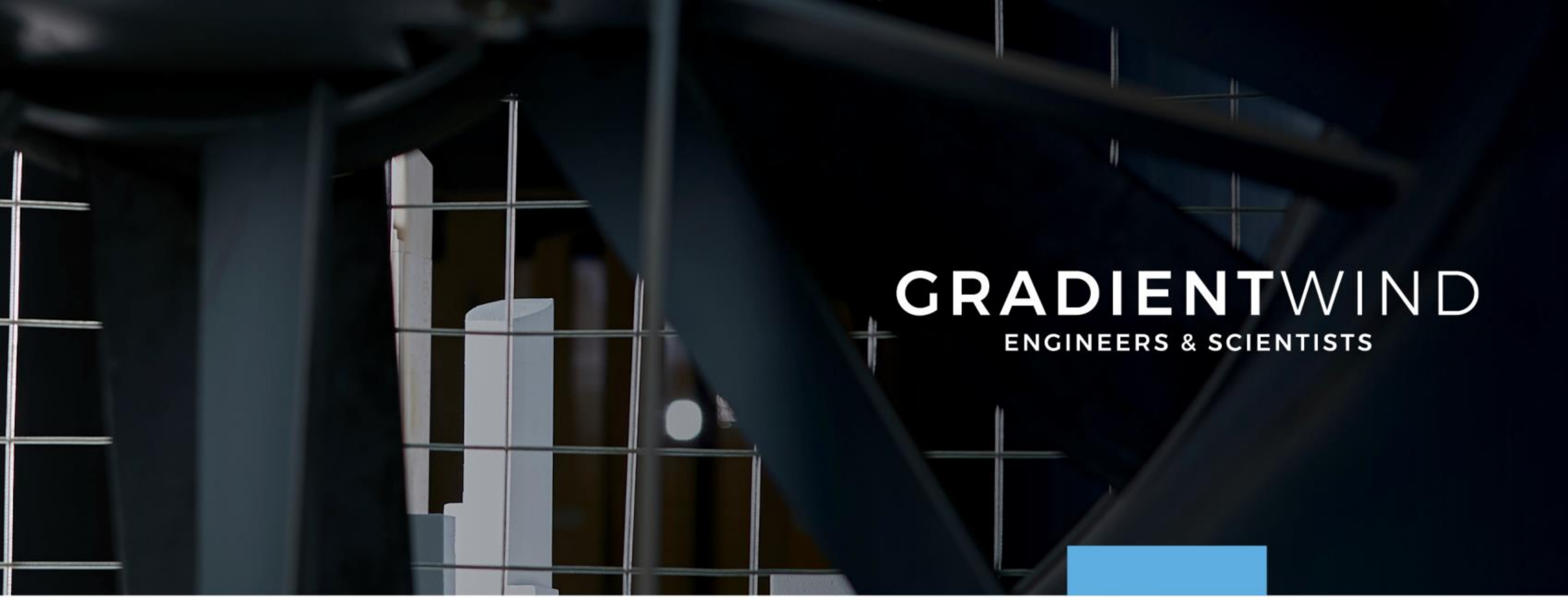
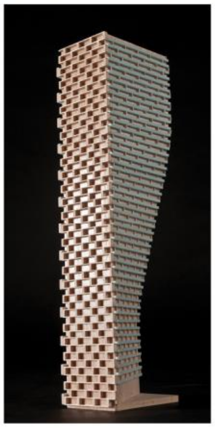
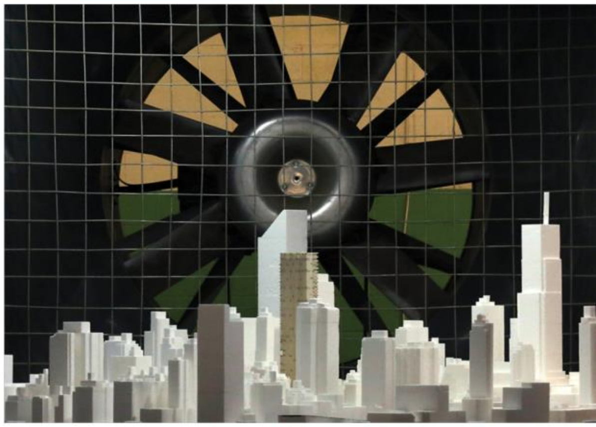


PEDESTRIAN LEVEL WIND STUDY

Blocks P, Q & U
Brightwater
Mississauga, Ontario

REPORT: GWE17-112-PLW-2024





June 9, 2025

PREPARED FOR

Port Credit West Village Partners LP
22 St. Clair Avenue East, Suite 1010
Toronto, Ontario
M4T 2S3

PREPARED BY

Angelina Gomes, P.Eng., Wind Engineer
Andrew Sliasas, M.A.Sc., P.Eng., Principal

EXECUTIVE SUMMARY

This report describes a comparative pedestrian level wind study undertaken to assess wind conditions for Blocks P, Q & U of the proposed Brightwater development located at 70 Mississauga Road in Mississauga, Ontario. Two configurations were studied for Blocks P, Q & U: (i) existing conditions, including all existing surrounding developments, and (ii) proposed conditions, including all existing surrounding developments and the earlier Brightwater development blocks. The study involves wind tunnel measurements of pedestrian wind speeds using a physical scale model, combined with meteorological data integration, to assess pedestrian comfort at key areas within and surrounding the study site. Grade-level areas investigated include sidewalks, driveways, landscaped spaces, outdoor amenity areas, and building access points. Wind comfort is also evaluated over the various amenity terraces. The results and recommendations derived from these considerations are summarized in the following paragraphs and detailed in the subsequent report.

Our work is based on industry standard wind tunnel testing and data analysis procedures, City of Mississauga wind criteria, architectural drawings provided by Giannone Petricone Associates in August 2024, surrounding street layouts, as well as existing and approved future building massing information and recent site imagery.

A complete summary of the predicted wind conditions is provided in Section 5.2 of this report, and is also illustrated in Figures 2A-4B, as well as Tables A1-A4 and B1-B9 in the appendices. Based on wind tunnel test results, meteorological data analysis, and experience with similar developments in Mississauga, we conclude that conditions over most grade-level pedestrian wind-sensitive areas within and surrounding the study site will be acceptable for the intended uses on a seasonal basis. Exceptions include the proposed J2 public park, the grade-level outdoor amenity south of Buildings P2 and P3, primary entrances along Buildings P1, P2 and P3, and potential entrance locations along Buildings U1-U4, for which mitigation is recommended as described in Section 5.2. Additionally, mitigation is recommended for the elevated terraces on Buildings P1-P3, Q1-Q3 and U1-U3 to ensure suitably calm conditions, as described in Section 5.2. Within the context of typical weather patterns, which exclude anomalous localized storm events such as tornadoes and downbursts, no areas over the study site were found to experience wind conditions that could be considered unsafe.

Compared to the original masterplan wind study dated November 2, 2018 (see figures in Appendix E), the revised Blocks P, Q, and U experience largely similar wind conditions. The areas within and surrounding the blocks remain primarily suitable for sitting or standing during the summer, with isolated walking conditions along The Brightwater Boulevard (formerly Street B). The winter conditions are marginally improved from the original proposed conditions, with the majority of previous uncomfortable conditions transitioning to walking, and multiple sitting conditions measured throughout the site.

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ENGINEERS & SCIENTISTS

TABLE OF CONTENTS

1. INTRODUCTION

This report describes a comparative pedestrian level wind study undertaken to assess wind conditions for Blocks P, Q & U of the proposed Brightwater development located at 70 Mississauga Road in Mississauga, Ontario. Two configurations were studied for Blocks P, Q & U: (i) existing conditions, including all existing surrounding developments, and (ii) proposed conditions, including all existing surrounding developments and the earlier Brightwater development blocks. The study was performed in accordance with industry standard wind tunnel testing techniques, City of Mississauga wind criteria, architectural drawings provided by Giannone Petricone Associates in August 2024, surrounding street layouts and existing and approved future building massing information, as well as recent site imagery.

2. TERMS OF REFERENCE

The focus of this pedestrian wind study is Blocks P, Q & U of the proposed Brightwater development in Mississauga, Ontario. With reference to project north, the study site is situated approximately 200 metres south of Lakeshore Road West, between Mississauga Road to the east and Pine Avenue South to the west. With reference to the Brightwater masterplan, Blocks P, Q & U are arranged clockwise from northwest to southeast, respectively, with Blocks P and Q separated by The Brightwater Boulevard, and Blocks Q and U separated by Shoreside Drive. Block S, comprising a public park, is located in the southwest quadrant.

Block P comprises Building P1, a nominally rectangular 26-storey tower atop a seven-storey podium along the west side of the block, and Buildings P2 and P3, nominally rectangular 29-storey and 35-storey towers, respectively, atop a shared six-storey podium to the east side of the block. Public Park J1 completes the block to the west of Building P1. A laneway separates Building P1 from P2 and P3, with outdoor amenity space at grade internal to the block.

Block Q comprises Buildings Q1 and Q2, nominally rectangular 28-storey and 29-storey towers, respectively, atop a shared nominally ‘C-shaped’ six-storey podium to the west side of the block, and Building Q3, a nominally rectangular 15-storey tower atop a approximately ‘C-shaped’ six-storey podium along the east side of the block. Public Park J2 completes the block to the west of Buildings Q1 and Q2, with outdoor amenity space at grade internal to the block.

Block U comprises Building U1, a nominally 'L-shaped' 16-storey tower atop a two-storey podium to the west, Building U2, a nominally trapezoidal 19-storey tower atop a two-storey podium to the north, Building U3, a nominally trapezoidal 12-storey tower atop a five-storey 'L-shaped' podium to the south, and Building U4, a nominally rectangular nine-storey tower atop a five-storey podium to the east. Buildings U2, U3 and U4 all feature minor successive tower setbacks above their respective podia.

Regarding wind exposures, the near-field surroundings of the development (defined as an area falling within a 200-metre radius of the site) comprising the proposed test condition include the 6-, 15-, and 19-storey Block K to the northwest, low-rise buildings belonging to Blocks K, L and M to the north, Lake Ontario to the southeast, and low-rise buildings in all other directions following the development of the Brightwater masterplan. The far-field surroundings (defined as the area beyond the near field and within a two-kilometer radius) are characterized by the open exposure of Lake Ontario from the northeast clockwise to the south, a cluster of mid- and high-rise buildings approximately 1 kilometre to the northeast, and predominantly low-rise suburban buildings in the remaining directions.

Grade-level areas investigated include sidewalks, driveways, landscaped spaces, outdoor amenity areas, and building access points. Wind comfort is also evaluated over the various amenity terraces. Figures 1A and 1B illustrate the study site and surrounding context, and Photographs 1 through 6 depict the wind tunnel model used to conduct the study.

3. OBJECTIVES

The principal objectives of this study are to (i) determine pedestrian level wind comfort and safety conditions at key areas within and surrounding the development site; (ii) identify areas where wind conditions may interfere with the intended uses of outdoor spaces; (iii) recommend suitable mitigation measures, where required; and (iv) evaluate the influence of the future Brightwater masterplan developments on the predicted wind conditions surrounding the site.

4. METHODOLOGY

The approach followed to quantify pedestrian wind conditions over the site is based on wind tunnel measurements of wind speeds at selected locations on a reduced-scale physical model, meteorological analysis of the Mississauga area wind climate and synthesis of wind tunnel data with industry-accepted guidelines[1]. The following sections describe the analysis procedures, including a discussion of the pedestrian comfort and safety guidelines.

4.1 Wind Tunnel Context Modelling

A detailed PLW study is performed to determine the influence of local winds at the pedestrian level for a proposed development. The physical model of the proposed development and relevant surroundings, illustrated in Photographs 1 through 6 following the main text, was constructed at a scale of 1:400. The wind tunnel model includes all existing buildings and approved future developments within a full-scale diameter of approximately 840 metres. The general concept and approach to wind tunnel modelling is to provide building and topographic detail in the immediate vicinity of the study site on the surrounding model, and to rely on a length of wind tunnel upwind of the model to develop wind properties consistent with known turbulent intensity profiles that represent the surrounding terrain.

An industry standard practice is to omit trees, vegetation, and other existing and planned landscape elements from the wind tunnel model due to the difficulty of providing accurate seasonal representation of vegetation. The omission of trees and other landscaping elements produces slightly more conservative wind speed values.

4.2 Wind Speed Measurements

The PLW study was performed by testing a total of 315 sensor locations on the scale model in Gradient Wind's wind tunnel. Of these 315 sensors, 250 were located at grade and the remaining 65 sensors were located over rooftops and elevated terraces. Wind speed measurements were performed for each of the 315 sensors for 36 wind directions at 10° intervals. Figure 1 illustrates a plan of the site and relevant surrounding context, while sensor locations used to investigate wind conditions are illustrated in Figures 2A through 4B.

Mean and peak wind speed values for each location and wind direction were calculated from real-time pressure measurements, recorded at a sample rate of 500 samples per second, and taken over a 60-second time period. This period at model-scale corresponds approximately to one hour in full-scale, which matches the time frame of full-scale meteorological observations. Measured mean and gust wind speeds

[1] City of Mississauga Urban Design Terms of Reference, Wind Comfort and Safety Studies, June 2014

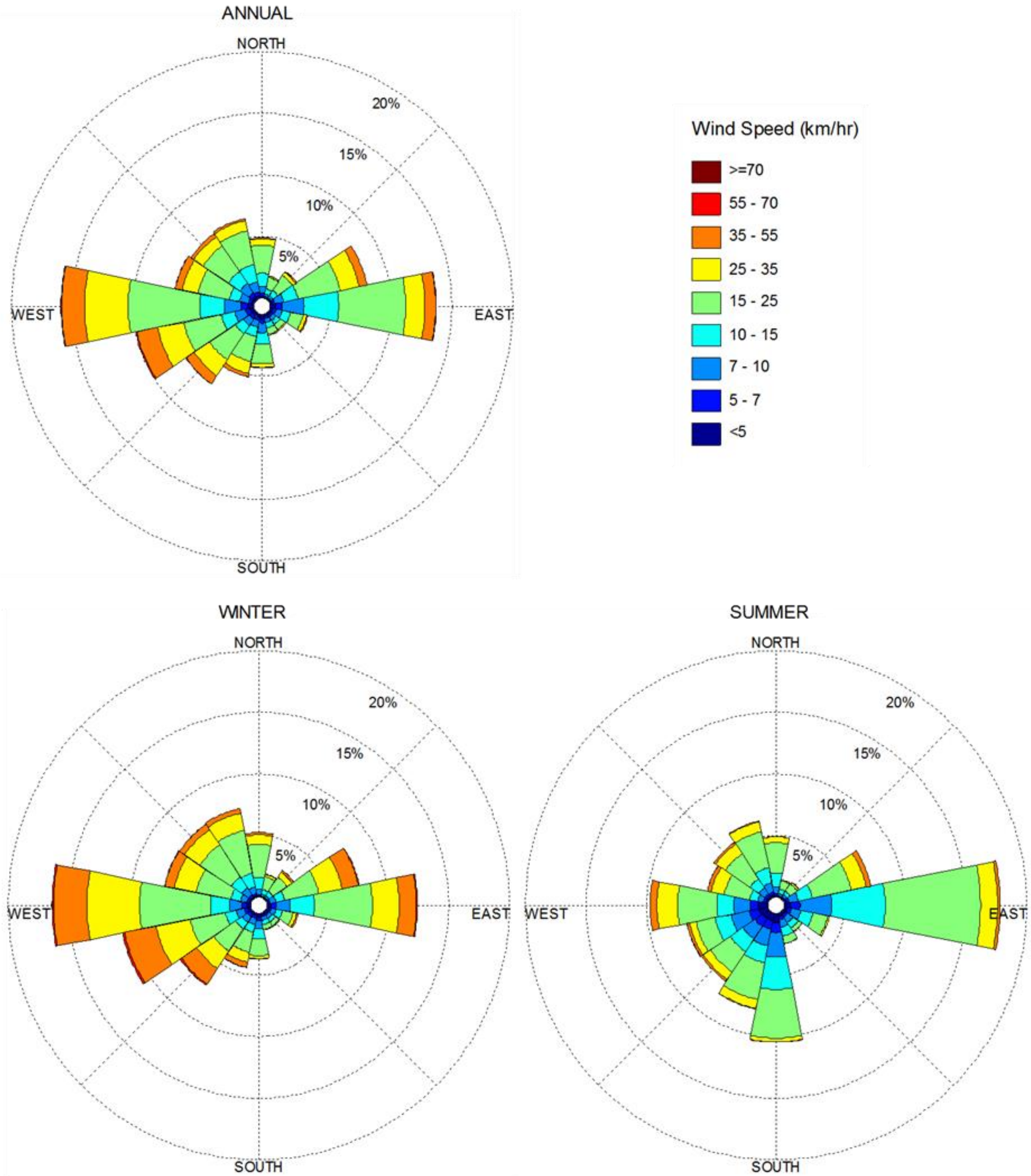
at grade were referenced to the wind speed measured near the ceiling of the wind tunnel to generate mean and peak wind speed ratios. Ceiling height in the wind tunnel represents the depth of the boundary layer of wind flowing over the earth's surface, referred to as the gradient height. Within this boundary layer, mean wind speed increases up to the gradient height and remains constant thereafter. Appendices C and D provide greater detail of the theory behind wind speed measurements. Wind tunnel measurements for this project, conducted in Gradient Wind's wind tunnel facility, meet or exceed guidelines found in the National Building Code of Canada 2015 and of 'Wind Tunnel Studies of Buildings and Structures', ASCE Manual 7 Reports on Engineering Practice No 67.

