

Expert Opinion
SUPPLEMENTARY REPORT
SOLAR ACCESS COMPLIANCE
WITH UNIT LAYOUT & MASSING IMPROVEMENTS



Greenland Lachlan's Line Apartments
20 November 2017

Signed,

A handwritten signature in black ink, reading "Steve King". The signature is written in a cursive, flowing style. Below the signature is a dashed line.

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1.0 PRELIMINARIES

This supplementary report relates to analysis of ‘further improvements’ of design for winter solar access. The further improvements are primarily, but not limited to changes to the floor plans of some apartments.

The identified apartment layout changes are applied to both the ‘Current DA Scheme’, and the so-called ‘Option F preferred scheme’ which arose from previous sensitivity studies. Those sensitivity studies investigated the potential of building massing variations to improve both apartment solar access compliance and communal open space solar access.

For winter June 21, I report the outcome of a full re-analysis of solar access. For the Equinox, I calculate the most optimistic likely proportional changes.

1.1 Previous reports

My previous report of 17 October 2017 was the consolidation and summary of three studies:

1.1.1 Peer review of solar access compliance of the submitted DA

This study was carried out in response to the recommendations of the Sydney North Planning Panel (SNPP) record of deferral, dated Wednesday 9 August 2017.

My original peer review report is dated 13 August 2017.

1.1.2 Solar access sensitivity study

The study compared baseline ADG June 21 solar access compliance of the current DA initially with four iterative Options A – D, and after external overshadowing and other constraints were applied, to a preferred Option F.

1.1.3 Equinox study

A further analysis was added to the sensitivity study, to include a comparison of June 21 solar access compliance of both current DA scheme and Option F, with performance at the Equinox. The analysis confirmed that due to self-shading of the facades because of the higher sun angles, solar access of glazing is dramatically reduced at the Equinox compared to that at midwinter.

2.0 FURTHER IMPROVEMENTS

The previous sensitivity study demonstrated that building massing variations within a constrained concept plan for the overall site produce only small improvement of overall apartment solar access.

Even with the significant changes in the heights of Buildings M, J and K as the options progress from A to D, there was only approximately 2% change in the overall baseline compliance. When the range of additional heights for Building M was further constrained to limit ‘off site’ overshadowing impacts, the available improvement in solar access for apartments was effectively no more than 1%.

I understand that that subsequent discussion with the Panel identified that the potential impact of apartment layout changes may be greater than this relatively trivial improvement.

2.1 Apartment layout changes

My usual practice, applied at the original peer review analysis, is to record sun to bedrooms and to potential wintergardens, even though they may not be considered 'complying'. The benefit of that approach is that it identifies further instances of 'solar access opportunity', which under favourable circumstances can be captured by appropriate apartment layout changes.

My previous experience indicates that such potential changes are most fruitful on nominal east or west facades, and may be simplistically described as 'pushing the living area glazing out to the façade'. When applied to the 'current DA scheme' and the 'preferred Option F scheme', this potential is suitable for, but effectively confined to five 'stacks' of units in Building K facing east across the new park.

In addition, for 12 east facing Studio apartments in Building M, the depth of the POS appears to have been able to be adjusted, so that self shading is now reduced. These 12 additional apartments – Units 5 & 6 on Levels 2 through 7 – now comply for solar access.

I am satisfied that very few, if any additional units might present as potential candidates, and that these few are generally eliminated by other considerations such as external or mutual overshadowing.

The apartment layout changes have been implemented in amended plans, to which I now apply this new analysis.

