



Doc Ref: WF591-03F01(rev1)- Wind Statement Cover Letter

Date: June 22, 2021

To: 45 McLaren Pty Limited

Address: Suite 407, Level 4, 55 Miller Street, Pyrmont NSW 2009

Attn: Dominic Biancardi

RE: 45 MCLAREN STREET, NORTH SYDNEY
WIND STATEMENT COVER LETTER

Dear Dominic,

This letter addresses and considers the key building design changes and their impact to the local wind environment between the Original Planning Proposal building design lodged with North Sydney Council (NSC) and the Amended Planning Proposal building design as per NSC council preliminary assessment. This letter is to be used in conjunction with the Pedestrian Wind Environment Statement (Ref: WF591-01F02(rev2)- WS Report) submitted to NSC in October 2020 as part of the Original Planning Proposal. All conclusions are based on our extensive experience in wind environment effects, in addition to a comparative review of the Amended Planning Proposal Architectural Plans against the Original Planning Proposal Architectural Plans, issued to Windtech in June 2021 and September 2020 respectively.

The main changes to the design and corresponding wind environment impact are as follows:

- Café seating area on McLaren Street expanded to four tables. This is a negligible difference as the extra table is under the Level 1 awning extent and positioned away from building corners.
- Private balcony locations. This is a negligible difference, although impermeable balustrades along corner balconies with full-height operable louvres along the shorter edge should be considered for occupant comfort.
- Private terraces. This is a negligible difference, although the landscaping and impermeable balustrades around the perimeter of the terraces should be retained.
- Increased Southern and South-Western setbacks of the proposed development. Negligible difference.
- Height reduced by 2 storeys – Removal of Level 14 and 15. Negligible difference.

In conclusion, the building design changes as addressed in the Amended Planning Proposal do not change the findings and conclusions made in our original Pedestrian Wind Environment Statement (Ref: WF591-01F02(rev2) - WS Report) issued and lodged to NSC in the Original Planning Proposal Submission in October 2020.

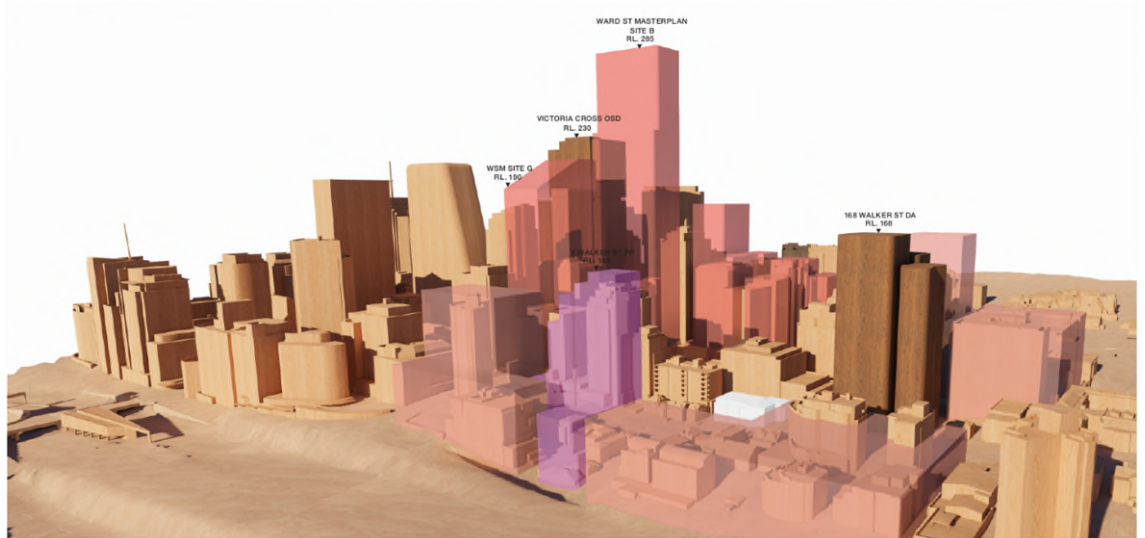
Regards,

Windtech Consultants Pty Ltd

A handwritten signature in black ink, appearing to read 'Marcel Bray', with a stylized flourish at the end.

