



MEMORANDUM

DATE:	February 05, 2021	RWDI REFERENCE #: 1904405
TO:	Anthony Witherdin	Director, Key Sites Assessments - DPIE
FROM:	Kevin Peddie	Email: kevin.peddie@rwdi.com
	Michael Pieterse	michael.pieterse@rwdi.com
RE:	Overshadowing – Southern Precinct Waterloo Metro Quarter	

Dear Anthony,

It is understood that after submission of the planning documents for the Waterloo Metro Quarter Development, commentary has been provided on the submission. The comments received are noted below, with commentary in response discussed in this memo. This document is as an addendum to the submitted Appendix MM – Overshadow report for the entire precinct.

City of Sydney Comments

Item 14 of the City of Sydney comments under the heading Amenity Application precinct pertains to the Overshadowing requirement of the Apartment Design Guide and noted the following:

3M Solar Access and Amenity – Design Criteria 4:

New development does not create any additional overshadowing onto a neighbouring dwelling what that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June.

Further to this, a letter of objection is noted to also have been received from the Owner's Corporation of Velocity, located at 180 Cope Street, which noted the following regarding solar access / overshadowing concerns.

Solar access and shadowing impact.

Six (6) of the apartments contained within 180 Cope Street, Waterloo have direct northerly aspect and access to sunlight through windows or doors opening onto their private balconies. (which is the only source of natural light into these apartments living areas). As depicted on the shadow diagrams prepared and submitted by the project planners, the impact of the proposed development will be detrimental as these owners will lose significant solar access.

Additionally, 3 apartments have a lightwell on the site's northern boundary to allow additional sunlight to enter the units which front directly onto Cope Street. The southern precinct proposal does not offer any guarantee that it will not decrease the amount and source of natural sunlight that can be accessed into these apartments.

RWDI Clarifications

Solar access to the nearby residential apartment buildings has been considered as part of the submitted design scheme for the precinct. Image 1 notes the nearby existing residential buildings located to the south of the site where the development will cast a shadow on June 21 between 9:00am and 3:00pm. 11 key properties were noted and reviewed in further detail to understand any potential impact to their solar access performance in accordance with Section 4a-1 of the Apartment Design Guide and Design Criteria 4 of 3M Solar Access and Amenity.

A comparison was initially undertaken between the Approved Envelope and the Proposed Design Scheme for the Waterloo Metro Quarter Development to understand the benefit of the design scheme to increase the access to direct sunlight to the surrounding areas. The comparison noted in Image 1 below highlights the increase in annual direct sunlight hours surrounding the site based on the form and arrangement proposed for the design. This includes a number of residential properties surrounding the site as noted below.