2.2 Further reduction of Building K envelope

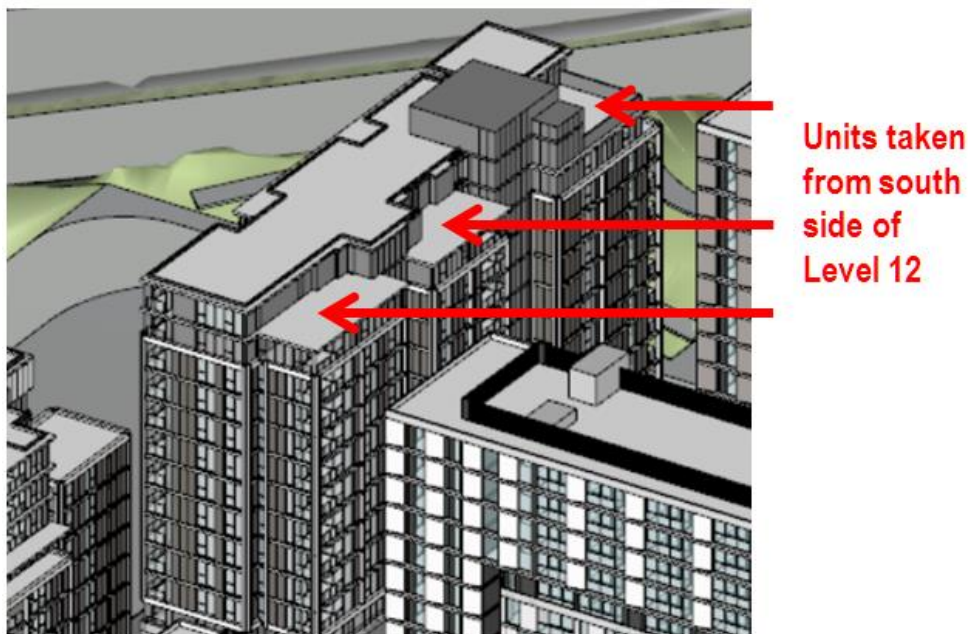


Figure 1: Further improved Option F

In generating the preferred Option F massing change, mismatch between overall floor plate sizes of the four buildings resulted in some excess GFA. This excess area is now eliminated by removing three apartments from the south side of Level 12 of Building K. It is expected that the new stepped

section of Building K will further reduce overshadowing of some apartments in Building M and Building L3, and marginally increase solar access availability for communal open space.

3.0 OUTCOMES OF FURTHER IMPROVEMENTS

The following summarise the impact of the further improvements described above.

3.1 Apartments

Because in the preferred Option F, Building K is two stories lower, the benefits of the apartment layout changes are actually greater for the current DA scheme. On the other hand, the improved Option F benefits from the further reduction of the Building K envelope, while the current DA scheme does not.

The overall outcome for June 21 solar access compliance is summarised in Table 1. For simplicity, I include only the 'baseline' percentages for conventional glazing and POS compliance. More detailed numbers can be seen in the summary full analysis tables included as Appendix B.

	DA Scheme		Preferred Option F	
	Previous	Improved	Previous	Further improved
Winter June 21	47.0%	54.4%	47.4%	56.8%
Equinox Sep 21	15.4%	24.3%	11.9%	20.0%

Table 1: June 21 and Equinox solar access

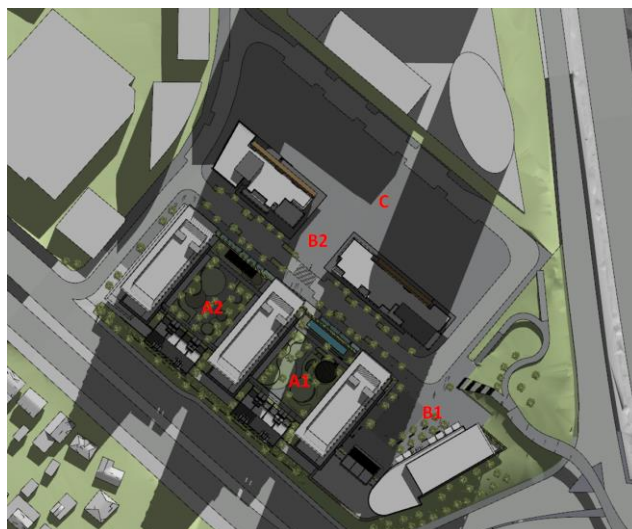
For the record, Table 1 also shows the outcome of the same apartment layout improvements for the Equinox.

