Pedestrian Level Wind Study
Template A for Complete Application Evaluation

1. General

A. Name of the Project: Broadview & Danforth

B. Date:	C. Address of Application:
September 24, 2025	682, 686, 688, 720, 740, 742 Broadview Avenue

D. Name of Consultant:
Tahrana Lovlin, MAES, P.Eng., SLR Consulting (Canada) Ltd.

E. Phone number and email of the Consultant:
519 496-8516 tlovlin@slrconsulting.com

2. Description

A. Short Description of the Project:

Phase 1 includes a 39-storey tower that is approximately 127 m tall, excluding the mechanical penthouse. Phase 2 consists of a 42-storey tower atop a one-storey podium, with a total height of

B. Programme of the Application:	C. Number of buildings for this Application:
Residential	2

3. (When required) Triggers

A. Location (Map 1):
○ Area 1 ◉ Area 2

B1. Height in Metres: 134

B2. Height Triggers Classification (Table 1):
○ Low ○ Moderate ◉ High

C. Additional triggers: Two buildings

D. Final Classification:
○ Low ○ Moderate ◉ High

4. Application Process

A. Application type:
○ OPA ◉ ZBLA ○ Combined OPA/ZBLA ○ SPA

B. Method of Wind Study for this Application:
○ CFD Phase 1 ○ CFD Phase 2 ◉ WTS
*CFD: Computational Fluid Dynamics Software.
WTS: Wind Tunnel Study.

C. Was a CFD Phase 1 submitted at Pre-Application consultation? ○ Yes ◉ No

D. Were there any previous applications for this project? ◉ Yes ○ No

If Yes:

D.1 Date: September 29, 2021	D.2 Type of previous application process: ○ Low ○ Moderate ◉ High

D.3 Method of Wind Study for the previous Application: ○ CFD Phase 1 ◉ CFD Phase 2 ○ WTS

D.4 Important findings in the previous Study: The wind safety criterion is expected to be generally met in all areas assessed. Wind conditions are

4. Application Process – Continued

E. If this application is for a SPA, are there any design changes between the previous and current Application? ○ Yes ○ No ◉ Not Applicable

If Yes:

E.1 Describe the design changes between the previous and current application:

E.2 Do those changes qualify as significant: ○ Yes ○ No

If yes, is this a submission for a revised study? ○ Yes ○ No ○ Not Applicable

F. Did the urban designer approve the type of wind study assessment method/ the location of the sensors/vulnerable areas: ◉ Yes ○ No

G. If a CFD is used for the study, did you provide a 3D model: ○ Yes ○ No

H. Please attach a diagram with heights of the buildings that were used for the context of the scenarios that were tested

5. Required Contents

A. Which scenarios have been tested:

☑ Existing ☐ Proposed ☐ Mitigation ☑ Phases

B. Is this a large project? ◉ Yes ○ No

C. Is this project with different stages? ◉ Yes ○ No

D. Main Areas of Interest:

Building entrances, outdoor amenity spaces at grade and Levels 2 and 8 and surrounding sidewalks.

E. Data Station Used:

Billy Bishop Toronto City Airport (1991 to 2020)

6. Technical Information

A. Are you fully compliant with all of the technical specifications in the Terms of Reference and Guide:

◉ Yes ○ No

B. Are you fully compliant with the City criteria for comfort and safety? ○ Yes ◉ No

If not, please explain:

There are safety exceedances and uncomfortable wind conditions on and around the development.

C. Is the consultant acknowledging that this method is appropriate for this study: ◉ Yes ○ No

6. Technical Information Continued

D. Is the consultant recommending a different method of study? ○ Yes ◉ No

If Yes:

D.1 Please explain:

7. General Comments

Declaration of Consultant

I Tahrana Lovlin, MAES, P.Eng.

(Print name)

certify that I have examined the contents of the application, certify that the information submitted with it is accurate and concur with the submission of the application.

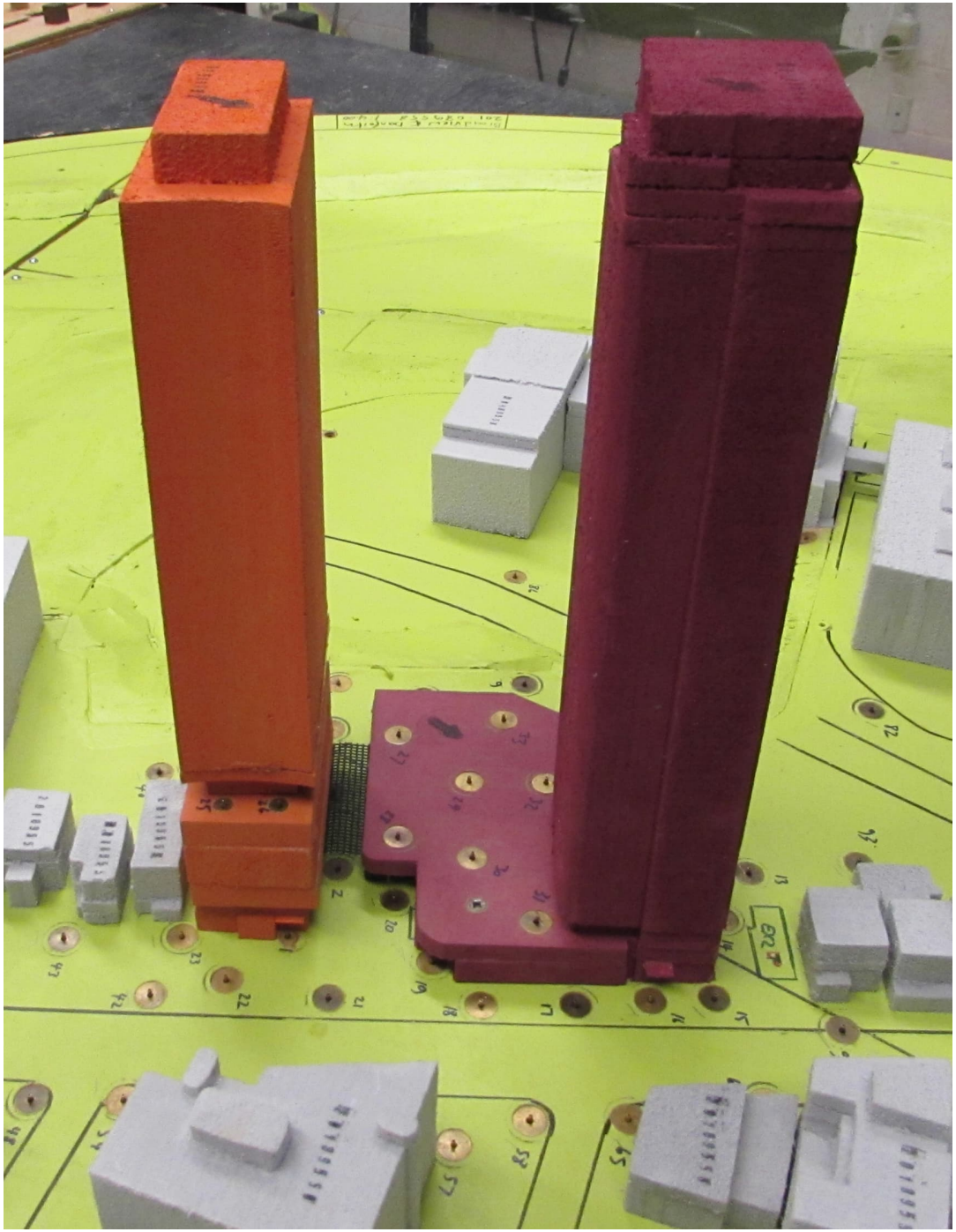
Date: September 24, 2025

Signature of Consultant: 

100 Stone Road West, Suite 201
Guelph, Ontario, N1G 5L3
226.706.8080 | SLRCONSULTING.COM

Date: September 24, 2025

Re: Pedestrian Wind Study
Broadview & Danforth
Toronto, ON
SLR Project #241.089558.00001



Prepared by:

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For:

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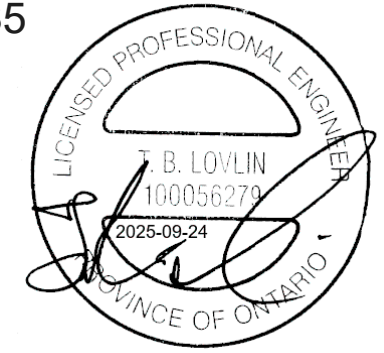


Mu'taz Suleiman, M.Sc., EIT
Microclimate Coordinator

Tahrana Lovlin, MAES, P.Eng.
Principal, Microclimate

Revision	Date	Prepared by	Checked by	Approved by
0	July 18, 2025	Mu'taz Suleiman	Tahrana Lovlin	Tahrana Lovlin
1	September 24, 2025	Mu'taz Suleiman	Tahrana Lovlin	Tahrana Lovlin

Table of Contents

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Choice Properties Limited Partnership to conduct a quantitative pedestrian wind study for the proposed Broadview & Danforth development in Toronto, Ontario. This report is in support of the Zoning Bylaw Amendment (ZBA) application for the development.

1.1 Existing Development

The proposed development is located at 682-742 Broadview Avenue. The site is currently occupied by a commercial low-rise building with a parking lot, as well as five low-rise residential and/or commercial buildings. Figure 1 provides an aerial view of the immediate study area.

The site is immediately surrounded by low- to mid-rise residential and commercial buildings, except to the southwest, where there is a woodland. Beyond the immediate surroundings, low-rise residential buildings extend from the north to the south, with a few high-rise buildings located to the north and southeast. Woodlands are also present from the south through to the northwest.