Marcel Bray

Project Engineer | BEng



PEDESTRIAN WIND ENVIRONMENT STATEMENT

45 MCLAREN STREET, NORTH SYDNEY (PLANNING PROPOSAL SUBMISSION)

WF591-01F02(REV2)- WS REPORT

OCTOBER 14, 2020

Prepared for:

45 McLaren Pty Limited.

Suite 4.07, Level 4, 55 Miller Street, Pyrmont, NSW, 2009

DOCUMENT CONTROL

Date	Revision History	Issued Revision	Prepared By (initials)	Instructed By (initials)	Reviewed & Authorised by (initials)
September 21, 2020	Initial.	0	MB	SWR	RL
October 8, 2020	Treatment updates with various comments.	1	MB	SWR	RL
October 14, 2020	Changed cover image and various comments updated.	2	MB	SWR	RL

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EXECUTIVE SUMMARY

The Planning Proposal and submitted reference scheme has been prepared in support of the site's redevelopment from a four – five storey residential flat building to a mixed-use development, with a maximum height of 61m (16 storeys) and an FSR of 7.5:1. This is commensurate with the existing and desired future character of the Ward Street Precinct and surrounds.

The Planning Proposal will enable the site to be redeveloped for retail and residential purposes, with a commercial/retail podium activating Harnett and McLaren Streets, and residential land uses fronting Walker Street and in the tower form above.

The proposed height, density and associated reference scheme have been designed to sit comfortably on the site, adjacent to the heritage-listed terraces and within the emerging context of North Sydney, whilst ensuring adequate solar protection to the future public realm within Ward Street.

It is envisaged that future development on the site would result in a carbon-neutral building, east-west through site linkages and landscaped terracing.

In summary, this Planning Proposal seeks to amend the NSLEP 2013 as follows:

- Amend the maximum height of buildings to 61m.
- Introduce a maximum floor space ratio of 7.5:1.

This report presents an opinion on the likely impact of the proposed development located at 45 McLaren Street, North Sydney on the local wind environment at the critical outdoor areas within and around the subject site. The effect of wind activity has been examined for the three predominant wind directions for the region, namely the north-easterly, southerly, and westerly winds. The analysis of the wind effects relating to the proposed development have been carried out in the context of the local wind climate, building morphology and land topography.

The conclusions of this report are drawn from our extensive experience in this field and are based on an examination of the latest architectural drawings. No wind tunnel testing has been undertaken for the subject development, and hence this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection of the architectural drawings provided (received 18 September 2020). Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects.

The results of this assessment indicate that the reference design for the Planning Proposal has incorporated several design features and wind mitigating strategies and is expected to be suitable for the intended use for the majority of the outdoor trafficable areas. However, there are some areas that are exposed to the prevailing winds. It is expected that the wind effects

identified in the report can be ameliorated with the consideration of the following treatment strategies into the design of the development:

Ground Level Areas

- Consider extending proposed awning along the full frontage of McLaren Street, to include the Retail area. Extension size to be confirmed with future wind tunnel testing.
- Screens or hedges of evergreen species adjacent to retail tenancy on ground floor. Size and extent to be confirmed with future wind tunnel testing.
- Consider retaining the proposed street front trees along McLaren, Harnett, and Walker Street, location and size to be confirmed with future wind tunnel testing. Trees along Harnett Street should be of evergreen variety.
- Consider including additional densely foliating street front trees along McLaren and Walker Street. Location and size to be confirmed with future wind tunnel testing. Trees along McLaren Street should be of evergreen variety. If trees are to be removed at certain locations, additional trees are to be included along the street to compensate.
- Proposed reference design to include 1.5m high densely foliating privacy hedge planters along the eastern aspect of the development.
- Proposed reference design to include street tree planting along Walker Street and Harnett Street, to improve wind conditions and pedestrian comfort in outdoor trafficable areas.
- The vegetation, tree planting, and set-back in the proposed reference design to the Podium above the Walker St Terrace Residences is expected to reduce downwash and slow side streaming winds along Walker St.

Level 14 Communal Terraces

- Retain impermeable balustrades around perimeter of terraces.
- Retain landscaping around perimeter of terraces.

Private Balconies and Terraces

- Consider impermeable balustrades along corner balconies with full-height operable louvres along shorter edge for occupant comfort.
- Retention of impermeable balustrades around perimeter of terraces.
- Retention of landscaping around perimeter of terraces.

With the inclusion of the abovementioned recommendations in the final design, it is expected that wind conditions for the various trafficable outdoor areas within and around the development will be suitable for their intended uses and their applicable criteria. Wind tunnel

testing may be undertaken at a more detailed design to quantitatively assess the wind conditions and to optimise the size and extent of the treatments required.

