8 LOUISE STREET, MELBOURNE

ENVIRONMENTAL WIND ASSESSMENT

by

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1. INTRODUCTION

The proposed 8 Louise Street development will be a 16 level residential apartment building located at the corner of the intersection of Louise Street and Queens Lane, in Melbourne, as shown in Figure 1.



Figure 1: 8 Louise Street Development Location (highlighted in red)

This assessment is based on a review of drawings prepared by Cera Stribley, (refer to Appendix A) and only considers current existing surrounds and under construction buildings (i.e. no proposed future buildings). This desktop environmental wind assessment is based on MEL Consultants knowledge of wind flow around buildings and structures from undertaking numerous wind tunnel model studies, no wind tunnel study has been undertaken for this study.



2. ASSESSMENT CRITERIA

This desktop wind assessment will make reference to the Better apartment Design Standards (BADS) wind safety and comfort criteria. These BADS wind criteria have been developed by DELWP for apartment developments in Victoria that are taller than 5 storeys but many Responsible Authorities are applying these criteria to all types of buildings.

Pedestrian Safety	Pedestrian Comfort		
Annual maximum 3 second gust wind	Hourly mean wind speed or gust equivalent		
speed exceeding 20 metres per	mean speed (3 second gust wind speed		
second with a probability of	divided by 1.85), from all wind directions		
exceedance of 0.1% considering at	combined with probability of exceedance		
least 16 wind directions	less than 20% of the time, equal to or less		
	than:		
	• 3 metres per second for sitting areas,		
	• 4 metres per second for standing areas,		
	 5 metres per second for walking areas. 		

These criteria are defined as follows:

These pedestrian comfort criteria are based on the intended activation of the spaces around the development, which will be interpreted from the drawings provided for this desktop assessment of the wind effects. For example; if the drawings show outdoor seating areas with tables/chairs then the target criterion for this area will be the sitting criterion. All building entrances accessible to the public should have a target criterion of standing.



3. RECOMMENDED WIND COMFORT CRITERIA

The following wind comfort criteria are recommended:

Streetscapes	Walking
Building Entrances	Standing (short exposure)
Outdoor Terraces (private)	Walking

The wind conditions on private outdoor terraces have been recommended to satisfy the walking criterion as these spaces could be considered elective when external conditions would be perceived as acceptable for the desired activity. Users of these terraces will need to be educated on the wind effects and loose objects should not be left on an unattended terrace.



4. THE DEVELOPMENT

The proposed 8 Louise Street development will be setback from the Louise Street pedestrian footpath and the main entrance will be approached through a landscaped area as shown in Figure 2. There would be a communal terrace along the east side of the building on ground level. The vehicle access will be via a ramp from Queens Lane.

Figure 3 shows the typical floor plan for Levels 1 and 2. The building will have a 5m setback off Queens Lane from Level 3 (Figure 4) onwards and maintains a similar planform to the roof (Figure 5). There are private terraces on all faces of the building for most levels as shown in Figures 3 to 6. Figures 7 and 8 show the north and west elevations, respectively, of the proposed development.



Figure 2: Ground Level Plan





Figure 3: Level 1 Plan



Figure 4: Level 3 Plan









Figure 6: Typical floor plan Levels 15 and 16





Figure 7: North elevation



Figure 8: West elevation



5. WIND CLIMATE AND EXPOSURE

The general wind climate of Melbourne has the strongest and most frequent winds from the north and west sectors with secondary strong winds coming from the south sector; east sector winds are relatively light and infrequent.

The wind roses sourced from the Bureau of Meteorology from the Melbourne Airport weather station (only data available in this form for Melbourne) for the annual wind conditions at 9am and 3pm (Appendix A) to provide a general overview of the wind climate. The wind roses must be read carefully; the bars are divided to different widths that represent each wind speed band and the length of each section is the probability of occurrence.

The location of the 8 Louise Street development would have good shielding from the northerly, easterly and southerly wind directions provided by the surrounding buildings, specifically those along St Kilda Road which are of similar height. The main exposure would be to the westerly wind directions over Albert Park onto the narrower face of the building.



6. WIND ASSESSMENT

5.1 Louise Street

The north face of the proposed development would have good shielding for most of the north sector wind directions by the buildings along St Kilda Road which are of similar height, and the immediately adjacent 482 St Kilda Road building (i.e. 16 level building on the opposite side of Louise Street). However, the footpath along the Louise Street frontage of the proposed development would also be influenced by some wind flow, from a narrow exposure to the north-northeast wind direction, deflected off the southeast corner of the adjacent 482 St Kilda Road building and into Louise Street.

The upper levels of the west face (i.e. the narrower face) of the proposed development would have exposure to direct wind flow for the west sector wind directions which would be expected to induce additional wind flow down to ground level (Louise Street) and accelerate around the northwest corner of the building into Louise Street. However, the upper levels of the proposed development have a 5m setback from the western edge of the lower levels and the majority of the downward induced flow would be deflected above pedestrian level over the setback at Level 3.