Typically, future developments with ZBA approval within a 500 m radius are included as existing surroundings. For the current assessment, the following developments were included as existing surroundings: 285-297 Danforth Avenue (60-80 Bowden Street), 741 Broadview Avenue, 796-802 Broadview Avenue, and 838-844 Broadview Avenue. This list was arrived at through SLR reviewing the City of Toronto's available information and was confirmed with the design team and the City.

Figure 1: Aerial view of existing site & surroundings
Credit: Esri, Maxar, Earthstar Geographics, and the GIS User Community (Image Date May 22, 2023)

1.2 Proposed Development

The proposed development includes two phases:

- Phase 1 includes a 39-storey tower that is approximately 127 m tall, excluding the mechanical penthouse.
- Phase 2 consists of a 42-storey tower atop a one-storey podium, with a total height of approximately 134 m, excluding the mechanical penthouse.

Figure 2 shows a rendering of the proposed development.

1.3 Areas of Interest

Areas of interest for pedestrian wind conditions include those areas which pedestrians are expected to use on a frequent basis. Typically, these include sidewalks, main entrances, transit stops, plazas and parks.

The main entrance to Phase 1 is located around the northeast building corner, along Broadview Avenue, with secondary entrances and exits on the north and south facades. There is a privately owned public space (POPS) along the east side of Phase 1. The main entrance to Phase 2 is located around the northeast building corner, with secondary entrances and exits on the east, south, and west facades. Areas of interest at grade are shown in Figure 3a.

Phase 1 includes amenity terraces on Levels 2 and 8, while Phase 2 has an outdoor amenity terrace at Level 2, as shown in Figures 3b and 3c.

There are five nearby transit stops along Broadview Avenue and Danforth Avenue.

Figure 2: Rendering of the proposed development
Credit: Superkül Inc.

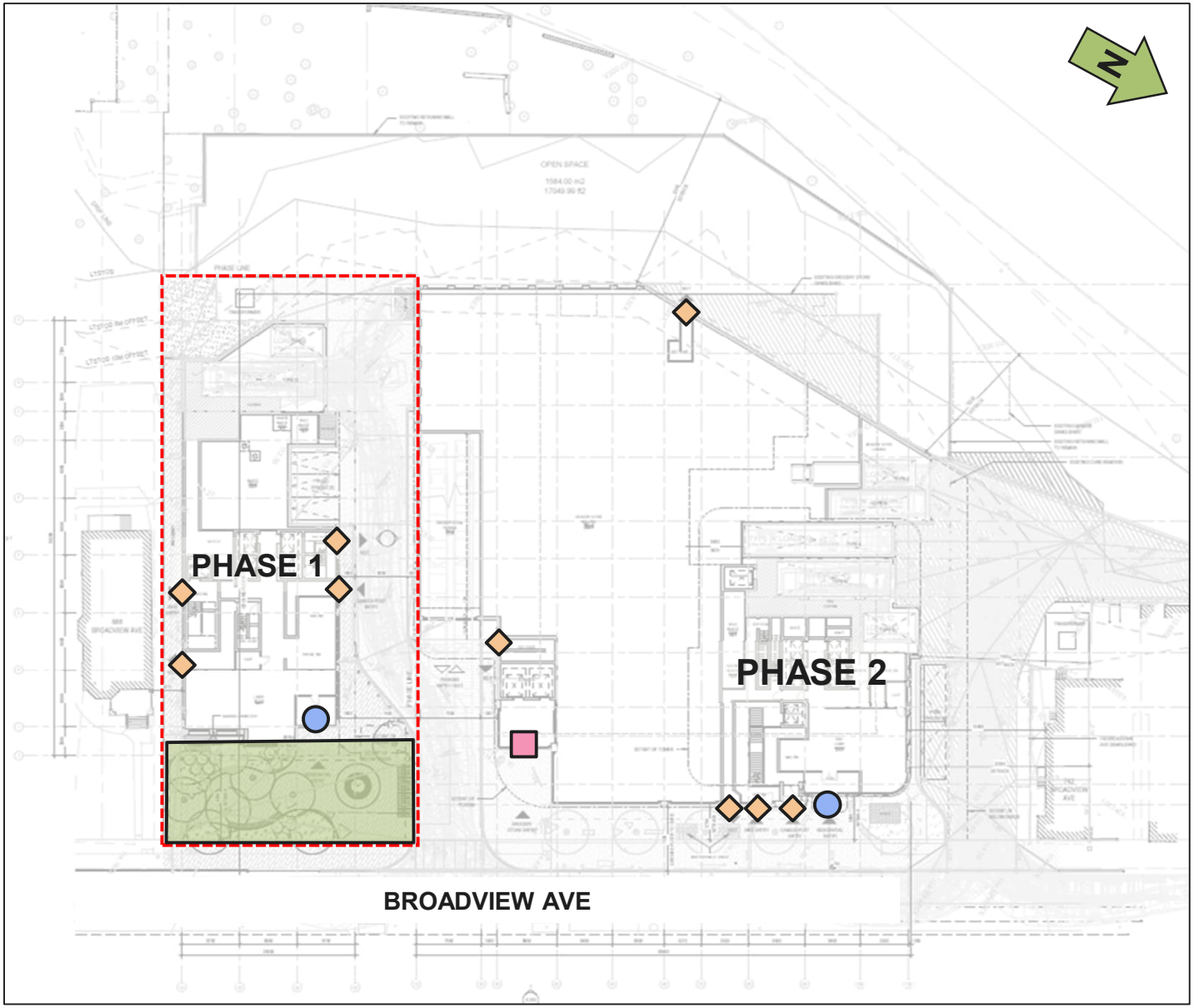


Figure 3a: Areas of Interest – Grade
Credit: Superkül Inc.

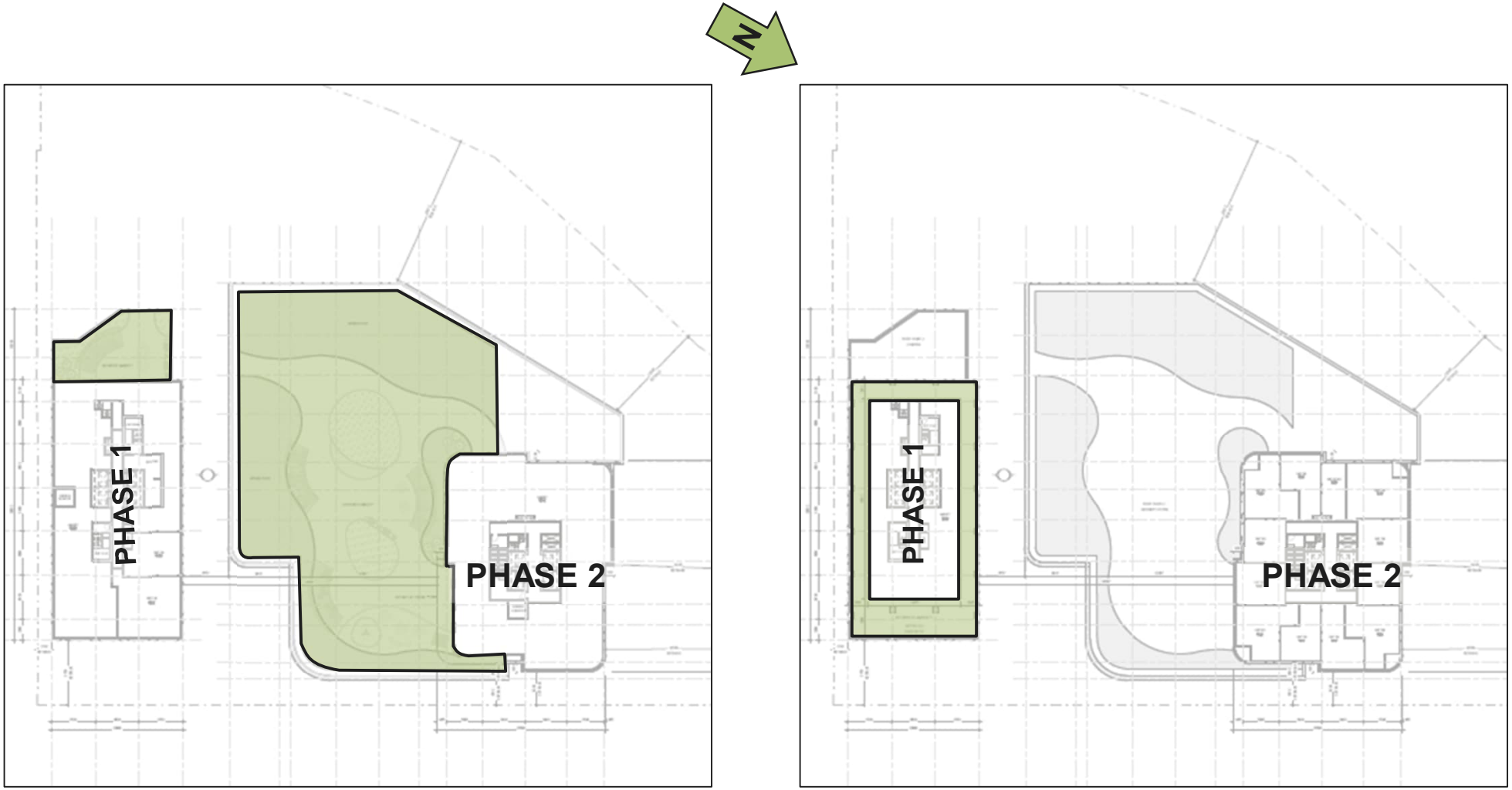


Figure 3b: Areas of Interest – Level 2
Credit: Superkül Inc.