4.3 Meteorological Data Analysis – Billy Bishop Toronto City Airport

A statistical model for winds in Toronto was developed from over 50 years of hourly meteorological wind data recorded at Billy Bishop Toronto City Airport. Wind speed and direction data were analyzed for each month of the year in order to determine the statistically prominent wind directions and corresponding speeds, and to characterize similarities between monthly weather patterns. Based on this portion of the analysis, the four seasons are represented by grouping data from consecutive months based on similarity of weather patterns, and not according to the traditional calendar method.

The statistical model of the Toronto area wind climate, which indicates the directional character of local winds on a seasonal basis, is illustrated on the following page. The plots illustrate seasonal distribution of measured wind speeds and directions in km/h. Probabilities of occurrence of different wind speeds are represented as stacked polar bars in sixteen azimuth divisions. The radial direction represents the percentage of time for various wind speed ranges per wind direction during the measurement period. The preferred wind speeds and directions can be identified by the longer length of the bars. For Billy Bishop Toronto City Airport, the most common winds concerning pedestrian comfort occur from the southwest clockwise to the north, as well as those from the east-northeast. The directional preference and relative magnitude of the wind speed varies somewhat from season to season, with the summer months displaying the calmest winds relative to the remaining seasonal periods.

SEASONAL DISTRIBUTION OF WIND
TORONTO ISLAND BILLY BISHOP AIRPORT



Notes:

1. Radial distances indicate percentage of time of wind events.
2. Wind speeds are mean hourly in km/h, measured at 10 m above the ground.

4.4 Pedestrian Comfort and Safety Guidelines

Pedestrian comfort and safety guidelines are based on the mechanical effects of wind without consideration of other meteorological conditions (i.e. temperature, relative humidity). The comfort guidelines assume that pedestrians are appropriately dressed for a specified outdoor activity during any given season. Four pedestrian comfort classes are based on 80% non-exceedance Guest Equivalent Mean (GEM) wind speed ranges, which include (i) Sitting; (ii) Standing; (iii) Walking; and (iv) Uncomfortable. More specifically, the comfort classes and associated GEM wind speed ranges are summarized as follows:

(i) **Sitting** – A wind speed below 10 km/h (i.e. 0 – 10 km/h) would be considered acceptable for sedentary activities, including sitting.

(ii) **Standing** – A wind speed below 15 km/h (i.e. 10 km/h – 15 km/h) is acceptable for activities such as standing or leisurely strolling.

(iii) **Walking** – A wind speed below 20 km/h (i.e. 15 km/h – 20 km/h) is acceptable for walking or more vigorous activities.

(iv) **Uncomfortable** – A wind speed over 20 km/h is classified as uncomfortable from a pedestrian comfort standpoint. Brisk walking and exercise, such as jogging, would be acceptable for moderate excesses of this criterion.

The pedestrian safety wind speed guideline is based on the approximate threshold that would cause a vulnerable member of the population to fall. A 0.1% exceedance gust wind speed of greater than 90 km/h is classified as dangerous.

Experience and research on people's perception of mechanical wind effects has shown that if the wind speed levels are exceeded for more than 20% of the time, the activity level would be judged to be uncomfortable by most people. For instance, if wind speeds of 10 km/h were exceeded for more than 20% of the time most pedestrians would judge that location to be too windy for sitting or more sedentary activities. Similarly, if 20 km/h at a location were exceeded for more than 20% of the time, walking or less vigorous activities would be considered uncomfortable. As most of these criteria are based on subjective reactions of a population to wind forces, their application is partly based on experience and judgment.

Once the pedestrian wind speed predictions have been established at tested locations, the assessment of pedestrian comfort involves determining the suitability of the predicted wind conditions for their associated spaces. This step involves comparing the predicted comfort class to the desired comfort class, which is dictated by the location type represented by the sensor (i.e. a sidewalk, building entrance, amenity space, or other). An overview of common pedestrian location types and their desired comfort classes are summarized below.

DESIRED PEDESTRIAN COMFORT CLASSES FOR VARIOUS LOCATION TYPES

Location Types	Desired Comfort Classes
Primary Building Entrance	Standing
Secondary Building Access Point	Walking
Public Sidewalks / Pedestrian Walkways	Walking
Outdoor Amenity Spaces	Sitting / Standing
Cafés / Patios / Benches / Gardens	Sitting / Standing
Plazas	Standing / Walking
Transit Stops	Standing
Public Parks	Sitting / Walking
Garage / Service Entrances	Walking
Vehicular Drop-Off Zones	Walking
Laneways / Loading Zones	Walking

5. RESULTS AND DISCUSSION

Tables A1 through A4 in Appendix A provide a summary of seasonal comfort predictions for each sensor location under the *Existing* massing scenario. Similarly, Tables B1 through B9 in Appendix B provide the seasonal comfort predictions under the *Proposed* massing scenario. The tables indicate the 80% non-exceedance GEM wind speeds and corresponding comfort classifications as defined in Section 4.4. In other words, a wind speed threshold of 19.1 for the summer season indicates that 80% of the measured data falls at or below 19.1 km/h during the summer months and conditions are therefore suitable for walking, as the 80% threshold value falls within the exceedance range of 15-20 km/h for walking. The tables include the predicted threshold values for each sensor location during each season, accompanied by the corresponding predicted comfort class (i.e. sitting, standing, walking, etc.).

The most significant findings of the PLW study are summarized in Sections 5.1 and 5.2. To assist with understanding and interpretation, predicted conditions for the proposed development are also illustrated in colour-coded format in Figures 2A through 4B. Conditions suitable for sitting are represented by the colour blue, while standing is represented by green, and walking by yellow. Conditions considered uncomfortable for walking are represented by the colour orange.

5.1 Pedestrian Comfort Suitability – Existing Scenario

Based on the analysis of the measured data, consideration of local climate data, and the suitability descriptors provided in Tables A1-A4 in Appendix A and illustrated in Figures 2A and 2B, this section summarizes the significant findings of the PLW study with respect to the *Existing* scenario, as follows:

1. All public sidewalks, walkways, parking areas, landscaped spaces, and driveways within and surrounding the proposed development currently experience wind conditions suitable for walking or better throughout the year, with standing conditions during the summer.

2. The future site of the M school yard (Sensor 60) currently experiences wind conditions suitable for sitting during the summer and standing during the winter.

3. The future sites of the J1, J2, S and R public parks (Sensors 4-17, 22-25, 45-53 & 64-69) all experience wind conditions suitable for standing or better throughout summer, with the S public park experiencing walking conditions during the winter.

4. Within the context of typical weather patterns, which exclude anomalous localized storm events such as tornadoes and downbursts, no areas over the study site were found to experience wind conditions that are considered unsafe.

5.2 Pedestrian Comfort Suitability – Proposed Scenario

Based on the analysis of the measured data, consideration of local climate data, and the suitability descriptors provided in Tables B1-B9 in Appendix B and illustrated in Figures 3A through 4B, this section summarizes the most significant findings of the PLW study with respect to the *Proposed* scenario, as follows:

1. Most sidewalks, walkways, driveways, parking areas and green spaces within and surrounding the proposed development will experience wind conditions suitable for walking or better during

each seasonal period, with most comfortable for standing or better, which is acceptable for the intended uses of the spaces. One exception is a portion of the walkway along the southwest elevation of building U1 (Sensor 86), which will experience uncomfortable wind conditions during the winter. As this exceedance is marginal (<0.5 km/h, see Appendix B), is limited to the winter, and the area remains safe annually, this is considered acceptable without the need for mitigation.

2. The future site of the M school yard (Sensor 60) will continue to experience wind conditions suitable for sitting during the summer and standing conditions during the winter which is acceptable without the need for mitigation.

3. The S public park (Sensors 4-17) will be comfortable for standing or better during the summer, which is acceptable without the need for mitigation. It is recommended that designated seating areas be located towards the middle of the space (Sensors 11-15) where conditions are most favourable. Otherwise, it is recommended that targeted vertical wind barriers be located adjacent to seating areas to ensure conditions are comfortable for sitting or more sedentary activities. These barriers may take the form of dense coniferous plantings, high-solidity wind barriers, or a combination thereof, and should measure at least 1.8 metres tall.

   The J1 public park (Sensors 22-25) will be comfortable for standing during the summer, and walking during the winter, which is acceptable without the need for mitigation. If designated seating areas are planned for the space, it is recommended that targeted vertical wind barriers be located upwind of such areas to ensure conditions are comfortable for sitting or more sedentary activities. These barriers may take the form of dense coniferous plantings, high-solidity wind barriers, or a combination thereof, and should measure at least 1.8 metres tall.

   The J2 public park (Sensors 45-53) will be comfortable for a mix of sitting, standing and walking during the summer. It is recommended that targeted vertical wind barriers be included within the space to ensure suitable wind conditions are present for designated uses of the space, the exact configuration of which can be determined at a later date as the landscape design progresses.

   The R public park (Sensors 64-69) will be comfortable for sitting throughout the summer, and standing throughout the winter, which is acceptable without the need for mitigation.

4. Most proposed entrances throughout the development will experience wind conditions suitable for standing or better throughout the year, which is acceptable. Exceptions include the following entrances which will experience walking conditions largely during the winter:

   - The west elevation (Sensor 132), and the south elevation (Sensor 166) of Building P1,
   - The north elevation (Sensor 141) and the west elevation (Sensor 135) of Buildings P2 and P3,
   - The east elevation (Sensor 119) of Building Q1,
   - The north elevation (Sensors 219, 220 & 225), and the south elevation (Sensor 86) of Building U1, as well as the covered walkway (Sensor 214),
   - The north elevation (Sensors 241-242), the south elevation (Sensors 249-250), and the west elevation (Sensor 89) of Building U2,
   - The south elevation (Sensor 227) and covered walkway (Sensor 209) of Building U3,
   - The north elevation (Sensor 98) of Building U4,

   If entrances are desired at the noted locations, it is recommended to either recess these entrances into the building façade or flank the doorway with vertical wind barriers, as well as provide a canopy overhead.

5. The proposed outdoor amenity space to the southwest of Buildings P2 and P3 (Sensors 156, 157 & 161) and the central courtyard within Block Q (Sensors 180 & 186) will be comfortable for standing throughout the summer, and walking during the winter, which is acceptable. If seating areas are proposed within these spaces, it is recommended that targeted vertical wind barriers be located surrounding such spaces. These barriers may take the form of dense coniferous plantings, high-solidity wind barriers, or a combination thereof, and should measure at least 1.8 metres tall.

6. Without mitigation, most elevated amenity terraces throughout the study site (Sensors 251-315) will experience wind conditions suitable for standing or better throughout the summer. Exceptions include the U4 terrace (Sensor 315), which will experience wind conditions suitable for sitting or more sedentary activities throughout the year, without the need for mitigation. It is

recommended that the amenity terrace guards be raised on all other Buildings (P1-P3, Q1-Q3, and U1-U3) to at least 1.8-metres above the walking surface to ensure suitable wind conditions for sitting or more sedentary activities are present throughout all terraces during the summer. Alternatively, localized wind screening may be provided adjacent to seating areas. For windy locations at the base of the towers, overhead protection (e.g canopies, pergolas) can be used to deflect downwash flows. The exact configuration of such mitigation can be coordinated with the design team as the landscape plans develop.

7. Within the context of typical weather patterns, which exclude anomalous localized storm events such as tornadoes and downbursts, no areas over the study site were found to experience wind conditions that are considered unsafe.

6. CONCLUSIONS AND RECOMMENDATIONS

This report summarizes the methodology, results, and recommendations related to a pedestrian level wind study for Blocks P, Q & U of the proposed Brightwater development located in Mississauga, Ontario. The study was performed in accordance with industry standard wind tunnel testing and data analysis procedures.

A complete summary of the predicted wind conditions is provided in Section 5.2 of this report, and is also illustrated in Figures 2A-4B, as well as Tables A1-A4 and B1-B9 in the appendices. Based on wind tunnel test results, meteorological data analysis, and experience with similar developments in Mississauga, we conclude that conditions over most grade-level pedestrian wind-sensitive areas within and surrounding the study site will be acceptable for the intended uses on a seasonal basis. Exceptions include the proposed J2 public park, the grade-level outdoor amenity south of Buildings P2 and P3, primary entrances along Buildings P1, P2 and P3, and potential entrance locations along Buildings U1-U4, for which mitigation is recommended as described in Section 5.2. Additionally, mitigation is recommended for the elevated terraces on Buildings P1-P3, Q1-Q3 and U1-U3 to ensure suitably calm conditions, as described in Section 5.2. Within the context of typical weather patterns, which exclude anomalous localized storm events such as tornadoes and downbursts, no areas over the study site were found to experience wind conditions that could be considered unsafe.

Compared to the original masterplan wind study dated November 2, 2018 (see figures in Appendix E), the revised Blocks P, Q, and U experience largely similar wind conditions. The areas within and surrounding the blocks remain primarily suitable for sitting or standing during the summer, with isolated walking conditions along The Brightwater Boulevard (formerly Street B). The winter conditions are marginally improved from the original proposed conditions, with the majority of previous uncomfortable conditions transitioning to walking, and multiple sitting conditions measured throughout the site.

This concludes our pedestrian level wind study and report. Please advise the undersigned of any questions or comments.

Sincerely,

Gradient Wind Engineering Inc.