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1 INTRODUCTION

The Planning Proposal and submitted reference scheme has been prepared in support of the site's redevelopment from a four – five storey residential flat building to a mixed-use development, with a maximum height of 61m (16 storeys) and an FSR of 7.5:1. This is commensurate with the existing and desired future character of the Ward Street Precinct and surrounds.

The Planning Proposal will enable the site to be redeveloped for retail and residential purposes, with a commercial/retail podium activating Harnett and McLaren Streets, and residential land uses fronting Walker Street and in the tower form above.

The proposed height, density and associated reference scheme have been designed to sit comfortably on the site, adjacent to the heritage-listed terraces and within the emerging context of North Sydney, whilst ensuring adequate solar protection to the future public realm within Ward Street.

It is envisaged that future development on the site would result in a carbon-neutral building, east-west through site linkages and landscaped terracing.

In summary, this Planning Proposal seeks to amend the NSLEP 2013 as follows:

- Amend the maximum height of buildings to 61m.
- Introduce a maximum floor space ratio of 7.5:1.

An opinion on the likely impact of the proposed design on the local wind environment affecting pedestrians within the critical outdoor areas within and around the subject development is presented in this report. The analysis of wind effects relating to the proposed development has been carried out in the context of the predominant wind directions for the region, building morphology of the development and nearby buildings, and local land topography. The conclusions of this report are drawn from our extensive experience in the field of wind engineering and studies of wind environment effects.

No wind tunnel testing has been undertaken for this assessment. Hence this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection, and any recommendations in this report are made only in-principle.

2 DESCRIPTION OF THE DEVELOPMENT AND SURROUNDINGS

The site is located at 45 McLaren Street, North Sydney, and is bounded by McLaren Street to the north, Walker Street to the east, Harnett Street to the west and a 7-storey office building to the south. Opposite McLaren Street to the north lies a high-rise office building.

Further to the south-west of the development lies the proposed Ward Street Precinct. To the east lies residential housing, apartments, and the Warringah Freeway/Bradfield Highway.

A survey of the land topography indicates a slope from the south-east to the north-east. There is also a gradual slope from the north-east to the north-west. Further from the site, the topography slopes down to the east and south-east.

An aerial image of the subject site and the local surroundings is shown in Figure 1, with the frequency and magnitude of the prevailing winds is superimposed for each wind direction.

The existing site consists of a 5-storey residential building. The proposed development is 16 storeys high.

The critical outdoor trafficable areas associated with the proposed development, which are the focus of this assessment with regards to wind effects, are detailed as follows:

- Ground Level areas and pedestrian footpaths
- Level 14 communal terraces
- Private balconies and private terraces



Figure 1: Aerial Image of the Site Location and Prevailing Wind Directions

3 REGIONAL WIND

The Sydney region is governed by three principal wind directions that can potentially affect the subject development. These winds prevail from the north-east, south, and west. These wind directions were determined from an analysis undertaken by Windtech Consultants of recorded directional wind speeds obtained at the meteorological station located at Kingsford Smith Airport by the Bureau of Meteorology (recorded from 1995 to 2016). The data has been corrected to represent the winds over a standard open terrain at a height of 10m above ground level. Figure 2 shows a summary of this analysis in the form of a directional plot of the annual and 5% exceedance mean winds for the Sydney region. The frequency of occurrence of these winds is also shown in Figure 2.