Figure 3c: Areas of Interest – Level 8
Credit: Superkül Inc.

2.0 Approach

The objective of the wind tunnel study is to assist the design team and City Planning officials in making informed decisions about the building form considered and its influence on pedestrian comfort. This quantitative analysis involves the construction of a physical model of the development and surrounding features that influence wind flow. The physical model is instrumented with probes and tested in a wind tunnel. Afterwards, the wind tunnel data are combined with regional meteorological data; this analysis is then compared to the relevant wind criteria and standards in order to determine how appropriate the wind conditions are for the intended pedestrian usage.

2.1 Scale Model Construction

A 1:400 scale model of the proposed development was constructed based on a 3D model received by SLR on June 3, 2025, from Superkül Inc.

The proximity model of the surrounding area was built in block form for a radius of approximately 480 m from the site centre. As existing buildings surrounding the site will influence wind characteristics, existing buildings, and those buildings with ZBA approval were included in the model for the Existing Configuration, Phase Configuration, and the Full Build Configuration. Information regarding which approved developments to include within the existing surrounds was determined per Section 1.1.

SLR assessed three configurations, for comparison, as follows:

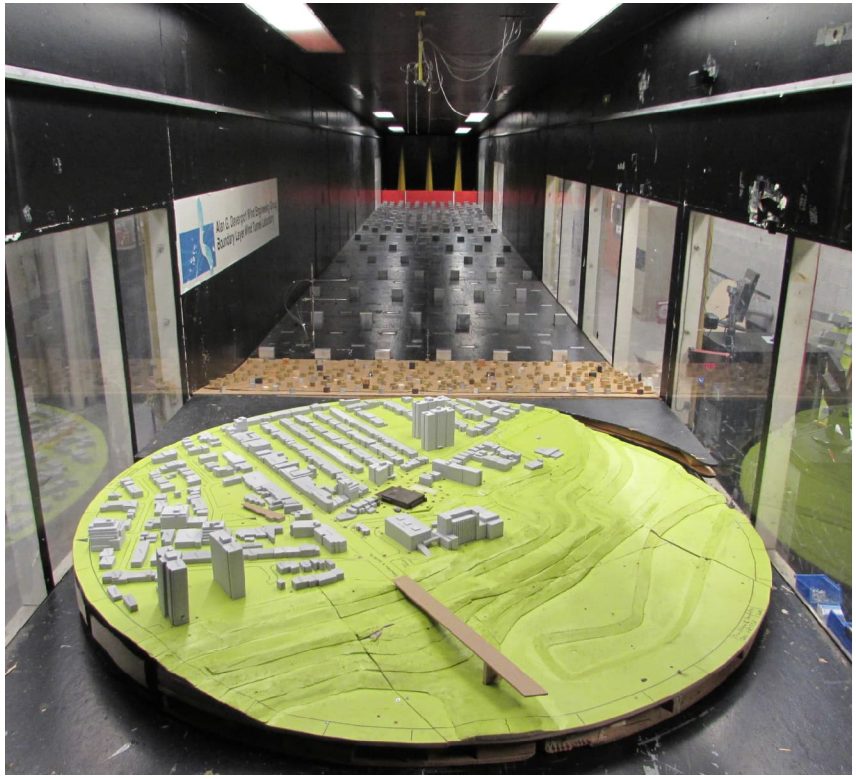
- **Existing Configuration:** Existing site with existing and ZBA-approved surroundings.
- **Phase 1 Configuration**: Phase 1 building with existing and ZBA-approved surroundings.
- **Full Build Configuration:** Phase 1 and Phase 2 buildings with existing and ZBA-approved surroundings.

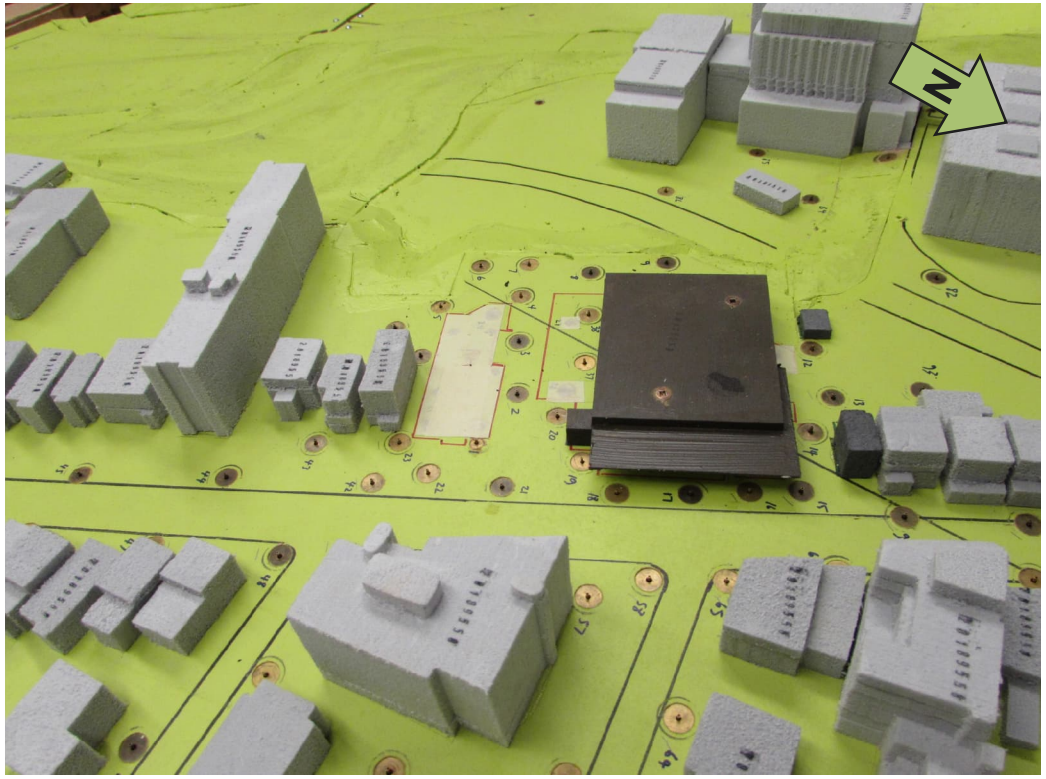
Photographs of the wind tunnel model showing the Existing Configuration, the Phase 1 Configuration, and the Full Build Configuration are included in Figures 4a through 4c. The wind tunnel testing was conducted on June 27, 2025.

2.2 Wind Tunnel

Wind tunnel tests were conducted in the Alan G. Davenport Wind Engineering Group Boundary-Layer Wind Tunnel Laboratory at the University of Western Ontario. The upstream test section of the wind tunnel included generic roughness blocks and turbulence-generating spires to modify the wind flow approaching the model. These features develop characteristics of the wind flow that are similar to the actual site. The test model is rotated on a turn-table to simulate different wind directions with the upstream terrain being changed as appropriate to reflect the various upwind conditions encountered around the site.

The test model was equipped with 97 omni-directional probes to record wind speed at the pedestrian level (approximately 1.5 m above grade). The orientation of the model was rotated in 10° intervals on the turn-table to permit measurement of wind speed at each probe location for 36 wind directions. The wind tunnel data were then combined with the wind climate model for this region to predict the occurrence of wind speeds in the pedestrian realm and compare against wind criteria for comfort and safety.





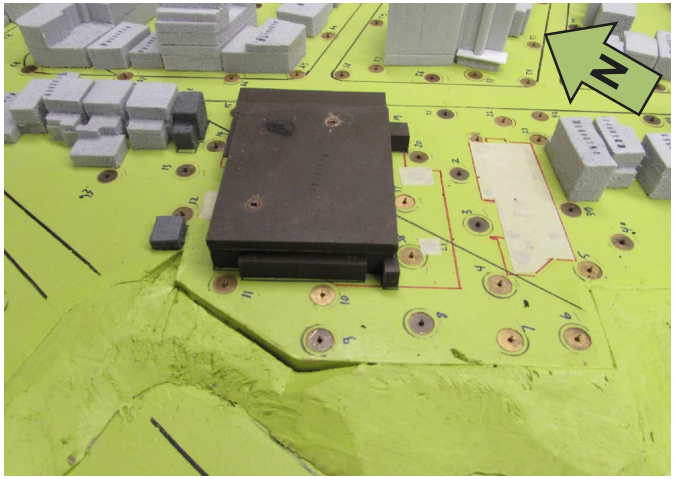
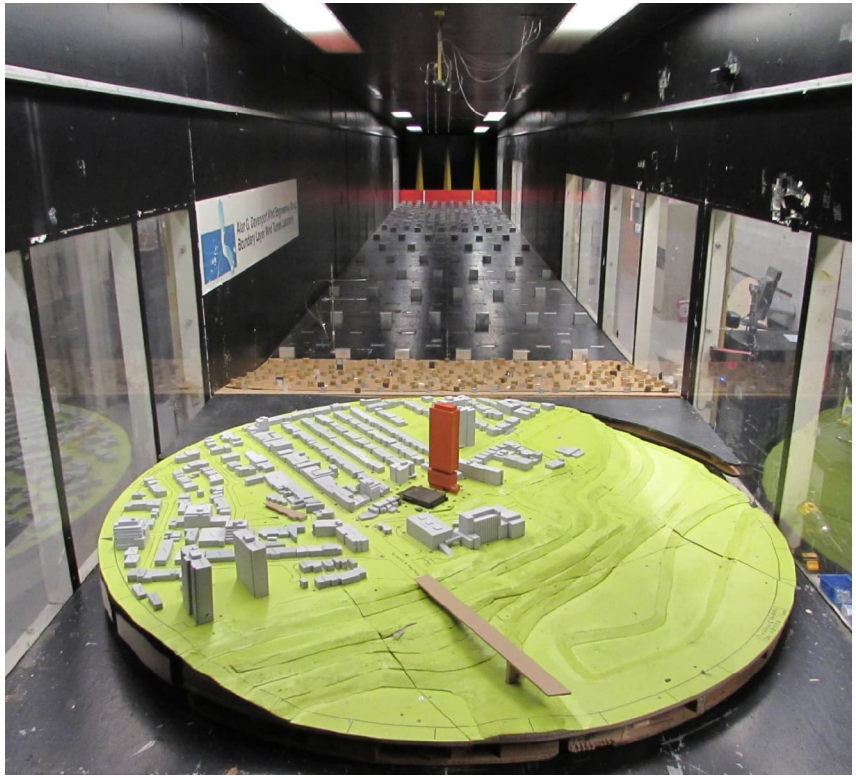