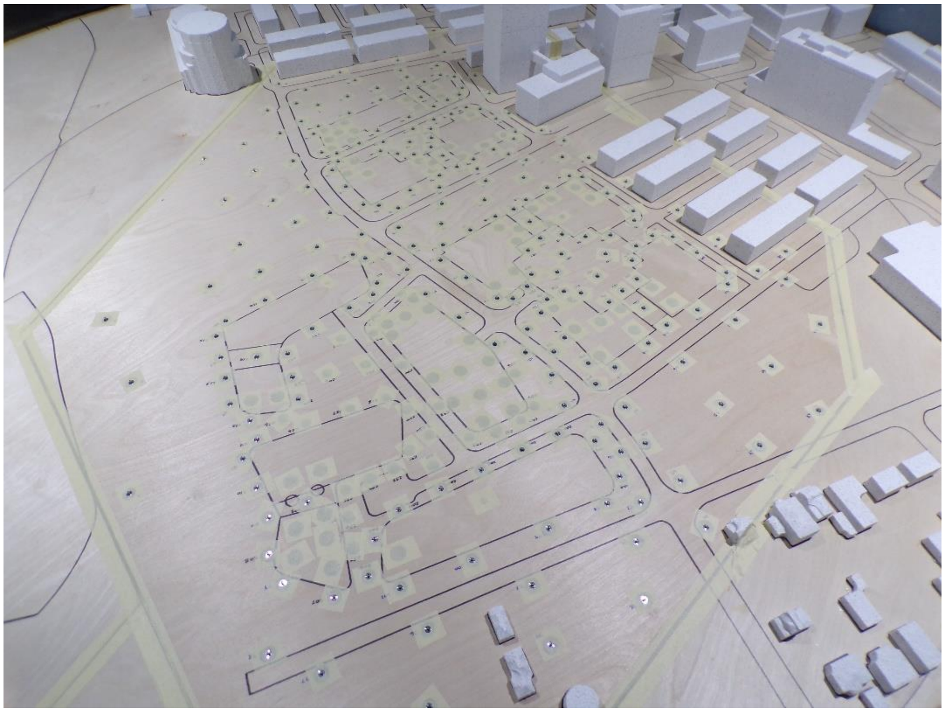
Angelina Gomes, P.Eng.,
Wind Engineer

Andrew Sliasas, M.A.Sc., P.Eng.
Principal

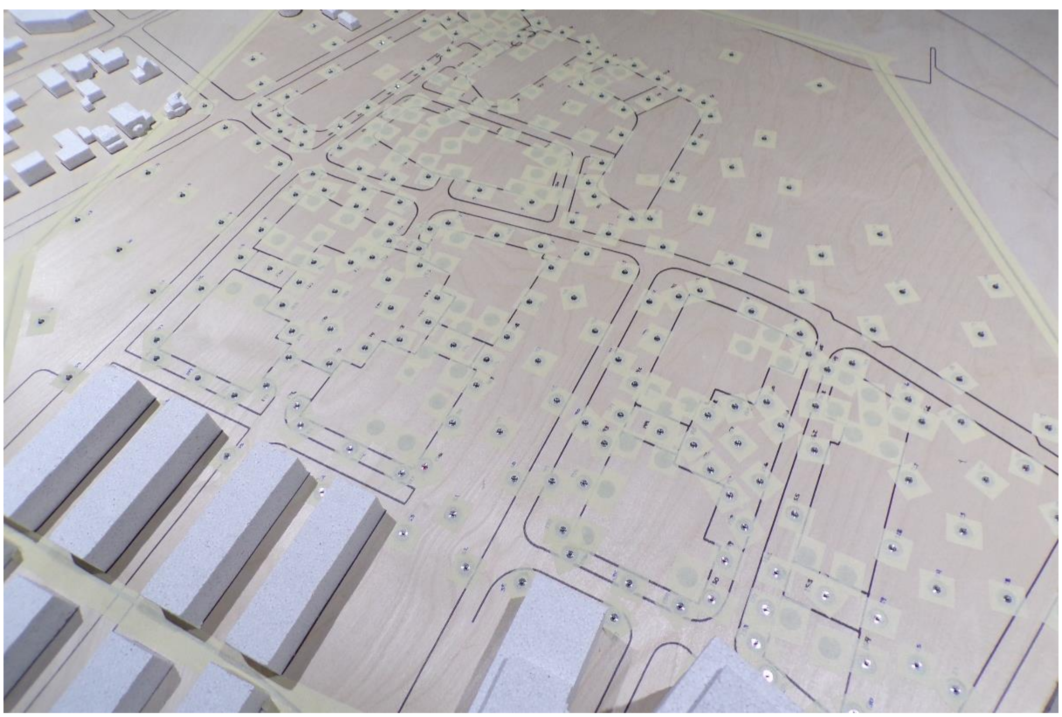
GWE17-112-PLW-2024

PHOTOGRAPH 1: PROPOSED STUDY MODEL INSIDE THE GWE WIND TUNNEL LOOKING DOWNWIND

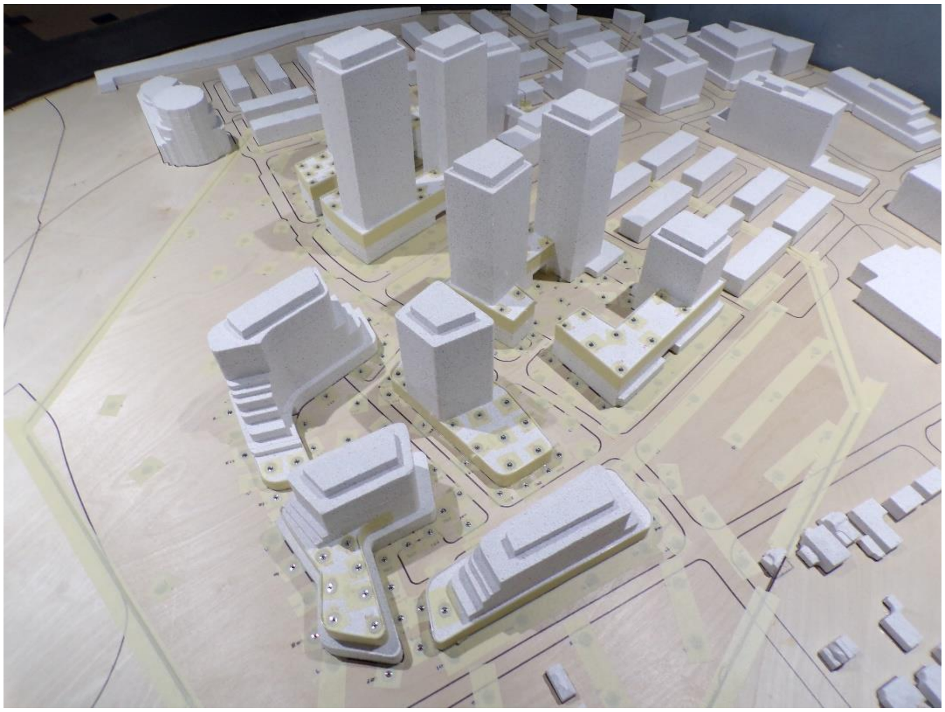
PHOTOGRAPH 2: PROPOSED STUDY MODEL INSIDE THE GWE WIND TUNNEL LOOKING UPWIND



PHOTOGRAPH 3: CLOSE-UP VIEW OF EXISTING CONTEXT MODEL LOOKING SOUTHWEST

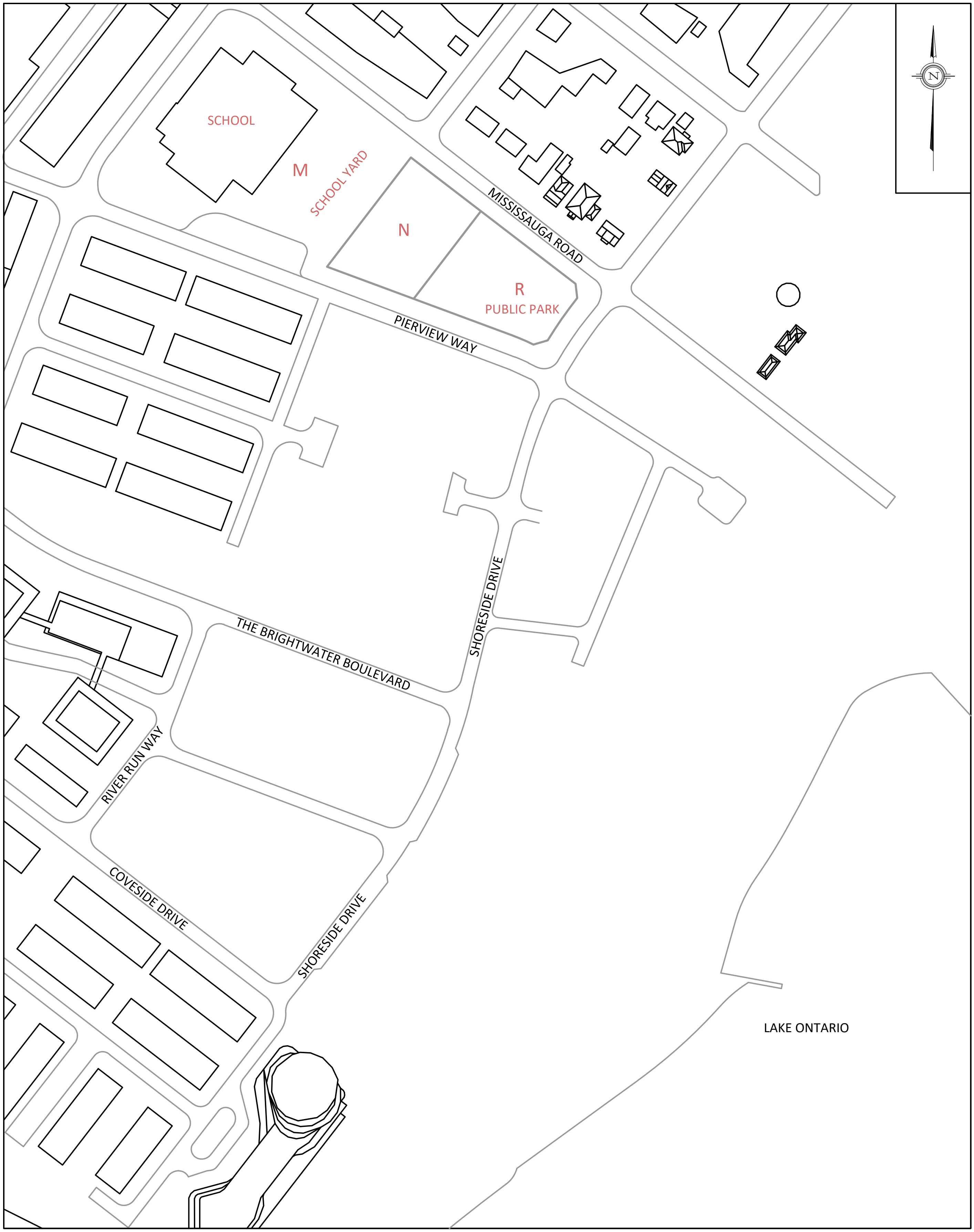


PHOTOGRAPH 4: CLOSE-UP VIEW OF EXISTING CONTEXT MODEL LOOKING NORTHEAST

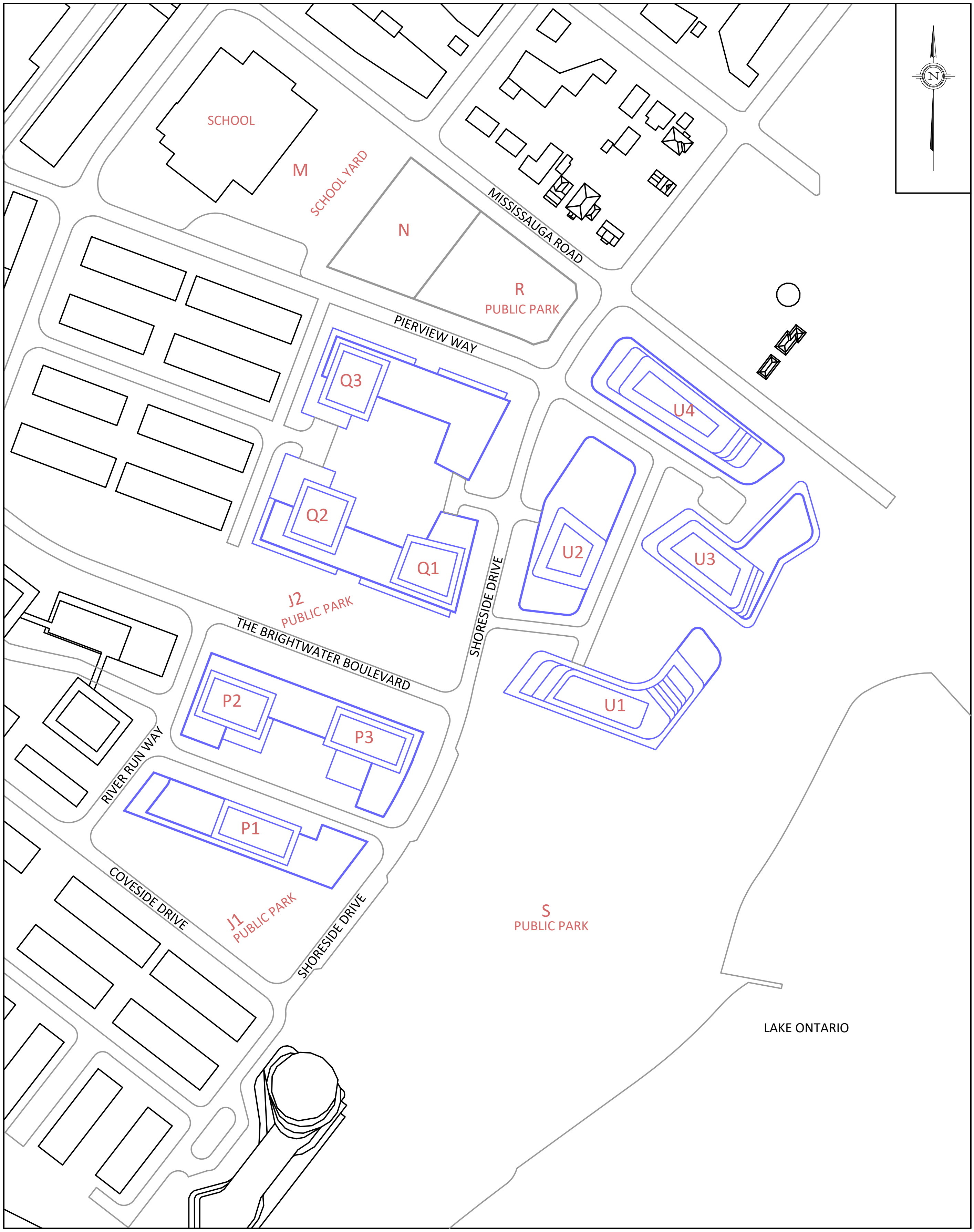


PHOTOGRAPH 5: CLOSE-UP VIEW OF PROPOSED CONTEXT MODEL LOOKING SOUTHWEST

PHOTOGRAPH 6: CLOSE-UP VIEW OF PROPOSED CONTEXT MODEL LOOKING NORTHEAST



GRADIENTWIND ENGINEERS & SCIENTISTS 127 WALGREEN ROAD, OTTAWA, ON 613 836 0934 • GRADIENTWIND.COM	PROJECT: BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		DESCRIPTION: FIGURE 1A: EXISTING SITE PLAN AND SURROUNDING CONTEXT
	SCALE: 1:2500 (APPROX.)	DRAWING NO. GW17-112-PLW-1A	
	DATE: SEPTEMBER 20, 2024	DRAWN BY: C.E.	



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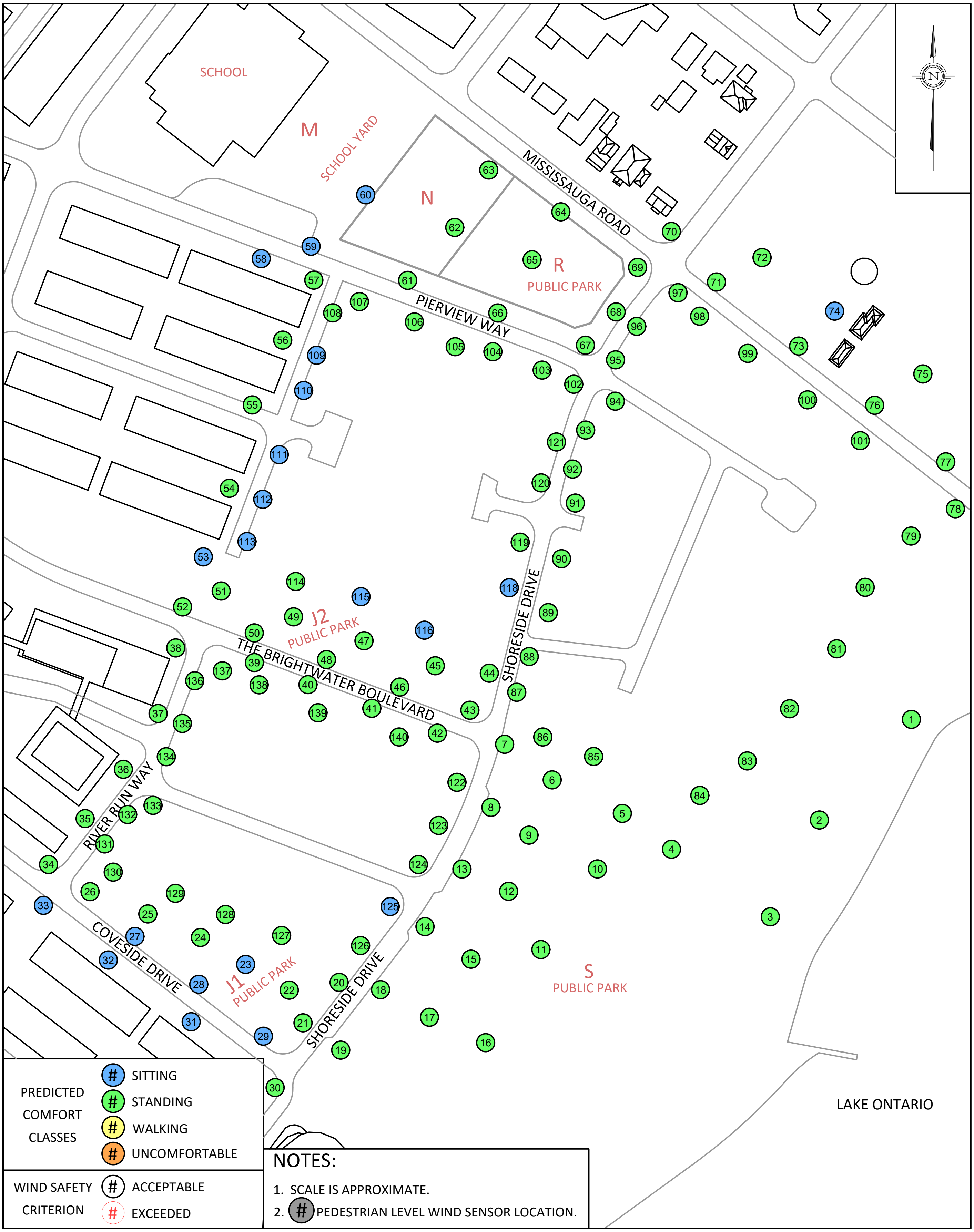
PROJECT: BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		DESCRIPTION: FIGURE 1B: PROPOSED SITE PLAN AND SURROUNDING CONTEXT
SCALE: 1:2500 (APPROX.)	DRAWING NO.: GW17-112-PLW-1B	
DATE: SEPTEMBER 20, 2024	DRAWN BY: C.E.	