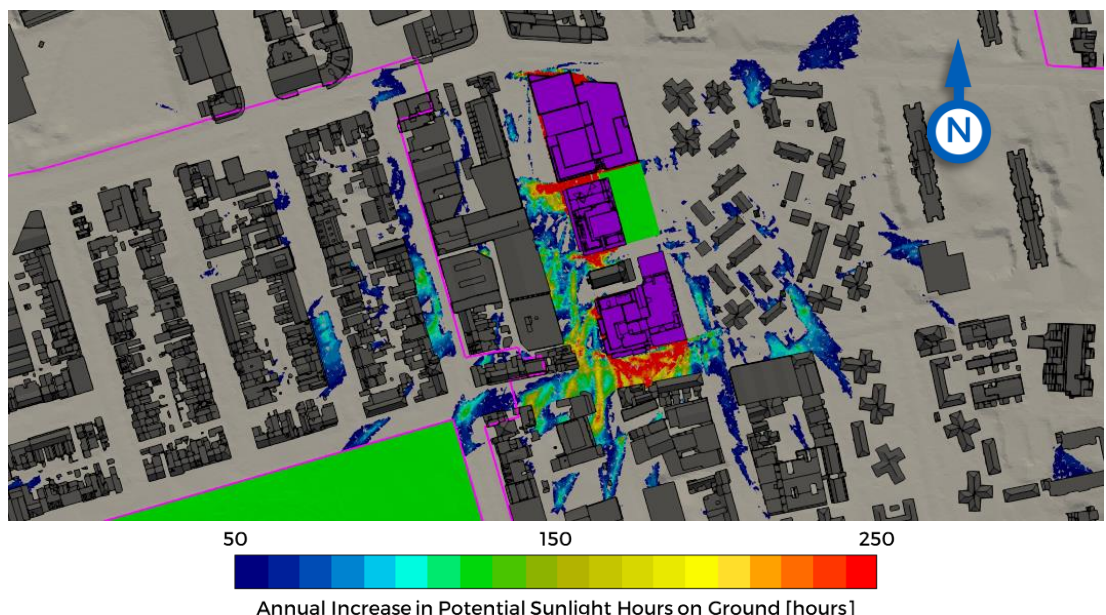
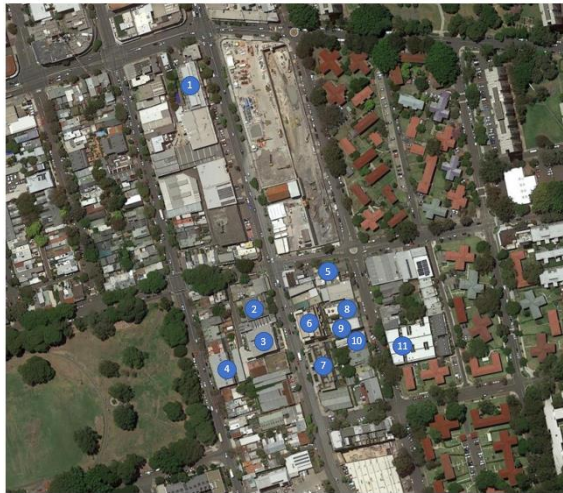


Image 2: Annual Increase in Potential Sunlight Hours on Ground Due to Proposed Scheme Compared to Approved DA Envelope Design Scheme




1. 62-72 Botany Road
2. 138-140 Botany Road
3. 146-156 Botany Road
4. 146-156 Wyndham Street
5. 122-134 Wellington Street (terrace houses)
6. 133-141 Botany Road
7. 143-159 Botany Road
8. 180 Cope Street
9. 184 Cope Street
10. 186 Cope Street
11. 233-243 Cope Street

Image 2: Nearby existing Residential Apartment Buildings

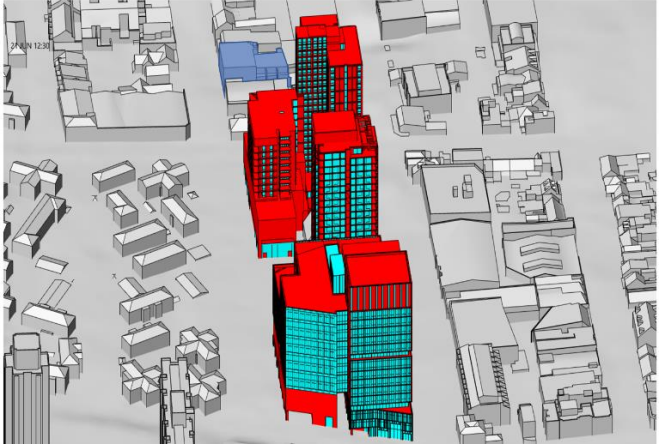
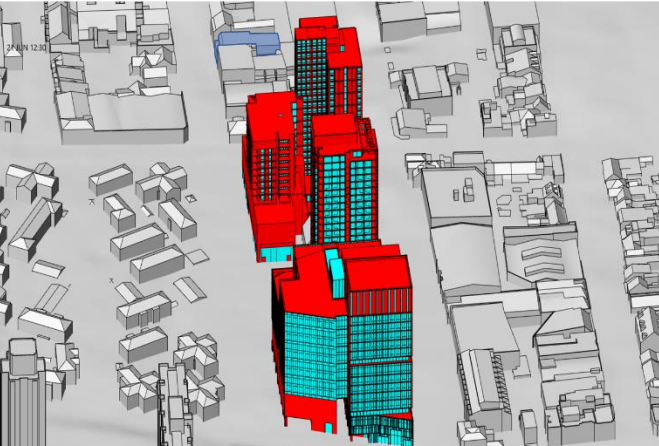
For each of the 11 studied buildings, given the separation distance between the Waterloo Metro Quarter precinct and these buildings, sufficient level of daylight is expected to be maintained which is a separate metric to direct solar access.