3.2 Communal open space

3.2.1 Winter

The improved Option F scheme presents further small but key improvements in solar access to communal open space, when compared to the current DA scheme. I update my previous estimated proportions sunlit spaces, in the same two categories annotated on Figure 2:

Figure 2: Key plan. Shadows are at 10:30am June 21



Key

- A** Conventional communal open space, potentially securable.
- B** Publicly accessible communal open space.

Table 3 summarizes the winter solar access for communal open spaces for the 'Current DA' and 'further improved Option F' schemes.

	WINTER			
	CURRENT DA		FURTHER IMPROVED OPTION F	
	A	B	A	B
0900	10%	65%*	10%	65%*
0930	<10%	75%	<10%	75%
1000	<10%	75%	<10%	75%
1030	15%	60%	<25%	60%
1100	25%	30%	35%	30%
1130	>35%	25%	>35%	25%**
1200	20%	15%	20%	15%**
1230	15%	<15%	15%	<15%**
1300	15%	<10%	15%	<10%**
1330	<10%	<5%	<10%	<5%**
1400		<5%		<10%**
1430		<5%**		10%**
1500		<5%**		<5%**

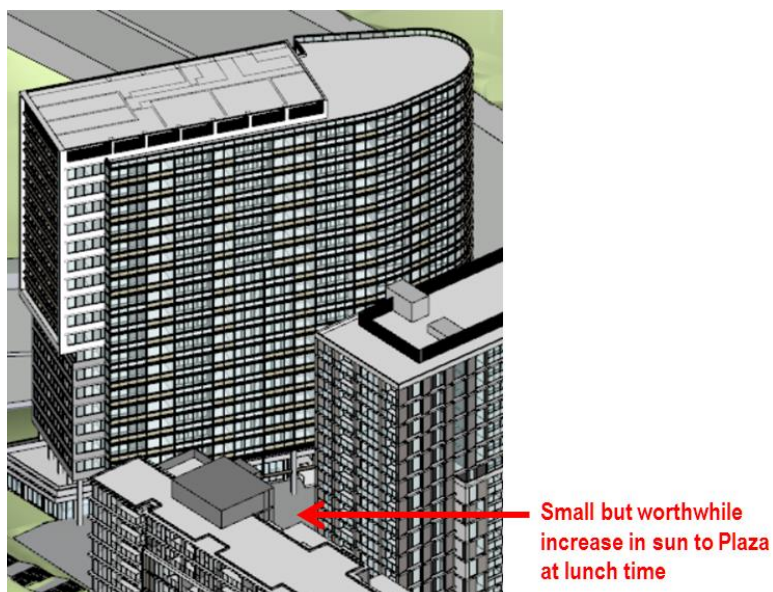
* Plaza area >90%

** Moving patch of additional sun to two shopfronts on south edge of plaza

Table 2: Summary of winter solar access for Current and preferred Option F schemes

The additional sunlit area is small and hard to quantify. But qualitatively, the improvement is recognisable and arguably significant. The stepped section of the top of Building K further increases the sunny area which transits the front of the cafes/shops at the base of Building M in the publicly accessible Plaza. See Figure 3.

Figure 3: Change in solar access to open space



3.2.2 Equinox

In contrast to the impact on sun access to living room glazing, the higher sun angles at the Equinox assure that communal open space is subject to much less shadowing by the bounding buildings, for extended periods in the morning and the middle of the day.

Figure 4 compares the views from the sun at noon for Option F. This effect is very similar for both current DA and improved Option F schemes.