PREDICTED COMFORT CLASSES	#	SITTING
	#	STANDING
	#	WALKING
	#	UNCOMFORTABLE
WIND SAFETY CRITERION	#	ACCEPTABLE
	#	EXCEEDED

NOTES:

1. SCALE IS APPROXIMATE.
2. # PEDESTRIAN LEVEL WIND SENSOR LOCATION.

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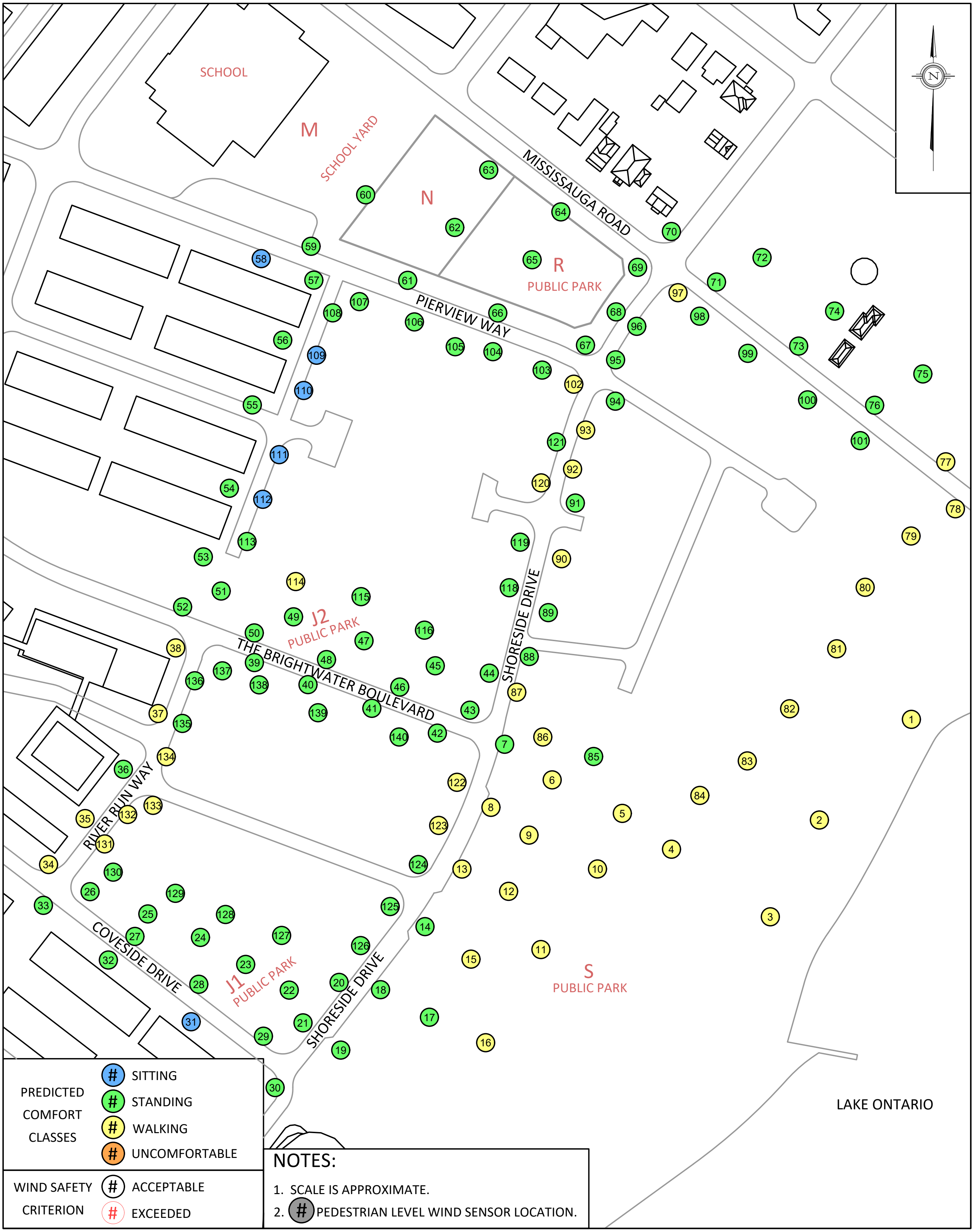
PROJECT: BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		DESCRIPTION: FIGURE 2A: SUMMER EXISTING GROUND FLOOR PLAN PEDESTRIAN COMFORT PREDICTIONS
SCALE: 1:2200 (APPROX.)	DRAWING NO.: GW17-112-PLW-2A	
DATE: SEPTEMBER 20, 2024	DRAWN BY: C.E.	



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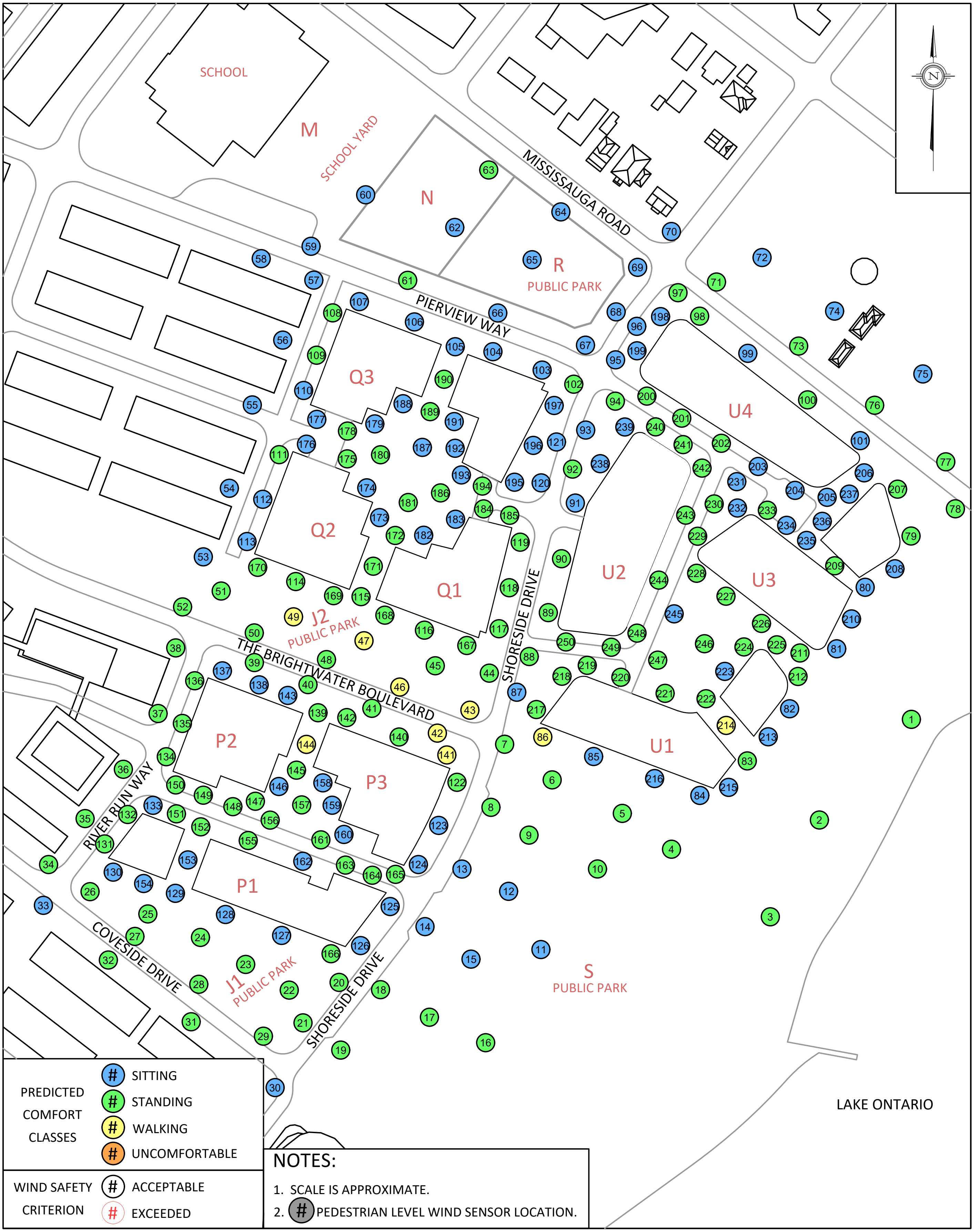
PROJECT	BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		DESCRIPTION FIGURE 2B: WINTER EXISTING GROUND FLOOR PLAN PEDESTRIAN COMFORT PREDICTIONS
SCALE	1:2200 (APPROX.)	DRAWING NO. GW17-112-PLW-2B	
DATE	SEPTEMBER 20, 2024	DRAWN BY C.E.	



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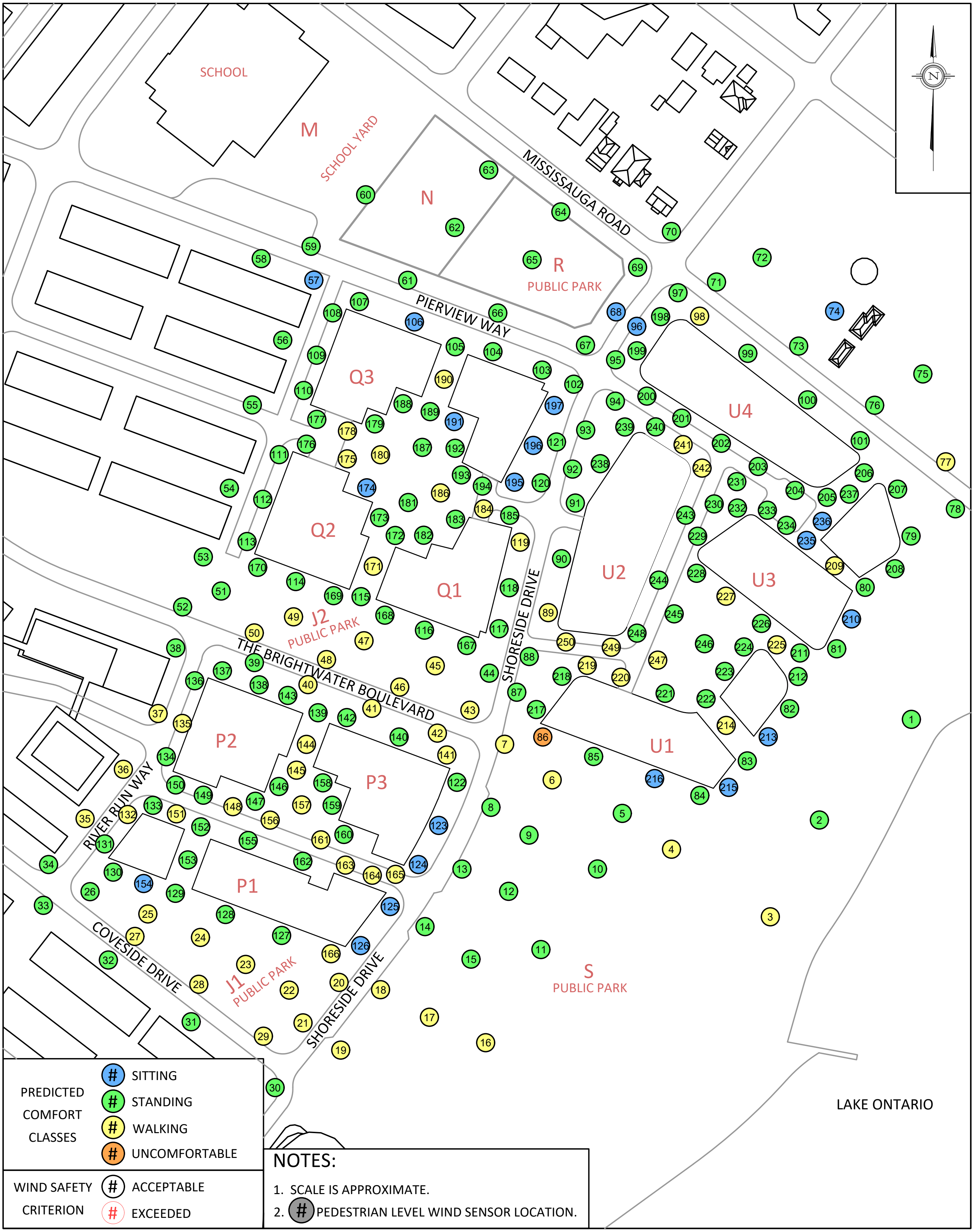
PROJECT: BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		DESCRIPTION: FIGURE 3A: SUMMER PROPOSED GROUND FLOOR PLAN PEDESTRIAN COMFORT PREDICTIONS
SCALE: 1:2200 (APPROX.)	DRAWING NO.: GW17-112-PLW-3A	
DATE: SEPTEMBER 20, 2024	DRAWN BY: C.E.	



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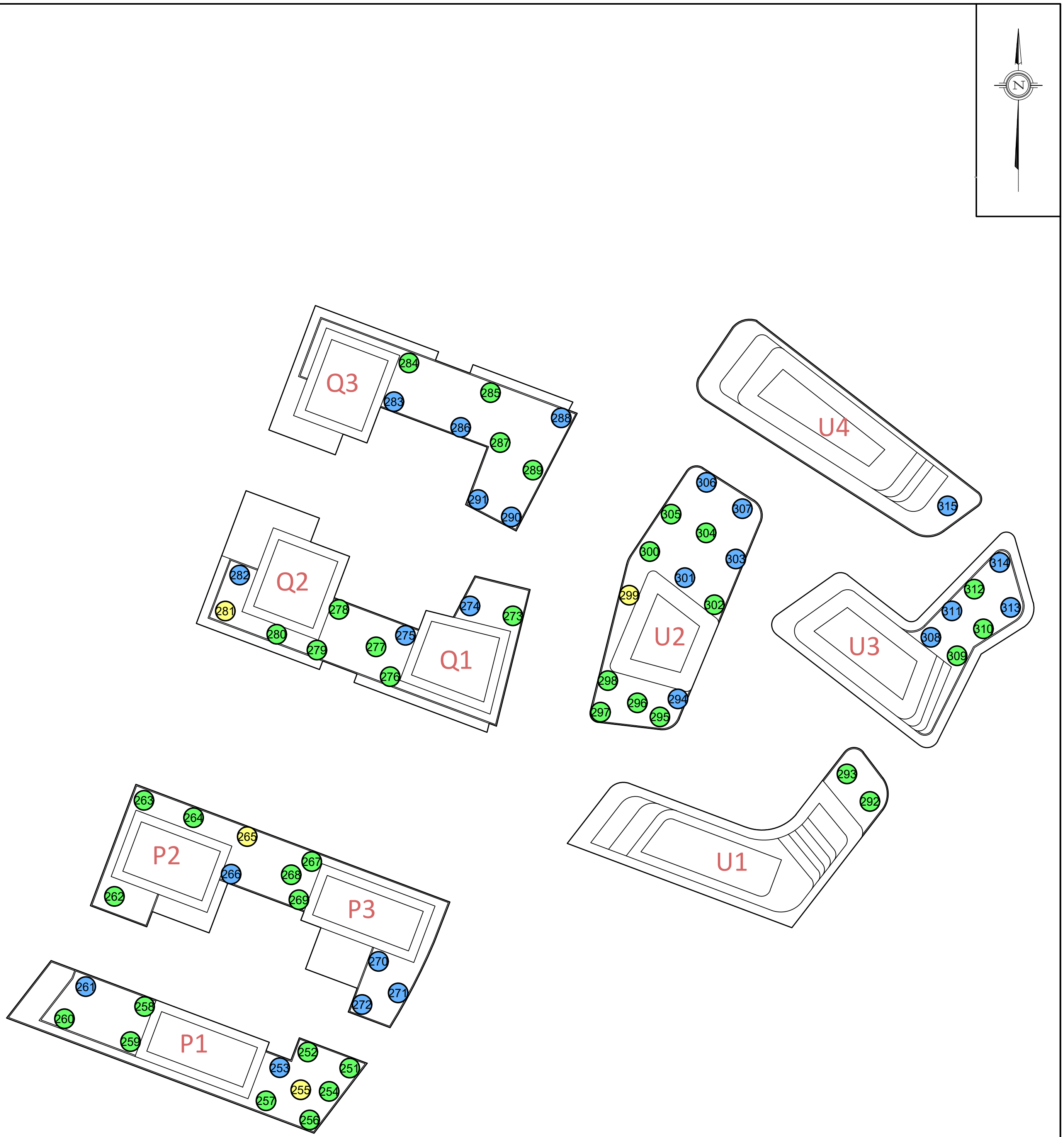
PROJECT	BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY
SCALE	1:2200 (APPROX.)
DRAWING NO.	GW17-112-PLW-3B
DATE	SEPTEMBER 20, 2024
DRAWN BY	C.E.
DESCRIPTION	FIGURE 3B: WINTER PROPOSED GROUND FLOOR PLAN PEDESTRIAN COMFORT PREDICTIONS



PREDICTED COMFORT CLASSES	#	SITTING
	#	STANDING
	#	WALKING
	#	UNCOMFORTABLE
WIND SAFETY CRITERION	#	ACCEPTABLE
	#	EXCEEDED

NOTES:

