

THEAKSTON ENVIRONMENTAL

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December 15, 2023

Mr. J. Daniel Greenberg
1785 Bloor Holdings Inc.
181 Eglinton Avenue East, Suite 204
Toronto, ON
M4P 1J4

Dear Mr. Greenberg:

**Re: Microclimatic Analysis – Addendum Letter
11th Level Outdoor Amenity Space Conditions
1785 Bloor Street
Mississauga, Ontario
Theakston Project No. 23071 (23038, 22871, 21797)**

Background

We reviewed Architectural Drawings for 1785 Bloor Street prepared by onespace unlimited inc. dated September 28, 2023, as well as our Pedestrian Level Wind Study dated March 18, 2022, Addendum Letters dated May 17, 2022 and September 15, 2023, and related files, with regard to the effect of the proposed Development on predicted pedestrian comfort and safety conditions on and around the site.

The proposed Development occupies a portion of the block of lands bound by Bridgewood Drive to the northeast, Bloor Street to the southeast, Fieldgate Drive to the southwest, and Ponytrail Drive to the northwest, in the City of Mississauga, as shown in Figure 1. The proposed Development involves a plan to construct a 14 storey apartment building with a 10 storey wing, in an “L”-shaped configuration, to the northwest of the existing 10 storey building on site. Vehicular drop-off and access to the parking garage is provided via an extension of the existing driveway connecting with Bloor Street. The Main Entrances to the building are proposed along the northwest and southeast façades. Outdoor Amenity Spaces are proposed to the southeast through southwest of the proposed building at-grade, as well as at the 11th level, atop a portion of the 10 storey wing. The proposed Development is in a configuration as shown in Figure 2.

Methods

Additional testing has been conducted in order to assess the pedestrian level wind velocities relative to comfort and safety within the 11th level Outdoor Amenity Space. The model was constructed to a scale of 1:500, as shown in Figure 3.

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The mean and gust wind speeds within the area tested were subsequently combined with the design probability distribution of gradient wind speed and direction (wind statistics), recorded at Pearson International Airport, to provide predictions of the full-scale pedestrian level wind environment. For studies in the City of Mississauga, the data is presented in two seasons, winter and summer; the resulting wind roses are presented as mean velocity and percent frequency in Figure 4.

Predictions of the full-scale pedestrian level wind environment are presented as the wind speed exceeded 20% of the time, based on the seasons in Figure 5, in accordance with the City of Mississauga’s Terms of Reference. These speeds are directly related to the pedestrian comfort at a particular point. The overall comfort ratings are depicted in Figure 6. A comparison of pedestrian level comfort and safety conditions is shown below in Table 3. Table 1, below, summarizes the comfort criteria used in the presentation of the results depicted in Figures 5 and 6.

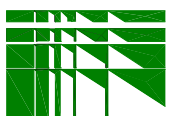
Safety criteria are also included in the analysis to ensure that strong winds do not cause a loss of balance to individuals occupying the area. The safety criteria are based on wind speeds exceeded nine times per year as shown in Table 2.

Table 1: Comfort Criteria

ACTIVITY	Gust Equivalent Mean Speed Exceeded 20% of the Time	Description
COMFORT	<i>km/h</i>	
Sitting	0-10	Calm or light breezes desired for outdoor restaurants and seating areas where one can read a paper without having it blown away.
Standing	0-15	Gentle breezes suitable for main building entrances and bus stops.
Walking	0-20	Relatively high speeds that can be tolerated if one’s objective is to walk, run or cycle without lingering.
Uncomfortable	>20	Strong winds of this magnitude are considered a nuisance for most activities, and wind mitigation is typically recommended.

Table 2: Safety Criteria

ACTIVITY	Mean Wind Speed Exceeded 9 Times per year	Description
SAFETY	<i>km/h</i>	
Pass	0 - 90	Acceptable gust speeds that will not adversely affect a pedestrian’s balance and footing.
Exceeding	>90	Excessive gust speeds that can adversely affect a pedestrian’s balance and footing. Wind mitigation is typically required.



