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REPORT





218-246 MACAULAY ROAD

NORTH MELBOURNE, VICTORIA

PEDESTRIAN WIND STUDY RWDI # 2302676 March 30, 2023

SUBMITTED TO

Dr Trevor Brott C/-Alice Long adoreinstyle@me.com M: +61 417 537 025

SUBMITTED BY

Anu Cherian, M Tech **Microclimate Engineer** anu.cherian@rwdi.com

Aman Choudhry, PhD, MIEAust Senior Engineer aman.choudhry@rwdi.com

Henry Kuo, BEng (Aero), MIEAust **Project Manager** henry.kuo@rwdi.com T: +61 2 8000 9856

Michael Pieterse, MASc., P.Eng., CPEng, RPEV Senior Project Manager | Associate Michael.Pieterse@rwdi.com T: +61 2 8103 4020 x2324

RWDI Australia Pty Ltd. ABN 86 641 303 871

The Brott Group PO Box 4006, West Footscray, VIC 3012



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Executive Summary

RWDI Australia Pty Ltd. (RWDI) was retained to conduct a pedestrian wind assessment for the Proposed Development located at 218-246 Macaulay Road in North Melbourne, Victoria. The pedestrian-level wind assessment was conducted for the following configurations:

Existing Configuration:Existing site with existing surrounding buildings;Proposed Configuration:Proposed Development with existing surrounding buildings.

The wind conditions at the pedestrian level on and around the site were predicted using the results from a boundary-layer wind tunnel test combined with historical meteorological wind records for the area. The results of the assessment have been evaluated against the pedestrian wind comfort and safety criteria specified in the Melbourne Planning Scheme to assess the suitability of the wind conditions around the development site for the different configurations. Following is a summary of the expected wind conditions based on the outcomes of this assessment:

Pedestrian Safety: Wind speeds in the study area were found to meet the wind safety criterion at all locations.

Pedestrian Comfort:

- In the Existing Configuration, the wind comfort conditions on and around the site are generally suitable for the intended use of the various areas throughout the year. Most spaces are noted to be comfortable for passive amenity use with conditions at the intersection of Canning/Boundary/Macaulay noted to be suitable for active use.
- With the inclusion of the proposed development, the wind conditions on the ground level remain suitable for passive use (sitting and standing) at most locations. Higher wind speeds, comfortable for active walking use, are noted to the north of the site along the crossover road, at the southwest corner of the development, and across the Boundary Road to the east.
- Suitable conditions intended for passive use are expected within all balconies. The majority of the locations on Level 1 and the south wing rooftop terrace on Level 6 would be suitable for intended passive amenity use. Localised windier conditions suitable for active use are noted within the centre of the communal terrace at Level 1. Higher uncomfortable wind activity is also observed at the northern end of the Level 6 terrace.

A review of the latest drawings issued by Rothelowman (220068_218-246 Macaulay Road_Revised Architectural Drawings) shows dense landscaping within Level 1 and mitigation measures within Level 6 (2.6 m high solid glass screen and trellis / canopy along the northern end), which have been developed in consultation with RWDI to improve the desirability and usability of these spaces to ensure user comfort. These measures will significantly improve the wind comfort conditions within these spaces. With the implementation of these proposed mitigation measures, all areas within and around the development are expected to be suitable for their intended uses.

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1

INTRODUCTION

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RWDI Australia Pty Ltd. (RWDI) was retained to conduct a pedestrian wind assessment on and around the proposed development at 218-246 Macaulay Road in North Melbourne, Victoria. This report presents the project objectives, background, approach, and discusses the results from RWDI's wind tunnel assessment. Commentary on conceptual wind control measures is also provided, if necessary.

The Project Site, shown within its existing surrounding context in Image 1, is located at the intersection of Macaulay Road (to the south) and Boundary Road (to the east) and is surrounded by low-rise buildings in other directions. The Clayton Reserve Dog Park is located to the southeast corner of the site. The proposed development consists of three residential buildings on a shared podium which also accommodates various commercial tenancies. The two northern buildings form the east and west wings of the development and are 12-storeys in height. The south building is 6-storeys in height with a communal terrace on the rooftop.



Image 1: Aerial View of the Existing site and Surroundings (Source: NearMap)

The objective of the study is to assess the wind speeds in pedestrian areas within and around the study site and provide recommendations for minimising adverse wind effects, if needed. This quantitative assessment is based on wind speed measurements on a scale model of the Proposed Development and its surroundings in one of RWDI's boundary-layer wind tunnels. These measurements were combined with the local wind records and compared with the appropriate criteria to gauge the wind comfort and safety in pedestrian areas. The key outdoor pedestrian accessible areas of interest associated with the development include the pedestrian footpaths around the site, the primary entrance along Macaulay Road, and the proposed amenity spaces on the ground and upper levels.



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2 BACKGROUND AND APPROACH

2.1 Wind Tunnel Study Model

To assess the wind environment within and around the Proposed Development, a 1:300 scale model of the site and surroundings was constructed for the wind tunnel tests of the following configurations:

Existing: Existing Site with Existing Surrounding Buildings (Image 2A); andProposed: Proposed Development with Existing Surrounding Buildings (Image 2B).

The wind tunnel model included all relevant surrounding buildings and topography within an approximately 360m radius of the study site. Note that the existing surrounding buildings also include buildings under construction, and no vegetation was included as part of the tests. The wind and turbulence profiles in the atmospheric boundary layer beyond the modelled area were also simulated in RWDI's wind tunnel. The wind tunnel model was instrumented with 121 specially designed wind speed sensors to measure mean and gust speeds at a full-scale height of approximately 1.5 m above local ground in pedestrian areas within and around the study site. Wind speeds were measured for 36 directions in 10-degree increments. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the mean wind speed at a reference height above the model. The placement of wind measurement locations was based on our experience and understanding of the pedestrian usage for this site. The wind tunnel test procedure exceeds the guidelines set out in the Australasian Wind Engineering Society Quality Assurance Manual (AWES-QAM-2019).



Image 2A: Wind Tunnel Study Model – Existing Configuration



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Image 2B: Wind Tunnel Study Model - Proposed Configuration

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2.2 Meteorological Data

Wind statistics recorded at Melbourne Airport between 1998 and 2018 (inclusive) were analysed on an annual basis and used to assess the wind conditions in the study area. Image 3 graphically depicts the annual directional distribution of wind frequencies and speeds at the airport. Winds from the north are predominant in Melbourne with secondary winds from the south and west to south-west directions. Strong winds of a mean speed greater than 10 m/s measured at the airport (at an anemometer height of 10 m) occur 10.7% of the time on an annual basis and are mostly from the north.

Wind statistics were combined with the wind tunnel data to predict the frequency of occurrence of full-scale wind speeds. The full-scale wind predictions were then compared with the wind criteria for pedestrian comfort and safety, as described in Section 2.3.



Image 3: Directional Distribution of Winds Approaching Melbourne Airport From 1998 to 2018

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2.3 Melbourne Pedestrian Wind Criteria

The pedestrian wind criteria specified in the Melbourne Planning Scheme (58.04-4 - Standard D17), shown on Map DDO2, were used to assess pedestrian wind comfort and safety conditions in the current study. The comfort and safety conditions for these criteria are based on mean wind speeds and 3-second gust speeds, respectively. An annual exceedance of 20% of the time is considered for the mean wind speeds to assess wind comfort while an annual exceedance of 0.1% of the time (approximately 9 hours per year) is used for the gust speeds to assess wind safety.

