22 August 2014 CPP Project 6029

Lend Lease Building Pty. Ltd.
Level 4, 30 The Bond
30 Hickson Road
Millers Point
NSW 2000

Attn: Mr. Andrew Davis

Subject: Wind Engineering – Barangaroo South Building R7

Ref: (1) CPP report, Barangaroo Masterplan, dated December 2013

Dear Mr. Davis,

Please find herein comments regarding the impact of Barangaroo South Building R7 and the pedestrian level wind conditions. The architectural drawings prepared for this application, Figure 1, have been reviewed and assessed from an environmental wind perspective at ground level. Compared with the massing model used for the wind tunnel testing of the Barangaroo South precinct, Figure 2, the architectural form of the building has been developed, but the general massing of the building has remained similar. The details of the wind-tunnel testing and analysis are contained in Reference (1).

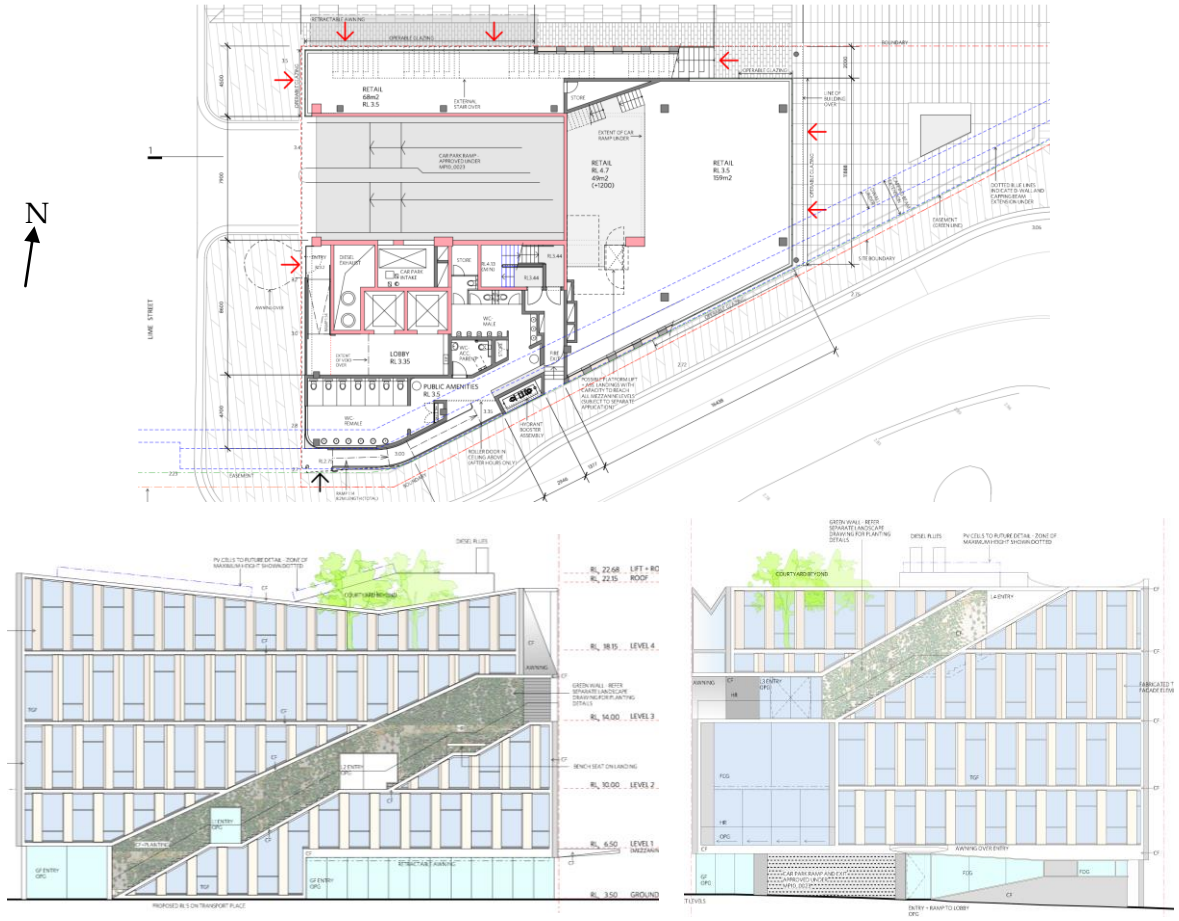

Figure 1: Ground floor plan (T), north elevation (BL), west elevation (BR) of the proposed Barangaroo South R7 development