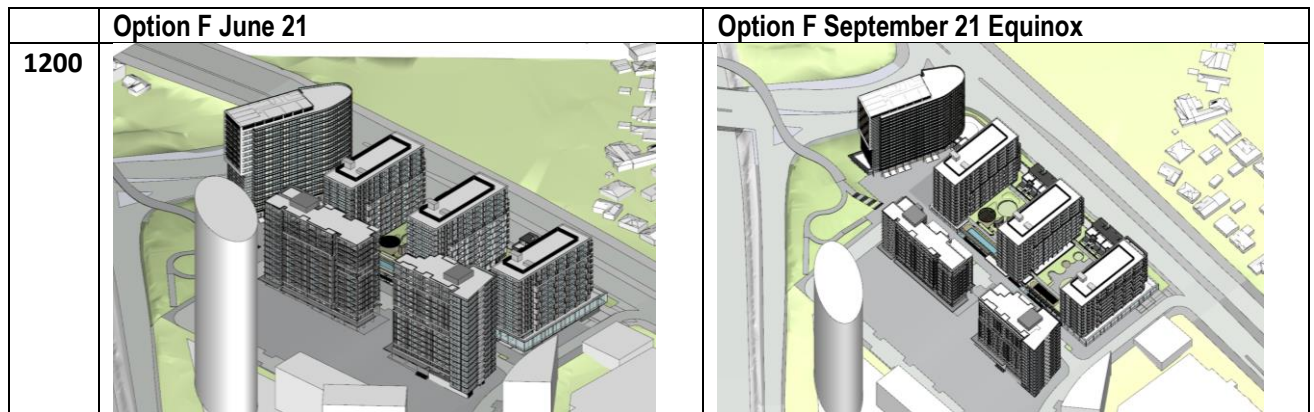


Figure 4: Comparison of winter and Equinox. 12pm views from the sun.

Table 4 records the proportion of the sunlit ground plane of the communal open spaces at the Equinox. In brief, at the Equinox all the communal open spaces are exposed to direct sun for periods well in excess of 2 hours, and for well in excess of 50% of their area. Differences between the Current DA and further improved Option F schemes are minor and almost negligible.

Table 3: Equinox sun exposure at ground plane of communal open spaces

	EQUINOX			
	CURRENT DA		IMPROVED OPTION F	
	A	B	A	B
900	60%	65%*	70%	65%*
930	70%	65%*	75%	65%*
1000	75%	80%*	80%	80%*
1030	85%	90%*	90%	90%*
1100	85%	85%	90%	85%
1130	75%	75%	75%	70%
1200	60%	55%	60%	50%
1230	35%	30%	35%	25%
1300	<10%	<10%	<10%	<10%
1330	<5%	<5%	<5%	<5%
1400				
1430				
1500				

* Plaza area >90%

4.0 CONCLUSIONS

4.1 Sensitivity to changes in massing

As predicted by inference from the 3D model, *as the heights of Buildings J and K are reduced and the heights of Building M and Building L.3 are increased, there is an improvement in the overall percentage of apartments with complying solar access.* However, *the size of improvements is relatively very small.*

4.2 Changes to apartment layouts

The original DA peer review analysis, as well as recording 'baseline' compliance of individual apartments, provided other information relating to solar access opportunity – such as durations of direct sun to bedrooms. Based on this information, the architects identified a significant number of units in Building K, where re-planning the layout allowed those apartments to qualify for over two hours of sun on June 21.

In addition, a further smaller number of apartments in Building M can now also be considered complying, because resolved design of their POS reduces their self-shading.

For overall solar access compliance of the apartments, the effect of these unit layout changes is much greater than the benefit of massing changes.

It should be noted that the net benefit of apartment layout changes in Building K is actually greater for the current DA scheme. This is because Building K is two storeys taller than the Option F version.

4.3 Further changes to massing

The need to match the GFA of the preferred Option F to that of the current DA has been met by deleting three apartments on the shaded side of Level 12 in Building K, producing a stepped section. This incremental massing change removes some overshadowing of a number of apartments in Buildings M and L.3, further improving the Option F overall solar access compliance.

4.4 Cumulative effect on apartment compliance

The cumulative effect of the massing changes and unit layout improvements is that the preferred Option F scheme is now predicted to achieve a baseline compliance for apartments of 56.8%.

4.5 Cumulative effect on communal open space

Because the benefit of improved unit layouts is actually slightly greater for the current DA scheme, it cancels out part of the benefit of the massing changes in Option F.

But the benefit of the Option F scheme is an additional improvement in winter solar access for communal open space. This improvement is most obvious in the *increased area of sun at ground level for the 'eastern courtyard'* between buildings L.2 and L.3, almost entirely caused by the reduction in height of Building K.