Wind conditions comfortable for walking are appropriate for footpaths, walkways, and service lanes as pedestrians are likely to be more active and less likely to remain in one area for prolonged periods of time. Lower wind speeds conducive to standing are preferred at main entrances, bus stops, and private/communal terraces etc. where pedestrians are likely to linger. Wind speeds conducive to sitting are preferred for areas intended for passive activities such as café and outdoor dining. Note that only gust speeds need to be considered in the wind safety criterion, as these are rare events. It should be noted that the wind comfort criteria represent an average wind tolerance and can be subjective in a way that regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can affect a person's overall perception of the wind climate. Therefore, comparisons of wind speeds for the existing and proposed site configurations are the most objective way of assessing local pedestrian wind conditions. The following table summarises the pedestrian wind criteria:

Comfort Category	Mean Wind Speed (m/s) 20% exceedance threshold		
Comfortable for Sitting	<u>≤</u> 3		
Comfortable for Standing	3 - 4		
Comfortable for Walking	4 - 5		
Uncomfortable	> 5		
Safety Criterion	3-Second Gust Speed (m/s) 0.1% exceedance threshold		
Exceeded	> 20		

Pedestrian Wind Comfort and Safety Conditions

Note that the proposed safety criterion in the Melbourne Planning Scheme is quite conservative compared to other regionally accepted standards. For instance, the wind safety criteria stipulated in the Australasian Wind Engineering Society Guidelines for Pedestrian Wind Effects (2014) and by Melbourne (1971) use the peak 3-second gust wind speed of 23m/s (exceedance threshold of 0.1% of the time during the year). These are the most widely used and agreed-upon safety criteria in the region. Other widely used criteria include those proposed by Arens et al. (2013) which recommends a peak 3-second gust of 25m/s (exceedance threshold of 0.1% of the time during the year). This is in line with the RWDI pedestrian wind safety criteria which are based on our extensive internal research and consultancy practice in the field for over 50 years.

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3 RESULTS AND DISCUSSION

The predicted wind conditions are shown in Figures 1A through to 2B located in the "Figures" section of this report. These conditions and the associated wind speeds are also presented in Table 1, located in the "Tables" section of this report. Note that Table 1 also additionally shows the seasonal wind conditions, for your information.

The following is a detailed discussion of the suitability of the predicted wind conditions for the anticipated pedestrian use of each area of interest. Note that wind tunnel tests have been carried out without any form of wind ameliorations or vegetation/landscaping (which is in line with AWES guidelines) to establish a baseline understanding of the wind conditions around the site.

3.1 Generalised Wind Flows

In our discussion of wind conditions on and around the proposed development, reference may be made to the following generalised wind flows (see Image 4). If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity and uncomfortable or potentially unsafe conditions. Design details such as setting back a tower from the edges of a podium, deep canopies close to ground level, windscreens / tall trees with dense landscaping, etc. as shown in Image 4 can help to reduce the high wind activity. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.



Image 4: General Wind Flows around Buildings and Examples of Wind Control Measures

3.2 Pedestrian Safety

Wind speeds exceeding the safety threshold are not observed for both the existing and proposed configurations of the site. Therefore, there are no anticipated safety concerns for pedestrians or building occupants related to wind force in the areas assessed within and around the development site.



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3.3 Pedestrian Comfort Grade Level (Locations 01 to 53)

3.3.1 Existing Configuration

The existing site is currently occupied by a low-rise building and is immediately surrounded by buildings of a similar height. The existing wind conditions are found to be suitable for sitting and standing use throughout the year at the majority of locations. Wind speeds suitable for walking use are noted to the southeast along the junction of Boundary Road, Macaulay Road, and Canning Street (probe locations 10, 11, and 42 as shown in Figure 1A) of the existing site. This is primarily due to the alignment of these roads with the prevailing wind directions that allows for some channelling effects.

3.3.2 Proposed Configuration

The local wind environment on the ground level with the completion of the Proposed Development is expected to improve near the junction to the southeast. Most areas are noted to be suitable for passive amenity use throughout the year. The wind conditions at the primary entrance along Macaulay Road also benefits from the solid canopy on Level 1 which reduces the impact of northerly winds within the space. The overall wind environment is, therefore, calm and suitable for passive use throughout the year. An increase in wind speeds is also noted within the northern crossover road, at the southwest corner of the building, and across the Boundary Road to the east of site (probe locations 17, 18, 25, 38, and 42 as in Figure 1B). Wind conditions are expected to be suitable for the intended active walking use within these areas.

3.4 Pedestrian Comfort Above-Grade Location (Locations 54 to 121)

It is desirable for wind conditions on terraces intended for passive activities to be comfortable for sitting/standing use throughout the year. The Proposed Development consists of amenity locations in the following areas:

- Level 1 Probe locations 54 to 78
- Rooftop South Wing Level 6 Probe locations 79 to 89
- Rooftop West and East Wings Probe locations 90 to 93
- Balconies Probe locations 94 to 121

Wind conditions within all balconies of the proposed development are noted to be suitable for passive use throughout the year. The balconies and private terraces benefit from single aspect design, high perimeter screening, and inter-tenancy screens that disrupt the local winds and allow the conditions to be suitable for passive use throughout the year. Similarly, the communal terraces on Level 1 and Level 6 (roof on the south wing) would also be suitable for passive use at a majority of locations throughout the year.

Higher wind speeds suitable for active use are noted at the centre of communal terrace on Level 1 which might be perceived as too windy for the intended use of the space. These are caused channelling of regional winds between the east and west wings of the development.



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High localised wind activity is also noted at the northern end of the Level 6 terrace (at the base of the west wing) where conditions might be too windy for comfortable use. These are caused by the regional northerly and southerly winds redirected towards the corner.

Review of the latest drawings issued by Rothelowman (dated 24 March 2023), shows that dense landscaping has been now included within Level 1 (Image 5), following consultation with the design team to improve the desirability and usability of this space for the users to ensure it is fit for purpose. This landscaping is expected to substantially enhance wind conditions within this area. Additionally, careful attention has been given to the design of the communal terrace on Level 6 to ensure comfortable amenity is achieved throughout the year. The latest design includes a 2.6 m high solid glass screen and trellis/canopy structure along the northern end, as well as dense landscaping, to mitigate wind (Image 5). The incorporation of these wind mitigation measures is a valuable addition to the design, which will ensure that the space is pleasant and comfortable for all occupants throughout the year.





Image 5: Proposed Landscaping and Mitigation Measures

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4 STATEMENT OF LIMITATIONS

Limitations

This report entitled '*218-246 Macaulay Road Pedestrian Wind Study*' was prepared by RWDI Australia Pty Ltd ("RWDI") for The Brott Group ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilise the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

Design Assumptions

RWDI confirms that the pedestrian wind assessment (the "**Assessmen**t") discussed herein was performed by RWDI in accordance with generally accepted professional standards at the time when the Assessment was performed and in the location of the Project. No other representations, warranties, or guarantees are made with respect to the accuracy or completeness of the information, findings, recommendations, or conclusions contained in this Report. This report is not a legal opinion regarding compliance with applicable laws.

Drawings and information listed below were received and used to construct the scale model of the proposed 218-246 Macaulay Road (**"Project Data**").

File Name	File Type	Date Received (yyyy/mm/dd)
220068_Macaulay Rd_Issue for Information_2023-02-14	PDF	2023-02-14

The findings and recommendations set out in this report are also based on an examination of the latest drawings and information received disclosed to RWDI, listed below:

File Name	File Type	Date Received (yyyy/mm/dd)
220068_218-246 Macaulay Road_Revised Architectural Drawings	PDF	2023-03-28

PEDESTRIAN WIND STUDY 218-246 MACAULAY ROAD

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The results and conclusions of set out in this report are based on the assumption that the Project Data and Climate Data are accurate and complete. RWDI assumes no responsibility for any inaccuracy or deficiency in information it has received from others. In addition, the recommendations and conclusions in this report are partially based on historical data and can be affected by a number of external factors, including but not limited to Project design, quality of materials and construction, Site conditions, meteorological events, and climate change. As such, the conclusions and recommendations contained in this report do not list every possible outcome.