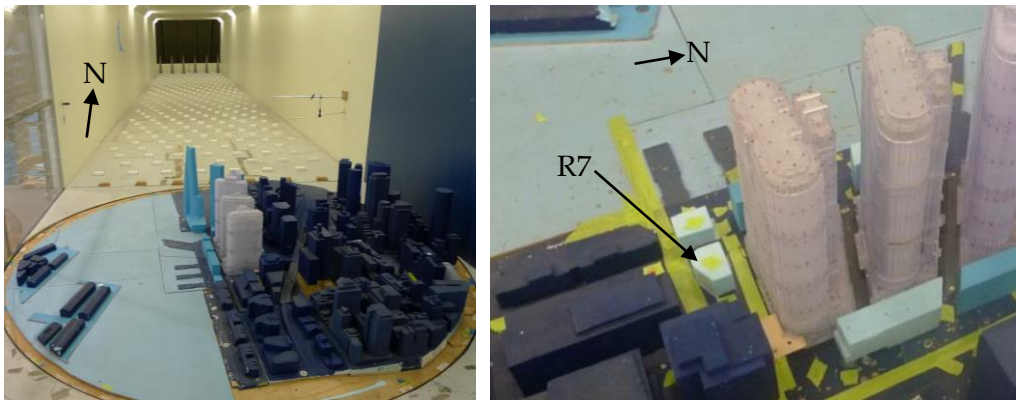

Figure 2: Photograph of the wind tunnel model

The directional wind flow pattern around the site is complex. The classification of wind conditions at various locations around the site is summarised in Figure 3, with directional results presented in Figure 4 and Figure 5; the contours relate to the wind climate at the site, and the distance of the symbol from the centre of the plot represents the local mean wind speed for winds from that direction. Classification of the comfort and distress criteria is determined by the integration of the measured wind speed with the local wind climate as discussed fully in Reference (1).

The wind flow in this section of the Barangaroo South precinct is dictated by the neighbouring taller structures and the open harbour to the west. From a pedestrian comfort perspective the wind conditions around the site all met the pedestrian walking criterion, with the majority of locations being classified as acceptable for pedestrian standing activities, Figure 3. All locations passed the distress criterion. The wind conditions around the amended geometry would be expected to be similar to those measured.

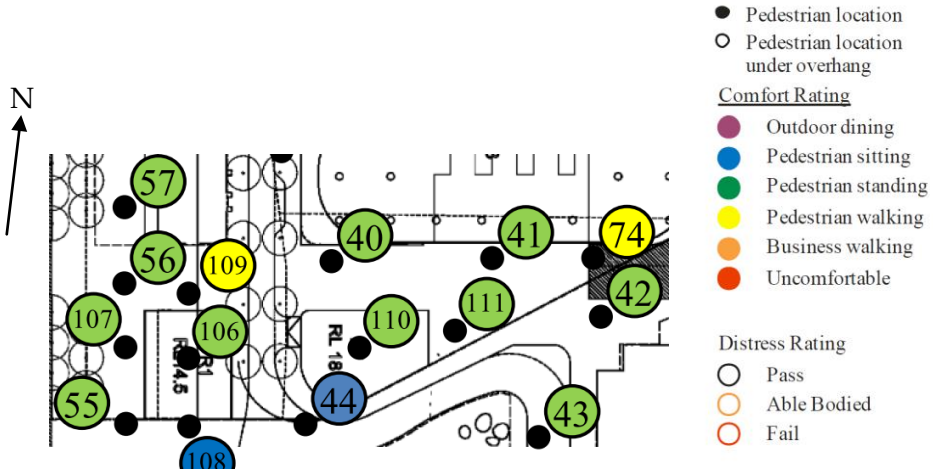

Figure 3: Wind climate results from December 2013 report

It is evident from Figure 4 and Figure 5 that strong wind events tend to occur for winds from the south and north-west quadrants and are caused by the proximity of R7 to Building C5, which is exposed to southerly winds, and the open nature of the harbour to the west. The wind conditions in the open space area to the east of R7, Location 111 in Figure 3, would be suitable for café style activities for about 85% of the time, and for

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outdoor dining for 60% of the time. As the wind conditions in this area are governed by the taller building massing, to improve the wind conditions around the building local amelioration techniques such as vertical screening would be required.