1. SCALE IS APPROXIMATE.
2. # PEDESTRIAN LEVEL WIND SENSOR LOCATION.

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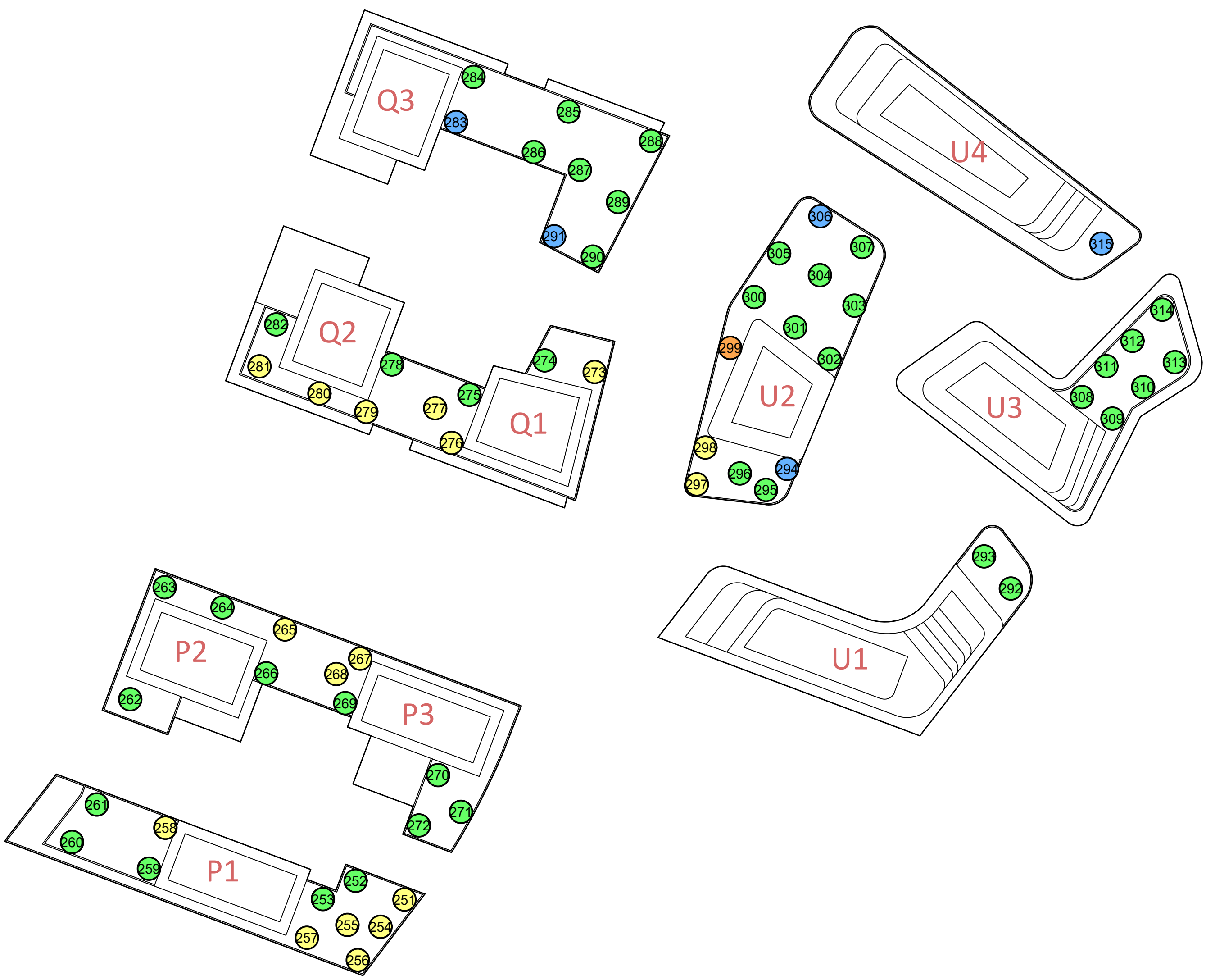
PROJECT	BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY
SCALE	1:1900 (APPROX.)
DRAWING NO.	GW17-112-PLW-4A
DATE	SEPTEMBER 20, 2024
DRAWN BY	C.E.
DESCRIPTION	FIGURE 4A: SUMMER PROPOSED OUTDOOR AMENITY PLAN PEDESTRIAN COMFORT PREDICTIONS



PREDICTED COMFORT CLASSES	#	SITTING
	#	STANDING
	#	WALKING
	#	UNCOMFORTABLE
WIND SAFETY CRITERION	#	ACCEPTABLE
	#	EXCEEDED

NOTES:

1. SCALE IS APPROXIMATE.
2. # PEDESTRIAN LEVEL WIND SENSOR LOCATION.

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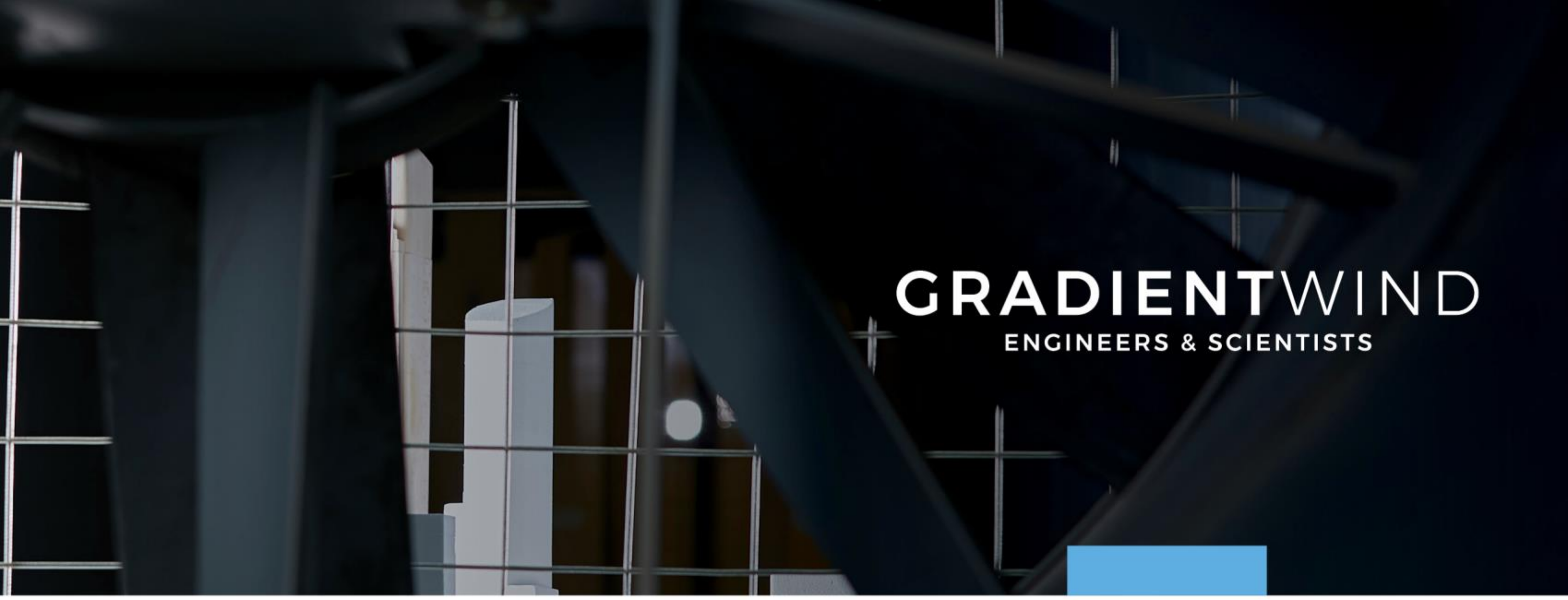
PROJECT	BLOCKS PQU - BRIGHTWATER, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		
SCALE	1:1900 (APPROX.)	DRAWING NO.	GW17-112-PLW-4B
DATE	SEPTEMBER 20, 2024	DRAWN BY	C.E.

DESCRIPTION

FIGURE 4B: WINTER
PROPOSED OUTDOOR AMENITY PLAN
PEDESTRIAN COMFORT PREDICTIONS



APPENDIX A

PEDESTRIAN COMFORT SUITABILITY, TABLES A1-A4
(EXISTING CONDITIONS)

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Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE A1: SUMMARY OF PEDESTRIAN COMFORT (EXISTING CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
1	14.4	Standing	17.5	Walking	54.1	Safe
2	14.2	Standing	17.3	Walking	53.8	Safe
3	13.9	Standing	17.1	Walking	53.7	Safe
4	13.6	Standing	16.3	Walking	50.8	Safe
5	13.1	Standing	15.8	Walking	49.4	Safe
6	12.7	Standing	15.2	Walking	49.0	Safe
7	12.4	Standing	14.9	Standing	48.8	Safe
8	12.8	Standing	15.3	Walking	50.1	Safe
9	12.8	Standing	15.3	Walking	49.6	Safe
10	13.3	Standing	15.7	Walking	49.9	Safe
11	14.0	Standing	16.6	Walking	52.9	Safe
12	12.7	Standing	15.3	Walking	48.8	Safe
13	12.5	Standing	15.2	Walking	49.5	Safe
14	12.2	Standing	14.9	Standing	49.9	Safe
15	12.8	Standing	15.4	Walking	50.2	Safe
16	13.6	Standing	16.2	Walking	52.3	Safe
17	12.2	Standing	14.4	Standing	48.2	Safe
18	11.9	Standing	14.4	Standing	47.8	Safe
19	11.9	Standing	14.7	Standing	49.7	Safe
20	11.5	Standing	13.9	Standing	46.0	Safe
21	10.6	Standing	12.8	Standing	44.8	Safe
22	10.8	Standing	13.6	Standing	46.4	Safe
23	10.0	Sitting	12.8	Standing	45.5	Safe
24	10.5	Standing	13.5	Standing	49.1	Safe
25	10.4	Standing	13.5	Standing	50.3	Safe
26	10.5	Standing	14.0	Standing	51.2	Safe
27	8.7	Sitting	11.2	Standing	41.7	Safe
28	8.8	Sitting	11.4	Standing	42.9	Safe
29	9.4	Sitting	11.8	Standing	42.2	Safe
30	10.7	Standing	13.1	Standing	49.1	Safe
31	7.8	Sitting	9.8	Sitting	40.4	Safe
32	8.5	Sitting	10.9	Standing	41.6	Safe
33	9.1	Sitting	11.7	Standing	42.1	Safe
34	12.2	Standing	16.2	Walking	72.7	Safe
35	14.6	Standing	19.6	Walking	66.1	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE A2: SUMMARY OF PEDESTRIAN COMFORT (EXISTING CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
36	11.8	Standing	13.6	Standing	65.7	Safe
37	13.7	Standing	17.0	Walking	63.5	Safe
38	13.4	Standing	16.0	Walking	57.0	Safe
39	10.8	Standing	12.9	Standing	48.1	Safe
40	11.0	Standing	13.0	Standing	45.7	Safe
41	12.1	Standing	14.4	Standing	48.4	Safe
42	11.9	Standing	14.2	Standing	48.4	Safe
43	12.4	Standing	14.8	Standing	49.4	Safe
44	12.0	Standing	14.3	Standing	47.7	Safe
45	11.2	Standing	13.3	Standing	45.1	Safe
46	12.0	Standing	14.3	Standing	48.2	Safe
47	11.5	Standing	13.9	Standing	46.7	Safe
48	11.0	Standing	13.0	Standing	44.8	Safe
49	10.6	Standing	12.7	Standing	45.9	Safe
50	10.8	Standing	12.9	Standing	46.8	Safe
51	10.9	Standing	13.3	Standing	48.8	Safe
52	11.2	Standing	13.5	Standing	50.8	Safe
53	9.6	Sitting	12.8	Standing	52.9	Safe
54	11.2	Standing	13.7	Standing	52.3	Safe
55	10.9	Standing	13.4	Standing	51.3	Safe
56	10.9	Standing	13.0	Standing	51.4	Safe
57	11.1	Standing	12.5	Standing	53.8	Safe
58	8.0	Sitting	9.7	Sitting	46.3	Safe
59	9.6	Sitting	11.4	Standing	44.4	Safe
60	9.9	Sitting	11.5	Standing	39.4	Safe
61	10.4	Standing	12.2	Standing	42.3	Safe
62	10.6	Standing	12.3	Standing	43.4	Safe
63	11.3	Standing	13.1	Standing	44.7	Safe
64	10.7	Standing	12.4	Standing	43.3	Safe
65	11.8	Standing	14.3	Standing	48.4	Safe
66	11.4	Standing	13.5	Standing	46.3	Safe
67	11.9	Standing	14.2	Standing	46.6	Safe
68	11.8	Standing	14.0	Standing	46.0	Safe
69	11.4	Standing	14.1	Standing	46.7	Safe
70	10.2	Standing	13.2	Standing	46.6	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

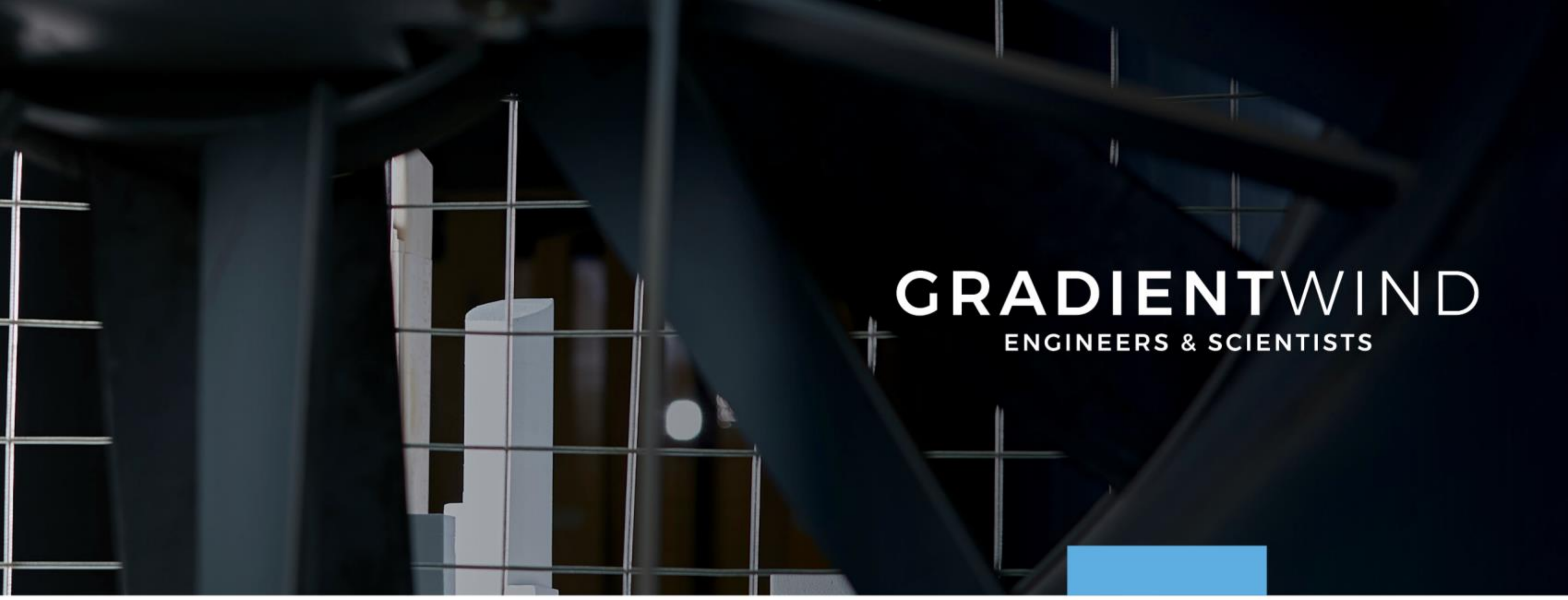
TABLE A3: SUMMARY OF PEDESTRIAN COMFORT (EXISTING CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
71	11.5	Standing	13.6	Standing	44.0	Safe
72	12.1	Standing	15.0	Standing	47.1	Safe
73	11.4	Standing	13.5	Standing	45.1	Safe
74	9.4	Sitting	11.8	Standing	42.1	Safe
75	11.8	Standing	14.4	Standing	47.2	Safe
76	11.6	Standing	14.2	Standing	48.1	Safe
77	13.9	Standing	17.0	Walking	52.7	Safe
78	13.2	Standing	15.9	Walking	49.0	Safe
79	13.1	Standing	15.8	Walking	51.1	Safe
80	13.3	Standing	16.0	Walking	49.6	Safe
81	13.7	Standing	16.5	Walking	51.8	Safe
82	13.8	Standing	16.6	Walking	52.3	Safe
83	13.5	Standing	16.3	Walking	50.9	Safe
84	13.4	Standing	16.0	Walking	50.0	Safe
85	12.4	Standing	14.7	Standing	49.2	Safe
86	13.2	Standing	15.7	Walking	49.1	Safe
87	12.6	Standing	15.1	Walking	49.0	Safe
88	12.1	Standing	14.2	Standing	47.6	Safe
89	11.9	Standing	14.3	Standing	47.3	Safe
90	12.9	Standing	15.4	Walking	49.0	Safe
91	12.1	Standing	14.5	Standing	48.8	Safe
92	13.1	Standing	16.0	Walking	49.9	Safe
93	13.3	Standing	15.9	Walking	50.1	Safe
94	12.3	Standing	14.5	Standing	47.8	Safe
95	12.2	Standing	14.8	Standing	48.2	Safe
96	11.6	Standing	13.7	Standing	45.2	Safe
97	12.7	Standing	15.2	Walking	47.4	Safe
98	10.5	Standing	12.5	Standing	43.7	Safe
99	11.0	Standing	13.1	Standing	45.7	Safe
100	11.8	Standing	14.5	Standing	48.7	Safe
101	10.8	Standing	13.2	Standing	46.3	Safe
102	13.0	Standing	15.5	Walking	49.4	Safe
103	10.8	Standing	13.0	Standing	45.7	Safe
104	11.0	Standing	13.0	Standing	45.0	Safe
105	10.6	Standing	12.5	Standing	43.9	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE A4: SUMMARY OF PEDESTRIAN COMFORT (EXISTING CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
106	11.9	Standing	13.8	Standing	46.9	Safe
107	12.5	Standing	14.3	Standing	52.6	Safe
108	11.1	Standing	12.8	Standing	49.4	Safe
109	7.9	Sitting	9.3	Sitting	33.6	Safe
110	7.3	Sitting	8.7	Sitting	32.7	Safe
111	7.6	Sitting	8.8	Sitting	33.0	Safe
112	8.0	Sitting	9.4	Sitting	35.5	Safe
113	9.4	Sitting	11.2	Standing	39.9	Safe
114	13.0	Standing	15.7	Walking	47.3	Safe
115	9.1	Sitting	10.7	Standing	38.8	Safe
116	9.3	Sitting	11.2	Standing	41.8	Safe
118	9.7	Sitting	11.5	Standing	41.3	Safe
119	12.0	Standing	14.5	Standing	47.6	Safe
120	14.0	Standing	16.7	Walking	50.3	Safe
121	12.2	Standing	14.7	Standing	48.2	Safe
122	13.1	Standing	15.8	Walking	49.3	Safe
123	13.7	Standing	16.7	Walking	53.1	Safe
124	11.9	Standing	14.4	Standing	48.2	Safe
125	9.5	Sitting	11.7	Standing	43.9	Safe
126	11.3	Standing	13.9	Standing	47.6	Safe
127	11.7	Standing	14.7	Standing	49.5	Safe
128	10.5	Standing	13.5	Standing	47.6	Safe
129	11.4	Standing	14.8	Standing	51.9	Safe
130	11.3	Standing	14.8	Standing	52.4	Safe
131	14.5	Standing	19.1	Walking	67.5	Safe
132	13.8	Standing	18.2	Walking	71.9	Safe
133	12.1	Standing	15.8	Walking	64.8	Safe
134	12.8	Standing	15.5	Walking	61.4	Safe
135	12.3	Standing	14.6	Standing	52.7	Safe
136	12.6	Standing	14.7	Standing	56.1	Safe
137	11.7	Standing	13.8	Standing	51.3	Safe
138	12.1	Standing	14.5	Standing	50.4	Safe
139	11.4	Standing	13.5	Standing	46.4	Safe
140	11.0	Standing	13.1	Standing	46.5	Safe