The opinions in this report can only be relied up on to the extent that the Project Data and Project Specific Conditions have not changed. Any change in the Project Data or Project Specific Conditions not reflected in this report can impact and/or alter the recommendations and conclusions in this report. Therefore, it is incumbent upon the Client and/or any other third party reviewing the recommendations and conclusions in this report to contact RWDI in the event of any change in the Project Data and Project Specific Conditions in order to determine whether any such change(s) may impact the assumptions upon which the recommendations and conclusions were made.



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5 **REFERENCES**

ASCE Task Committee on Outdoor Human Comfort (2004). Outdoor Human Comfort and Its Assessment, 68 pages, American Society of Civil Engineers, Reston, Virginia, USA.

Arens E, Aynsley R, Cochran L, Durgin F, Hayashi Y, Irwin P, Isyumov N, Murakami S, Soligo M, Strathopoulos T, Wu H (2003) Outdoor Human Comfort and its Assessment, American Society of Civil Engineers

Australasian Wind Engineering Society, QAM-1, 2019, "Quality Assurance Manual: Wind Engineering Studies of Buildings".

Australasian Wind Engineering Society (AWES), 2014, "Guidelines for Pedestrian Wind Effects Criteria".

Durgin, F. H. (1997). "Pedestrian Level Wind Criteria Using the Equivalent average", Journal of Wind Engineering and Industrial Aerodynamics, Vol. 66, pp. 215-226.

Lawson, T.V. (1973). "Wind Environment of Buildings: A Logical Approach to the Establishment of Criteria", Report No. TVL 7321, Department of Aeronautic Engineering, University of Bristol, Bristol, England.

Melbourne City Council, "Melbourne Planning Scheme (58.04-04 – Standard D17)".

Soligo, M.J., Irwin, P.A., Williams, C.J. and Schuyler, G.D. (1998). "A Comprehensive Assessment of Pedestrian Comfort Including Thermal Effects," Journal of Wind Engineering and Industrial Aerodynamics, Vol.77&78, pp.753-766.

Williams, C.J., Hunter, M.A. and Waechter, W.F. (1990). "Criteria for Assessing the Pedestrian Wind Environment," Journal of Wind Engineering and Industrial Aerodynamics, Vol.36, pp.811-815.

Williams, C.J., Soligo M.J. and Cote, J. (1992). "A Discussion of the Components for a Comprehensive Pedestrian Level Comfort Criteria," Journal of Wind Engineering and Industrial Aerodynamics, Vol.41-44, pp.2389-2390.

Williams, C.J., Wu, H., Waechter, W.F., and Baker, H.A. (1999). "Experiences with Remedial Solutions to Control Pedestrian Wind Problems," Tenth International Conference on Wind Engineering, Copenhagen, Denmark.

Wu, H. and Kriksic, F. (2012). "Designing for Pedestrian Comfort in Response to Local Climate", Journal of Wind Engineering and Industrial Aerodynamics, Vol.104-106, pp.397-407.

Wu, H., Williams, C.J., Baker, H.A. and Waechter, W.F. (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", ASCE Structure Congress 2004, Nashville, Tennessee.



FIGURES

















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Lesstion	Concern	Configuration	Wind Comfort		Wind Safety	
Location	Season		Speed	Rating	Speed	Rating
1	Summer	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	4.9	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	5.6	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	5.4	Pass
				-		
2	Summer	Existing	-	N/A	-	N/A
		Proposed	3.5	Standing	11.3	Pass
	Minter	Evicting		N1/A		N1/A
	winter	Proposed	-	N/A Standing	- 12.5	N/A Pass
		Toposed	5.1	Standing	12.5	1 035
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.3	Standing	12.0	Pass
3	Summer	Existing	-	N/A	-	N/A
		Proposed	1./	Sitting	6.5	Pass
	Winter	Existing		Ν/Δ	_	
	Winter	Proposed	1.6	Sitting	6.7	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.7	Sitting	6.6	Pass
-		F 1				
4	Summer	Existing	-	N/A Standing	-	N/A Bass
		FTOPOSEU	5.5	Stanuing	12.0	F d 5 5
	Winter	Existing	-	N/A	-	N/A
		Proposed	3.3	Standing	13.4	Pass
	Annual	Existing		N/A	-	N/A
		Proposed	3.3	Standing	12.8	Pass
5	Summer	Existing	3.5	Standing	14.7	Pass
-		Proposed	2.6	Sitting	10.4	Pass
				0		
	Winter	Existing	3.7	Standing	16.5	Pass
		Proposed	2.2	Sitting	10.0	Pass
	Annual	Evicting	27	Ctanding	16.0	Dees
	Annual	Proposed	3.7	Standing	10.0	PdSS
		Toposed	2.4	Sitting	10.5	1 435
6	Summer	Existing	3.1	Standing	12.8	Pass
		Proposed	2.4	Sitting	9.3	Pass
	Winter	Existing	3.1	Standing	12.2	Pass
		Proposed	1.6	Sitting	8.8	Pass
	Annual	Existing	3.1	Standing	12.6	Pass
	, annuar	Proposed	2.0	Sitting	9.1	Pass
7	Summer	Existing	3.2	Standing	14.8	Pass

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Location	6	Configuration	Wind Comfort		Wind Safety	
Location	Season		Speed	Rating	Speed	Rating
		Proposed	3.0	Sitting	10.8	Pass
	Winter	Existing	3./	Standing	16.4	Pass
		Proposed	2.9	Sitting	11.2	Pass
	Annual	Existing	3.4	Standing	15.9	Pass
		Proposed	2.9	Sitting	11.0	Pass
8	Summer	Existing	2.9	Sitting	13.2	Pass
		Proposed	2.6	Sitting	11.0	Pass
	Winter	Existing	3.3	Standing	14.5	Pass
		Proposed	1.8	Sitting	10.4	Pass
				-		
	Annual	Existing	3.1	Standing	14.0	Pass
		Proposed	2.2	Sitting	10.7	Pass
9	Summer	Existing	3.6	Standing	15 1	Pass
5	Summer	Proposed	3.9	Standing	16.2	Pass
				U		
	Winter	Existing	3.9	Standing	17.0	Pass
		Proposed	3.3	Standing	15.1	Pass
	Appual	Evicting	2.7	Standing	16.1	Dacc
	Annual	Proposed	3.6	Standing	15.7	Pass
		op ob co	5.0	5661101118		
10	Summer	Existing	4.0	Standing	14.8	Pass
		Proposed	2.8	Sitting	12.3	Pass
	Mintor	Eviating	4.2	Malking	16.6	Daga
	winter	Existing	4.3	Sitting	16.6	Pass
		Toposed	5.0	Sitting	13.7	1 435
	Annual	Existing	4.2	Walking	16.1	Pass
		Proposed	3.0	Sitting	13.2	Pass
	6	F 1 4		c. l'	45.2	
11	Summer	Existing	4.0	Standing	15.3	Pass
		Toposed	5.5	Standing	14.4	1 433
	Winter	Existing	4.3	Walking	17.3	Pass
		Proposed	3.6	Standing	16.4	Pass
						_
	Annual	Existing	4.2	Walking	16.4	Pass
		Proposed	5.4	Stanuing	15.9	Pass
12	Summer	Existing	3.7	Standing	13.8	Pass
		Proposed	3.1	Standing	11.7	Pass
	Winter	Existing	4.0	Standing	15.6	Pass
		Proposed	2.9	Sitting	12.8	Pass
	Annual	Existing	3.8	Standing	15.0	Pass
		Proposed	3.0	Sitting	12.4	Pass
13	Summer	Existing	3.6	Standing	13.8	Pass
		Proposed	3.6	Standing	15.3	Pass