Based on this scenario the wind conditions along the Louise Street footpath would be expected to satisfy the walking comfort criterion.

The main entrance to the proposed development will be approached through a landscaped area and is located centrally along the building's façade, away from building corners. Therefore, the wind conditions outside the main entrance would be expected to satisfy the standing criterion.

5.2 Queens Lane

Given the shielding for the northerly and southerly wind directions provided by the adjacent similar height buildings, the wind conditions along Queens Lane would be mainly influenced by the additional wind flow induced down by the west face of the proposed



development for the west sector wind directions. As discussed in Section 5.1, the 5m setback from the western edge at Level 3 would be expected to deflect the majority of the downward induced flow above pedestrian level.

Based on the above scenario the wind conditions along Queens Lane expected to satisfy the walking criterion with areas away from the building corners expected to satisfy the standing criterion.

5.3 Ground level communal terrace

The ground level communal terrace located on the east side of the building, as shown in Figure 2, would be influenced by wind flow from the northerly and easterly wind directions. Given the shielding for the northerly and easterly wind directions provided by the buildings along St Kilda Road, the wind conditions in this terrace would be expected to satisfy the standing criterion.

5.4 Private balconies and terraces

The design of the proposed development has private balconies/terraces on all faces of the buildings. The wind conditions on these balconies and terraces would be expected to satisfy the walking criterion, but the wind conditions on them would be expected to increase and be more gusty for balconies near, or at, corners of the building, particularly those facing the north and west wind directions. Note that the 2m high balustrades on the northern and southern edges of the Level 3 terrace (refer to Figure 7) would be expected to assist in mitigating the wind conditions on this terrace to satisfy the walking criterion.

Corner balconies are known to experience higher wind conditions compared to balconies located centrally on a façade due to the tendency of wind flowing towards, and accelerating around, building corners. This means that the amenity of corner balconies can be considerable reduced compared to more centrally located balconies. Increasing the heights of the balcony balustrades and the returns would be expected to improve the wind conditions on the balconies.





7. CONCLUSIONS

The proposed 8 Louise Street development has been assessment based on the design by Cera Stribley received on the 20th October, 2021. The development would be well shielded from direct wind flow for most wind directions with exposures mainly to the westerly wind directions over Albert Park onto the narrower face of the building.

The wind conditions in the streetscapes surrounding the proposed development have been assessed as satisfying the walking criterion. The wind conditions immediately outside the main entrance, along Louise Street, would be expected to satisfy the standing criterion.

The wind conditions in the private balconies and terraces would be expected to satisfy the walking criterion with those located centrally on the building face satisfying the standing criterion.



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Appendix A – Drawing Register

Sheet Number	Sheet Name	Date						
0000 EARLY WORKS								
TP.0000	DRAWING LIST	15/10/2021						
TP.0100	EXISTING SITE PLAN	15/10/2021						
TP.0300	PROPOSED SITE PLAN	15/10/2021						
TP.0301	PROPOSED LEVEL 01 SETBACKS	15/10/2021						
TP.0304	PROPOSED LEVEL 04 SETBACKS	15/10/2021						
1000 GENERAL ARRANGEMENT								
TP.1091	PROPOSED BASEMENT 03 PLAN	15/10/2021						
TP.1092	PROPOSED BASEMENT 02 PLAN	15/10/2021						
TP.1093	PROPOSED BASEMENT 01 PLAN	15/10/2021						
TP.1100	PROPOSED GROUND FLOOR PLAN	15/10/2021						
TP.1101	PROPOSED LEVEL 01 PLAN	15/10/2021						
TP.1102	PROPOSED LEVEL 02 PLAN	15/10/2021						
TP.1103	PROPOSED LEVEL 03 PLAN	15/10/2021						
TP.1104	PROPOSED LEVEL 04-07 PLAN	15/10/2021						
TP.1108	PROPOSED LEVEL 08-12 PLAN	15/10/2021						
TP.1113	PROPOSED LEVEL 13 PLAN	15/10/2021						
TP.1114	PROPOSED LEVEL 14 PLAN	15/10/2021						
TP.1115	PROPOSED LEVEL 15 PLAN	15/10/2021						
TP.1116	PROPOSED LEVEL 16 PLAN	15/10/2021						
TP.1150	PROPOSED ROOF PLAN	15/10/2021						
2000 ELEVATIONS								
TP.2000	STREETSCAPE ELEVATION 01	15/10/2021						
TP.2001	STREETSCAPE ELEVATION 02	15/10/2021						
TP.2002	STREETSCAPE ELEVATION 03	15/10/2021						
TP.2100	NORTH ELEVATION	15/10/2021						
TP.2101	EAST ELEVATION	15/10/2021						
TP.2102	SOUTH ELEVATION	15/10/2021						
TP.2103	WEST ELEVATION	15/10/2021						