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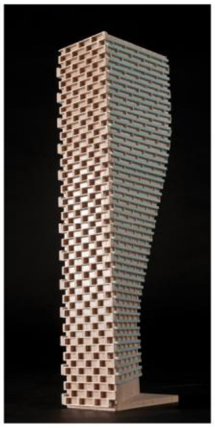

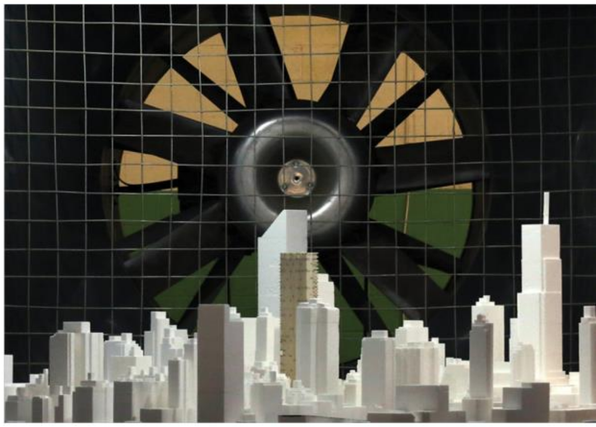

APPENDIX B

PEDESTRIAN COMFORT SUITABILITY, TABLES B1-B9 (PROPOSED CONDITIONS)

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
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Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B1: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
1	10.8	Standing	12.4	Standing	46.8	Safe
2	11.9	Standing	14.7	Standing	53.8	Safe
3	12.0	Standing	15.3	Walking	53.3	Safe
4	11.7	Standing	15.4	Walking	57.3	Safe
5	11.3	Standing	14.8	Standing	60.2	Safe
6	13.1	Standing	16.7	Walking	67.7	Safe
7	14.9	Standing	17.6	Walking	60.5	Safe
8	11.3	Standing	13.6	Standing	56.2	Safe
9	11.3	Standing	14.0	Standing	63.5	Safe
10	11.5	Standing	14.9	Standing	60.2	Safe
11	9.7	Sitting	12.7	Standing	54.3	Safe
12	9.0	Sitting	11.1	Standing	45.7	Safe
13	9.0	Sitting	11.4	Standing	45.6	Safe
14	8.5	Sitting	10.7	Standing	43.3	Safe
15	10.0	Sitting	13.4	Standing	58.5	Safe
16	11.8	Standing	15.8	Walking	57.0	Safe
17	12.1	Standing	16.4	Walking	60.5	Safe
18	13.6	Standing	18.8	Walking	67.6	Safe
19	12.8	Standing	17.1	Walking	58.5	Safe
20	14.1	Standing	19.0	Walking	65.0	Safe
21	13.6	Standing	18.3	Walking	61.9	Safe
22	14.1	Standing	18.4	Walking	62.5	Safe
23	13.1	Standing	17.2	Walking	62.6	Safe
24	13.4	Standing	16.9	Walking	65.6	Safe
25	12.7	Standing	15.4	Walking	58.4	Safe
26	12.5	Standing	14.4	Standing	52.0	Safe
27	12.4	Standing	15.4	Walking	53.6	Safe
28	13.1	Standing	16.8	Walking	57.6	Safe
29	12.7	Standing	16.6	Walking	57.6	Safe
30	8.8	Sitting	11.1	Standing	45.0	Safe
31	10.7	Standing	13.8	Standing	54.2	Safe
32	10.4	Standing	13.4	Standing	54.9	Safe
33	9.5	Sitting	11.5	Standing	46.5	Safe
34	11.0	Standing	12.3	Standing	44.6	Safe
35	12.6	Standing	15.7	Walking	56.5	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B2: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
36	14.3	Standing	17.5	Walking	66.2	Safe
37	14.0	Standing	16.7	Walking	60.0	Safe
38	10.2	Standing	12.2	Standing	48.0	Safe
39	11.5	Standing	14.6	Standing	53.3	Safe
40	12.4	Standing	15.7	Walking	58.7	Safe
41	13.0	Standing	16.5	Walking	64.7	Safe
42	16.2	Walking	19.3	Walking	73.0	Safe
43	15.1	Walking	17.5	Walking	60.0	Safe
44	11.0	Standing	13.4	Standing	51.9	Safe
45	14.2	Standing	17.1	Walking	58.5	Safe
46	16.1	Walking	19.5	Walking	66.7	Safe
47	15.2	Walking	18.5	Walking	62.7	Safe
48	14.2	Standing	17.3	Walking	60.8	Safe
49	15.2	Walking	18.2	Walking	61.8	Safe
50	12.6	Standing	15.2	Walking	53.5	Safe
51	11.8	Standing	13.8	Standing	50.3	Safe
52	10.6	Standing	12.6	Standing	48.2	Safe
53	9.5	Sitting	10.7	Standing	44.8	Safe
54	9.0	Sitting	11.4	Standing	46.6	Safe
55	8.3	Sitting	10.6	Standing	41.4	Safe
56	8.0	Sitting	10.5	Standing	45.6	Safe
57	7.8	Sitting	9.9	Sitting	40.9	Safe
58	7.8	Sitting	10.1	Standing	42.5	Safe
59	8.2	Sitting	10.4	Standing	43.4	Safe
60	8.8	Sitting	11.5	Standing	45.3	Safe
61	10.8	Standing	14.1	Standing	64.3	Safe
62	9.6	Sitting	12.7	Standing	55.0	Safe
63	10.2	Standing	13.2	Standing	49.0	Safe
64	9.7	Sitting	12.3	Standing	46.0	Safe
65	9.3	Sitting	12.1	Standing	48.6	Safe
66	9.2	Sitting	11.5	Standing	48.3	Safe
67	9.4	Sitting	11.0	Standing	43.1	Safe
68	7.9	Sitting	9.8	Sitting	36.7	Safe
69	9.3	Sitting	12.1	Standing	47.4	Safe
70	9.7	Sitting	12.7	Standing	46.0	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B3: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
71	10.3	Standing	13.2	Standing	46.4	Safe
72	9.8	Sitting	12.7	Standing	45.2	Safe
73	10.4	Standing	12.8	Standing	47.3	Safe
74	8.1	Sitting	10.0	Sitting	38.2	Safe
75	10.0	Sitting	11.4	Standing	40.9	Safe
76	10.9	Standing	12.4	Standing	45.6	Safe
77	13.9	Standing	15.3	Walking	52.4	Safe
78	13.1	Standing	14.2	Standing	48.8	Safe
79	11.8	Standing	12.0	Standing	50.3	Safe
80	9.6	Sitting	11.6	Standing	47.5	Safe
81	8.8	Sitting	10.7	Standing	52.4	Safe
82	9.7	Sitting	10.5	Standing	44.4	Safe
83	11.3	Standing	13.1	Standing	44.9	Safe
84	9.3	Sitting	12.1	Standing	55.2	Safe
85	9.6	Sitting	11.3	Standing	44.9	Safe
86	17.5	Walking	20.4	Uncomfortable	71.6	Safe
87	9.9	Sitting	12.1	Standing	50.1	Safe
88	11.3	Standing	14.1	Standing	54.2	Safe
89	13.3	Standing	16.9	Walking	64.4	Safe
90	11.1	Standing	13.6	Standing	51.4	Safe
91	9.7	Sitting	11.9	Standing	45.8	Safe
92	10.4	Standing	12.8	Standing	46.8	Safe
93	10.0	Sitting	12.2	Standing	45.3	Safe
94	10.4	Standing	12.7	Standing	50.9	Safe
95	9.6	Sitting	11.4	Standing	40.7	Safe
96	7.5	Sitting	9.3	Sitting	35.8	Safe
97	10.3	Standing	13.7	Standing	51.5	Safe
98	12.4	Standing	16.9	Walking	62.7	Safe
99	10.0	Sitting	13.1	Standing	51.5	Safe
100	10.4	Standing	12.7	Standing	49.1	Safe
101	9.5	Sitting	11.3	Standing	47.6	Safe
102	11.5	Standing	13.7	Standing	54.6	Safe
103	10.0	Sitting	12.1	Standing	54.9	Safe
104	8.6	Sitting	10.5	Standing	49.1	Safe
105	9.1	Sitting	12.4	Standing	54.1	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B4: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
106	7.9	Sitting	9.7	Sitting	39.6	Safe
107	8.7	Sitting	11.1	Standing	47.4	Safe
108	10.4	Standing	13.5	Standing	54.2	Safe
109	10.2	Standing	13.0	Standing	46.1	Safe
110	8.3	Sitting	10.4	Standing	45.2	Safe
111	10.8	Standing	13.8	Standing	48.1	Safe
112	9.8	Sitting	12.4	Standing	55.6	Safe
113	9.2	Sitting	11.5	Standing	56.9	Safe
114	11.3	Standing	12.8	Standing	50.6	Safe
115	11.7	Standing	14.2	Standing	49.4	Safe
116	11.9	Standing	14.6	Standing	56.3	Safe
117	10.4	Standing	11.8	Standing	49.2	Safe
118	10.1	Standing	11.5	Standing	45.4	Safe
119	13.9	Standing	16.2	Walking	64.8	Safe
120	9.0	Sitting	10.5	Standing	48.2	Safe
121	8.5	Sitting	10.2	Standing	46.9	Safe
122	10.3	Standing	10.9	Standing	45.2	Safe
123	7.4	Sitting	8.7	Sitting	35.5	Safe
124	7.4	Sitting	9.4	Sitting	43.8	Safe
125	8.0	Sitting	9.7	Sitting	39.1	Safe
126	7.1	Sitting	8.9	Sitting	53.7	Safe
127	9.5	Sitting	12.8	Standing	54.2	Safe
128	10.0	Sitting	12.5	Standing	50.5	Safe
129	9.8	Sitting	11.2	Standing	39.4	Safe
130	9.9	Sitting	11.5	Standing	51.4	Safe
131	11.2	Standing	14.3	Standing	60.2	Safe
132	14.1	Standing	18.3	Walking	69.0	Safe
133	10.0	Sitting	12.6	Standing	49.2	Safe
134	12.4	Standing	14.8	Standing	55.3	Safe
135	13.4	Standing	16.6	Walking	55.5	Safe
136	11.1	Standing	14.3	Standing	61.7	Safe
137	9.2	Sitting	11.9	Standing	51.2	Safe
138	8.9	Sitting	11.2	Standing	45.8	Safe
139	13.6	Standing	15.0	Standing	53.2	Safe
140	10.8	Standing	13.8	Standing	69.0	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B5: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
141	15.6	Walking	19.4	Walking	78.0	Safe
142	10.8	Standing	13.9	Standing	59.7	Safe
143	10.0	Sitting	12.7	Standing	51.8	Safe
144	17.1	Walking	18.7	Walking	66.1	Safe
145	12.9	Standing	16.3	Walking	61.8	Safe
146	9.9	Sitting	12.6	Standing	55.3	Safe
147	10.6	Standing	13.4	Standing	57.4	Safe
148	12.4	Standing	15.2	Walking	59.8	Safe
149	11.1	Standing	14.0	Standing	58.9	Safe
150	10.7	Standing	13.5	Standing	58.4	Safe
151	12.4	Standing	15.8	Walking	63.4	Safe
152	11.8	Standing	14.7	Standing	70.2	Safe
153	8.8	Sitting	12.1	Standing	61.0	Safe
154	8.5	Sitting	9.6	Sitting	37.5	Safe
155	10.6	Standing	13.4	Standing	63.6	Safe
156	14.7	Standing	17.6	Walking	67.8	Safe
157	12.6	Standing	15.2	Walking	58.3	Safe
158	8.6	Sitting	10.6	Standing	40.8	Safe
159	9.7	Sitting	11.8	Standing	45.1	Safe
160	8.6	Sitting	10.7	Standing	43.4	Safe
161	14.1	Standing	17.5	Walking	63.1	Safe
162	10.0	Sitting	12.4	Standing	62.1	Safe
163	12.5	Standing	15.1	Walking	65.5	Safe
164	13.9	Standing	18.4	Walking	66.7	Safe
165	12.5	Standing	15.5	Walking	64.6	Safe
166	13.1	Standing	17.8	Walking	66.4	Safe
167	10.4	Standing	14.0	Standing	64.0	Safe
168	12.6	Standing	14.7	Standing	52.3	Safe
169	11.9	Standing	14.3	Standing	54.2	Safe
170	13.1	Standing	14.5	Standing	70.1	Safe
171	13.6	Standing	15.6	Walking	56.3	Safe
172	11.1	Standing	14.5	Standing	64.2	Safe
173	9.2	Sitting	11.5	Standing	67.4	Safe
174	7.4	Sitting	9.7	Sitting	38.8	Safe
175	13.4	Standing	18.2	Walking	72.6	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B6: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
176	9.3	Sitting	12.3	Standing	45.5	Safe
177	8.5	Sitting	11.0	Standing	53.0	Safe
178	11.5	Standing	15.3	Walking	58.5	Safe
179	8.8	Sitting	11.9	Standing	50.8	Safe
180	13.3	Standing	17.6	Walking	62.6	Safe
181	11.1	Standing	14.2	Standing	59.0	Safe
182	8.6	Sitting	11.6	Standing	53.0	Safe
183	9.3	Sitting	11.9	Standing	49.8	Safe
184	11.2	Standing	15.2	Walking	58.7	Safe
185	10.1	Standing	13.8	Standing	55.9	Safe
186	12.6	Standing	16.6	Walking	59.8	Safe
187	9.5	Sitting	12.2	Standing	46.6	Safe
188	8.8	Sitting	12.8	Standing	65.8	Safe
189	10.8	Standing	14.3	Standing	56.4	Safe
190	13.6	Standing	17.6	Walking	66.6	Safe
191	6.8	Sitting	8.8	Sitting	36.0	Safe
192	8.3	Sitting	11.0	Standing	47.6	Safe
193	10.0	Sitting	12.9	Standing	56.1	Safe
194	10.2	Standing	12.4	Standing	56.5	Safe
195	7.9	Sitting	9.3	Sitting	45.2	Safe
196	8.0	Sitting	9.1	Sitting	40.0	Safe
197	8.6	Sitting	9.8	Sitting	43.4	Safe
198	8.7	Sitting	11.0	Standing	52.0	Safe
199	9.0	Sitting	11.2	Standing	45.2	Safe
200	10.4	Standing	13.1	Standing	54.5	Safe
201	11.2	Standing	13.6	Standing	54.2	Safe
202	10.8	Standing	13.1	Standing	46.0	Safe
203	9.4	Sitting	10.5	Standing	41.7	Safe
204	9.4	Sitting	10.9	Standing	42.8	Safe
205	9.3	Sitting	12.1	Standing	53.6	Safe
206	8.1	Sitting	10.4	Standing	41.3	Safe
207	12.7	Standing	13.8	Standing	55.0	Safe
208	9.6	Sitting	10.2	Standing	44.4	Safe
209	14.4	Standing	15.2	Walking	54.2	Safe
210	7.9	Sitting	9.0	Sitting	36.8	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B7: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
211	11.5	Standing	14.3	Standing	55.9	Safe
212	11.7	Standing	13.6	Standing	48.3	Safe
213	7.6	Sitting	8.4	Sitting	40.6	Safe
214	15.6	Walking	17.9	Walking	58.6	Safe
215	7.7	Sitting	9.1	Sitting	47.9	Safe
216	7.7	Sitting	9.7	Sitting	38.3	Safe
217	10.5	Standing	13.2	Standing	50.9	Safe
218	11.2	Standing	14.6	Standing	59.6	Safe
219	14.2	Standing	18.0	Walking	66.7	Safe
220	12.5	Standing	16.0	Walking	64.8	Safe
221	11.3	Standing	13.8	Standing	57.2	Safe
222	10.9	Standing	12.3	Standing	44.4	Safe
223	9.4	Sitting	11.9	Standing	45.0	Safe
224	11.9	Standing	13.9	Standing	53.1	Safe
225	14.9	Standing	17.3	Walking	61.4	Safe
226	11.6	Standing	12.5	Standing	51.8	Safe
227	13.7	Standing	15.1	Walking	66.1	Safe
228	11.6	Standing	12.8	Standing	52.3	Safe
229	10.1	Standing	12.2	Standing	49.5	Safe
230	10.6	Standing	11.9	Standing	44.6	Safe
231	9.3	Sitting	11.4	Standing	43.7	Safe
232	8.1	Sitting	10.1	Standing	40.8	Safe
233	10.2	Standing	11.9	Standing	42.5	Safe
234	9.6	Sitting	10.6	Standing	37.8	Safe
235	9.3	Sitting	10.0	Sitting	36.2	Safe
236	7.1	Sitting	8.9	Sitting	34.8	Safe
237	8.5	Sitting	10.8	Standing	45.4	Safe
238	9.8	Sitting	12.1	Standing	46.0	Safe
239	9.4	Sitting	11.4	Standing	48.0	Safe
240	11.5	Standing	14.3	Standing	61.4	Safe
241	11.9	Standing	15.1	Walking	58.6	Safe
242	14.7	Standing	16.7	Walking	56.6	Safe
243	12.4	Standing	13.1	Standing	52.9	Safe
244	10.6	Standing	12.6	Standing	48.3	Safe
245	10.0	Sitting	11.2	Standing	46.6	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B8: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
246	11.2	Standing	12.6	Standing	48.0	Safe
247	12.3	Standing	15.2	Walking	53.7	Safe
248	11.0	Standing	11.8	Standing	50.6	Safe
249	13.2	Standing	16.3	Walking	60.1	Safe
250	13.0	Standing	15.8	Walking	73.6	Safe
251	12.0	Standing	15.4	Walking	60.5	Safe
252	12.1	Standing	14.2	Standing	50.8	Safe
253	9.8	Sitting	11.3	Standing	53.0	Safe
254	14.1	Standing	18.4	Walking	76.8	Safe
255	15.1	Walking	19.5	Walking	76.3	Safe
256	12.5	Standing	16.4	Walking	61.6	Safe
257	11.6	Standing	15.5	Walking	68.4	Safe
258	12.6	Standing	16.7	Walking	61.9	Safe
259	11.3	Standing	14.5	Standing	59.0	Safe
260	11.3	Standing	14.1	Standing	57.7	Safe
261	9.9	Sitting	12.5	Standing	51.0	Safe
262	10.8	Standing	13.6	Standing	69.3	Safe
263	11.1	Standing	14.8	Standing	60.0	Safe
264	10.4	Standing	14.0	Standing	57.7	Safe
265	17.7	Walking	19.7	Walking	76.3	Safe
266	10.0	Sitting	11.7	Standing	49.2	Safe
267	12.0	Standing	15.9	Walking	68.5	Safe
268	13.6	Standing	16.8	Walking	63.8	Safe
269	11.5	Standing	14.5	Standing	56.7	Safe
270	8.8	Sitting	10.9	Standing	63.5	Safe
271	9.7	Sitting	12.5	Standing	77.3	Safe
272	9.1	Sitting	11.8	Standing	53.6	Safe
273	12.7	Standing	15.4	Walking	64.5	Safe
274	8.4	Sitting	10.5	Standing	43.9	Safe
275	9.6	Sitting	12.6	Standing	54.6	Safe
276	14.9	Standing	16.1	Walking	60.9	Safe
277	14.1	Standing	17.1	Walking	63.5	Safe
278	11.8	Standing	13.4	Standing	49.3	Safe
279	14.0	Standing	19.4	Walking	74.9	Safe
280	12.9	Standing	15.5	Walking	68.1	Safe