Lesstie		Configuration	Wind Comfort		Wind Safety	
Location	n Season	Configuration	Speed	Rating	Speed	Rating
	Winter	Existing	3.8	Standing	15.5	Pass
		Proposed	3.8	Standing	17.4	Pass
	Annual	Existing	3.7	Standing	14.7	Pass
		Proposed	3.7	Standing	16.4	Pass
14	Summer	Existing	3.6	Standing	13.0	Pass
		Proposed	2.5	Sitting	11.9	Pass
	Winter	Existing	3.6	Standing	14.1	Pass
		Proposed	2.9	Sitting	13.5	Pass
	Annual	Existing	3.6	Standing	13.8	Pass
		Proposed	2.7	Sitting	12.8	Pass
15	Summer	Existing	3.2	Standing	11 9	Pass
15	Summer	Proposed	2.8	Sitting	16.3	Pass
		Toposed	2.0	Sitting	10.5	1055
	Winter	Existing	3.2	Standing	12.9	Pass
		Proposed	3.9	Standing	18.1	Pass
	Annual	Existing	3.2	Standing	12.5	Pass
		Proposed	3.3	Standing	17.5	Pass
		- · · ·		C		
16	Summer	Existing	2.5	Sitting	8.8	Pass
		Proposed	5.7	Stanung	17.5	Pass
	Winter	Existing	2.3	Sitting	9.3	Pass
		Proposed	4.3	Walking	19.4	Pass
				U		
	Annual	Existing	2.4	Sitting	9.1	Pass
		Proposed	4.0	Standing	18.8	Pass
17	Summer	Existing	-	N/A	-	N/A
		Proposed	4.2	waiking	15.3	PdSS
	Winter	Existing		N/A	-	N/A
		Proposed	4.1	Walking	16.4	Pass
				U		
	Annual	Existing	-	N/A	-	N/A
		Proposed	4.2	Walking	15.9	Pass
18	Summer	Existing	-	N/A	-	N/A
		Proposed	3.9	Standing	17.4	Pass
	Winter	Existing				
	Winter	Proposed	4.4	Walking	18.4	Pass
	Annual	Existing		N/A		N/A
		Proposed	4.2	Walking	18.1	Pass
19	Summer	Existing	-	N/A	-	N/A
		Proposed	3.6	Standing	17.3	Pass