Results

The probe results, as follows, are listed in Figure 5 for the seasons, graphically depicted in Figure 6, and compared in Table 3 below. The safety criteria are listed and depicted graphically in Figure 7. The following discusses anticipated wind conditions and suitability for the area’s intended use.

Probe 1 was located within the Outdoor Amenity Space atop the 10 storey wing of the proposed Development. The Amenity Space was tested with 1.5m high screen walls situated around the perimeter of the space. The Amenity Space is located within the aerodynamic shade region of the 14 storey wing for winds emanating from the near northwest through north to northeast, however it remains exposed to winds from the remaining compass points, as shown in Figure 8: Ground level wind velocity as a ratio of gradient wind velocity. The Amenity Space was rated suitable for standing in the winter and sitting in the summer and is considered seasonally comfortable and appropriate for its intended use with inclusion of 1.5m high screen walls around the perimeter. The Outdoor Amenity Space passes the pedestrian level wind velocity safety criteria, as described above and depicted in Figure 7.

Table 3: Pedestrian Level Wind Comfort and Safety Comparison Table

Probe	Mean Wind Speed (km/h)		
	Winter	Summer	Safety
1	10.4	7.9	63.7

Comfort (km/h)				Safety (km/h)	
0 – 10	Sitting	15 - 20	Walking	0 – 90	Pass
10 - 15	Standing	20 +	Uncomfortable	90 +	Exceeding

In summary, based upon our analysis, the 11th level Outdoor Amenity Space is predicted seasonally comfortable and suitable for its intended use with inclusion of 1.5m high screen walls around the perimeter of the space.

Respectfully submitted,



Emily Prevost. B.Eng., B.Sc.



Stephen Pollock P. Eng.