Property	Compliant with ADG and Waterloo Guidelines	Comments
62-72 Botany Road	Yes	The property is located to the west of the site. Floor plans indicate that the bedrooms of the residential apartments are located along Botany Road with the living spaces and private outdoor areas located on the western aspect of the site. All aspects of the development will be unaffected by the development from 11:00am and hence the apartments will maintain the same level of solar access to the living spaces and private outdoor areas.
138-140 Botany Road	No	<p>This residential apartment building is noted to be affected by shadowing from the project in some form from 9:00am until 11:45am, impacting the direct solar access to the building. The western aspect apartments (4) will not be affected by the development.</p> <p>The 6 eastern facing apartments consist of 3 apartments on Level 1 and 3 double-storey apartments over Levels 2 and 3. The living space is noted to be setback behind the private outdoor space on Levels 1 and 2 respectively and hence do not currently achieve the 2hrs of direct sunlight.</p> <p>For the Private outdoor spaces, apartments 1, 2 and 3, on Level 1 will each receive less than 2hrs of direct</p>

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		<p>sunlight with the inclusion of the development. Modelling was undertaken to understand the average solar exposure for the private outdoor areas associated based on a simplified model of the building, as detailed drawings were not available.</p> <p>On review of the current use of apartments 6, 7 and 8 (on Level 2 and 3), the current tenants use the upper balcony space (connected to the master bedroom) as the private outdoor space with inclusion of outdoor dining tables etc. These areas will maintain over 2hrs of direct solar access on June 21.</p>  <p>Leasing photo for apartment 7 (courtesy of Homely.com.au)</p> <p>As it noted from both sets of analysis, that the proposed scheme has a notable improvement in the solar access performance compared to the Concept Design Consent SSD9393. This is due to the change in built form associated with Buildings 3 and 4, reducing the extent of time that overshadowing occurs.</p> <p>Average Solar Exposure on June 21 (minutes)</p> <table border="1"> <thead> <tr> <th>Area</th> <th>Existing</th> <th>Concept Design Consent SSD9393</th> <th>Proposed Scheme</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>172</td> <td>25</td> <td>76</td> </tr> <tr> <td>2</td> <td>172</td> <td>29</td> <td>38</td> </tr> <tr> <td>3</td> <td>90</td> <td>27</td> <td>36</td> </tr> <tr> <td>6</td> <td>183</td> <td>61</td> <td>96</td> </tr> <tr> <td>7</td> <td>183</td> <td>39</td> <td>52</td> </tr> <tr> <td>8</td> <td>245</td> <td>87</td> <td>98</td> </tr> </tbody> </table> <p>A further assessment was undertaken on the impact to the average annual solar exposure.</p>	Area	Existing	Concept Design Consent SSD9393	Proposed Scheme	1	172	25	76	2	172	29	38	3	90	27	36	6	183	61	96	7	183	39	52	8	245	87	98
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		<p>Average Annual Solar Exposure Comparison</p> <table border="1"> <thead> <tr> <th rowspan="2">Apartment</th> <th colspan="3">Average Annual Solar Exposure [hrs/yr]</th> <th colspan="2">% Reduction from Existing</th> </tr> <tr> <th>Existing</th> <th>Concept Design Consent SSD9393</th> <th>Proposed Scheme</th> <th>Concept Design Consent SSD9393</th> <th>Proposed Scheme</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1986</td> <td>1737</td> <td>1828</td> <td>12.5%</td> <td>7.9%</td> </tr> <tr> <td>2</td> <td>1951</td> <td>1608</td> <td>1718</td> <td>17.6%</td> <td>12.0%</td> </tr> <tr> <td>3</td> <td>1693</td> <td>1469</td> <td>1507</td> <td>13.2%</td> <td>11.0%</td> </tr> <tr> <td>6</td> <td>2117</td> <td>1890</td> <td>1966</td> <td>10.7%</td> <td>7.1%</td> </tr> <tr> <td>7</td> <td>2105</td> <td>1782</td> <td>1878</td> <td>15.4%</td> <td>10.8%</td> </tr> <tr> <td>8</td> <td>2298</td> <td>1859</td> <td>1909</td> <td>19.1%</td> <td>16.9%</td> </tr> </tbody> </table>	Apartment	Average Annual Solar Exposure [hrs/yr]			% Reduction from Existing		Existing	Concept Design Consent SSD9393	Proposed Scheme	Concept Design Consent SSD9393	Proposed Scheme	1	1986	1737	1828	12.5%	7.9%	2	1951	1608	1718	17.6%	12.0%	3	1693	1469	1507	13.2%	11.0%	6	2117	1890	1966	10.7%	7.1%	7	2105	1782	1878	15.4%	10.8%	8	2298	1859	1909	19.1%	16.9%
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146-156 Botany Road	Yes	Overshadowing to parts of this building by Building 3 occurs after 10:30am until 11:45pm. As such the eastern facing apartments will maintain direct solar access for at least 2hrs. The western facing apartments will remain unaffected with the inclusion of the development.																																															
146-156 Wyndham Street	Yes	The building generally maintains access to the direct sunlight which it currently experiences throughout the day. There is some overshadowing which occurs between 9:30am and 10:30am for the northern 3 apartments. The living spaces and private outdoor area (courtyards) will maintain more than 2hrs of direct sunlight outside of this period.																																															
122-134 Wellington Street (Terrace Houses)	Yes	The terrace houses located on the southern side of Wellington Street start to experience overshadowing from 10:30am from Building 4. However, review of the internal layouts of these buildings indicate that the living space and private outdoor areas are located on the southern aspect on the ground floor of the property. This area already doesn't achieve solar access due to self shading by the property.																																															
133-141 Botany Road	Yes	The eastern aspect of this building remains in direct sunlight until after 11:45am, while the western aspect of the property is aligned with Botany Road and hence receives direct sunlight after 1pm. Building 2 and 3 being setback from Botany Road helps to enable earlier access to direct sunlight to the north-western corner apartments.																																															
143-159 Botany Road	Yes	Only the lower levels on the northern end of the building is overshadowed between 12:00pm and 12:30pm, enabling at least 2hrs of direct sunlight to be maintained to the apartments.																																															