Location	Concern	Configuration	Wind Comfort		Wind Safety	
Location	n Season	Configuration	Speed	Rating	Speed	Rating
	Winter	Existing	-	N/A	-	N/A
		Proposed	4.2	Walking	17.7	Pass
	Annual	Existing	-	N/A Standing	-	N/A
		Proposed	3.9	Standing	17.0	Pass
20	Summer	Existing	-	N/A	-	N/A
		Proposed	3.3	Standing	15.7	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	4.2	Walking	17.5	Pass
	Annual	Existing		N/A		N/A
		Proposed	3.8	Standing	16.9	Pass
21	Summer	Existing	-	N/A	-	N/A
		Proposed	3.1	Standing	16.5	Pass
	Winter	Existing		N/A		N/A
	Winter	Proposed	3.7	Standing	18.8	Pass
				0		
	Annual	Existing	-	N/A	•	N/A
		Proposed	3.4	Standing	18.0	Pass
22	Summer	Existing	-	Ν/Δ		
~~~	Summer	Proposed	1.7	Sitting	10.1	Pass
	Winter	Existing	-	N/A		N/A
		Proposed	2.2	Sitting	11.4	Pass
	Annual	Eviating		N1/A		N1/A
	Annual	Proposed	1.9	Sitting	11.0	Pass
				2		
23	Summer	Existing	-	N/A	-	N/A
		Proposed	3.4	Standing	11.9	Pass
	Winter	Evicting		N1/A		N1/A
	winter	Proposed	- 29	N/A Sitting	- 11.9	N/A Pass
		Toposed	2.5	Sitting	11.5	1 435
	Annual	Existing	-	N/A	· ·	N/A
		Proposed	3.1	Standing	11.9	Pass
24	Cummor.	Eviating		N1/A		N1/A
24	Summer	Proposed	- 35	N/A Standing	13.0	N/A Pass
			0.0	566.161.18		1 000
	Winter	Existing	-	N/A	-	N/A
		Proposed	3.1	Standing	13.4	Pass
	A	Fristin -		N1/A		N1/A
	Annual	Existing	-	IN/A Standing	-	N/A Pass
		roposeu	5.5	Standing	13.5	1 033
25	Summer	Existing	3.4	Standing	13.3	Pass
		Proposed	4.7	Walking	16.6	Pass
				<b>C</b>		
	Winter	Existing	3.1	Standing	12.4	Pass





Location	Eastan	Configuration	Wind Comfort		Wind Safety	
	Season		Speed	Rating	Speed	Rating
		Proposed	4.0	Standing	17.0	Pass
	Annual	Existing	3.2	Standing	12.7	Pass
		Proposed	4.4	Walking	17.0	Pass
26	Summer	Existing	3.7	Standing	14.9	Pass
		Proposed	2.9	Sitting	10.5	Pass
	Winter	Existing	3.8	Standing	17.0	Pass
		Proposed	2.4	Sitting	10.1	Pass
	Annual	Fxisting	3.8	Standing	16 5	Pass
		Proposed	2.6	Sitting	10.5	Pass
				U		
27	Summer	Existing	2.8	Sitting	10.6	Pass
		Proposed	3.5	Standing	13.5	Pass
	Winter	Evicting	27	Sitting	11.2	Pass
	Winter	Proposed	3.0	Sitting	13.3	Pass
			5.0	51441.6	1010	
	Annual	Existing	2.7	Sitting	10.9	Pass
		Proposed	3.2	Standing	13.3	Pass
	-			-		
28	Summer	Existing	2.9	Sitting	12.4	Pass
		Proposed	3.7	Standing	13.7	PdSS
	Winter	Existing	3.2	Standing	14.2	Pass
		Proposed	3.7	Standing	15.4	Pass
	Annual	Existing	3.0	Sitting	13.7	Pass
		Proposed	3.7	Standing	14.9	Pass
29	Summer	Existing	2.1	Sitting	10.5	Pass
		Proposed	2.1	Sitting	9.0	Pass
	Winter	Existing	2.7	Sitting	11.7	Pass
		Proposed	2.4	Sitting	10.0	Pass
	Annual	Fristing	2.4	Sitting	11 3	Pass
	, initial	Proposed	2.2	Sitting	9.6	Pass
				U		
30	Summer	Existing	3.2	Standing	11.3	Pass
		Proposed	2.9	Sitting	11.7	Pass
	Minter	Eviatia a	2.0	Citting	11.0	Daac
	winter	Existing	2.9	Sitting	10.7	Pass
		Toposed	2.1	Sitting	10.7	1 435
	Annual	Existing	3.1	Standing	11.6	Pass
		Proposed	2.5	Sitting	11.2	Pass
	-					
31	Summer	Existing	2.2	Sitting	9.1	Pass
		Proposed	2.0	Sitting	9.2	Pass
	Winter	Existing	2.4	Sitting	10.0	Pass
		Proposed	2.3	Sitting	9.3	Pass





Location	<b>6</b>	Configuration	Wind Comfort		Wind Safety	
	Season		Speed	Rating	Speed	Rating
	Annual	Existing	2.3	Sitting	9.7	Pass
		Proposed	2.5	Sitting	9.2	Pass
	Current	Eviatia -	2.5	Cittin -	0.2	Dana
32	Summer	Existing	2.5	Sitting	9.2	Pass
		Proposed	2.0	Sitting	9.4	Pass
	Winter	Existing	2.4	Sitting	9.8	Pass
		Proposed	2.4	Sitting	9.4	Pass
	Annual	Eviating	2.5	Citting	0.5	Dees
	Annual	Existing	2.5	Sitting	9.5	Pass
		Proposed	2.5	Sitting	9.4	Pass
33	Summer	Existing	2.7	Sitting	10.4	Pass
		Proposed	2.6	Sitting	10.3	Pass
		- · · ·		<b>C</b> 1111	44.0	
	Winter	Existing	2./	Sitting	11.2	Pass
		Proposed	2.6	Sitting	11.1	Pass
	Annual	Existing	2.7	Sitting	10.9	Pass
		Proposed	2.6	Sitting	10.6	Pass
				-		
34	Summer	Existing	2.7	Sitting	12.0	Pass
		Proposed	2.7	Sitting	12.3	Pass
	Winter	Existing	2.0	Sitting	127	Dass
	vvincer	Proposed	2.9	Sitting	13.5	Pass
		roposed	2.5	Sitting	13.5	1 435
	Annual	Existing	2.8	Sitting	12.5	Pass
		Proposed	2.8	Sitting	13.0	Pass
	_					
35	Summer	Existing	3.3	Standing	13.0	Pass
		Proposed	3.6	Standing	14.5	Pass
	Winter	Existing	3.5	Standing	13.9	Pass
		Proposed	3.9	Standing	16.3	Pass
	Annual	Existing	3.3	Standing	13.6	Pass
		Proposed	3.8	Standing	15.7	Pass
36	Summer	Fxisting	3.2	Standing	13.2	Pass
		Proposed	3.9	Standing	16.1	Pass
				0		
	Winter	Existing	3.5	Standing	14.7	Pass
		Proposed	4.3	Walking	17.8	Pass
	Appus	Eviating	2.2	Ctanding	1.4.1	Daga
	Annual	Existing	3.3	Standing	14.1	Pass
		rioposeu	4.0	Statiulity	17.2	r ass
37	Summer	Existing	2.5	Sitting	11.9	Pass
		Proposed	2.4	Sitting	11.0	Pass
	Winter	Existing	2.9	Sitting	13.2	Pass
		Proposed	2.8	Sitting	12.5	Pass

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Location	Concern	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
	Annual	Existing	2.7	Sitting	12.8	Pass
		Proposed	2.6	Sitting	12.1	Pass
38	Summer	Existing	3.1	Standing	15.1	Pass
		Proposed	3.9	Standing	16.2	Pass
	Winter	Existing	3.8	Standing	16.9	Pass
		Proposed	4.2	waiking	17.9	Pass
	Annual	Fxisting	3.5	Standing	16.4	Pass
		Proposed	4.1	Walking	17.0	Pass
				0		
39	Summer	Existing	3.4	Standing	14.1	Pass
		Proposed	3.2	Standing	13.3	Pass
	14/:	Fuintin -	2.6	Ctore dia a	45 7	Deee
	winter	Existing	3.0	Standing	1/1.2	Pass
		rioposed	5.4	Standing	14.5	r ass
	Annual	Existing	3.5	Standing	15.1	Pass
		Proposed	3.3	Standing	13.9	Pass
40	Summer	Existing	2.6	Sitting	9.6	Pass
		Proposed	2.6	Sitting	9.7	Pass
	Winter	Existing	2.3	Sitting	9.4	Pass
		Proposed	2.2	Sitting	9.6	Pass
				-		
	Annual	Existing	2.5	Sitting	9.4	Pass
		Proposed	2.4	Sitting	9.6	Pass
41	Summer	Existing	2.8	Sitting	11.6	Pass
		Proposed	2.8	Sitting	11.1	Pass
				-		
	Winter	Existing	2.3	Sitting	10.9	Pass
		Proposed	2.3	Sitting	10.9	Pass
	Appual	Existing	25	Sitting	11 2	Pacc
	Annual	Proposed	2.5	Sitting	11.5	Pass
			2.0	0.000.0		
42	Summer	Existing	4.7	Walking	16.5	Pass
		Proposed	4.4	Walking	16.0	Pass
	14 <i>1</i>	E		A.C. 11. 1	10.4	5
	winter	Existing	4.4	Walking	18.4	Pass
		Toposed	7.2	Walking	17.0	1 435
	Annual	Existing	4.5	Walking	17.8	Pass
		Proposed	4.3	Walking	17.0	Pass
	-	<b>F</b> 1 1			10.5	
43	Summer	Existing	3.3	Standing	12.6	Pass
		rioposed	3.1	Stanuing	11.8	rd55
	Winter	Existing	3.4	Standing	13.8	Pass