In summary, it is expected that the design of Barangaroo South Building R7 will not change the local wind conditions from those measured with the massing model used in the wind-tunnel testing. All ground level locations are expected to meet the 'pedestrian walking' comfort criterion and pass the distress criterion.

I hope this is of assistance, please do not hesitate to contact me on 9551 2000 if you would like to discuss any aspect of this report.

Yours sincerely,

Graeme Wood
Director
cc M. Glanville

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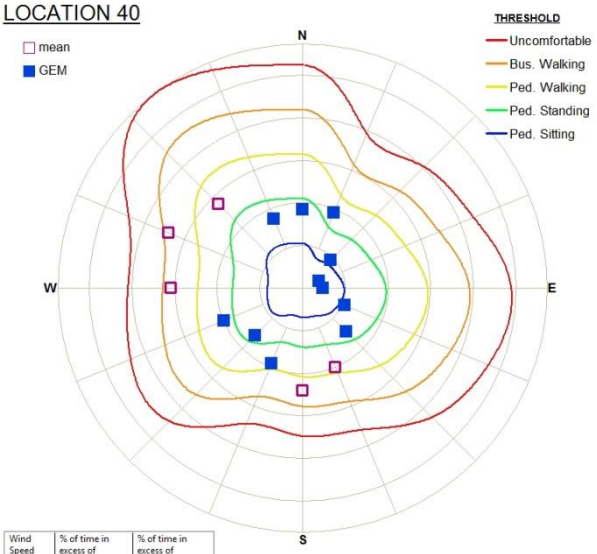
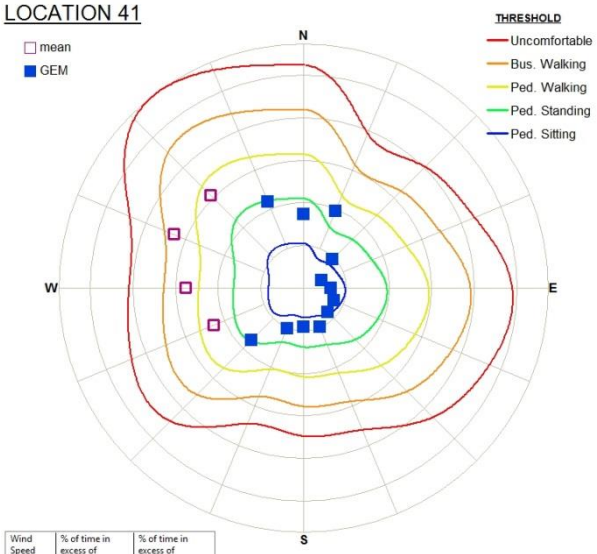
LOCATION 40



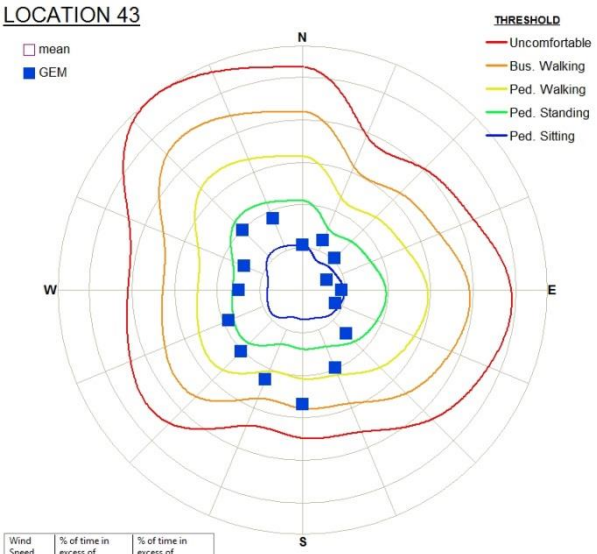
Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	38.4	41.6
4.0	13.8	13.3
6.0	3.8	2.8
8.0	0.9	0.5
10.0	0.2	0.1
5.5	**5.0**	Ped Standing
12.8	**0.022**	Pass
5.2	Ped Standing	**5.0**
11.4	Pass	**0.022**