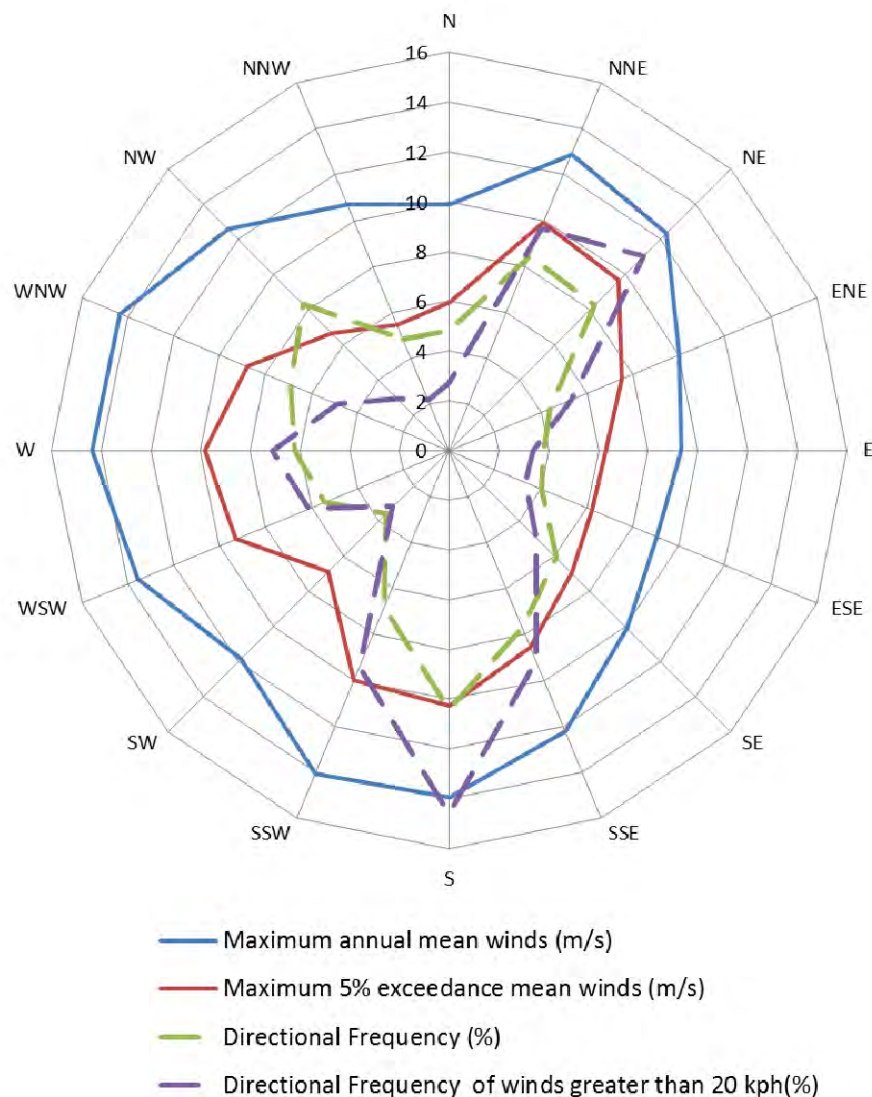


Figure 2: Annual and 5% Exceedance Hourly Mean Wind Speeds, and Frequencies of Occurrence, for the Sydney Region

4 WIND EFFECTS ON PEOPLE

The acceptability of wind in any area is dependent upon its use. For example, people walking, or window-shopping will tolerate higher wind speeds than those seated at an outdoor restaurant. Various other researchers, such as A.G. Davenport, T.V. Lawson, W.H. Melbourne, and A.D. Penwarden, have published criteria for pedestrian comfort for pedestrians in outdoor spaces for various types of activities. Some Councils and Local Government Authorities have adopted elements of some of these into their planning control requirements.

For example, A.D. Penwarden (1973) developed a modified version of the Beaufort scale which describes the effects of various wind intensities on people. Table 1 presents the modified Beaufort scale. Note that the effects listed in this table refers to wind conditions occurring frequently over the averaging time (a probability of occurrence exceeding 5%). Higher ranges of wind speeds can be tolerated for rarer events.

Table 1: Summary of Wind Effects on People (A.D. Penwarden, 1973)

Type of Winds	Beaufort Number	Mean Wind Speed (m/s)	Effects
Calm	0	Less than 0.3	Negligible.
Calm, light air	1	0.3 – 1.6	No noticeable wind.
Light breeze	2	1.6 – 3.4	Wind felt on face.
Gentle breeze	3	3.4 – 5.5	Hair is disturbed, clothing flaps, newspapers difficult to read.
Moderate breeze	4	5.5 – 8.0	Raises dust, dry soil and loose paper, hair disarranged.
Fresh breeze	5	8.0 – 10.8	Force of wind felt on body, danger of stumbling
Strong breeze	6	10.8 – 13.9	Umbrellas used with difficulty, hair blown straight, difficult to walk steadily, wind noise on ears unpleasant.
Near gale	7	13.9 – 17.2	Inconvenience felt when walking.
Gale	8	17.2 – 20.8	Generally impedes progress, difficulty balancing in gusts.
Strong gale	9	Greater than 20.8	People blown over.

It should be noted that wind speeds can only be accurately quantified with a wind tunnel study. This assessment addresses only the general wind effects and any localised effects that are identifiable by visual inspection and the acceptability of the conditions for outdoor areas are determined based on their intended use. Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects.