		Proposed	3.2	Standing	12.7	Pass
	Annual	Existing	3.3	Standing	13.4	Pass

# ADVERTISED PLAN



Location	Concor	Configuration	Wind Comfort		Wind Safety	
	Season		Speed	Rating	Speed	Rating
		Proposed	3.1	Standing	12.3	Pass
4.4	Cummer	Eviating	2.0	Ctanding	14.0	Daac
44	Summer	Existing	3.8	Standing	14.9	Pass
		FTOPOSEd	5.4	Stanuing	13.1	r d S S
	Winter	Existing	3.9	Standing	17.0	Pass
		Proposed	3.4	Standing	14.9	Pass
				-		
	Annual	Existing	3.8	Standing	16.4	Pass
		Proposed	3.4	Standing	14.3	Pass
45	C	Fuitation -	2.2	Chana dina a	145	Deee
45	Summer	Existing	3.3	Standing	14.5	Pass
		FTOPOSEd	5.5	Stanuing	13.2	r d S S
	Winter	Existing	3.7	Standing	16.0	Pass
		Proposed	3.5	Standing	14.4	Pass
	Annual	Existing	3.5	Standing	15.5	Pass
		Proposed	3.4	Standing	13.9	Pass
46	Currana a r	Eviating	25	Citting	14.0	Daac
40	Summer	Proposed	2.5	Sitting	14.0	PdSS
		Toposed	5.0	Sitting	11.5	1 435
	Winter	Existing	3.4	Standing	16.1	Pass
		Proposed	2.7	Sitting	11.5	Pass
	Annual	Existing	3.0	Sitting	15.6	Pass
		Proposed	2.8	Sitting	11.5	Pass
47	Summer	Fxisting	2.4	Sitting	15.1	Pass
	Sammer	Proposed	2.7	Sitting	12.1	Pass
				0		
	Winter	Existing	3.4	Standing	16.7	Pass
		Proposed	2.8	Sitting	12.8	Pass
						_
	Annual	Existing	3.0	Sitting	16.1	Pass
		Proposed	2.7	Sitting	12.0	PdSS
48	Summer	Existing	2.2	Sitting	12.0	Pass
		Proposed	3.0	Sitting	11.3	Pass
				-		
	Winter	Existing	2.9	Sitting	13.2	Pass
		Proposed	2.5	Sitting	11.4	Pass
	Appus	Eviating	2.6	Citting	12.0	Dage
	Annual	Proposed	2.0	Sitting	12.8	PdSS
		Toposed	2.7	Sitting	11.5	1 435
49	Summer	Existing	2.5	Sitting	11.8	Pass
		Proposed	2.9	Sitting	11.5	Pass
	Winter	Existing	3.0	Sitting	13.6	Pass
		Proposed	3.0	Sitting	12.9	Pass
	Annual	Existing	2.8	Sitting	13.1	Pass
	, and a	Proposed	3.0	Sitting	12.4	Pass
		1		0		





Location	Season	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
50	Summer	Existing	3.4	Standing	16.8	Pass
		Proposed	3.4	Standing	16.5	Pass
						_
	Winter	Existing	4.0	Standing	19.2	Pass
		Proposed	4.1	waiking	18.9	Pass
	Annual	Fxisting	3.6	Standing	18.1	Pass
	, influent	Proposed	3.7	Standing	18.3	Pass
51	Summer	Existing	2.5	Sitting	13.4	Pass
		Proposed	2.5	Sitting	13.4	Pass
	Winter	Existing	3.1	Standing	14.8	Pass
		Proposed	3.3	Standing	14.7	Pass
	A	Fuintin -	2.0	Cittin -	14.2	Deee
	Annual	Existing	2.8	Sitting	14.3	Pass
		Proposed	2.8	Sitting	14.2	PdSS
52	Summer	Existing	1.7	Sitting	7.1	Pass
		Proposed	1.7	Sitting	6.2	Pass
	Winter	Existing	1.9	Sitting	7.8	Pass
		Proposed	1.6	Sitting	6.5	Pass
	Annual	Existing	1.8	Sitting	7.6	Pass
		Proposed	1.7	Sitting	6.3	Pass
E2	Summor	Existing	2.2	Sitting	12 5	Pacc
55	Summer	Proposed	2.5	Sitting	93	Pass
		Toposed	2.0	Sitting	5.5	1 435
	Winter	Existing	2.9	Sitting	14.0	Pass
		Proposed	2.3	Sitting	10.1	Pass
	Annual	Existing	2.6	Sitting	13.4	Pass
		Proposed	2.1	Sitting	9.9	Pass
F 4	C	Evi-tic -		N1/A		N1/A
54	Summer	Existing	-	N/A Sitting	- 17.0	N/A Pass
		rioposed	2.7	Sitting	17.5	1 435
	Winter	Existing		N/A		N/A
		Proposed	4.2	Walking	20.5	Exceeded
				-		
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.6	Standing	19.3	Pass
55	Summer	Existing	-	N/A	-	N/A
		Proposed	2.0	Sitting	13.5	Pass
	Winter	Existing		N/A	_	N/A
		Proposed	3.4	Standing	15.3	Pass
				0		
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.0	Sitting	14.8	Pass





Location Season		Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
56	Summer	Existing	-	N/A	-	N/A
		Proposed	3.2	Standing	14.8	Pass
	Winter	Existing				
	Winter	Proposed	40	Standing	16.2	Pass
		i i oposed	1.0	Standing	10.2	1 433
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.5	Standing	15.7	Pass
57	Summer	Fristing		N/A	-	N/A
57	Summer	Proposed	1.3	Sitting	6.6	Pass
				0.000.0		1 000
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.6	Sitting	7.4	Pass
	Annual	Eviating		N1/A		N1/A
	Annual	Existing	- 15	N/A Sitting	-	N/A Bass
		FTOPOSEU	1.5	Sitting	1.2	Fass
58	Summer	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	7.6	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.8	Sitting	8.4	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.6	Sitting	8.1	Pass
59	Summer	Existing	-	N/A	-	N/A
		Proposed	3.8	Standing	16.8	Pass
	Winter	Fxisting	_	N/A	_	N/A
		Proposed	4.5	Walking	18.4	Pass
				-		
	Annual	Existing	-	N/A	-	N/A
		Proposed	4.2	Walking	17.9	Pass
60	Summer	Existing		Ν/Δ		
00	Summer	Proposed	3.1	Standing	13.2	Pass
				566.161.16		1 000
	Winter	Existing	-	N/A	-	N/A
		Proposed	3.3	Standing	14.5	Pass
	A	Evi-tin -		N1/A		N1/A
	Annual	Existing	-	N/A Standing	-	N/A Bass
		roposed	5.2	Standing	14.1	1 035
61	Summer	Existing	-	N/A	-	N/A
		Proposed	3.2	Standing	16.4	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	4.1	waiking	17.7	Pass
	Annual	Existing		N/A		N/A
		Proposed	3.7	Standing	17.2	Pass
62	Summer	Existing	-	N/A	-	N/A

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Lesstian	6	Season Configuration -	Wind Comfort		Wind Safety	
Location	Season		Speed	Rating	Speed	Rating
		Proposed	1.5	Sitting	5.8	Pass
	Winter	Existing	-	N/A Sitting	-	N/A Dass
		Proposed	1.5	Sitting	6.2	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.5	Sitting	6.0	Pass
63	Summer	Existing	-	N/A	-	N/A
		Proposed	4.0	Standing	16.0	Pass
	Winter	Existing		N/A		N/A
		Proposed	4.3	Walking	17.1	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	4.1	Walking	16.5	Pass
64	Summer	Existing	-	N/A	-	N/A
••	Sammer	Proposed	1.4	Sitting	6.0	Pass
				U		
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.5	Sitting	6.4	Pass
	Annual	Existing				
	Annual	Proposed	1.5	Sitting	6.2	Pass
65	Summer	Existing	-	N/A	-	N/A
		Proposed	3.7	Standing	15.8	Pass
	Winter	Evicting		N1/A		NI/A
	vvinter	Proposed	3.7	Standing	- 15.3	Pass
		op obcu		56611611.6	1010	1 000
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.7	Standing	15.6	Pass
	Cummor	Eviating		N1/A		N1/A
00	Summer	Proposed	- 13	N/A Sitting	- 59	N/A Pass
		Toposed	1.5	Sitting	5.5	1 455
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	5.9	Pass
	Annual	Existing	-	N/A Sitting	-	N/A Dass
		Proposed	1.4	Sitting	5.9	Pass
67	Summer	Existing	-	N/A	-	N/A
		Proposed	1.5	Sitting	6.4	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	5.9	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	6.2	Pass
				_		
68	Summer	Existing	-	N/A	-	N/A
		Proposed	4.0	Standing	17.3	Pass