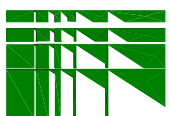


Figure 1: Site Aerial Photo

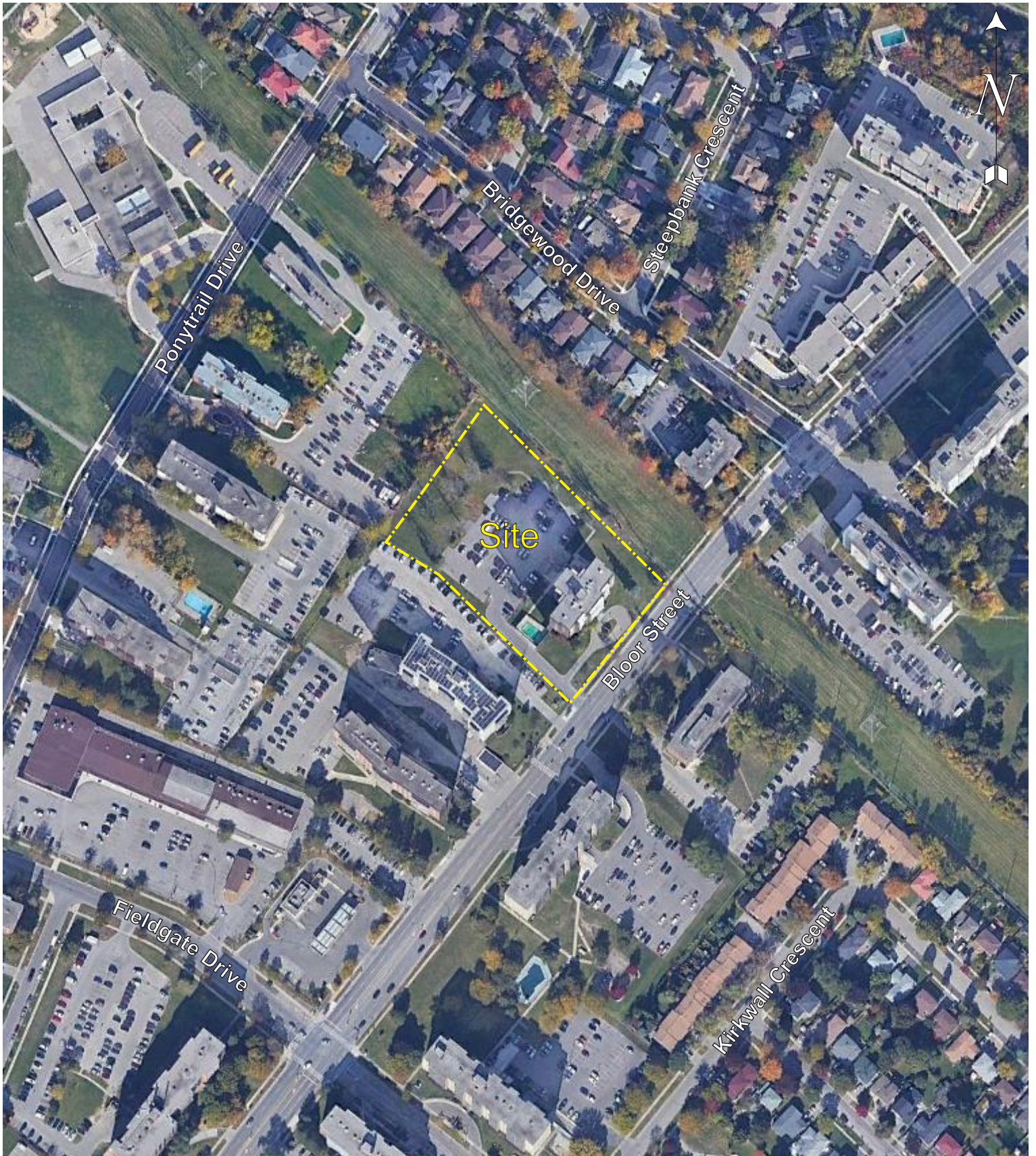
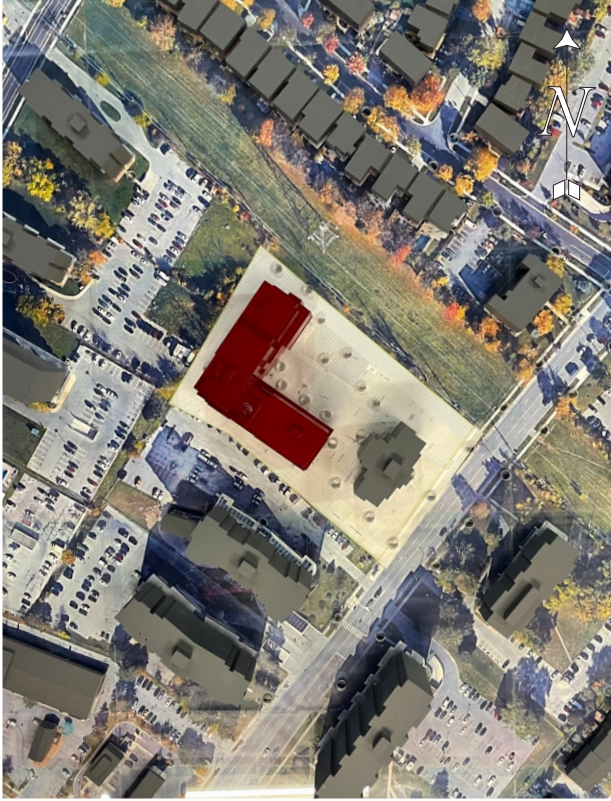