LOCATION 41



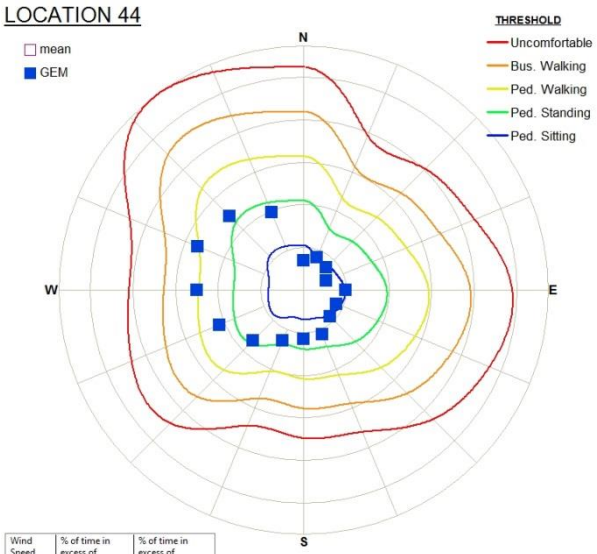
Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	25.9	29.6
4.0	6.9	6.3
6.0	1.9	1.4
8.0	0.5	0.3
10.0	0.1	0.1
4.4	**5.0**	Ped Standing
12.4	**0.022**	Pass
4.3	Ped Standing	**5.0**
11.1	Pass	**0.022**

LOCATION 43



Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	28.0	34.2
4.0	7.4	11.3
6.0	1.3	3.0
8.0	0.1	0.6
10.0	0.0	0.1
4.5	**5.0**	Ped Standing
9.4	**0.022**	Pass
5.2	Ped Standing	**5.0**
10.9	Pass	**0.022**

LOCATION 44



Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	16.1	26.6
4.0	3.5	4.9
6.0	0.7	1.1
8.0	0.1	0.2
10.0	0.0	0.0
3.5	**5.0**	Ped Sitting
9.5	**0.022**	Pass
3.9	Ped Sitting	**5.0**
10.3	Pass	**0.022**

Figure 4: Directional results

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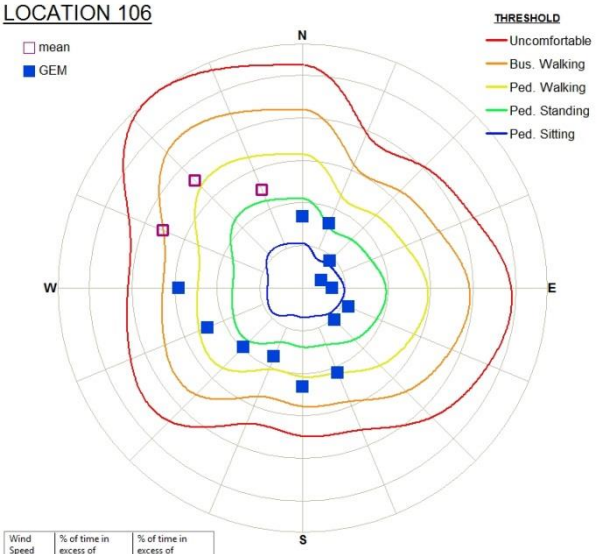
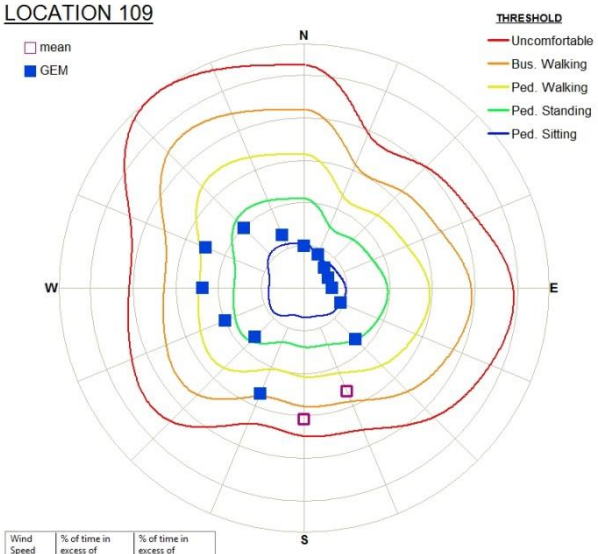
LOCATION 106