5 RESULTS AND DISCUSSION

The expected wind conditions are discussed in the following sub-sections of this report for the various outdoor areas within and around the subject development. The interaction between the wind and the building morphology in the area is considered and important features taken into account including the distances between the surrounding buildings and the proposed building form, as well as the surrounding landform. Note that only the potentially critical wind effects are discussed in this report. A glossary of the different wind effects described in this report included in the Appendix section.

For this assessment, the wind comfort criterion that were considered as part of this assessment were the following:

- Comfortable Walking Criterion (8m/s with a 5% probability of exceedance) for general circulation and pedestrian thoroughfares, e.g. footpaths, private balconies/terraces, through-site links etc.
- Short Exposure Criterion (6m/s with a 5% probability of exceedance) for stationary activities generally less than an hour, e.g. waiting areas, communal terraces, main entries, café seating etc.
- Long Exposure Criterion (4m/s with a 5% probability of exceedance) for stationary activities longer than an hour, e.g. outdoor cinemas, outdoor fine dining etc.

Although this assessment is of a qualitative nature, the abovementioned comfort criteria are considered when assessing the wind environment impacts. All areas are also assessed with consideration of the 24m/s annual gust criterion for safety.

5.1 Ground Level Areas

The pedestrian footpath along McLaren Street is primarily exposed to the westerly and north-easterly prevailing winds. The pedestrian footpath area benefits from the development's main entry awning and the proposed and existing street front trees within and around the site. The proposed development will likely cause funnelling effects along McLaren Street as the prevailing westerly and north-easterly winds flow between the proposed development and the high-rise building to the north of the site creating adverse wind conditions along McLaren Street. The wind conditions along McLaren Street have the potential to be stronger than existing conditions and as such, it is recommended to consider an additional street front tree at the north-west of the site along McLaren Street. This additional tree and the proposed street front trees should be densely foliating, of evergreen variety. The extent and height of the tree planting can be determined with future wind tunnel testing.

The street front seating area is expected to experience some downwash from the north-easterly winds and as such, the street front awning is recommended to be extended across the entire

northern façade (covering the seating area). It is also recommended to include localised screening and hedging adjacent to the retail tenancy on ground floor to assist with wind mitigation, slowing the westerly and north-easterly winds that are expected to side-stream along the northern façade. The extent of screening is to be confirmed with future wind tunnel testing.

The prevailing southerly winds are expected to flow uphill along Harnett Street and Walker Street and accelerate around the north-west and north-east corners onto McLaren Street. The proposed trees along Harnett Street and Walker Street are expected to slow the southerly winds and dissipate the side-streaming along the western and eastern façades. As such, it is highly recommended to retain all the proposed planting around Harnett, McLaren, and Walker Street. Furthermore, it is recommended to consider including additional densely foliating street front trees along McLaren and Walker Street. Location and size to be confirmed with future wind tunnel testing. Trees along McLaren Street should be of evergreen variety. If trees are to be removed at certain locations, additional trees are to be included along the street to compensate. The proposed reference design includes street tree planting to the public domain and Harnett Street, to improve wind conditions and pedestrian comfort in outdoor trafficable areas. It is recommended that the hedge planting be densely foliating, of evergreen variety and capable of growing to a height of 1.5m high.

The through-site link at the southern end of the development is primarily exposed to the north-easterly winds, which are likely to channel through this corridor. The two proposed trees as part of the proposed reference design along the eastern edge of the through-site link are likely to slow the side-streaming north-easterly winds and mitigate some corner acceleration into the corridor. These trees are recommended to be retained. The proposed reference design is to include street tree planting to the public domain and Harnett Street, to improve wind conditions and pedestrian comfort in outdoor trafficable areas. The funnelling effect is also expected to be reduced due to the width of the through-site link. As such, with the inclusion of the eastern-edge trees and hedge planting along with the retention of the Walker street front trees, the area is likely to be satisfactory for the intended use. It should also be noted that as the westerly winds are a predominately winter wind, it is recommended that the trees along McLaren Street and Harnett Street are of an evergreen variety to remain effective through the year. The abovementioned treatments are shown in Figure 3 below.