The massing change also introduces *a small area of sun between 1130 and 1330 into the southern portion of the plaza* between Buildings L.3 and M. This sun patch is approximately the width of two



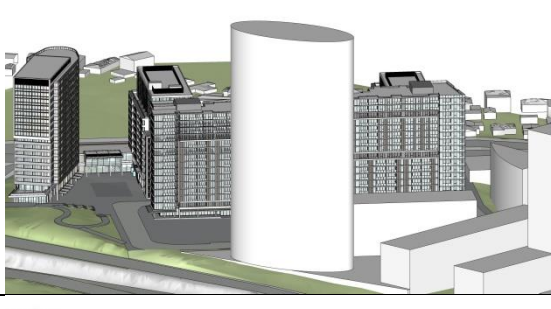
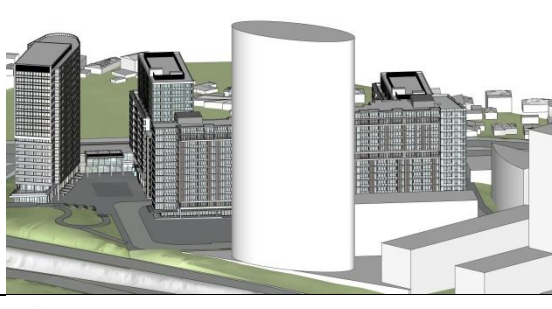
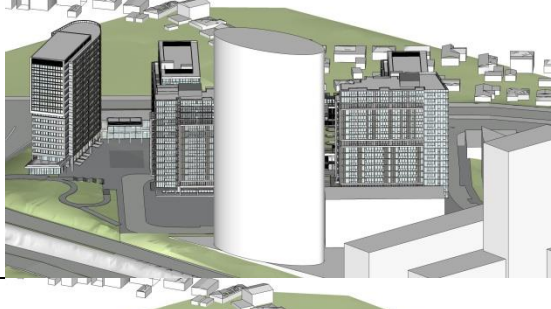
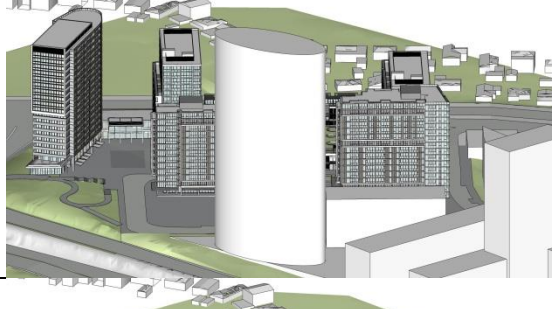

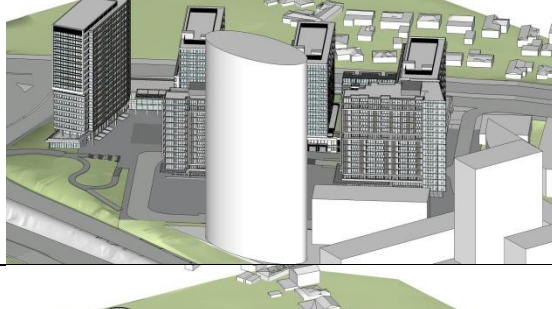


shopfronts, and ‘travels’ during the day along the base of Building M. Though small, it is a non-trivial improvement in winter amenity for those premises. The stepped section of Building K in the improved Option F further slightly increases the size of this sun patch.



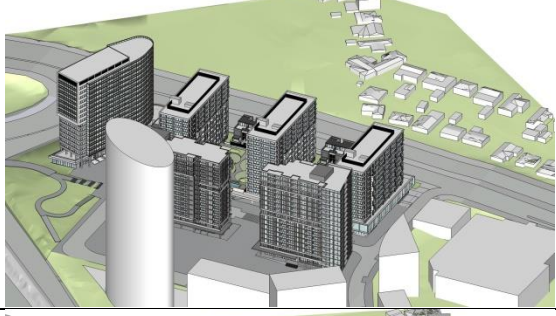







Taken together, these improvements in winter solar access to communal open space are not large, but may be considered to be of significant benefit.

As reported earlier, at the Equinox all the communal open spaces are exposed to direct sun for periods well in excess of 2 hours, and for well in excess of 50% of their area. For all intents and purposes, this is not further changed.