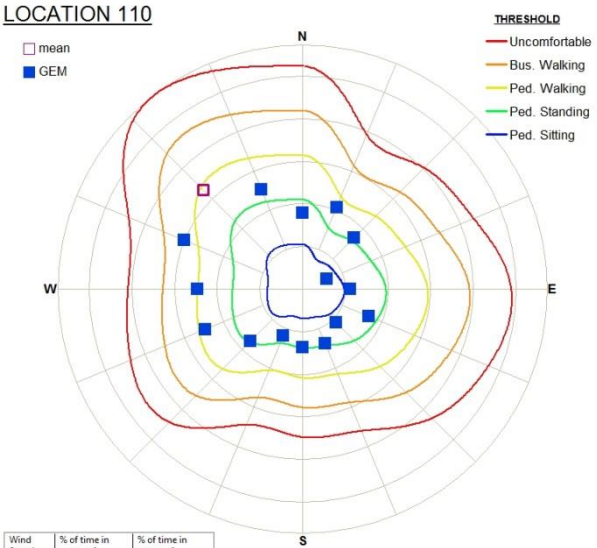
Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	37.7	42.5
4.0	11.6	14.5
6.0	2.7	3.5
8.0	0.7	0.6
10.0	0.2	0.1
5.1	**5.0**	Ped Standing
13.5	**0.022**	Pass
5.5	Ped Standing	**5.0**
11.6	Pass	**0.022**

LOCATION 109



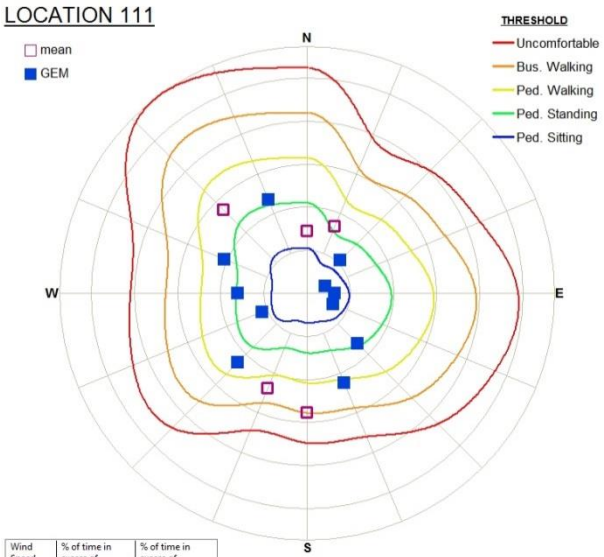
Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	29.3	35.3
4.0	13.1	15.4
6.0	5.1	5.3
8.0	1.4	1.2
10.0	0.2	0.2
6.0	**5.0**	Ped Standing
12.6	**0.022**	Pass
6.0	Ped Walking	**5.0**
12.4	Pass	**0.022**

LOCATION 110



Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	28.5	42.4
4.0	5.9	8.9
6.0	1.4	1.8
8.0	0.3	0.4
10.0	0.1	0.1
4.1	**5.0**	Ped Standing
11.1	**0.022**	Pass
4.6	Ped Standing	**5.0**
11.8	Pass	**0.022**

LOCATION 111



Wind Speed (m/s)	% of time in excess of Mean	% of time in excess of GEM
2.0	35.0	38.7
4.0	12.9	12.4
6.0	3.9	2.8
8.0	0.8	0.4
10.0	0.1	0.0
5.6	**5.0**	Ped Standing
11.5	**0.022**	Pass
5.3	Ped Standing	**5.0**
10.8	Pass	**0.022**

Figure 5: Directional results

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