Treatments Legend






-  Awning on slab level above ground
-  Densely foliating evergreen trees
-  Additional densely foliating trees. Locations and size to be determined in wind tunnel testing
-  Localised screening and hedge planting
-  Densely foliating hedge planting



Figure 3: In-Principle Recommendations for the Ground Floor

5.2 Level 14 Communal Terraces

The Communal Terraces are located on the southern aspect of the Level 14 tower footprint. Hence, the prevailing westerly and north-easterly winds are expected to be lessened by the building form. The communal terraces also benefit from significant landscaping around the perimeter of each terrace. The perimeter landscaping shields these areas from the prevailing north-easterly, southerly, and westerly winds and is recommended to be retained. Furthermore, it is recommended to retain the impermeable balustrades around the perimeter of the communal terraces.

For the proposed landscaping to be effective as a wind mitigation device, they should be of a densely foliating variety. The planting should be spaced such that the foliage is able to interlock between plants (where possible) to ensure its effectiveness during stronger winds.

5.3 Private Balconies and Private Terraces

The majority of the balconies of the development are expected to be suitable for their intended use due to the inclusion of various wind mitigation features such as their overall recessed design, impermeable balustrades, impermeable intertenancy screens, full-height impermeable end screens, landscaping and the building's stepped southern aspect. These features should be retained in the final design.

The north-westerly balconies are exposed to the prevailing westerly winds while the north-east balconies are exposed to the prevailing north-easterly winds. The north-westerly balconies benefit from being slightly recessed to mitigate the north-easterly prevailing winds. Similarly, the north-easterly balconies also benefit from being slightly recessed and shielded by the building form from the prevailing westerly winds. Nevertheless, consider including full-height operable louvres along one edge of each corner balcony for occupant comfort and to mitigate any corner acceleration that these prevailing winds may produce. The private terraces along the southern aspects of the tower footprint at each subsequent level benefit from being shielded by the development from the prevailing north-easterly winds. The southerly winds are expected to directly impact the south facing terraces and the landscaping around the perimeter of the terraces is recommended to be retained in order to mitigate these southerly winds.

For the proposed landscaping to be effective as a wind mitigation device, they should be of a densely foliating variety. The planting should be spaced such that the foliage is able to interlock between plants (where possible) to ensure its effectiveness during stronger winds.

The proposed design uses a variety of wind mitigating devices to assist in satisfying comfortable wind environment conditions within and around the development. With the inclusion of the abovementioned recommendations in the final design, it is expected that wind conditions for the various trafficable outdoor areas within and around the development will be suitable for their intended uses and their applicable criteria. Wind tunnel testing may be undertaken at a more detailed design to quantitatively assess the wind conditions and to optimise the size and extent of the treatments required.

6 REFERENCES

- Davenport, A.G., 1972, "An approach to human comfort criteria for environmental conditions". Colloquium on Building Climatology, Stockholm.
- Lawson, T.V., 1973, "The wind environment of buildings: a logical approach to the establishment of criteria". Bristol University, Department of Aeronautical Engineering.
- Lawson, T.V., 1975, "The determination of the wind environment of a building complex before construction". Bristol University, Department of Aeronautical Engineering.
- Lawson, T.V., 1980, "Wind Effects on Buildings - Volume 1, Design Applications". Applied Science Publishers Ltd, Ripple Road, Barking, Essex, England.
- Melbourne, W.H., 1978, "Criteria for Environmental Wind Conditions". *Journal of Wind Engineering and Industrial Aerodynamics*, vol. 3, pp241-249.
- Penwarden, A.D. (1973). "Acceptable Wind Speeds in Towns", *Building Science*, vol. 8: pp259–267.
- Penwarden, A.D., Wise A.F.E., 1975, "Wind Environment Around Buildings". Building Research Establishment Report, London.

7.1 Downwash and Upwash Effects

The downwash wind effect occurs when wind is deflected down the building's windward facade causing accelerated wind speeds at pedestrian level. This can lead to other adverse effects as corner acceleration as the wind attempts to flow around the building, as seen in Figure A1. This can also lead to recirculating flow in the presence of a shorter upstream building, causing the local ground level wind flow to move towards the prevailing wind.

The upwash effect occurs near upper level edge of a building form as the wind flows over the top of the building. This has the potential to cause acceleration of winds near the leading edge, as well as potentially reattaching onto the roof area. This effect causes wind issues particularly near the leading edges of tall building and on the rooftop areas if there is sufficient depth along the wind direction. Upwash is more apparent in taller towers and podia.