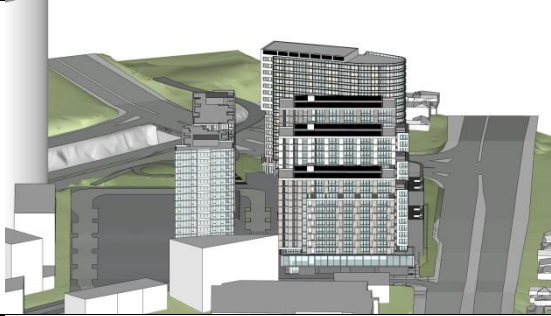
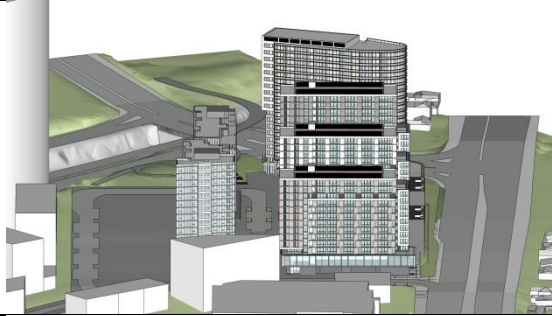


A.0 APPENDIX A: Views from the sun

Comparison of views from the sun on a half hourly basis for June 21, for the current DA scheme and improved Option F.

	CURRENT DA	IMPROVED OPTION F
0800		
0830		
0900		
0930		
1000		

	CURRENT DA	IMPROVED OPTION F
1030		
1100		
1130		
1200		
1230		

	CURRENT DA	IMPROVED OPTION F
1300		
1330		
1400		
1430		
1500		

	CURRENT DA	IMPROVED OPTION F
1530		
1600		

B.0 APPENDIX B: SUMMARY DETAILED COMPLIANCE TABLES

Building and block level *summaries* of the detailed compliance tables for Current DA scheme and the improved preferred Option F, for June 21. These summaries derive from updated spreadsheets of unit by unit assessment of solar access.

CURRENT DA WINTER											
LOT 104 BUILDING L1											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
126	65	10	0	0	0	0	41	41	75	0	
	51.6%	7.9%	0.0%	0.0%	0.0%	0.0%	32.5%	32.5%	59.5%	0.0%	
		59.5%								59.5%	
			59.5%	0.0%	59.5%	0.0%					
LOT 104 BUILDING L2											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
136	40	12	6	1	1	1	48	47	58	2	
	29.4%	8.8%	4.4%	0.7%	0.7%	0.7%	35.3%	34.6%	42.6%	1.5%	
		38.2%								44.1%	
			42.6%	0.7%	43.4%	1.5%					
LOT 104 BUILDING L3											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
128	21	7	20	1	2	0	45	44	48	2	
	16.4%	5.5%	15.6%	0.8%	1.6%	0.0%	35.2%	34.4%	37.5%	1.6%	
		21.9%								39.1%	
			37.5%	0.8%	39.1%	0.8%					
LOT 104 BUILDING M											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
173	86	4	9	45	29	3	21	18	99	32	
	49.7%	2.3%	5.2%	26.0%	16.8%	1.7%	12.1%	10.4%	57.2%	18.5%	
		52.0%								75.7%	
			57.2%	26.0%	74.0%	27.7%					
LOT 104 BUILDING L4											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
4	0	0	0	0	0	0	0	0	0	0	
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
		0.0%								0.0%	
			0.0%	0.0%	0.0%	0.0%					
LOT 104 BUILDING L5											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
4	0	0	0	0	0	0	0	0	0	0	
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
		0.0%								0.0%	
			0.0%	0.0%	0.0%	0.0%					
LOT 104 - TOTAL											
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	
571	212	33	35	47	32	4	155	150	280	36	
	37.1%	5.8%	6.1%	8.2%	5.6%	0.7%	27.1%	26.3%	49.0%	6.3%	
		42.9%								55.3%	
			49.0%	8.2%	54.6%	8.9%					
				57.3%		63.6%					
LOT 105 BUILDING J											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
163	76	25	2	0	13	0	37	37	119	0	
	46.6%	15.3%	1.2%	0.0%	8.0%	0.0%	22.7%	22.7%	73.0%	0.0%	
		62.0%								73.0%	
			63.2%	0.0%	71.2%	0.0%					
LOT 105 BUILDING K											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
145	7	11	12	0	36	0	37	37	30	36	
	4.8%	7.6%	8.3%	0.0%	24.8%	0.0%	25.5%	25.5%	20.7%	24.8%	
		12.4%								45.5%	
			20.7%	0.0%	45.5%	0.0%					
LOT 105 - TOTAL											
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	
308	83	36	14	0	49	0	74	74	149	36	
	26.9%	11.7%	4.5%	0.0%	15.9%	0.0%	24.0%	24.0%	48.4%	11.7%	
		38.6%								60.1%	
			43.2%	0.0%	59.1%	0.0%					
				43.2%		59.1%					
PRECINCT - TOTAL											
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	
879	295	69	49	47	81	4	229	224	429	72	
	33.6%	7.8%	5.6%	5.3%	9.2%	0.5%	26.1%	25.5%	48.8%	8.2%	
		41.4%								57.0%	
			47.0%	5.3%	56.2%	5.8%					
				52.3%		62.0%					