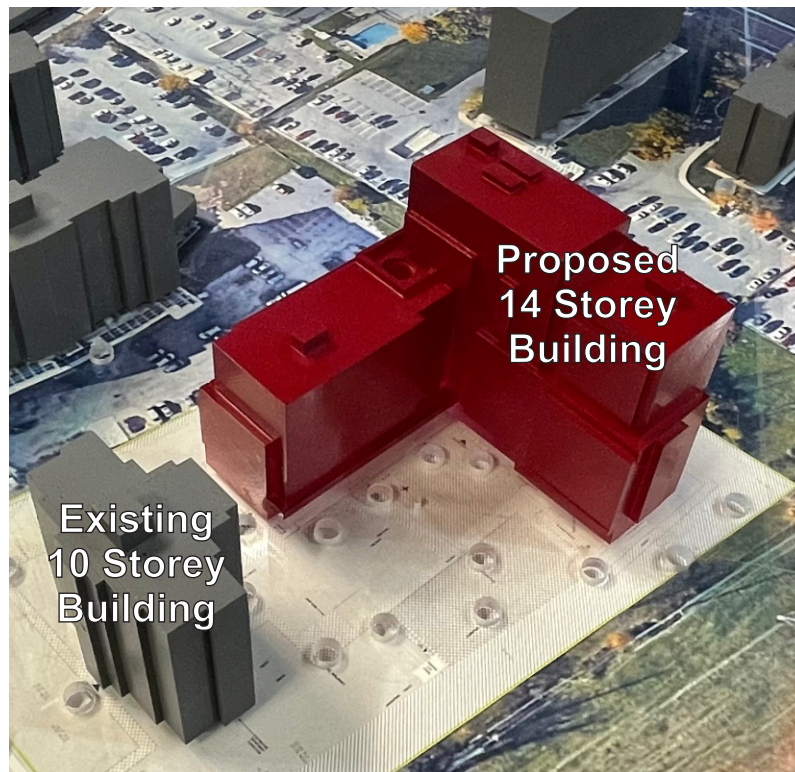
Figure 2: Site Plan



Figure 3: 1:500 Scale Model of Test Site



a) Overall View of Model - Proposed Site

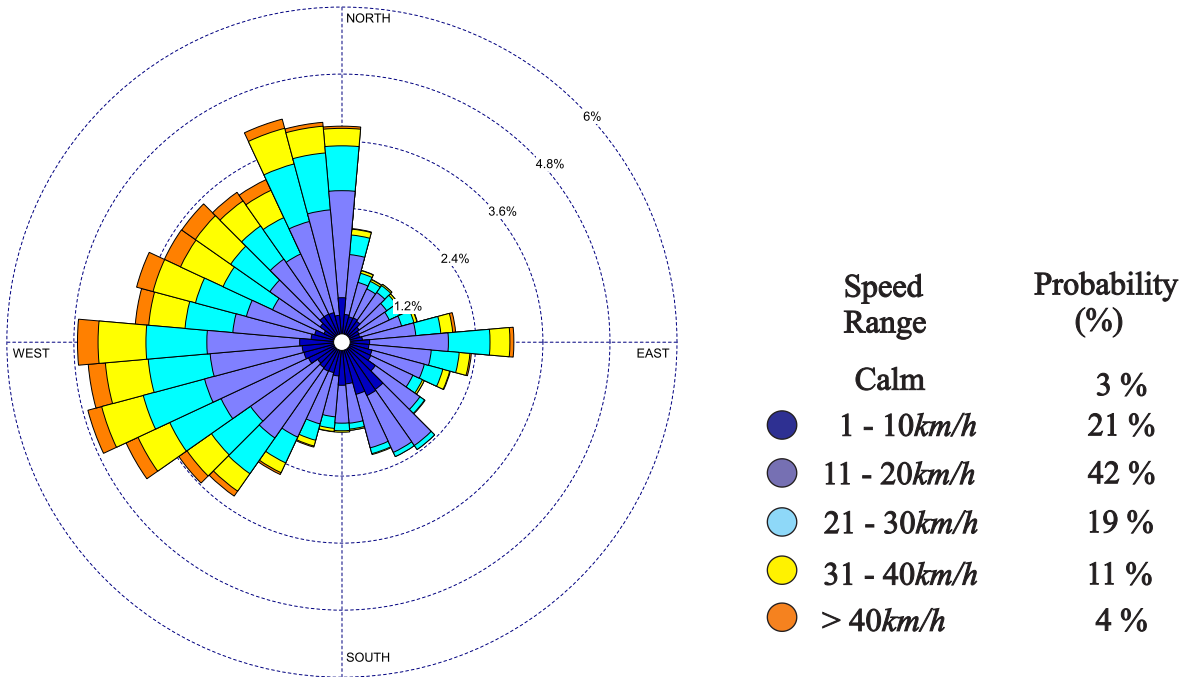


b) Close-Up View of Model - Proposed Site



Figure 4: Pearson International Airport Wind Roses