Figure 4a: Existing Configuration



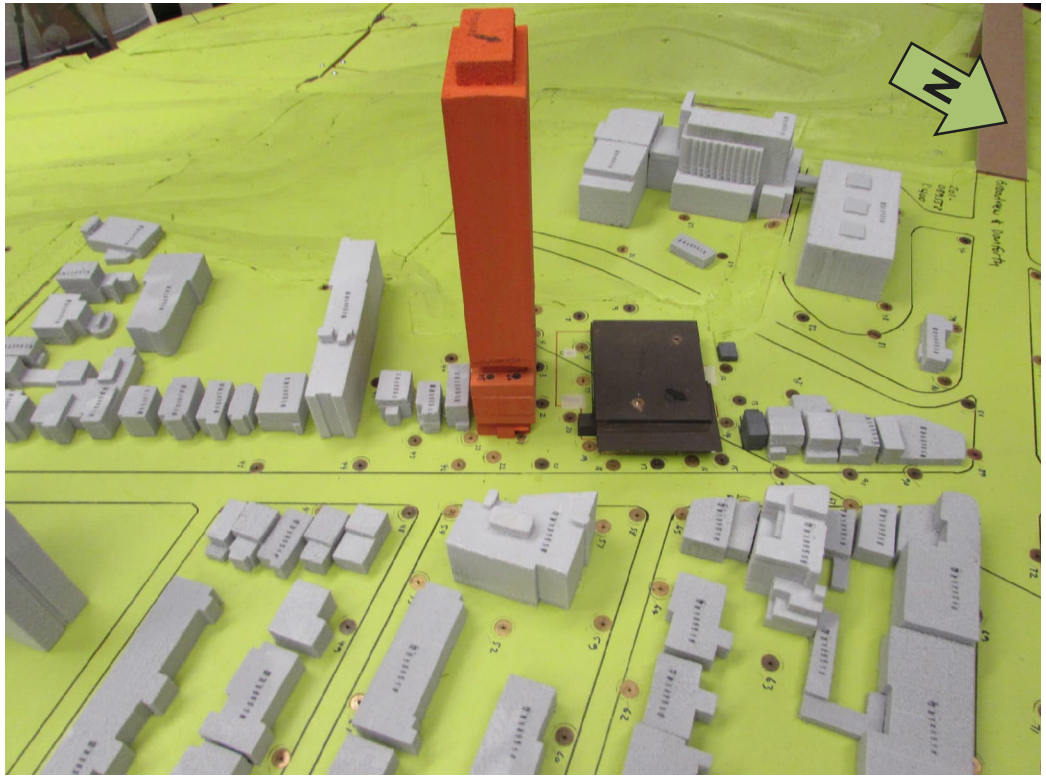


Figure 4b: Phase 1 Configuration

Figure 4c: Full Build Configuration

2.3 Wind Climate

Wind data recorded at Billy Bishop Toronto City Airport in Toronto for the period of 1991 to 2020 were obtained and analysed to create a wind climate model for the region. Annual and seasonal wind distribution diagrams ("wind roses") are shown in Figure 5. These diagrams illustrate the percentage of time wind blows from the 16 main compass directions. Of main interest are the longest peaks that identify the most frequently occurring wind directions. The annual wind rose indicates that wind approaching from the northerly through southwesterly directions, as well as the east-northeasterly direction, are most prevalent. The seasonal wind roses readily show how the prevalent winds shift throughout the year.

The directions from which stronger winds (e.g., > 30 km/h) approach are also of interest as they have the highest potential of creating problematic wind conditions, depending upon site exposure and the building configurations. The wind roses in Figure 5 also identify the directional frequency of these stronger winds, as indicated in the figure's legend color key. On an annual basis, strong winds occur from the northwesterly, westerly, and east-northeasterly sectors. All wind speeds and directions were included in the wind climate model.

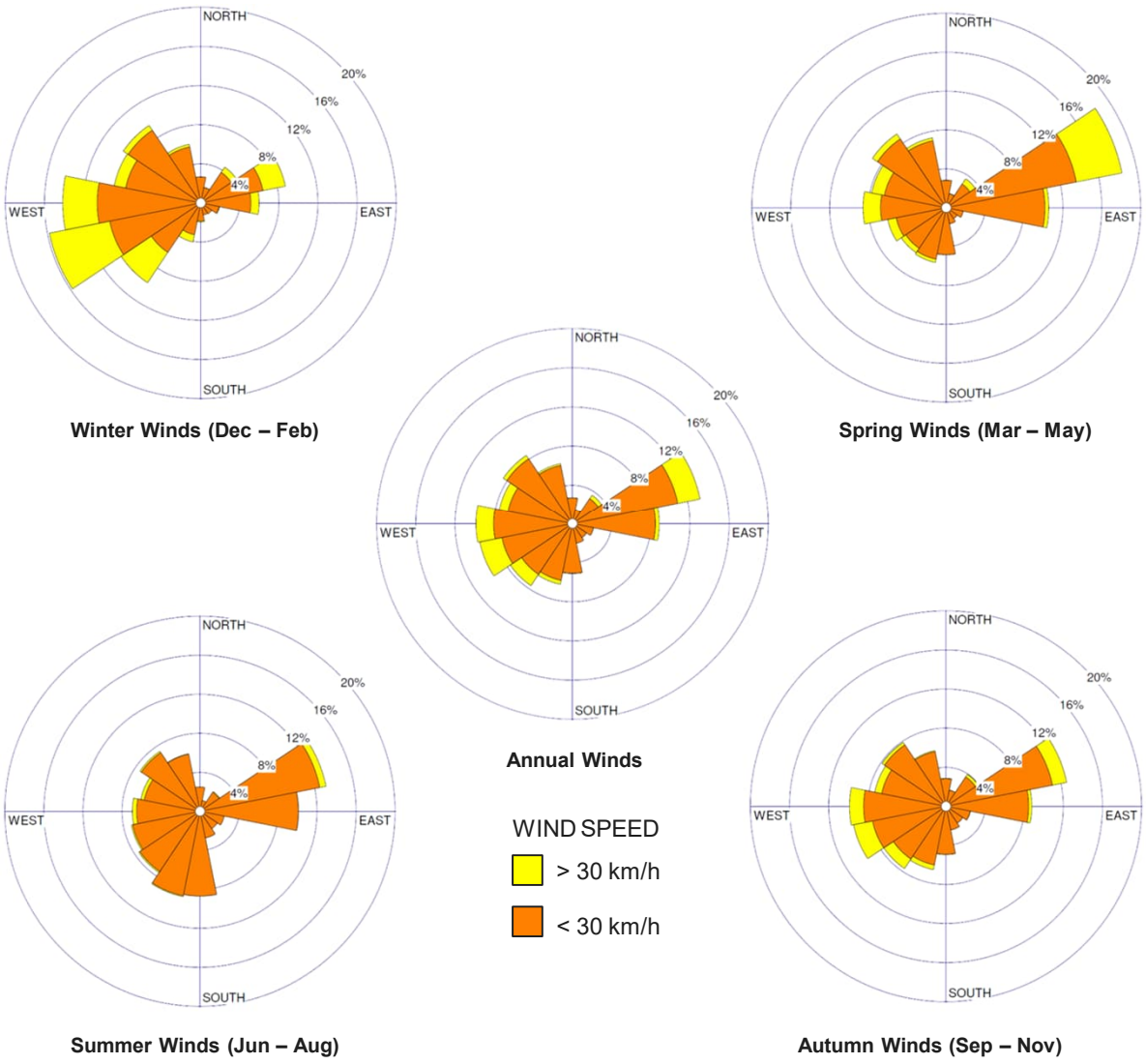


Figure 5: Wind roses for Billy Bishop Toronto City Airport (1991 to 2020)

3.0 Pedestrian Wind Criteria

Wind comfort conditions are discussed in terms of being acceptable for certain pedestrian activities and are based on predicted wind force and the expected frequency of occurrence. Wind chill, clothing, humidity and exposure to direct sun, for example, all affect a person's thermal comfort; however, these influences are not considered in the wind comfort criteria.

The comfort criteria, which are based on certain predicted hourly GEM wind speeds being exceeded 20% of the time, are summarized in Table 1. By allowing for a 20% exceedance, it assumes wind speeds will be comfortable for the corresponding activity at least four out of five days. The comfort criteria consider only daytime hours, between 6:00am and 11:00pm. GEM is defined as the maximum of either mean wind speed or gust wind speed divided by 1.85.