Property	Compliant with ADG and Waterloo Guidelines	Comments
180 Cope Street (Velocity Building)	Yes	<p>Residential apartments are noted to mainly face Cope Street, with 6 apartments facing north, which are setback from the street. As noted in the below image from the sun, overshadowing does not occur to this property until after 12:30pm, maintaining at least 2 hrs of solar access which complies with the ADG. The northern facing apartments will also have access to direct sunlight after 2:30pm.</p> <p>Jun 21 - 12:30 AEST</p> 
184 Cope Street	Yes	<p>Overshadowing of this development occurs between 12:45pm and 2pm by Building 3. While it is unclear as to the location of living spaces and private outdoor areas on the western portion of the building, sufficient access to direct sunlight on the building façade is noted for at least 2hrs.</p> <p>Jun 21 - 12:30 AEST</p> 



Property	Compliant with ADG and Waterloo Guidelines	Comments
186 Cope Street	Yes	Overshadowing of this development occurs from 12:45pm until just after 2pm. While it is unclear as to the location of living spaces and private outdoor areas on the western portion of the building, sufficient access to direct sunlight on the building's northern façade is noted for at least 2hrs.
233-243 Cope Street	Yes	The residential apartments of this building are noted to mainly have the bedrooms facing Cope Street, with the private outdoor areas and living spaces facing to the east. These apartments will therefore maintain direct solar access and overshadowing of this property does not occur until 2:15pm.
Alexandria Park		The overshadowing analysis indicates a very minor reduction only in overshadowing to Alexandria Park between 9am and 10am. The application therefore does not achieve the improvements anticipated in the Guidelines to improve solar access to Alexandria Park through detailed design by reducing the northern tower only, which is not responsible for the non-compliant overshadowing of Alexandria Park.