a) Historical Directional Distribution of Winds (@ 10m height)
Winter - November through April (1980 - 2022)



b) Historical Directional Distribution of Winds (@ 10m height)
Summer - May through October (1980 - 2022)

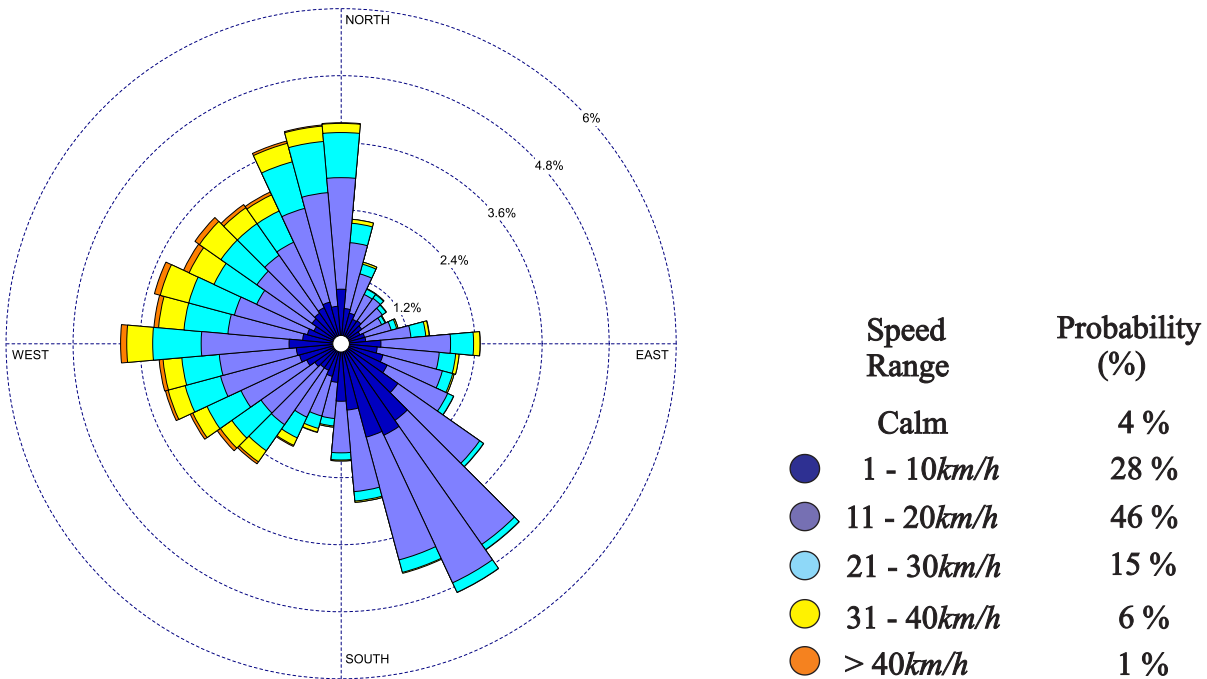


Figure 5a: WINTER - Wind Speed Exceeded 20% of the Time (Location 1).