Location	Concer	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
	ĺ.					
	Winter	Existing	-	N/A	· ·	N/A
		Proposed	3.4	Standing	16.9	Pass
	Annual	Fristing		Ν/Δ		N/A
	, initial	Proposed	3.6	Standing	17.2	Pass
		·		U		
69	Summer	Existing	-	N/A	-	N/A
		Proposed	1.8	Sitting	10.8	Pass
	Winter	Existing		NI/A		
	Winter	Proposed	2.8	Sitting	12.4	Pass
				8		
	Annual	Existing		N/A	-	N/A
		Proposed	2.4	Sitting	12.0	Pass
70	Cummor	Eviating		N1/A		N1/A
70	Summer	Existing	- 15	N/A Sitting	-	N/A Pass
		Toposed	1.5	Sitting	0.5	1 033
	Winter	Existing		N/A	· ·	N/A
		Proposed	1.8	Sitting	7.3	Pass
	Annual	Existing	-	N/A Sitting	-	N/A Dass
		Proposed	1.7	Sitting	1.2	Pass
71	Summer	Existing	-	N/A	-	N/A
		Proposed	1.6	Sitting	7.1	Pass
	Winter	Existing	-	N/A Sitting	- 7.1	N/A Dass
		Proposed	1.0	Sitting	7.1	Pass
	Annual	Existing		N/A	· ·	N/A
		Proposed	1.6	Sitting	7.1	Pass
72	Summer	Existing	-	N/A Sitting	-	N/A Dass
		Proposed	2.7	Sitting	15.0	Pass
	Winter	Existing		N/A	· ·	N/A
		Proposed	3.6	Standing	15.2	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.2	Standing	14.8	Pass
73	Summer	Existing		N/A	· ·	N/A
		Proposed	1.9	Sitting	11.2	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	2.5	Sitting	12.7	Pass
	Annual	Existing		N/A		N/A
		Proposed	2.2	Sitting	12.1	Pass
74	Summer	Existing	-	N/A		N/A
		Proposed	1.9	Sitting	7.3	Pass





			Wind Comfort		Wind	Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating	
	Winter	Existing	-	N/A	•	N/A	
		Proposed	1.9	Sitting	7.8	Pass	
	Annual	Existing	-	N/A	-	N/A	
		Proposed	1.9	Sitting	7.5	Pass	
75	Summer	Existing		N/A	· ·	N/A	
		Proposed	1.7	Sitting	5.9	Pass	
	Winter	Existing	-	N/A	· ·	N/A	
		Proposed	1.5	Sitting	6.0	Pass	
	Annual	Existing		N/A		N/A	
	, initiality	Proposed	1.5	Sitting	6.0	Pass	
				C C			
76	Summer	Existing	-	N/A	-	N/A	
		Proposed	2.7	Sitting	13.3	Pass	
	Winter	Existing		NI/A		N/A	
	whitei	Proposed	2.9	Sitting	15.0	Pass	
	Annual	Existing	-	N/A	· ·	N/A	
		Proposed	2.8	Sitting	14.6	Pass	
77	Cummer	Eviating		N1/A		N1/A	
//	Summer	Proposed	17	N/A Sitting	6.8	N/A Pass	
		rioposed	1.7	Sitting	0.0	1 433	
	Winter	Existing		N/A	· ·	N/A	
		Proposed	1.7	Sitting	6.8	Pass	
	Annual	Existing	- 17	N/A Sitting	-	N/A Pass	
		rioposed	1.7	Sitting	0.0	1 033	
78	Summer	Existing		N/A	•	N/A	
		Proposed	2.1	Sitting	7.9	Pass	
	Winter	Existing	-	N/A Sitting	-	N/A	
		Proposed	1.9	Sitting	7.9	Pass	
	Annual	Existing		N/A	· ·	N/A	
		Proposed	2.0	Sitting	7.9	Pass	
79	Summer	Existing	-	N/A	-	N/A	
		Proposed	3.9	Standing	14.4	Pass	
	Winter	Existing		N/A	· ·	N/A	
		Proposed	2.8	Sitting	13.9	Pass	
	Annual	Existing	•	N/A		N/A	
		Proposed	3.4	Standing	14.0	Pass	
80	Summer	Existing		N/A		N/A	
	Sammer	Proposed	3.9	Standing	17.7	Pass	
	Winter	Existing	-	N/A		N/A	





Lesstion	Concern	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
		Proposed	3.6	Standing	18.1	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.8	Standing	17.8	Pass
81	Summer	Existing	-	N/A	-	N/A
		Proposed	5.3	Uncomfortable	18.4	Pass
	Winter	Existing	-	N/A	-	N/A Dass
		Proposed	5.5	Unconnortable	16.9	Pass
	Annual	Existing		N/A		N/A
		Proposed	5.3	Uncomfortable	18.7	Pass
82	Summer	Existing	-	N/A	-	N/A
		Proposed	4.0	Standing	15.7	Pass
	Winter	Existing		N/A		N/A
		Proposed	3.2	Standing	15.6	Pass
	Annual	Existing	•	N/A		N/A
		Proposed	3.6	Standing	15.6	Pass
83	Summer	Existing	-	N/A	-	N/A
		Proposed	3.1	Standing	12.0	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	2.3	Sitting	11.4	Pass
	Annual	Fxisting		N/A		N/A
		Proposed	2.7	Sitting	11.6	Pass
84	Summer	Existing		N/A		N/A
		Proposed	4.1	Walking	16.1	Pass
	Winter	Existing		N/A		N/A
		Proposed	3.3	Standing	16.1	Pass
	Annual	Existing	•	N/A		N/A
		Proposed	3.7	Standing	16.1	Pass
85	Summer	Fxisting	-	N/A	-	N/A
		Proposed	3.7	Standing	14.2	Pass
	Winter	Existing	•	N/A		N/A
		Proposed	2.7	Sitting	13.5	Pass
	Annual	Fristing		N/A		N/A
	, initiati	Proposed	3.2	Standing	14.0	Pass
86	Summer	Existing	-	N/A	-	N/A
		Proposed	2.8	Sitting	11.2	Pass
	Winter	Existing		N/A		
	VVIIILEI	Proposed	3.0	Sitting	12.5	Pass
				3		





Location	Saaran	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
	Annual	Existing	-	N/A	-	N/A
		Proposed	2.9	Sitting	12.1	Pass
87	Summer	Existing	-	N/A	-	N/A
		Proposed	3.5	Standing	15.9	Pass
	Winter	Existing	-	N/A		N/A
		Proposed	3.7	Standing	16.3	Pass
	Annual	Existing		N/A		N/A
		Proposed	3.6	Standing	16.2	Pass
88	Summer	Existing	-	N/A	•	N/A
		Proposed	3.5	Standing	14.4	Pass
	Winter	Existing		N/A		N/A
		Proposed	3.4	Standing	14.4	Pass
	Annual	Existing		N/A		N/A
		Proposed	3.5	Standing	14.4	Pass
	C	Fuintin -				
89	Summer	Proposed	- 2.7	Sitting	- 11.1	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	2.9	Sitting	12.1	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	2.8	Sitting	11.7	Pass
90	Summer	Existing	-	N/A		N/A
		Proposed	3.4	Standing	17.4	Pass
	Winter	Existing		NZA		
	Winter	Proposed	4.4	Walking	19.7	Pass
				Ū		
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.9	Standing	18.8	Pass
91	Summer	Existing	-	N/A	-	N/A
		Proposed	3.6	Standing	14.6	Pass
	Winter	Existing		N/A		N/A
		Proposed	3.9	Standing	16.6	Pass
	Annual	Existing		N/A		N/A
		Proposed	3.7	Standing	15.7	Pass
07	Summer	Existing		NI/A		
52	Sammer	Proposed	3.2	Standing	16.1	Pass
				2		
	Winter	Existing	-	N/A	-	N/A
		Proposed	4.3	waiking	17.7	Pass





Location	Concor	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
	Annual	Existing	-	N/A	-	N/A
		Proposed	3.8	Standing	17.1	Pass
93	Summer	Existing	-	N/A	-	N/A
		Proposed	3.7	Standing	17.7	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	4.3	Walking	19.2	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	4.0	Standing	18.6	Pass
94	Summer	Fxisting	-	N/A	-	N/A
51	Summer	Proposed	1.2	Sitting	4.6	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	5.2	Pass
	Annual	Eviating		N1/A		N1/A
	Annual	Proposed	- 12	N/A Sitting	49	N/A Pass
		Toposed	1.2	Sitting		1 435
95	Summer	Existing	-	N/A	-	N/A
		Proposed	1.7	Sitting	6.3	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	6.1	Pass
	Annual	Existing	-	N/A		N/A
		Proposed	1.5	Sitting	6.3	Pass
96	Summer	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	5.3	Pass
	Winter	Existing		N/A		N/A
		Proposed	1.3	Sitting	5.8	Pass
	Annual	Evisting				
	Annual	Proposed	1.4	Sitting	5.6	Pass