The criterion for wind safety in the table is based on hourly gust wind speeds that are exceeded nine hours per year (approximately 0.1% of the time). When the criterion is exceeded, wind mitigation measures are advised. The wind safety criterion is shown in Table 2.

These criteria are based on the *Pedestrian Level Wind Study Terms of Reference Guide* of the City of Toronto, which came into effect in June of 2022.

Table 1: Wind Comfort Criteria

Comfort Category	GEM Wind Speed Exceeded 20% of the time	Description of Wind Comfort
Sitting	≤ 10 km/h	Calm or light breezes desired for outdoor restaurants and seating areas where one can read a paper without having it blown away.
Standing	≤ 15 km/h	Gentle breezes suitable for main building entrances and bus stops.
Walking	≤ 20 km/h	Moderate breezes that can be tolerated if one's objective is to walk, run or cycle without lingering.
Uncomfortable	> 20 km/h	Strong winds of this magnitude are considered a nuisance for most activities, and wind mitigation is typically recommended.

Table 2: Wind Safety Criterion

Safety Criterion	Gust Wind Speed Exceeded Once Per Year (0.1%)	Description of Wind Effects
Exceeded	> 90 km/h	Excessive gust speeds that can adversely affect a pedestrian's balance and footing. Wind mitigation is typically required.

4.0 Results

Figures 6a through 8b present graphical images of the summer and winter wind comfort conditions around the proposed development for the Existing Configuration, the Phase 1 Configuration, and the Full Build Configuration. These typically represent the seasonal extremes of best and worst case. Appendix A presents the wind comfort conditions for the spring and autumn seasons. The “comfort zones” shown are based on an integration of wind speed and frequency for all 36 wind directions tested with the seasonal wind climate model. The presence of mature trees can lead to wind comfort levels that are marginally more comfortable than shown, during seasons when foliage is present. Appendix B presents wind comfort and safety conditions in tabular form.

There are generally accepted wind comfort levels that are desired for various pedestrian uses. However, in some climates, these may be difficult to achieve in the winter due to the overall climate. For sidewalks, walkways and pathways, wind conditions suitable for walking are desirable year-round but may not be feasible in the winter. For main entrances, transit stops, and public amenity spaces such as parks and playgrounds, wind conditions conducive to standing are preferred throughout the year. For on-site amenity areas, wind conditions suitable for sitting or standing are desirable during the summer, with stronger wind flows, conducive to walking, tolerated in the winter. The most stringent category of sitting is desirable during the summer for dedicated seating areas, such as patios, where calmer wind is expected for the comfort of patrons.

4.1 Existing Configuration

In the Existing Configuration, wind conditions on and around the site are generally comfortable for walking or better in all areas assessed throughout the year (Figures 6a and 6b). The exception is to the northwest along Danforth Avenue (Locations 76 and 77), where uncomfortable wind conditions occur in the winter months (Figure 6b).

Wind conditions at the nearby transit stops (Locations 45, 68, 72, 73, and 89) are comfortable for standing or sitting in the summer (Figure 6a). In the winter, the transit stops at the intersection of Danforth Avenue and Broadview Avenue (Locations 68, 72, 73 and 89) are comfortable for walking, while the wind conditions at the transit stop to the south of the site (Location 45) are comfortable for standing (Figure 6b).

These wind conditions are considered appropriate for the intended pedestrian use.

4.2 Phase 1 Configuration

The following describes the wind conditions with the proposed Phase 1 building in place. The subsections are divided to cover each area of interest identified in Section 1.3.

4.2.1 Building Entrances, POPS, & Walkways (Locations 1-23, 35-44, & 93)

Wind conditions along the walkways immediately around the proposed development are generally comfortable for walking or better at all areas assessed throughout the year (Figures 7a and 7b). Uncomfortable wind conditions occur in the winter along the sidewalk of Broadview Avenue (Locations 15 and 42); in the parking lot of the existing commercial building (Locations 3, 4, 7, 20, 37, and 38); and along the west and south sides of the Phase 1 Building (Locations 5, 7, 40, and 41 in Figure 7b).

Figure 6a: Existing Configuration – Pedestrian Wind Conditions – Summer

Figure 6b: Existing Configuration – Pedestrian Wind Conditions – Winter

The main entrance to the Phase 1 building is situated at the northeast corner of the building near Location 1. Wind conditions suitable for standing occur at this entrance throughout the year (Figures 7a and 7b), which is considered appropriate for the intended use.

At the secondary entrances and exits (Locations 2 and 39), wind conditions are comfortable for standing in the summer and walking in the winter (Figures 7a and 7b). As these doors will be used infrequently, this is considered appropriate for the intended use.

In the POPS (Locations 21 and 22), wind conditions are suitable for walking in the summer (Figure 7a) and are considered uncomfortable in the winter (Figure 7b). We recommend the design team install localized wind control features within the POPS to provide local wind shelter (i.e., wind screens, canopies, street art, planters, etc.).

4.2.2 Amenity Terraces (Locations 24-26, & 94-97)

Wind conditions were assessed on the Levels 2 and 8 amenity terraces of Phase 1. On the Level 2 amenity terrace (Location 24), wind conditions are suitable for standing in the summer (Figure 7a), which is considered appropriate. During the winter months, wind conditions are uncomfortable (Figure 7b). Although this is not ideal, we anticipate the area to be used infrequently during the winter months.

On the Level 8 amenity terrace (Locations 25, 26, 94, 95, 96, and 97), wind conditions are generally comfortable for standing in the summer (Figure 7a). The exceptions are along the west side of the terrace, where wind conditions are comfortable for walking or are uncomfortable in the summer. During the winter, wind conditions are comfortable for walking or are uncomfortable on the terrace (Figure 7b). These strong wind flows are driven by the strong prevailing winds being directed down the tower facade and accelerating across the terrace.

To improve wind conditions on the terrace, we recommend the design team consider local wind control features (i.e., wind screens, planters, etc.). Alternatively, we recommend considering the programming of the space and the removal of pedestrians from this area.

4.2.3 Surrounding Sidewalks (Locations 45-92)

Wind conditions along all sidewalks and walkways generally remain comfortable for walking or better throughout the year (Figures 7a and 7b), which is appropriate for the intended pedestrian use. For instance, wind conditions to the northwest of the site (Locations 76 and 77) improve to be suitable for walking in the winter season. However, uncomfortable winter wind conditions occur along Broadview Avenue in the winter (Location 54 in Figure 7b). At the nearby transit stops, wind conditions are suitable for sitting or standing in the summer, while in the winter, wind conditions are conducive to walking (Locations 45, 68, 72, 73, and 89).

Figure 7a: Phase 1 Configuration – Pedestrian Wind Conditions – Grade Level – Summer

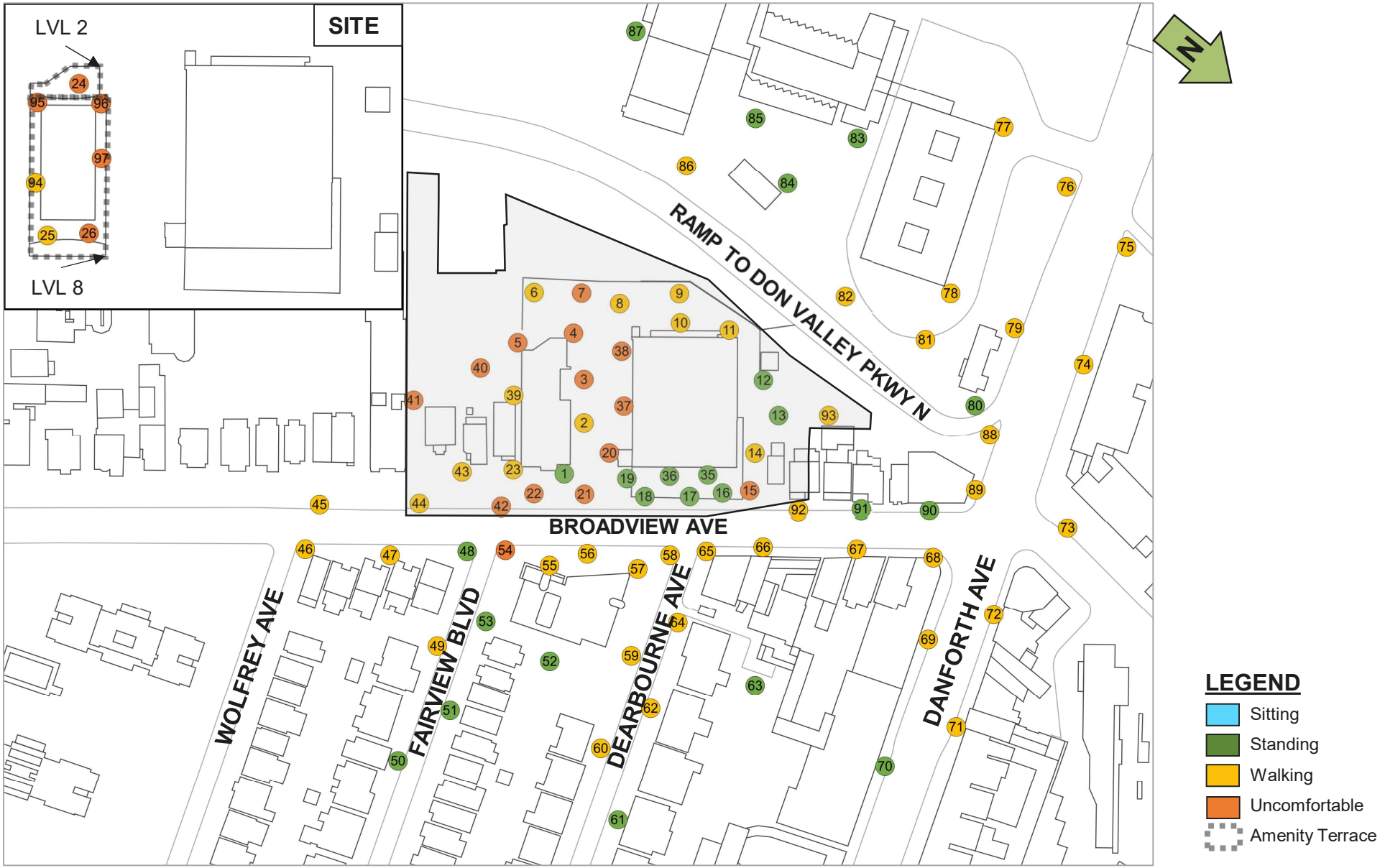


Figure 7b: Phase 1 Configuration – Pedestrian Wind Conditions – Grade Level – Winter

4.3 Full Build Configuration

The following describes the wind conditions with the entire proposed development in place. The subsections are divided to cover each area of interest identified in Section 1.3.