CURRENT DA WINTER IMPROVED											
LOT 104 BUILDING L1											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
126	65	10	0	0	0	0	41	41	75	0	
	51.6%	7.9%	0.0%	0.0%	0.0%	0.0%	32.5%	32.5%	59.5%	0.0%	
		59.5%								59.5%	
			59.5%	0.0%	59.5%	0.0%					
LOT 104 BUILDING L2											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
136	40	12	6	1	1	1	48	47	58	2	
	29.4%	8.8%	4.4%	0.7%	0.7%	0.7%	35.3%	34.6%	42.6%	1.5%	
		38.2%								44.1%	
			42.6%	0.7%	43.4%	1.5%					
LOT 104 BUILDING L3											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
128	21	7	20	1	2	0	45	44	48	2	
	16.4%	5.5%	15.6%	0.8%	1.6%	0.0%	35.2%	34.4%	37.5%	1.6%	
		21.9%								39.1%	
			37.5%	0.8%	39.1%	0.8%					
LOT 104 BUILDING M											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
173	86	4	9	45	29	3	21	18	99	32	
	49.7%	2.3%	5.2%	26.0%	16.8%	1.7%	12.1%	10.4%	57.2%	18.5%	
		52.0%								75.7%	
			57.2%	26.0%	74.0%	27.7%					
LOT 104 BUILDING L4											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
4	0	0	0	0	0	0	0	0	0	0	
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
		0.0%								0.0%	
			0.0%	0.0%	0.0%	0.0%					
LOT 104 BUILDING L5											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
4	0	0	0	0	0	0	0	0	0	0	
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
		0.0%								0.0%	
			0.0%	0.0%	0.0%	0.0%					
LOT 104 - TOTAL											
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	
571	212	33	35	47	32	4	155	150	280	36	
	37.1%	5.8%	6.1%	8.2%	5.6%	0.7%	27.1%	26.3%	49.0%	6.3%	
		42.9%								55.3%	
			49.0%	8.2%	54.6%	8.9%					
				57.3%		63.6%					
LOT 105 BUILDING J											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
163	76	25	2	0	13	0	37	37	119	0	
	46.6%	15.3%	1.2%	0.0%	8.0%	0.0%	22.7%	22.7%	73.0%	0.0%	
		62.0%								73.0%	
			63.2%	0.0%	71.2%	0.0%					
LOT 105 BUILDING K											
	Solar compliance										
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	Notes
145	39	34	22	0	1	0	37	37	95	1	
	26.9%	23.4%	15.2%	0.0%	0.7%	0.0%	25.5%	25.5%	65.5%	0.7%	
		50.3%								66.2%	
			65.5%	0.0%	66.2%	0.0%					
LOT 105 - TOTAL											
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	
308	115	59	24	0	14	0	74	74	214	1	
	37.3%	19.2%	7.8%	0.0%	4.5%	0.0%	24.0%	24.0%	69.5%	0.3%	
		56.5%								69.8%	
			64.3%	0.0%	68.8%	0.0%					
				64.3%		68.8%					
PRECINCT - TOTAL											
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4	
879	327	92	59	47	46	4	229	224	494	37	
	37.2%	10.5%	6.7%	5.3%	5.2%	0.5%	26.1%	25.5%	56.2%	4.2%	
		47.7%								60.4%	
			54.4%	5.3%	59.6%	5.8%					
				59.7%		65.4%					