	6	<b>F</b> 1 (1)		N1/A		
97	Summer	Existing	-	N/A Sitting	-	N/A Dass
		Proposed	5.0	Sitting	14.2	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.8	Sitting	13.4	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	2.4	Sitting	14.1	Pass
98	Summer	Existing	-	N/A	-	N/A
		Proposed	1.7	Sitting	13.3	Pass
	Winter	Existing	-	N/A		N/A
		Proposed	3.0	Sitting	15.2	Pass
	Annual	Existing				
	/ diffudi	LAISUING		INA		

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	<b>6</b>	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
		Proposed	2.3	Sitting	14.7	Pass
00	Summor	Evicting		NI/A		NI/A
99	Summer	Proposed	-	N/A Sitting	-	N/A Dass
		rioposed	2.2	Sitting	10.0	1 035
	Winter	Existing		N/A		N/A
		Proposed	2.1	Sitting	11.2	Pass
	Annual	Existing	-	N/A	•	N/A
		Proposed	2.2	Sitting	11.0	Pass
100	Summer	Existing	-	N/A	-	N/A
		Proposed	2.1	Sitting	13.5	Pass
	Wintor	Evicting		NI/A		
	Whitei	Proposed	33	Standing	15.1	Pass
		Toposed	5.5	Standing	13.1	1 435
	Annual	Existing		N/A		N/A
		Proposed	2.8	Sitting	14.6	Pass
101	Summer	Existing	-	N/A	-	N/A
		Proposed	1.5	Sitting	6.7	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.7	Sitting	7.4	Pass
	Annual	Existing				ΝΙ/Δ
	Annual	Proposed	1.6	Sitting	7.1	Pass
		1 op ob ca		0.000.0		
102	Summer	Existing	-	N/A	-	N/A
		Proposed	3.2	Standing	13.2	Pass
	Winter	Existing	-	N/A	•	N/A
		Proposed	3.2	Standing	13.5	Pass
		<b>-</b> • •		N1/A		N1/A
	Annual	Existing	-	IN/A Standing	-	N/A Bass
		FTOPOSEd	5.2	Stanung	13.4	r ass
103	Summer	Existing		N/A		N/A
		Proposed	1.8	Sitting	6.4	Pass
				U U		
	Winter	Existing		N/A	-	N/A
		Proposed	1.6	Sitting	6.4	Pass
	Annual	Existing	-	N/A	•	N/A
		Proposed	1.7	Sitting	6.4	Pass
104	Summer	Existing		Ν/Δ		
104	Junner	Proposed	1.5	Sitting	6.4	Pass
				Sitting	0.1	1 435
	Winter	Existing		N/A	-	N/A
		Proposed	1.6	Sitting	6.9	Pass
	Annual	Existing	•	N/A	-	N/A
		Proposed	1.6	Sitting	6.7	Pass





Lesstion	Saasan	Configuration	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
105	Summer	Existing	-	N/A	•	N/A
		Proposed	1.5	Sitting	6.6	Pass
	Winter	Existing		N/A		N/A
		Proposed	1.7	Sitting	7.0	Pass
				0		
	Annual	Existing		N/A	-	N/A
		Proposed	1.6	Sitting	6.8	Pass
106	Summer	Existing		NI/A		NI/A
100	Summer	Proposed	1.3	Sitting	6.3	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.5	Sitting	6.7	Pass
	Appual	Eviating		N1/A		N1/A
	Annual	Proposed	-	N/A Sitting	-	N/A Pass
		Toposed	1.4	Sitting	0.0	1 435
107	Summer	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	5.3	Pass
	Winter	Existing	-	N/A Sitting	-	N/A Daga
		Proposed	1.4	Sitting	6.0	Pass
	Annual	Existing		N/A	-	N/A
		Proposed	1.3	Sitting	5.8	Pass
108	Summer	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	6.3	Pass
	Winter	Existing		N/A		N/A
		Proposed	1.6	Sitting	7.2	Pass
	Annual	Existing		N/A	-	N/A
		Proposed	1.4	Sitting	6.9	Pass
109	Summer	Fxisting		N/A	-	N/A
105	Sammer	Proposed	1.2	Sitting	5.7	Pass
	Winter	Existing		N/A	-	N/A
		Proposed	1.4	Sitting	6.4	Pass
	Appual	Evicting		NI/A		NI/A
	Annual	Proposed	1.3	Sitting	6.1	Pass
				510018		1 000
110	Summer	Existing	-	N/A	-	N/A
		Proposed	1.7	Sitting	6.6	Pass
	Minter	Eviating		N1/A		N1/A
	winter	Proposed	- 15	Sitting	6.6	Pass
		roposed	1.5	Sitting	0.0	1 435
	Annual	Existing		N/A	-	N/A
		Proposed	1.6	Sitting	6.6	Pass



Location Season	Configuration	Wind Comfort		Wind Safety		
Location	Season	Configuration	Speed	Rating	Speed	Rating
111	Summer	Existing	-	N/A	-	N/A
		Proposed	1.6	Sitting	7.3	Pass
		- · · ·				
	Winter	Existing	-	N/A Sitting	- 0.1	N/A Dass
		rioposeu	1.0	Sitting	0.1	r ass
	Annual	Existing		N/A	-	N/A
		Proposed	1.7	Sitting	7.8	Pass
112	Summer	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	4.9	Pass
	Winter	Existing		N/A		N/A
		Proposed	1.3	Sitting	5.2	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	5.0	Pass
113	Summer	Fxisting		N/A	-	N/A
		Proposed	1.4	Sitting	5.1	Pass
				-		
	Winter	Existing		N/A	-	N/A
		Proposed	1.3	Sitting	5.2	Pass
	Annual	Fristing		N/A		N/A
		Proposed	1.3	Sitting	5.1	Pass
				Ũ		
114	Summer	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	5.4	Pass
	Winter	Existing				
	vvincer	Proposed	1.4	Sitting	6.0	Pass
	Annual	Existing		N/A	-	N/A
		Proposed	1.3	Sitting	5.8	Pass
115	Summor	Evicting		NI/A		N1/A
115	Summer	Proposed	14	Sitting	- 54	Pass
				5.00.0		
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	5.9	Pass
	Appus	Eviating		N1/A		N1/A
	Annual	Proposed	- 1.4	N/A Sitting	57	N/A Pass
		roposed		Sitting	5.7	1 435
116	Summer	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	4.7	Pass
		Eviatio		N1/A		N1/A
	winter	Existing	-	N/A Sitting	- 5.2	N/A Pass
		rioposeu	1.5	Sitting	5.2	F 055
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	5.0	Pass
	-					
117	Summer	Existing	-	N/A	-	N/A

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Location	Concern	Confirmention	Wind Comfort		Wind Safety	
Location	Season	Configuration	Speed	Rating	Speed	Rating
		Proposed	1.1	Sitting	4.7	Pass
	Winter	Fxisting		N/A		N/A
		Proposed	1.2	Sitting	5.3	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	5.1	Pass
118	Summer	Existing		N/A	-	N/A
		Proposed	1.2	Sitting	5.4	Pass
	Winter	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	5.8	Pass
	Annual	Existing		N/A		N/A
		Proposed	1.3	Sitting	5.7	Pass
				0		
119	Summer	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	6.5	Pass
	14/					N1/A
	winter	Existing	-	N/A Sitting	-	N/A Dass
		Proposed	1.0	Sitting	7.0	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.4	Sitting	6.9	Pass
120	Summer	Existing	-	N/A	-	N/A
		Proposed	1.2	Sitting	5.5	Pass
	Winter	Fxisting		N/A	-	N/A
		Proposed	1.5	Sitting	5.9	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.3	Sitting	5.7	Pass
121	Summer	Existing		Ν/Δ		
121	Summer	Proposed	1.4	Sitting	8.2	Pass
		roposed		Sitting	0.2	1 433
	Winter	Existing	-	N/A		N/A
		Proposed	2.0	Sitting	9.2	Pass
	Annual	Existing	-	N/A	-	N/A
		Proposed	1.7	Sitting	8.9	Pass

Seasons	Months	Hours	Wind Comfort (m/s)		Wind Safety (m/s)	
Summer	November - April	0:00 - 23:00	≤ 3	Sitting	≤ 20	Pass
Winter	May - October	0:00 - 23:00	≤ 4	Standing	> 20	Exceeded
Annual	January - December	0:00 - 23:00	≤ 5	Walking		
			> 5	Uncomfortable		
Configurations						
Existing	Existing site and surroundings					

**Proposed** Project with existing surroundings