Guidelines	
Pedestrian Comfort	**20% exceedance wind speed** 0-10 km/h = Sitting, 10-15 km/h = Standing, 15-20 km/h = Walking, >20 km/h = Uncomfortable
Pedestrian Safety	**0.1% exceedance wind speed** 0-90 km/h = Safe

TABLE B9: SUMMARY OF PEDESTRIAN COMFORT (PROPOSED CONDITIONS)

Sensor	Pedestrian Comfort				Pedestrian Safety	
	Summer		Winter		Annual	
	Wind Speed	Comfort Class	Wind Speed	Comfort Class	Wind Speed	Safety Class
281	15.8	Walking	18.5	Walking	66.7	Safe
282	8.2	Sitting	10.7	Standing	42.8	Safe
283	6.5	Sitting	8.2	Sitting	31.6	Safe
284	10.5	Standing	12.9	Standing	56.4	Safe
285	11.8	Standing	14.8	Standing	61.9	Safe
286	9.6	Sitting	12.1	Standing	49.2	Safe
287	10.1	Standing	12.7	Standing	56.9	Safe
288	8.4	Sitting	10.6	Standing	42.9	Safe
289	10.4	Standing	13.5	Standing	55.7	Safe
290	8.1	Sitting	10.5	Standing	45.6	Safe
291	7.7	Sitting	9.9	Sitting	45.3	Safe
292	10.2	Standing	11.7	Standing	43.8	Safe
293	10.2	Standing	11.8	Standing	44.6	Safe
294	8.0	Sitting	10.0	Sitting	43.4	Safe
295	11.8	Standing	14.6	Standing	53.6	Safe
296	10.2	Standing	12.7	Standing	61.8	Safe
297	12.9	Standing	16.0	Walking	63.0	Safe
298	14.5	Standing	17.8	Walking	74.1	Safe
299	16.8	Walking	21.3	Uncomfortable	65.5	Safe
300	10.7	Standing	13.4	Standing	58.0	Safe
301	9.4	Sitting	11.3	Standing	52.7	Safe
302	11.1	Standing	13.2	Standing	54.2	Safe
303	9.8	Sitting	11.7	Standing	45.8	Safe
304	10.9	Standing	12.7	Standing	51.6	Safe
305	10.5	Standing	12.4	Standing	52.1	Safe
306	8.2	Sitting	9.7	Sitting	35.9	Safe
307	9.4	Sitting	11.3	Standing	43.7	Safe
308	8.9	Sitting	10.9	Standing	51.8	Safe
309	13.3	Standing	14.2	Standing	58.0	Safe
310	12.4	Standing	12.6	Standing	68.7	Safe
311	9.0	Sitting	10.3	Standing	42.8	Safe
312	10.2	Standing	11.0	Standing	45.2	Safe
313	9.5	Sitting	10.6	Standing	42.1	Safe
314	9.9	Sitting	10.6	Standing	44.0	Safe
315	7.9	Sitting	9.7	Sitting	43.9	Safe

APPENDIX C

WIND TUNNEL SIMULATION OF THE NATURAL WIND

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WIND TUNNEL SIMULATION OF THE NATURAL WIND

Wind flowing over the surface of the earth develops a boundary layer due to the drag produced by surface features such as vegetation and man-made structures. Within this boundary layer, the mean wind speed varies from zero at the surface to the gradient wind speed at the top of the layer. The height of the top of the boundary layer is referred to as the gradient height, above which the velocity remains more-or-less constant for a given synoptic weather system. The mean wind speed is taken to be the average value over one hour. Superimposed on the mean wind speed are fluctuating (or turbulent) components in the longitudinal (i.e. along wind), vertical and lateral directions. Although turbulence varies according to the roughness of the surface, the turbulence level generally increases from nearly zero (smooth flow) at gradient height to maximum values near the ground. While for a calm ocean the maximum could be 20%, the maximum for a very rough surface such as the center of a city could be 100%, or equal to the local mean wind speed. The height of the boundary layer varies in time and over different terrain roughness within the range of 400 metres (m) to 600 m.

Simulating real wind behaviour in a wind tunnel requires simulating the variation of mean wind speed with height, simulating the turbulence intensity, and matching the typical length scales of turbulence. It is the ratio between wind tunnel turbulence length scales and turbulence scales in the atmosphere that determines the geometric scales that models can assume in a wind tunnel. Hence, when a 1:200 scale model is quoted, this implies that the turbulence scales in the wind tunnel and the atmosphere have the same ratios. Some flexibility in this requirement has been shown to produce reasonable wind tunnel predictions compared to full scale. In model scale the mean and turbulence characteristics of the wind are obtained with the use of spires at one end of the tunnel and roughness elements along the floor of the tunnel. The fan is located at the model end and wind is pulled over the spires, roughness elements and model. It has been found that, to a good approximation, the mean wind profile can be represented by a power law relation, shown below, giving height above ground versus wind speed.

$$U = U_g \left(\frac{Z}{Z_g} \right)^{\alpha}$$

Where; $\boldsymbol{U}$ = mean wind speed, $\boldsymbol{U_g}$ = gradient wind speed, $\boldsymbol{Z}$ = height above ground, $\boldsymbol{Z_g}$ = depth of the boundary layer (gradient height) and α is the power law exponent.

Figure C1 on the following page plots three velocity profiles for open country, and suburban and urban exposures.

The exponent α varies according to the type of upwind terrain; α ranges from 0.14 for open country to 0.33 for an urban exposure. Figure C2 illustrates the theoretical variation of turbulence for open country, suburban and urban exposures.

The integral length scale of turbulence can be thought of as an average size of gust in the atmosphere. Although it varies with height and ground roughness, it has been found to generally be in the range of 100 m to 200 m in the upper half of the boundary layer. Thus, for a 1:300 scale, the model value should be between 1/3 and 2/3 of a metre. Integral length scales are derived from power spectra, which describe the energy content of wind as a function of frequency. There are several ways of determining integral length scales of turbulence. One way is by comparison of a measured power spectrum in model scale to a non-dimensional theoretical spectrum such as the Davenport spectrum of longitudinal turbulence. Using the Davenport spectrum, which agrees well with full-scale spectra, one can estimate the integral scale by plotting the theoretical spectrum with varying L until it matches as closely as possible the measured spectrum:

$$f \times S(f) = \frac{\dfrac{4(Lf)^2}{U_{10}^{\;2}}}{\left[1 + \dfrac{4(Lf)^2}{U_{10}^{\;2}}\right]^{\frac{4}{3}}}$$

Where, f is frequency, S(f) is the spectrum value at frequency f, U10 is the wind speed 10 m above ground level, and L is the characteristic length of turbulence.

Once the wind simulation is correct, the model, constructed to a suitable scale, is installed at the center of the working section of the wind tunnel. Different wind directions are represented by rotating the model to align with the wind tunnel center-line axis.

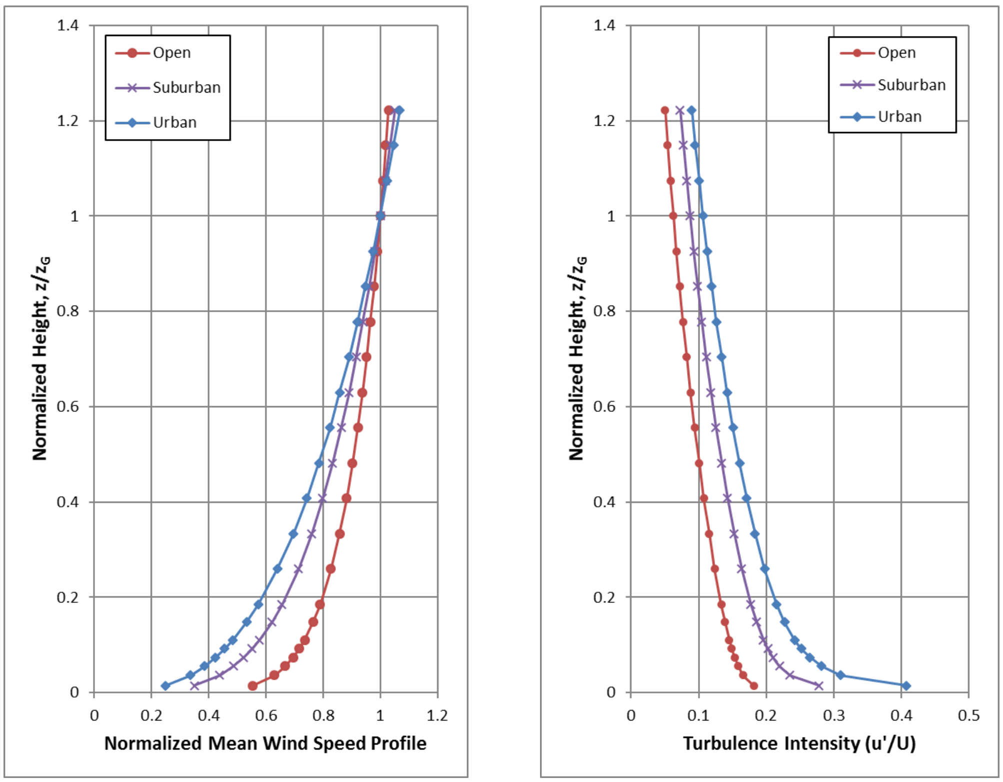

FIGURE C1 (LEFT): MEAN WIND SPEED PROFILES;
FIGURE C2 (RIGHT): TURBULENCE INTENSITY PROFILES

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APPENDIX D

PEDESTRIAN LEVEL WIND MEASUREMENT METHODOLOGY

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PEDESTRIAN LEVEL WIND MEASUREMENT METHODOLOGY

Pedestrian level wind studies are performed in a wind tunnel on a physical model of the study buildings at a suitable scale. Instantaneous wind speed measurements are recorded at a model height corresponding to 1.5 m full scale using either a hot wire anemometer or a pressure-based transducer. Measurements are performed at any number of locations on the model and usually for 36 wind directions. For each wind direction, the roughness of the upwind terrain is matched in the wind tunnel to generate the correct mean and turbulent wind profiles approaching the model.

The hot wire anemometer is an instrument consisting of a thin metallic wire conducting an electric current. It is an omni-directional device equally sensitive to wind approaching from any direction in the horizontal plane. By compensating for the cooling effect of wind flowing over the wire, the associated electronics produce an analog voltage signal that can be calibrated against velocity of the air stream. For all measurements, the wire is oriented vertically so as to be sensitive to wind approaching from all directions in a horizontal plane.

The pressure sensor is a small cylindrical device that measures instantaneous pressure differences over a small area. The sensor is connected via tubing to a transducer that translates the pressure to a voltage signal that is recorded by computer. With appropriately designed tubing, the sensor is sensitive to a suitable range of fluctuating velocities.

For a given wind direction and location on the model, a time history of the wind speed is recorded for a period of time equal to one hour in full-scale. The analog signal produced by the hot wire or pressure sensor is digitized at a rate of 400 samples per second. A sample recording for several seconds is illustrated in Figure D1. This data is analyzed to extract the mean, root-mean-square (rms) and the peak of the signal. The peak value, or gust wind speed, is formed by averaging a number of peaks obtained from sub-intervals of the sampling period. The mean and gust speeds are then normalized by the wind tunnel gradient wind speed, which is the speed at the top of the model boundary layer, to obtain mean and gust ratios. At each location, the measurements are repeated for 36 wind directions to produce normalized polar plots, which will be provided upon request.

In order to determine the duration of various wind speeds at full scale for a given measurement location the gust ratios are combined with a statistical (mathematical) model of the wind climate for the project site. This mathematical model is based on hourly wind data obtained from one or more meteorological stations (usually airports) close to the project location. The probability model used to represent the data is the Weibull distribution expressed as:

$$P\left(>U_g\right) = A_\theta \bullet \exp\left[\left(-\frac{U_g}{C\theta}\right)^{K\theta}\right]$$

Where,

P (> U**$_g$**) is the probability, fraction of time, that the gradient wind speed ***U**$_g$* is exceeded; θ is the wind direction measured clockwise from true north, ***A***, ***C***, ***K*** are the Weibull coefficients, (Units: A - dimensionless, C - wind speed units [km/h] for instance, K - dimensionless). A_θ is the fraction of time wind blows from a 10° sector centered on θ.

Analysis of the hourly wind data recorded for a length of time, on the order of 10 to 30 years, yields the A_θ, C_θ and K_θ values. The probability of exceeding a chosen wind speed level, say 20 km/h, at sensor *N* is given by the following expression:

$$P_N(>20) = \Sigma_\theta P\left[\frac{(>20)}{\left(\frac{U_N}{U_g}\right)}\right]$$

$$P_N(>20) \quad = \quad \Sigma_\theta P\{>20/(U_N/Ug)\}$$

Where, U_N/U_g is the gust velocity ratios, where the summation is taken over all 36 wind directions at 10° intervals.

If there are significant seasonal variations in the weather data, as determined by inspection of the $\boldsymbol{C_\theta}$ and $\boldsymbol{K_\theta}$ values, then the analysis is performed separately for two or more times corresponding to the groupings of seasonal wind data. Wind speed levels of interest for predicting pedestrian comfort are based on the comfort guidelines chosen to represent various pedestrian activity levels as discussed in the main text.

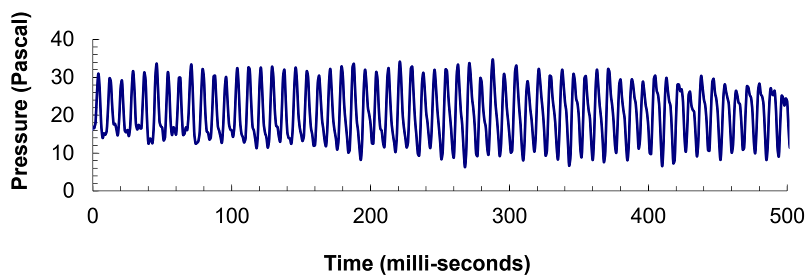

FIGURE D1: TIME VERSUS VELOCITY TRACE FOR A TYPICAL WIND SENSOR

REFERENCES

1. Davenport, A.G., '*The Dependence of Wind Loading on Meteorological Parameters*', Proc. of Int. Res. Seminar, Wind Effects on Buildings & Structures, NRC, Ottawa, 1967, University of Toronto Press.

2. Wu, S., Bose, N., 'An *Extended Power Law Model for the Calibration of Hot-wire/Hot-film Constant Temperature Probes*', Int. J. of Heat Mass Transfer, Vol.17, No.3, pp.437-442, Pergamon Press.