4.3.1 Building Entrances, POPS, & Walkways (Locations 1-23, 39-44, & 93)

With the addition of the Phase 2 building, wind conditions immediately around the proposed development are generally comfortable for standing or sitting during the summer, with higher wind speeds comfortable for walking occurring to the north of the Phase 2 building (Figure 8a). During the winter, wind conditions are generally suitable for walking or better (Figure 8b). Uncomfortable wind conditions occur in the winter to the west and north of Phase 2 (Locations 10, 11, 12, 13, and 14), along Broadview Avenue (Locations 15, 16, 21, and 22), on the driveway between Phase 1 and Phase 2 (Locations 2 and 3), and on the south side of the site (Locations 5, 40, and 41).

Wind conditions near the main entrance to Phase 1 (Location 1) are comfortable for sitting in the summer and standing in the winter (Figures 8a and 8b). At the secondary entrances and exits (Locations 2 and 39), wind conditions are suitable for standing in the summer, while in the winter wind conditions are conducive to walking along the south facade and uncomfortable on the driveway (Figures 8a and 8b).

Wind conditions at the main entrance to the Phase 2 building (Location 16) are comfortable for standing in the summer (Figure 8a) and are uncomfortable in the winter (Figure 8b). At the retail entrance (Location 19), wind conditions are suitable for sitting year-round. At the secondary entrances and exits (Locations 2, 10, 17 and 20), wind conditions are comfortable for sitting or standing in the summer (Figure 8a), while in the winter, wind conditions are conducive to standing, walking or are uncomfortable (Figure 8b).

If calmer wind conditions are desired for these secondary access doors, we recommend recessing the doors from the main facade to provide local wind protection.

In the POPS (Locations 21 and 22), wind conditions improve to be suitable for standing in the summer (Figure 8a). During the winter, wind conditions remain uncomfortable (Figure 8b). Recommendations are provided in Section 4.2.1.

4.3.2 Amenity Terraces (Locations 24-26, & 94-97)

In the Level 2 amenity terrace and the Level 8 amenity terrace of the Phase 1 building, wind conditions remain similar to those discussed in the Phase 1 Configuration.

In the Level 2 amenity terrace of the Phase 2 building (Locations 27 through 34), wind conditions are suitable for walking in the summer (Figure 8a) and are uncomfortable in the winter (Figure 8b).

Recommendations provided in Section 4.2.2. remain applicable.

4.3.3 Surrounding Sidewalks (Locations 45-92)

Wind conditions along all nearby sidewalks and walkways generally remain comfortable for walking or better throughout the year (Figures 8a and 8b), which is appropriate for the intended pedestrian use. Uncomfortable winter wind conditions occur along Broadview Avenue (Locations 54, 55, 58, and 65) and at the transit stop along Danforth Avenue (Location 72). At the remaining nearby transit stops, wind conditions are suitable for walking or better year-round (Locations 45, 68, 73, and 89 in Figures 8a and 8b).

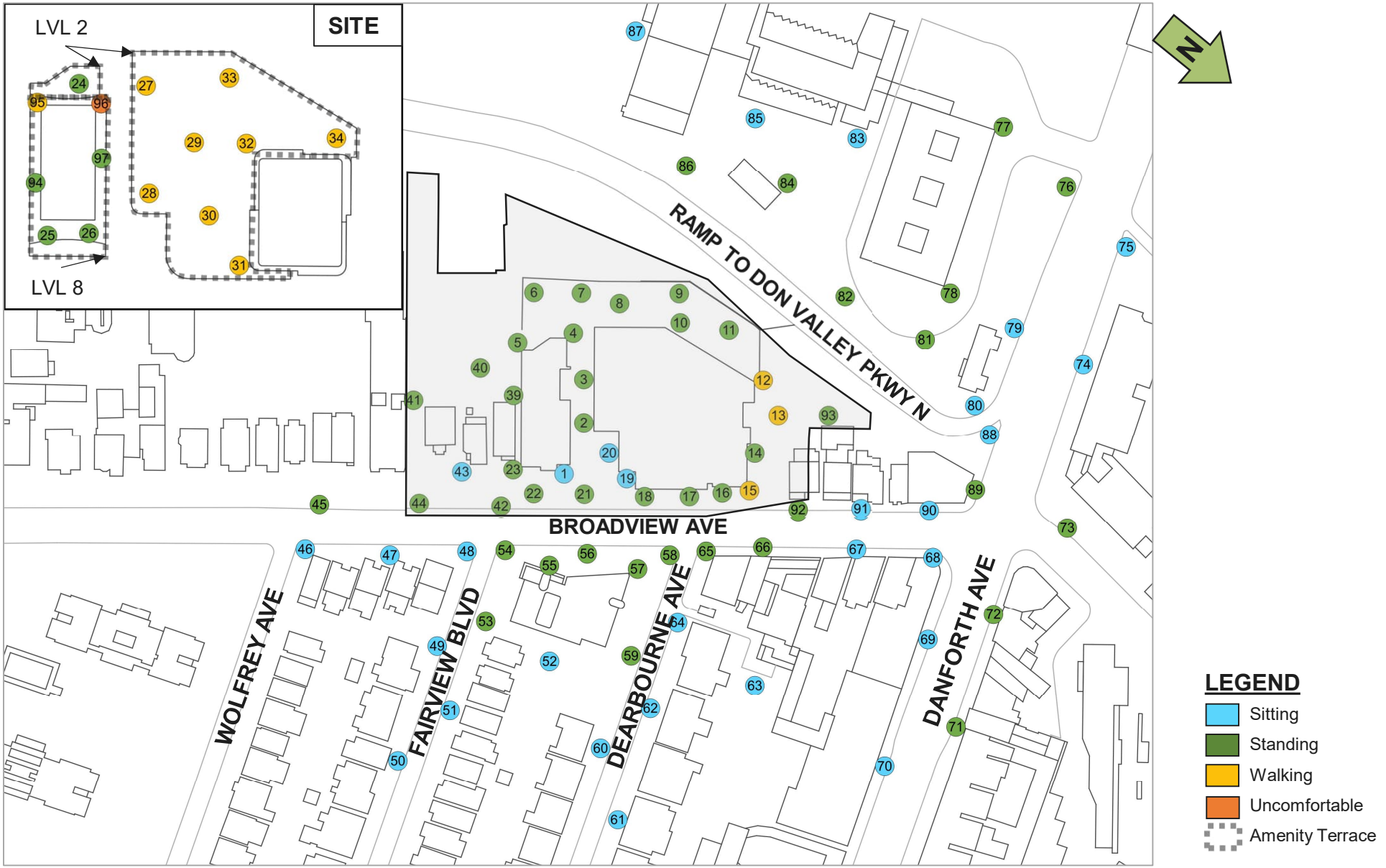


Figure 8a: Full Build Configuration – Pedestrian Wind Conditions – Grade Level – Summer