IMPROVED OPTION F WINTER										
LOT 104 BUILDING L1										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
126	66	10	1	0	0	0	41	41	77	0
	52.4%	7.9%	0.8%	0.0%	0.0%	0.0%	32.5%	32.5%	61.1%	0.0%
		60.3%								61.1%
			61.1%	0.0%	61.1%	0.0%				
LOT 104 BUILDING L2										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
136	42	12	7	1	1	1	48	47	61	2
	30.9%	8.8%	5.1%	0.7%	0.7%	0.7%	35.3%	34.6%	44.9%	1.5%
		39.7%								46.3%
			44.9%	0.7%	45.6%	1.5%				
LOT 104 BUILDING L3										
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
148	38	11	23	1	2	0	51	50	72	2
	25.7%	7.4%	15.5%	0.7%	1.4%	0.0%	34.5%	33.8%	48.6%	1.4%
		33.1%								50.0%
			48.6%	0.7%	50.0%	0.7%				
LOT 104 BUILDING M										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
191	98	9	10	32	14	5	25	21	117	19
	51.3%	4.7%	5.2%	16.8%	7.3%	2.6%	13.1%	11.0%	61.3%	9.9%
		56.0%								71.2%
			61.3%	16.8%	68.6%	19.4%				
LOT 104 BUILDING L4										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
4	0	0	0	0	0	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		0.0%								0.0%
			0.0%	0.0%	0.0%	0.0%				
LOT 104 BUILDING L5										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
4	0	0	0	0	0	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		0.0%								0.0%
			0.0%	0.0%	0.0%	0.0%				
LOT 104 - TOTAL										
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
609	244	42	41	34	17	6	165	159	327	23
	40.1%	6.9%	6.7%	5.6%	2.8%	1.0%	27.1%	26.1%	53.7%	3.8%
		47.0%								57.5%
			53.7%	5.6%	56.5%	6.6%				
			59.3%			63.1%				
LOT 105 BUILDING J										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
146	70	19	2	0	11	0	35	35	105	0
	47.9%	13.0%	1.4%	0.0%	7.5%	0.0%	24.0%	24.0%	71.9%	0.0%
		61.0%								71.9%
			62.3%	0.0%	69.9%	0.0%				
LOT 105 BUILDING K										
	Solar compliance									
UNIT	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
124	28	32	21	0	1	0	31	31	81	1
	22.6%	25.8%	16.9%	0.0%	0.8%	0.0%	25.0%	25.0%	65.3%	0.8%
		48.4%								66.1%
			65.3%	0.0%	66.1%	0.0%				
LOT 105 - TOTAL										
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
270	98	51	23	0	12	0	66	66	186	1
	36.3%	18.9%	8.5%	0.0%	4.4%	0.0%	24.4%	24.4%	68.9%	0.4%
		55.2%								69.3%
			63.7%	0.0%	68.1%	0.0%				
			63.7%			68.1%				
PRECINCT - TOTAL										
	>3 hrs 9-3	>2 hrs 9-3 (>3hrs 8-4)	>2 hrs 9-3	>2 hrs 9-3 WG	>2hrs 8-4	>2hrs 8-4 WG	No sun	No sun WG	Private Open Space 9-3	Private Open Space 8-4
879	342	93	64	34	29	6	231	225	513	24
	38.9%	10.6%	7.3%	3.9%	3.3%	0.7%	26.3%	25.6%	58.4%	2.7%
		49.5%								61.1%
			56.8%	3.9%	60.1%	4.6%				
			60.6%			64.6%				