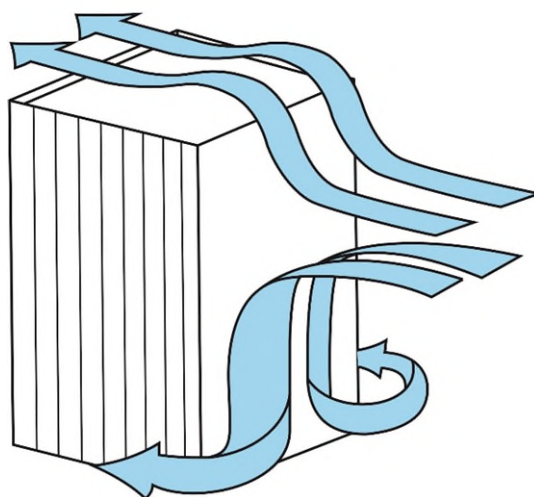


Figure A1: Downwash Leading to Corner Wind Effect, and Upwash Effects

7.2 Funnelling/Venturi Effect

Funnelling effects occur when the wind interacts with two or more buildings which are located adjacent to each other and the building form design results in a bottleneck, as shown in Figure A2. This can cause the wind to be forced through the gap between the buildings resulting in adverse wind conditions and pedestrian discomfort within the constricted space. Funnelling effects are common along pedestrian links and thoroughfares generally located between neighbouring buildings that have moderate gaps between them.

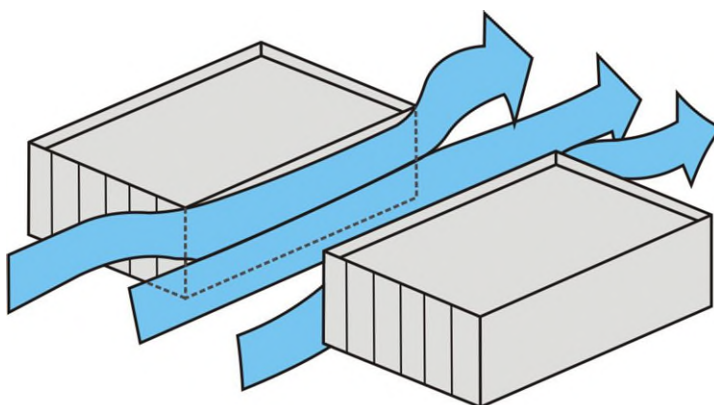


Figure A2: Funnelling/Venturi Wind Effect

7.3 Gap Effect

The gap effect occurs in small openings in the façade that are open to wind on opposite faces, as seen in Figure A3. This can involve a combination of funnelling and downwash effects. Presenting a small gap in the façade on the windward aspect as the easiest means through which the wind can flow through can result in wind acceleration through this gap. The pressure difference between the windward façade and the leeward façade also tends to exacerbate the wind flow through this gap.

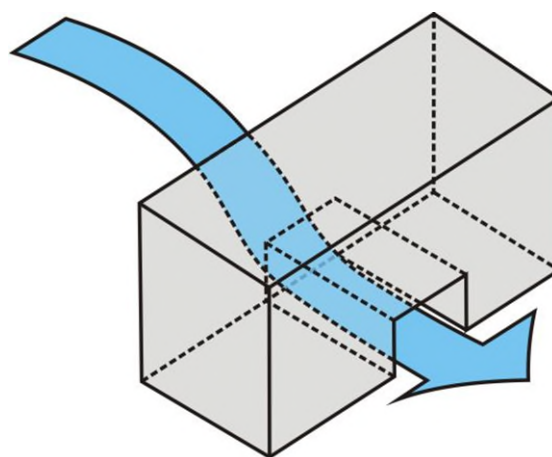


Figure A3: Gap Wind Effect

7.4 Sidestream and Corner Effects

The sidestream effect is due to a gradual accumulation of winds shearing along the building façade that eventuates in an acceleration corner effect. The flow is parallel to the façade and can be exacerbated by downwash effects as well, or due to corner effect winds reattaching on the façade. This is shown in Figure A4

The corner refers to the acceleration of wind at the exterior vertical edge of a building, caused by the interaction of a large building massing with the incident wind, with the flow at the corner being accelerated due to high pressure differentials sets up between the windward façade and the orthogonal aspects. It can be further exacerbated by downwash effects that build up as the flow shears down the façade.