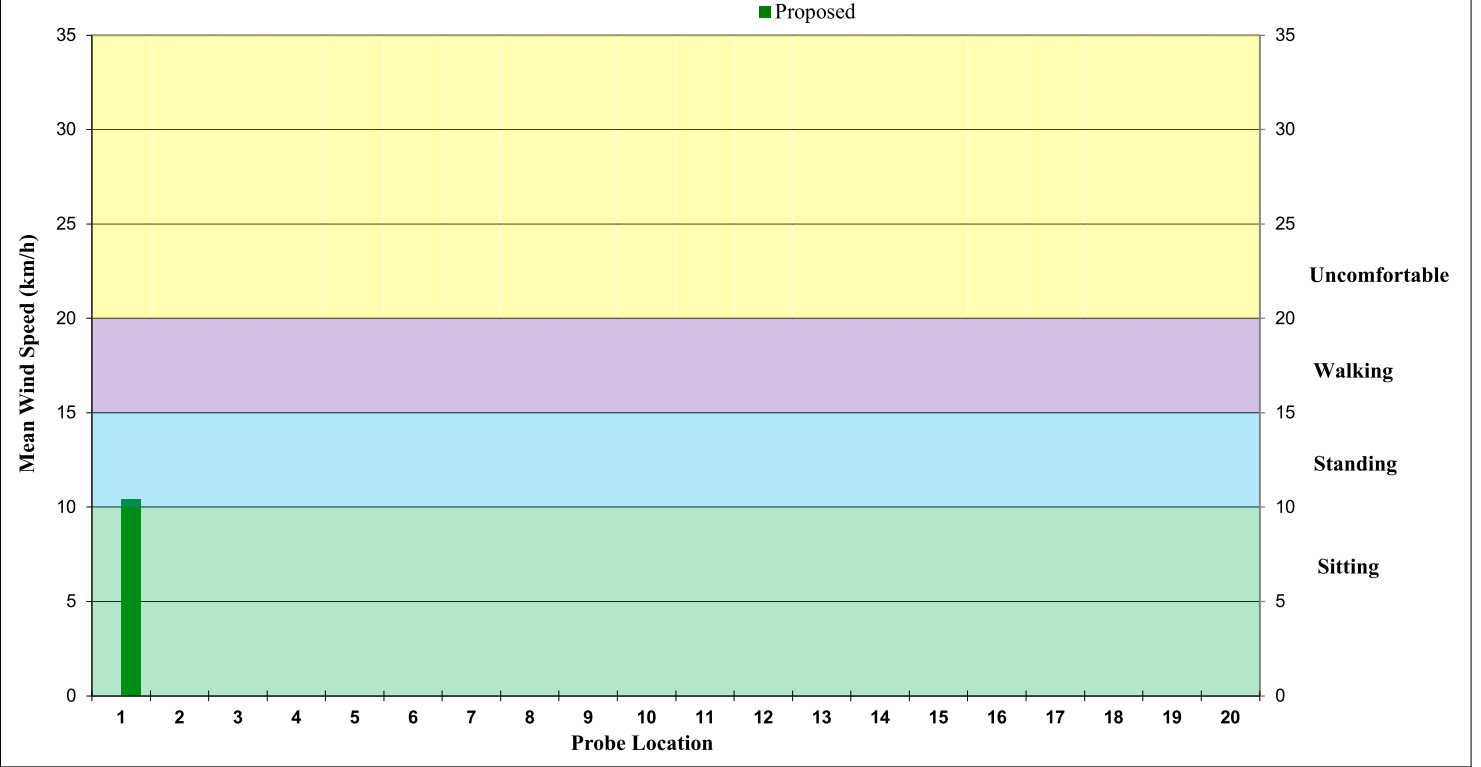


Figure 5b: SUMMER - Wind Speed Exceeded 20% of the Time (Location 1).