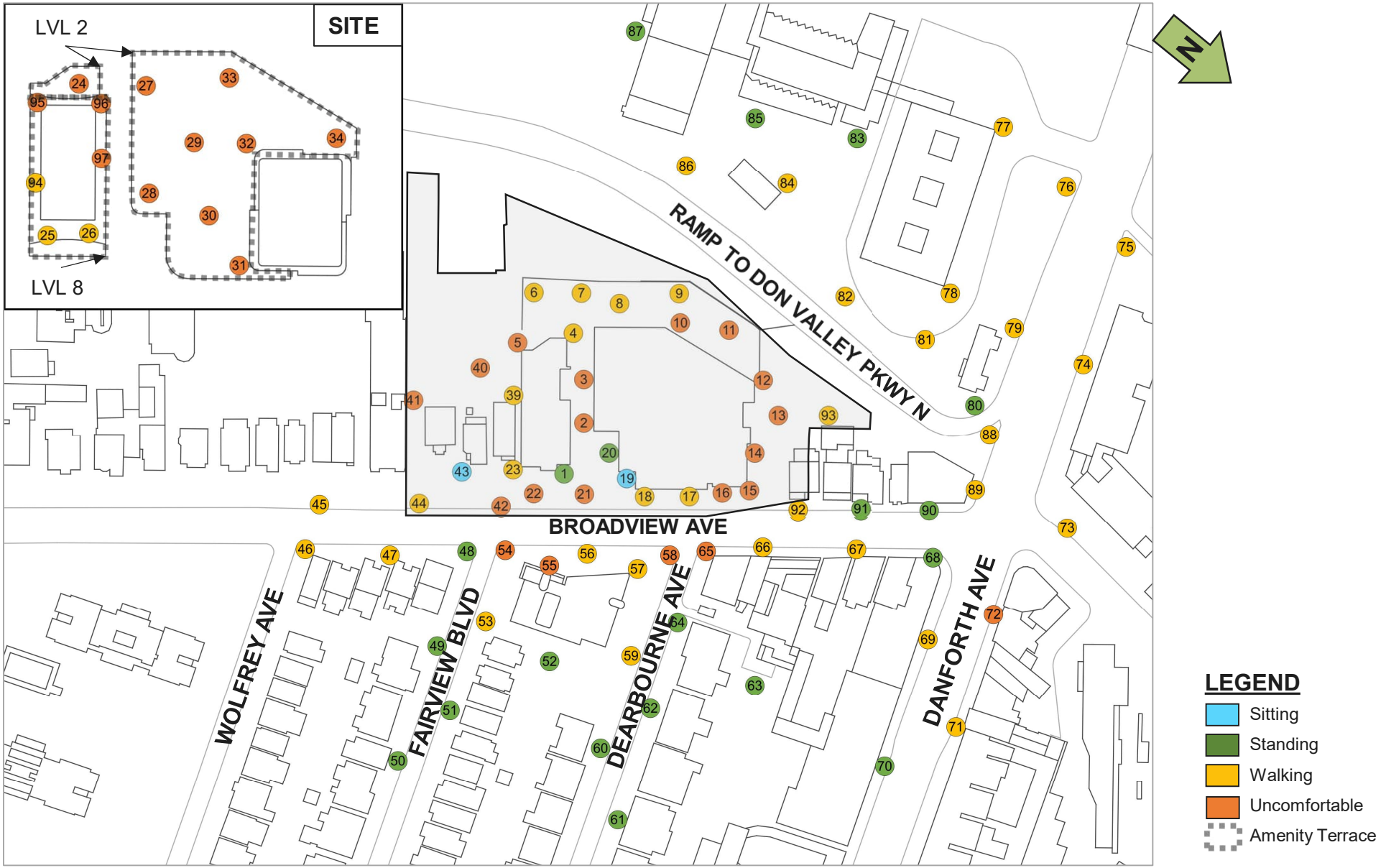


Figure 8b: Full Build Configuration – Pedestrian Wind Conditions – Grade Level – Winter

4.4 Annual Wind Safety

Discussions between SLR and the design team began early in the design development phase, with the intent of minimizing the potential for uncomfortable and/or safety issues on and adjacent to the site. These ongoing discussions considered the feasibility, efficacy, and practicality of potential mitigation measures.

Per the current design, the incorporated mitigation features include the podiums, canopies, trellises, rounded corners, and the outdoor amenity space at Level 8 on the Phase 1 building. SLR will continue to collaborate with the design team prior to the next submission to determine practical and effective wind mitigation measures.

4.4.1 Existing Configuration

In the Existing Configuration, the wind safety criterion is met in all areas on-site and surrounding the site on an annual basis (Figure 9a).

4.4.2 Phase 1 Configuration

In the Phase 1 Configuration (Figure 9b), the wind safety criterion was generally met at all grade and above-grade areas. The exceptions are localized areas at grade along the east, south, and west sides of the Phase 1 building (Locations 5, 21, 22, 40, 42, and 54). Additionally, the safety criterion is exceeded around the northwest corner of the existing building to the north (Location 11). The safety criterion is also exceeded on the Level 2 and Level 8 amenity terraces of the Phase 1 building on an annual basis (Locations 24, 26, 95, and 96).

The safety exceedances within the POPS and extending southeast of the Phase 1 Building (Locations 21, 22, 42 and 54) are due to the tower intercepting the northwesterly and southeasterly winds and directing them downwards to grade, where the flows accelerate around the building corners. To mitigate these strong wind flows, we recommend the design team consider including mitigation features such as wind screens, canopies, and/or public art within the POPS.

The safety exceedances at the southwest corner of the building (Locations 5, 24 and 40) are due to the northwesterly and southeasterly winds downwashing around the building and accelerating across the Level 2 terrace and into the yards to the south. To mitigate these strong wind flows, we recommend that the design team consider including a wind screen along the south edge of the terrace.

The safety exceedances on the Level 8 terrace (Locations 26, 95 and 96) are due to northwesterly and southeasterly winds being directed downwards by the building and then accelerating across the terrace. To improve wind conditions in the terrace, the design team should consider semi-porous wind screens around the perimeter.

4.4.3 Full Build Configuration

In the Full Build Configuration (Figure 9c), the safety criterion is generally met in all areas assessed. The exceptions include along the north side of the Phase 2 building (Locations 12, 13, 15, and 16), in the POPS (Location 21), and along Broadview Avenue (Locations 54, 55, and 65). The safety criterion is also exceeded around the southwest corner of the Phase 1 building (Location 5). Additionally, the safety criterion is exceeded on Levels 2 and 8 of the Phase 1 building (Locations 24, 95, and 96) and on Level 2 amenity terrace of the Phase 2 building (Locations 27, 28, 30, 31, and 32).

In addition to the areas of concern previously discussed, the safety exceedances around the northeast corner of the Phase 2 building (Locations 12, 13, 15, 16 and 65) are due to the downwashing of easterly winds off the Phase 2 tower and accelerating around the corner. To mitigate these wind flows, we recommend incorporating a significant wrap-around canopy, potentially with wind screens atop, around the northeast corner of the building. These features would disrupt and deflect the wind flows.

