any liability arising,

under this Deed, or any agreement or document executed or effected under this Deed, unless this Deed provides otherwise.

### 6.3 GST

If any payment made by one party to any other party under or relating to this document constitutes consideration for a taxable supply for the purposes of GST or any similar tax, the amount to be paid for the supply will be increased so that the net amount retained by the supplier after payment of that GST is the same as if the supplier was not liable to pay GST in respect of that supply. This provision is subject to any other agreement regarding the payment of GST on specific supplies, and includes payments for supplies relating to the breach or termination of, and indemnities arising from, this document.

### 6.4 Duties

(a) The New Landowner must promptly, within the initial applicable period prescribed by law, pay any duty payable in relation to the execution, performance and registration of this document, or any agreement or document executed or effected under this document.

Name/Signature	Name/Signature

(b) The New Landowner indemnifies the Council and the Existing Landowner against any loss incurred by any other party in relation to any duty specified in this provision, whether through default by the New Landowner under this provision or otherwise.

### 6.5 Assignment

A party must not transfer any right or liability under this document without the prior consent of each other party, except where this document provides otherwise.

### 6.6 Notices

(a) Any notice may be served by delivery in person or by post or transmission by facsimile to the address or number of the recipient specified in this provision or most recently notified by the recipient to the sender.

[Insert address for notices for each of the parties]

- (b) Any notice to or by a party under this document must be in writing and signed by either:
  - (i) the sender or, if a corporate party, an authorised officer of the sender; or
  - (ii) the party's solicitor.
- (c) Any notice is effective for the purposes of this document upon delivery to the recipient or production to the sender of a facsimile transmittal confirmation report before 4.00pm local time on a day in the place in or to which the written notice is delivered or sent or otherwise at 9.00am on the next day following delivery or receipt.

## 6.7 Governing law and jurisdiction

- (a) This document is governed by and construed under the law in the State of New South Wales.
- (b) Any legal action in relation to this document against any party or its property may be brought in any court of competent jurisdiction in the State of New South Wales.
- (c) Each party by execution of this document irrevocably, generally and unconditionally submits to the non-exclusive jurisdiction of any court specified in this provision in relation to both itself and its property.

#### 6.8 Amendments

Any amendment to this document has no force or effect, unless effected by a document executed by the parties.

## 6.9 Third parties

This document confers rights only upon a person expressed to be a party, and not upon any other person.

Name/Signature	Name/Signature
Name/Signature	

## 6.10 Pre-contractual negotiation

This document:

- (a) expresses and incorporates the entire agreement between the parties in relation to its subject matter, and all the terms of that agreement; and
- (b) supersedes and excludes any prior or collateral negotiation, understanding, communication or agreement by or between the parties in relation to that subject matter or any term of that agreement.

### 6.11 Further assurance

Each party must execute any document and perform any action necessary to give full effect to this document, whether before or after performance of this document.

## 6.12 Continuing performance

- (a) The provisions of this document do not merge with any action performed or document executed by any party for the purposes of performance of this document.
- (b) Any representation in this document survives the execution of any document for the purposes of, and continues after, performance of this document.
- (c) Any indemnity agreed by any party under this document:
  - (i) constitutes a liability of that party separate and independent from any other liability of that party under this document or any other agreement; and
  - (ii) survives and continues after performance of this document.

### 6.13 Waivers

Any failure by any party to exercise any right under this document does not operate as a waiver and the single or partial exercise of any right by that party does not preclude any other or further exercise of that or any other right by that party.

### 6.14 Remedies

The rights of a party under this document are cumulative and not exclusive of any rights provided by law.

## 6.15 Severability

Any provision of this document which is invalid in any jurisdiction is invalid in that jurisdiction to that extent, without invalidating or affecting the remaining provisions of this document or the validity of that provision in any other jurisdiction.

## 6.16 Counterparts

This document may be executed in any number of counterparts, all of which taken together are deemed to constitute one and the same document.

		_
(A)	Name/Signature	
Name/Signature		

### 6.17 Party acting as trustee

If a party enters into this Deed as trustee of a trust, that party and its successors as trustee of the trust will be liable under this document in its own right and as trustee of the trust. Nothing releases the party from any liability in its personal capacity. The party warrants that at the date of this document:

- (a) all the powers and discretions conferred by the deed establishing the trust are capable of being validly exercised by the party as trustee and have not been varied or revoked and the trust is a valid and subsisting trust;
- (b) the party is the sole trustee of the trust and has full and unfettered power under the terms of the deed establishing the trust to enter into and be bound by this document on behalf of the trust and that this document is being executed and entered into as part of the due and proper administration of the trust and for the benefit of the beneficiaries of the trust;
- (c) no restriction on the party's right of indemnity out of or lien over the trust's assets exists or will be created or permitted to exist and that right will have priority over the right of the beneficiaries to the trust's assets.

## 7. Definitions and interpretation

## 7.1 Definitions

In this Deed unless the context otherwise requires:

Claims includes actions, proceedings, suits, causes of action, arbitration, verdicts and judgments either at law or in equity or arising under a statute, debts, dues, demands, claims of any nature, costs and expenses.

Agreement means the voluntary planning agreement between the Council and the Existing Landowner dated [insert date], a copy of which is annexed to this Deed as Annexure A

Effective Date means the date upon which the Existing Landowner provides the New Landowner with an instrument, in registrable form, that (when registered) will effect the transfer of the title to the land from the Existing Landowner to the New Landowner.

GST means any tax, levy, charge or impost implemented under the A New Tax System (Goods and Services Tax) Act (GST Act) or an Act of the Parliament of the Commonwealth of Australia substantially in the form of, or which has a similar effect to, the GST Act;

Liabilities include all liabilities (whether actual, contingent or prospective), losses, damages, costs and expenses of whatever description.

Rights and Obligations means all of the rights, benefits and obligations imposed or conferred on the Existing Landowner by the Agreement.

## 7.2 Interpretation

In this document unless the context otherwise requires:

- (a) clause and subclause headings are for reference purposes only;
- (b) the singular includes the plural and vice versa;

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- (c) words denoting any gender include all genders;
- (d) reference to a person includes any other entity recognised by law and vice versa;
- (e) where a word or phrase is defined its other grammatical forms have a corresponding meaning;
- (f) any reference to a party to this document includes its successors and permitted assigns;
- (g) any reference to any agreement or document includes that agreement or document as amended at any time;
- (h) the use of the word includes or including is not to be taken as limiting the meaning of the words preceding it;
- (i) the expression at any time includes reference to past, present and future time and the performance of any action from time to time;
- (j) an agreement, representation or warranty on the part of two or more persons binds them jointly and severally;
- (k) an agreement, representation or warranty on the part of two or more persons is for the benefit of them jointly and severally;
- (l) any ambiguities in the interpretation of this Deed shall not be construed against the drafting party.
- (m) reference to an exhibit, annexure, attachment or schedule is a reference to the corresponding exhibit, annexure, attachment or schedule in this document.

#### Executed as a deed.

[Insert relevant attestation clauses]

[Insert the executed planning agreement that is the subject of the novation as Annexure A]

Name/Signature

Name/Signature