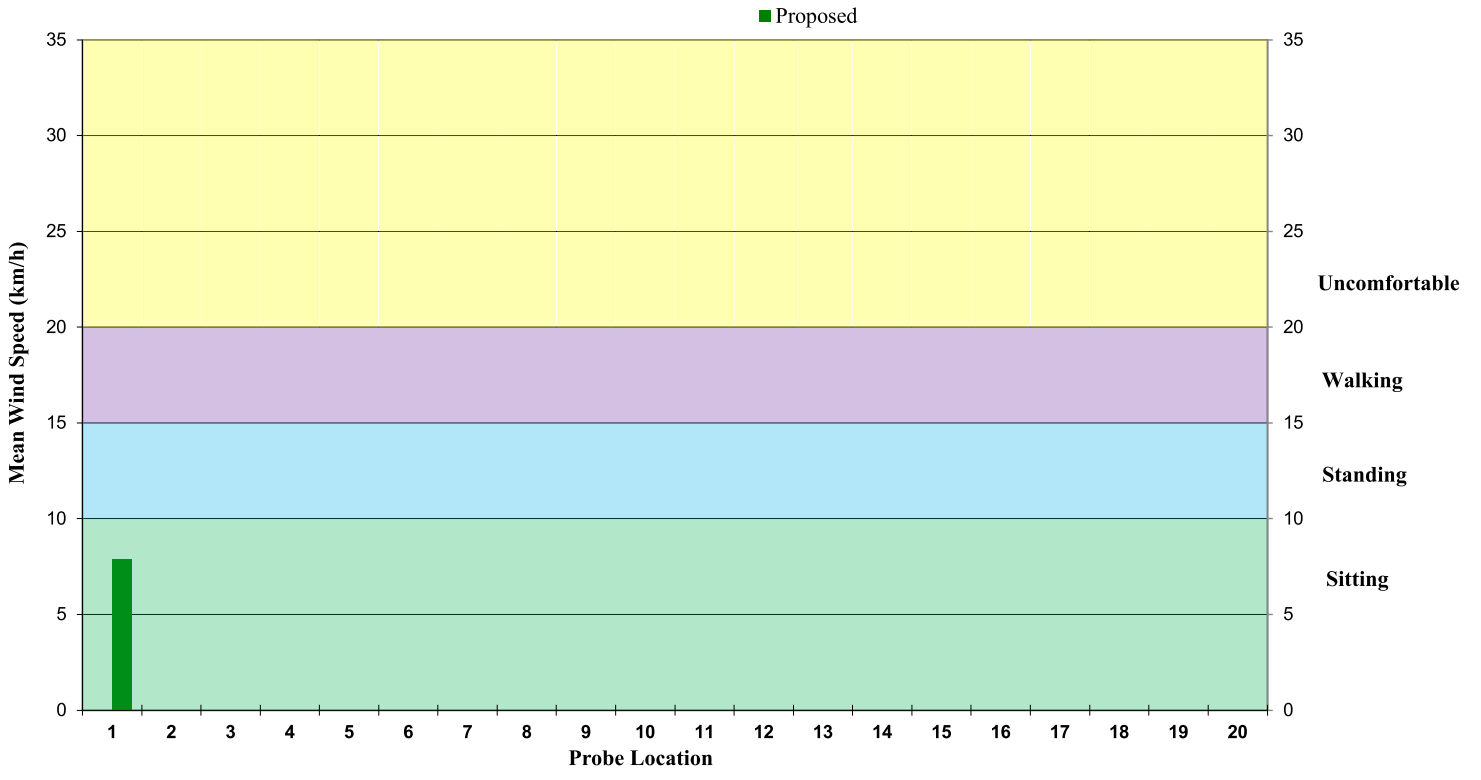


Figure 6: Pedestrian Level Wind Velocity Comfort Categories



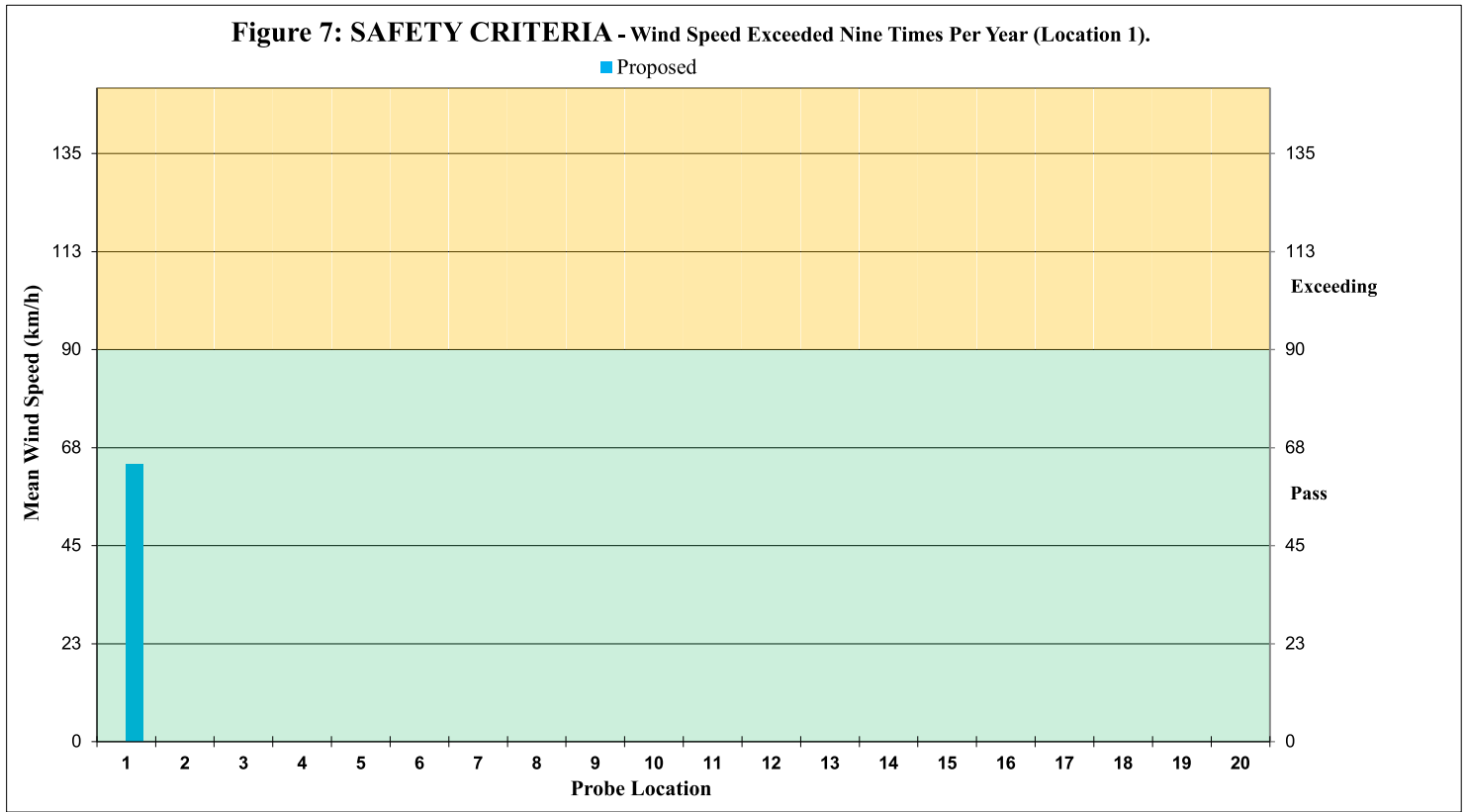
a) Winter



b) Summer



Figure 7: Pedestrian Level Wind Velocity Safety Criteria



Safety Criteria
● Pass ● Exceeding



Figure 8: Ground level wind velocity as a ratio of gradient wind velocity