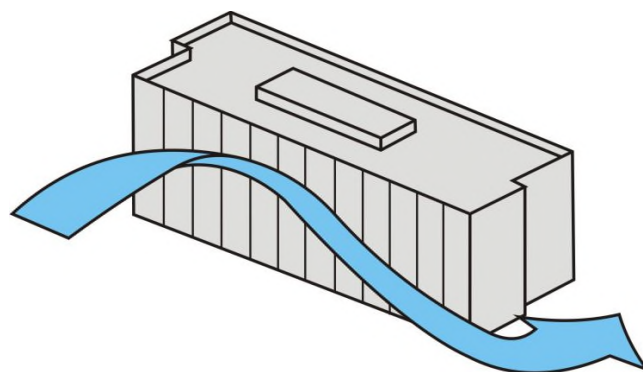


Figure A4: Sidestream and Corner Wind Effect

7.5 Stagnation

Stagnation in a region refers to an area where the wind velocity is significantly reduced due to the effect of the flow being impeded by the bluff body. For a particular prevailing wind direction, this is typically located near the middle of the windward face of the building form or over a short distance in front of the windward face of a screen or fence. Concave building shapes tend to create an area of stagnation within the cavity, and wind speeds are generally low in these areas.



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Date: November 4, 2021

To: 45 McLaren Pty Limited

Address: Suite 407, Level 4, 55 Miller Street, Pyrmont NSW 2009

Attn: Dominic Biancardi

RE: 45 MCLAREN STREET, NORTH SYDNEY
WIND STATEMENT COVER LETTER

Dear Dominic,

This letter addresses and considers key building design changes between; the 'original' Planning Proposal lodged with North Sydney Council (NSC) in October 2020 and the final 'amended' Planning Proposal building design as per the NSC final assessment and whether these changes pose any potential impacts onto the local wind environment surrounding 45 McLaren St, North Sydney.

This letter is to be reviewed in conjunction with the Pedestrian Wind Environment Statement (Ref: WF591-01F02(rev2)- WS Report) submitted to NSC in October 2020 as part of the Original Planning Proposal and the follow up Wind Environment Cover letter (Ref: WF591-03F01 (rev1)- Wind Statement Cover Letter) provided to address the design changes included within the preliminary amended development design. All conclusions within this letter are based on our extensive experience in wind environment effects, in addition to a comparative review of the final 'amended' Planning Proposal Architectural Plans (Dated 26th Oct, 2021) against the 'original' Planning Proposal Architectural Plans and Amended scheme as issued to Windtech in October 2020 and June 2020 respectively.

The final amended design maintains the original vision for a high quality, sustainable, mixed use development underpinned by a careful contextual response and commitment to delivering great housing.

Key elements of the proposal retained include:

- non-residential uses at lower levels, excluding the Walker Street frontage
- low-scale 'terrace' houses along Walker Street, reflecting the scale, heritage datum and use of the heritage properties to the south
- stepped massing to transition the scale between CBD and North Sydney periphery
- generous landscape terraces to the podium and tower

- stepped form to allow retention of solar access to the Ward Street Plaza's Central Square from 9am on June 21st.

Noting the above development key elements and to address Council's feedback, the following design changes have been made, including:

- reduction in overall maximum building height from RL118.7 to RL113.8
- the stepped form of 12-16 storeys (stepping south to north) adjusted to 10-14 storeys - reduction of 2 storeys
- reduction in FSR from 7.5:1 to 6.0:1
- increased building separation to the south boundary and Harnett Street
- simplified building form to provide orthogonal frontage to Walker Street, consistent with the prevailing streetwall
- introduction of a 3-storey podium and 3m tower setback to McLaren Street
- small setback of the building façade towards the north-western corner of the development along the McLaren Street frontage.

We have reviewed the 'amended' planning proposal Architectural plans and are of the opinion that that the building design and massing is extremely similar to the building design, massing and layout of the 'original' Planning Proposal (October 2020) with the exception of a reduction in overall height and the inclusion of further setbacks.

Following Windtech's assessment of the 'amended' Planning Proposal Architectural Plans, we confirm that the proposed design changes set out in the 'amended' Planning Proposal are negligible and do not create any adverse or additional wind impacts from those findings presented within our initial pedestrian wind environment assessment.

Noting that this final 'amended' planning proposal design is similar to the previously assessed preliminary amended scheme, Windtech's previous comments that the findings and recommendations made in our original Pedestrian Wind Environment Statement (Ref: WF591-01F02(rev2) - WS Report) are still applicable to the amended scheme still apply for this final planning proposal scheme.

Regards,



Simon Ronald

Technical Director | BEng, MIEAust
Windtech Consultants PTY LTD