APPENDIX E

GWE17-112-PLW-2018 FIGURES
(FOR COMPARISON ONLY)

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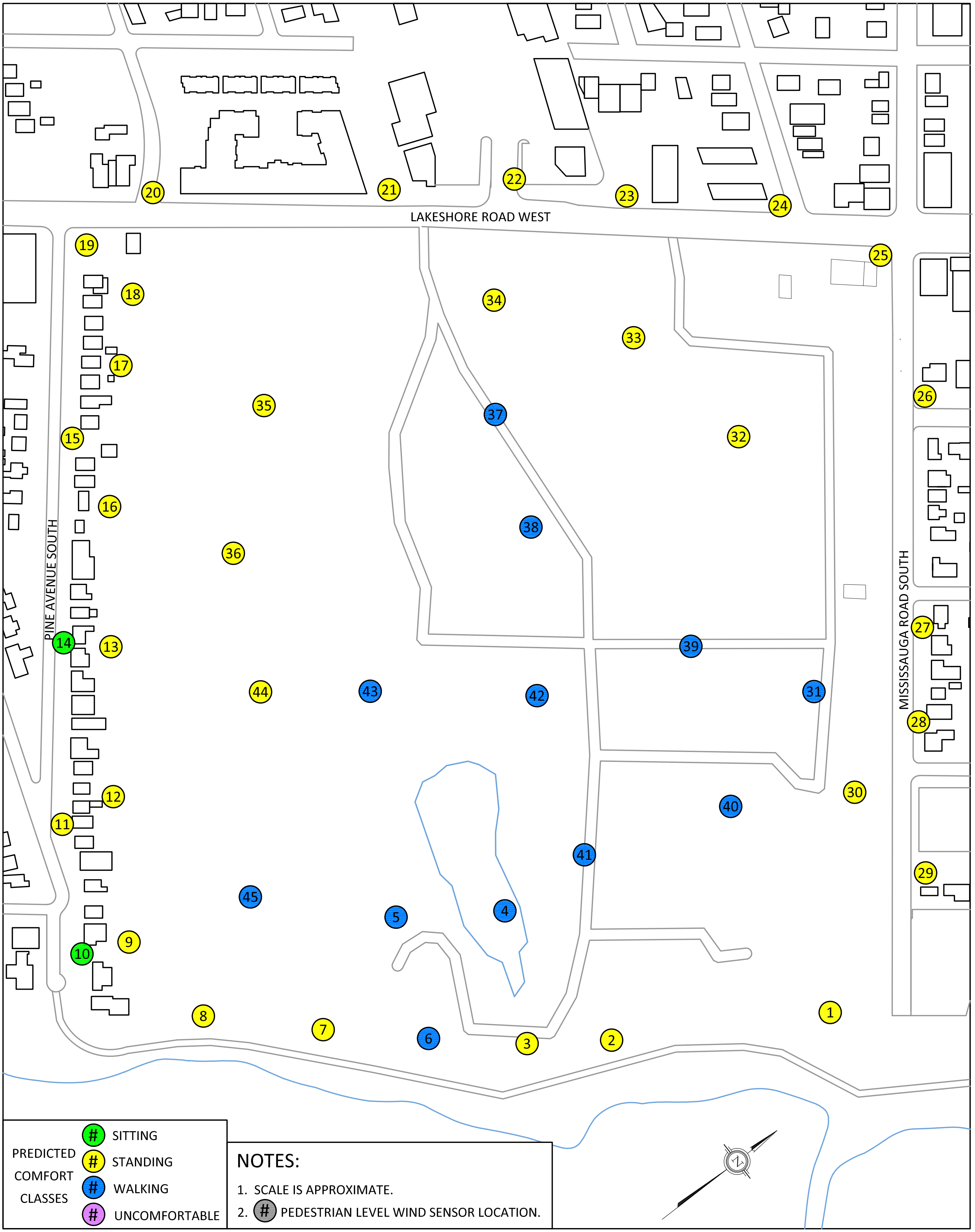

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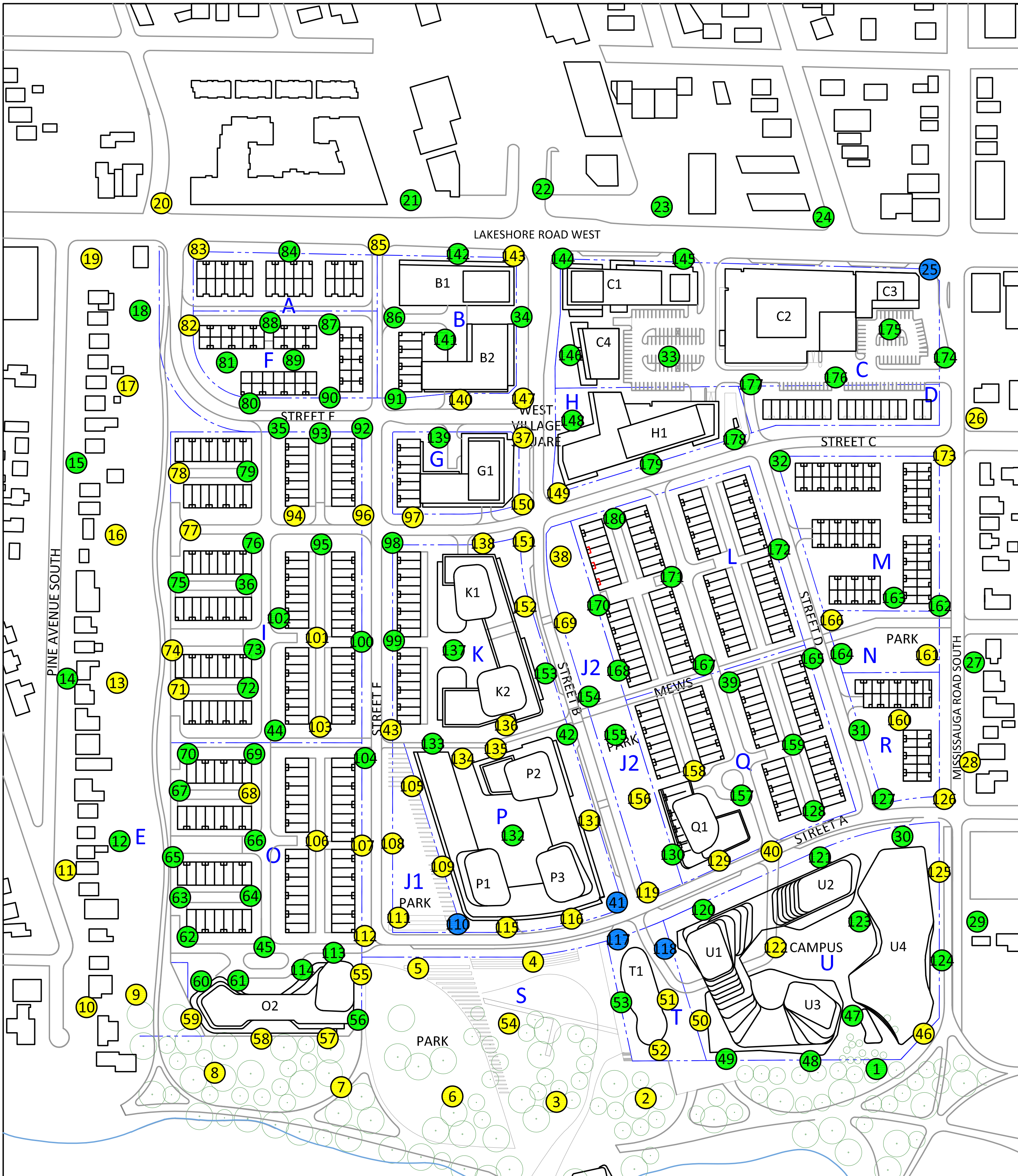
PROJECT	70 MISSISSAUGA ROAD SOUTH, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY		DESCRIPTION FIGURE 1A: SUMMER EXISTING SITE PLAN PEDESTRIAN COMFORT PREDICTIONS
SCALE	1:3500 (APPROX.)	DRAWING NO. GWE17-112-PLW-2018-1A	
DATE	NOVEMBER 1, 2018	DRAWN BY K.A.	



PREDICTED COMFORT CLASSES

- # SITTING
- # STANDING
- # WALKING
- # UNCOMFORTABLE

NOTES:

1. SCALE IS APPROXIMATE.
2. # PEDESTRIAN LEVEL WIND SENSOR LOCATION.

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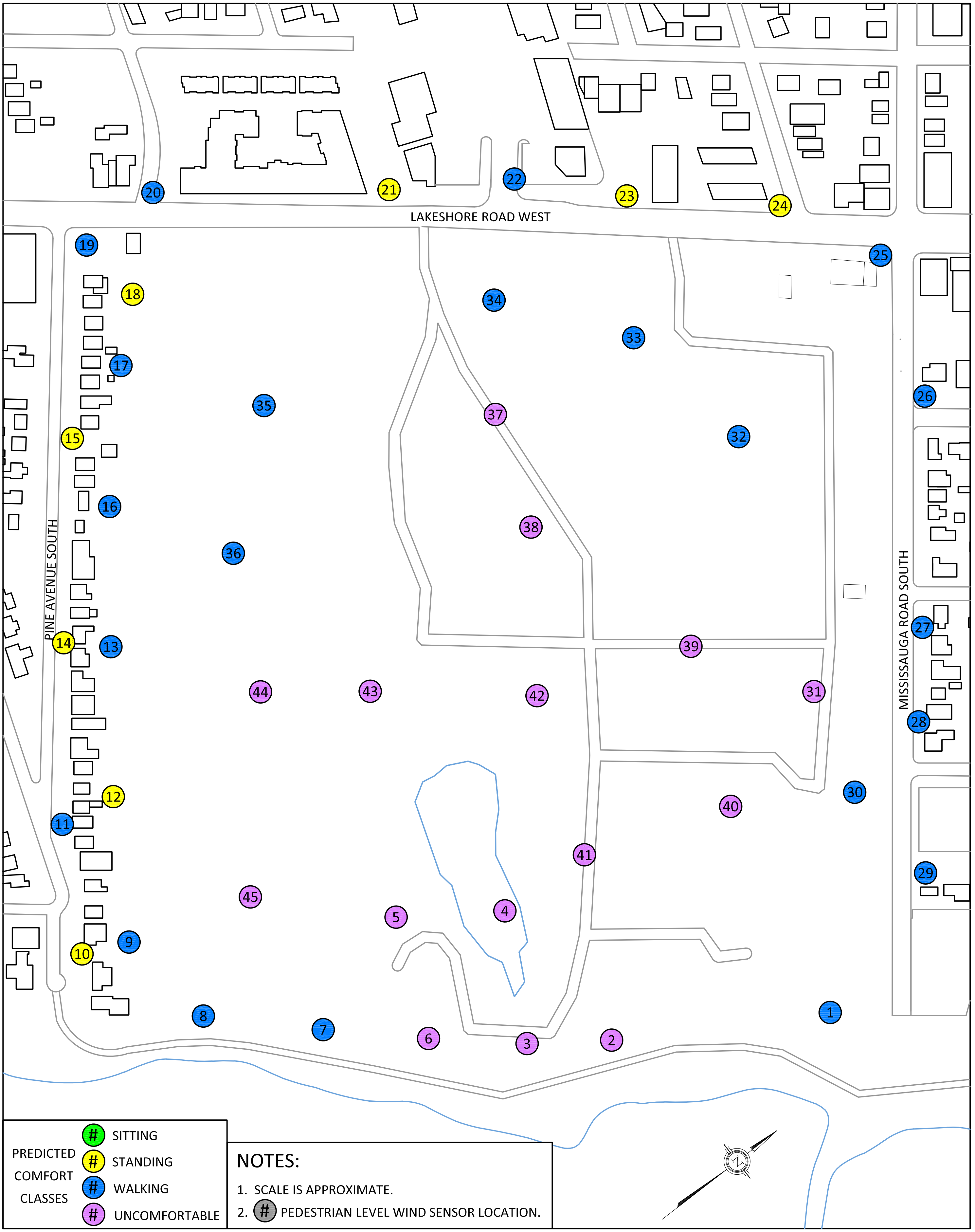
PROJECT	70 MISSISSAUGA ROAD SOUTH, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY
SCALE	1:3500 (APPROX.)
DRAWING NO.	GWE17-112-PLW-2018-1B
DATE	NOVEMBER 1, 2018
DRAWN BY	K.A.
DESCRIPTION	FIGURE 1B: SUMMER FUTURE SITE PLAN PEDESTRIAN COMFORT PREDICTIONS



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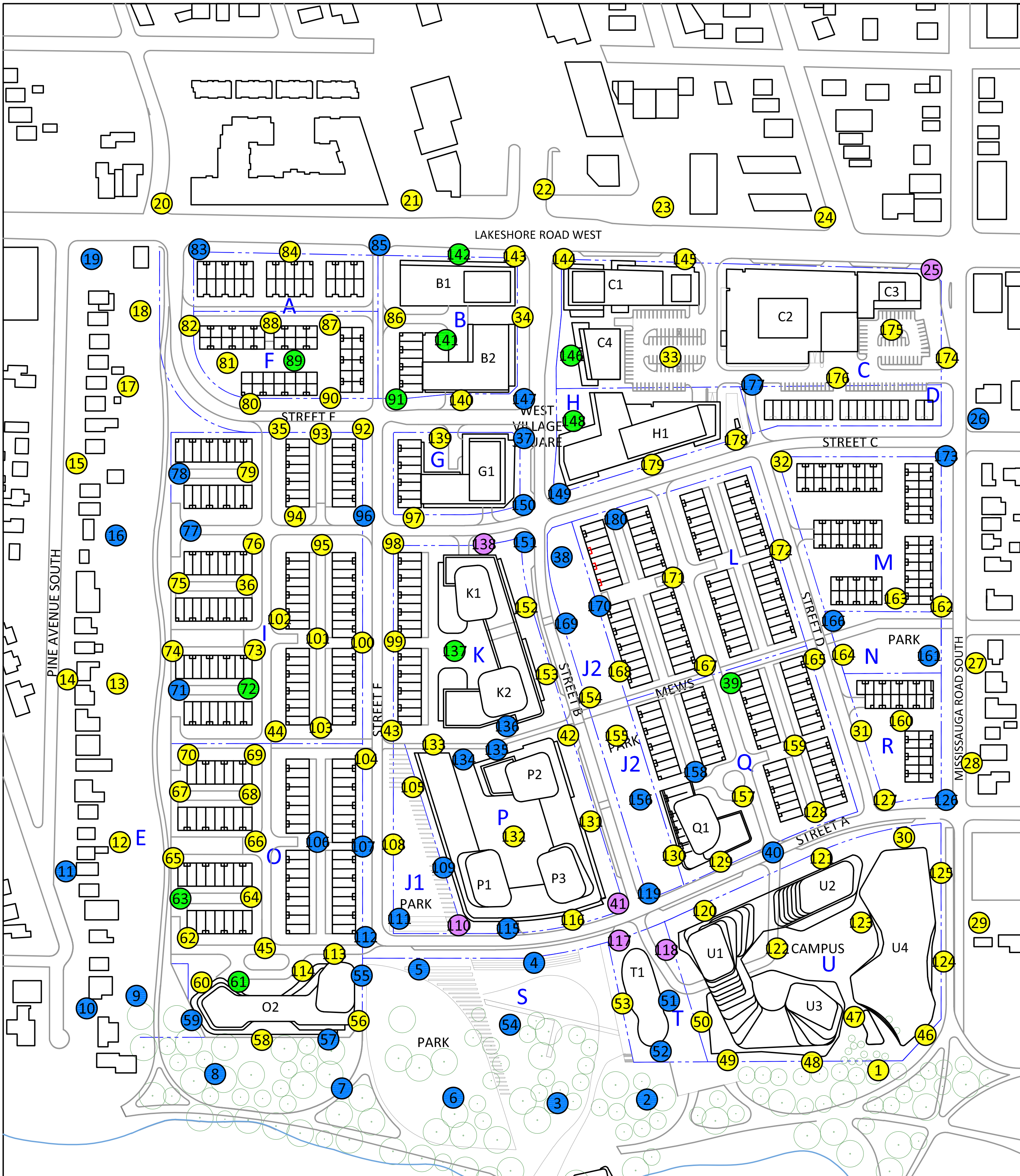
PROJECT	70 MISSISSAUGA ROAD SOUTH, MISSISSAUGA PEDESTRIAN LEVEL WIND STUDY
SCALE	1:3500 (APPROX.)
DRAWING NO.	GWE17-112-PLW-2018-2A
DATE	NOVEMBER 1, 2018
DRAWN BY	K.A.
DESCRIPTION	FIGURE 2A: WINTER EXISTING SITE PLAN PEDESTRIAN COMFORT PREDICTIONS



PREDICTED COMFORT CLASSES

- # SITTING
- # STANDING
- # WALKING
- # UNCOMFORTABLE

NOTES:

1. SCALE IS APPROXIMATE.
2. # PEDESTRIAN LEVEL WIND SENSOR LOCATION.

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SCALE	1:3500 (APPROX.)
DRAWING NO.	GWE17-112-PLW-2018-2B
DATE	NOVEMBER 1, 2018
DRAWN BY	K.A.
DESCRIPTION	FIGURE 2B: WINTER FUTURE SITE PLAN PEDESTRIAN COMFORT PREDICTIONS