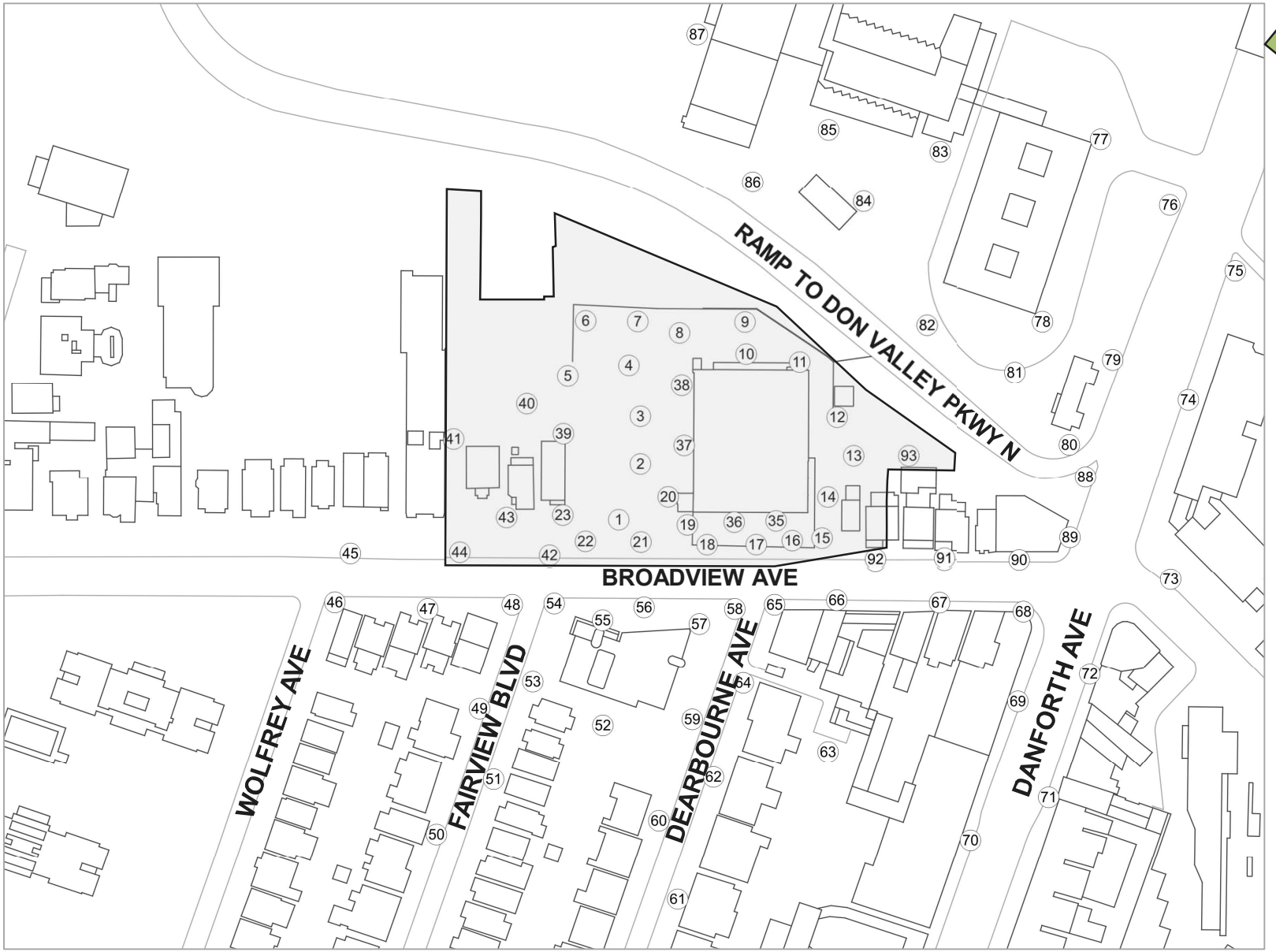


Figure 9a: Existing Configuration – Pedestrian Wind Safety Conditions – Annual

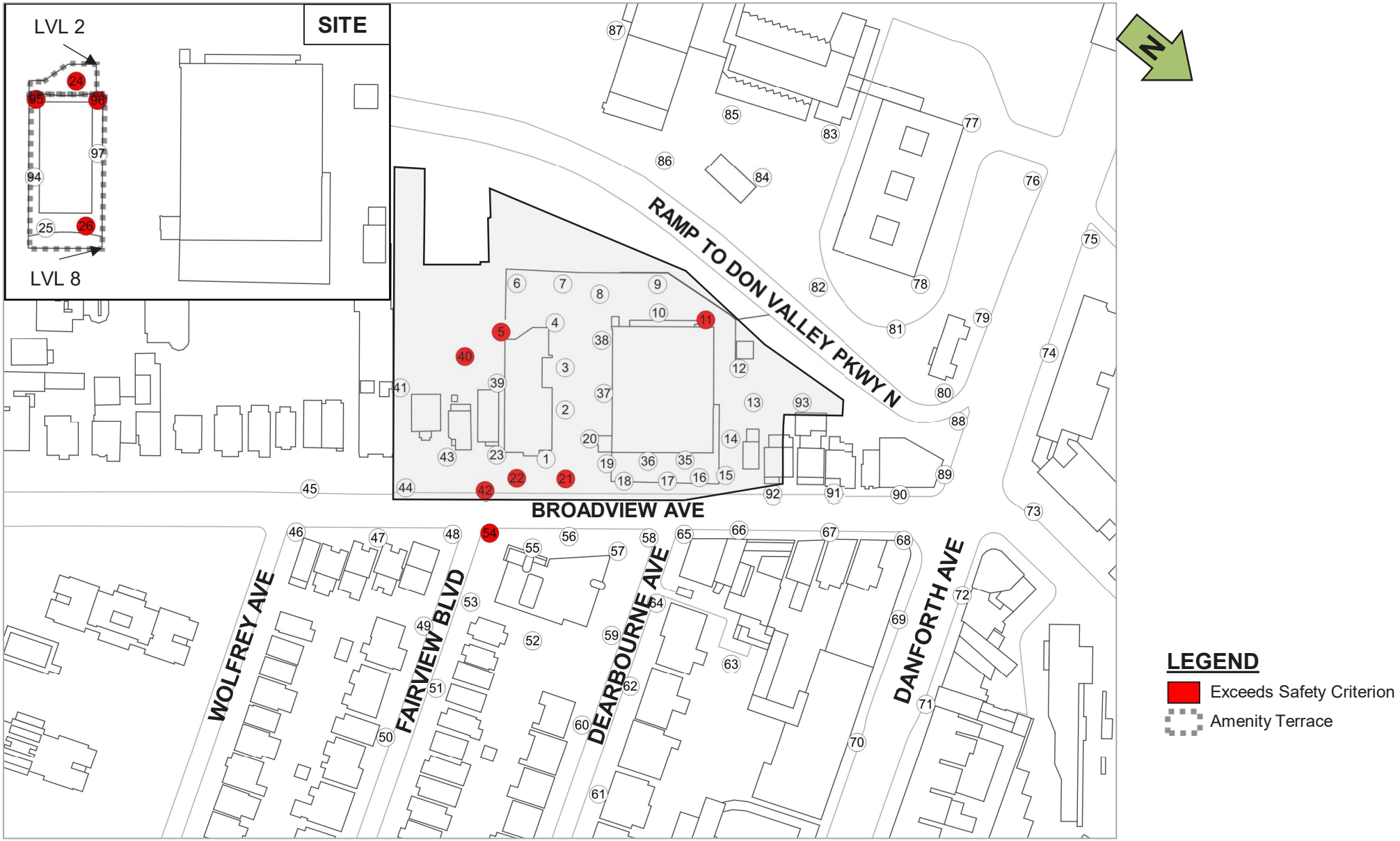


Figure 9b: Phase 1 Configuration – Pedestrian Wind Safety Conditions – Annual

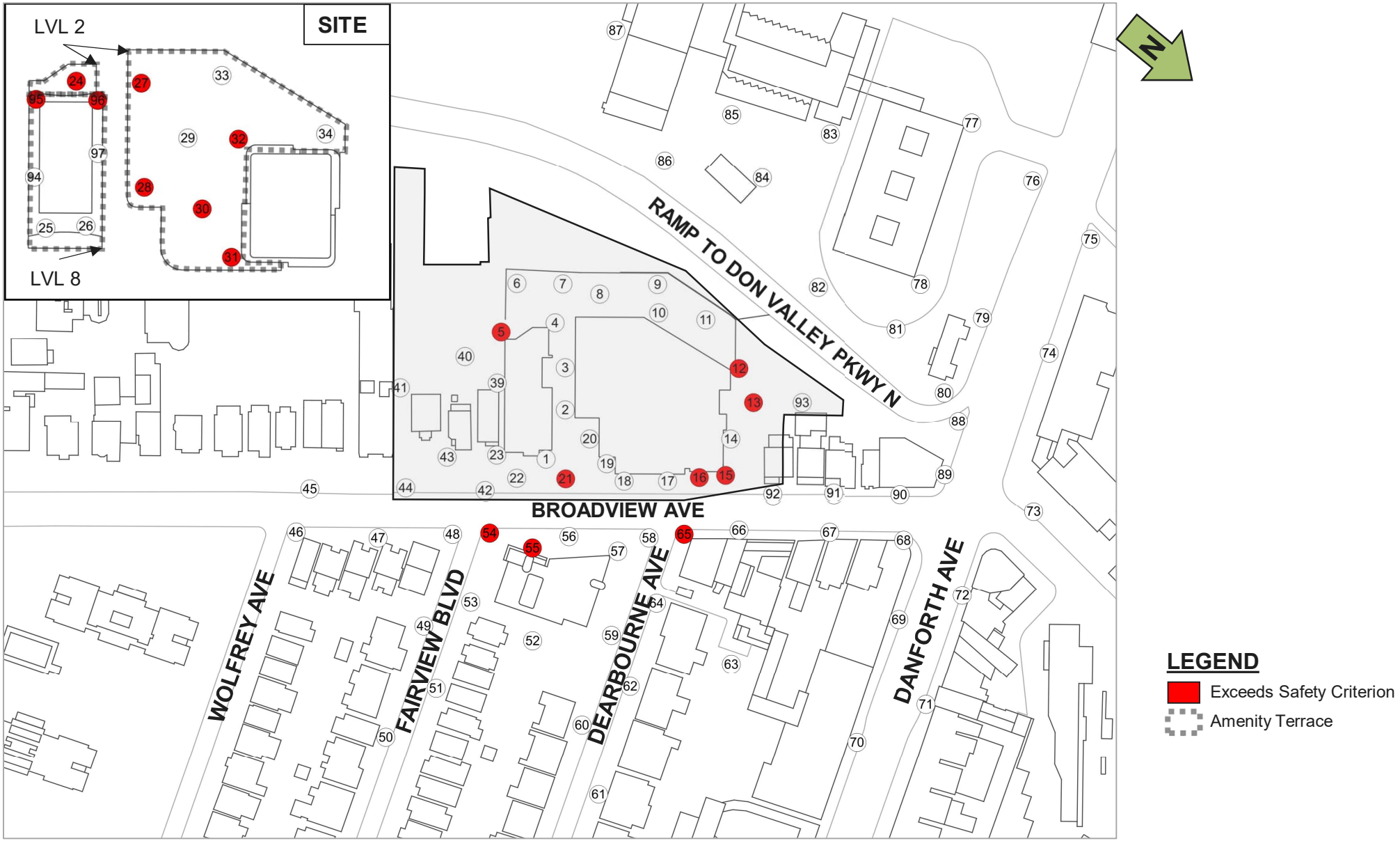


Figure 9c: Full Build Configuration – Pedestrian Wind Safety Conditions – Annual

5.0 Conclusion & Recommendations

The pedestrian wind conditions predicted for the proposed Broadview & Danforth development in Toronto have been assessed through quantitative wind tunnel modelling techniques. Based on the results of our study, the following conclusions have been reached:

- Wind safety criterion is met at all areas assessed in the Existing Configuration. With the addition of the Phase 1 building, the safety criterion is exceeded at 11 locations on and around the site. In the Full Build Configuration, the safety criterion is exceeded at 17 locations on and around the proposed development. SLR has provided recommendations as to how these wind flows can be mitigated as the design evolves.
- Wind comfort conditions in the Existing Configuration are generally comfortable for the intended pedestrian use.
- In the Phase 1 Configuration, wind conditions immediately around the development and on the site are generally suitable for the intended pedestrian use in all areas. Recommendations are provided for key areas.
- In the Full Build Configuration, wind conditions on and around the site are generally suitable for the intended use. Recommendations are provided for key areas.
- SLR will continue to collaborate with the design team to achieve appropriate wind comfort and safety conditions as the design progresses.

6.0 Statement of Limitations

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Appendix A

Pedestrian Wind Comfort & Safety
Spring (March – May) & Autumn (September – November)

Figure A1a: Existing Configuration – Pedestrian Wind Comfort Conditions – Spring

Figure A1b: Existing Configuration – Pedestrian Wind Comfort Conditions – Autumn

Figure A2a: Phase 1 Configuration – Pedestrian Wind Comfort Conditions – Spring

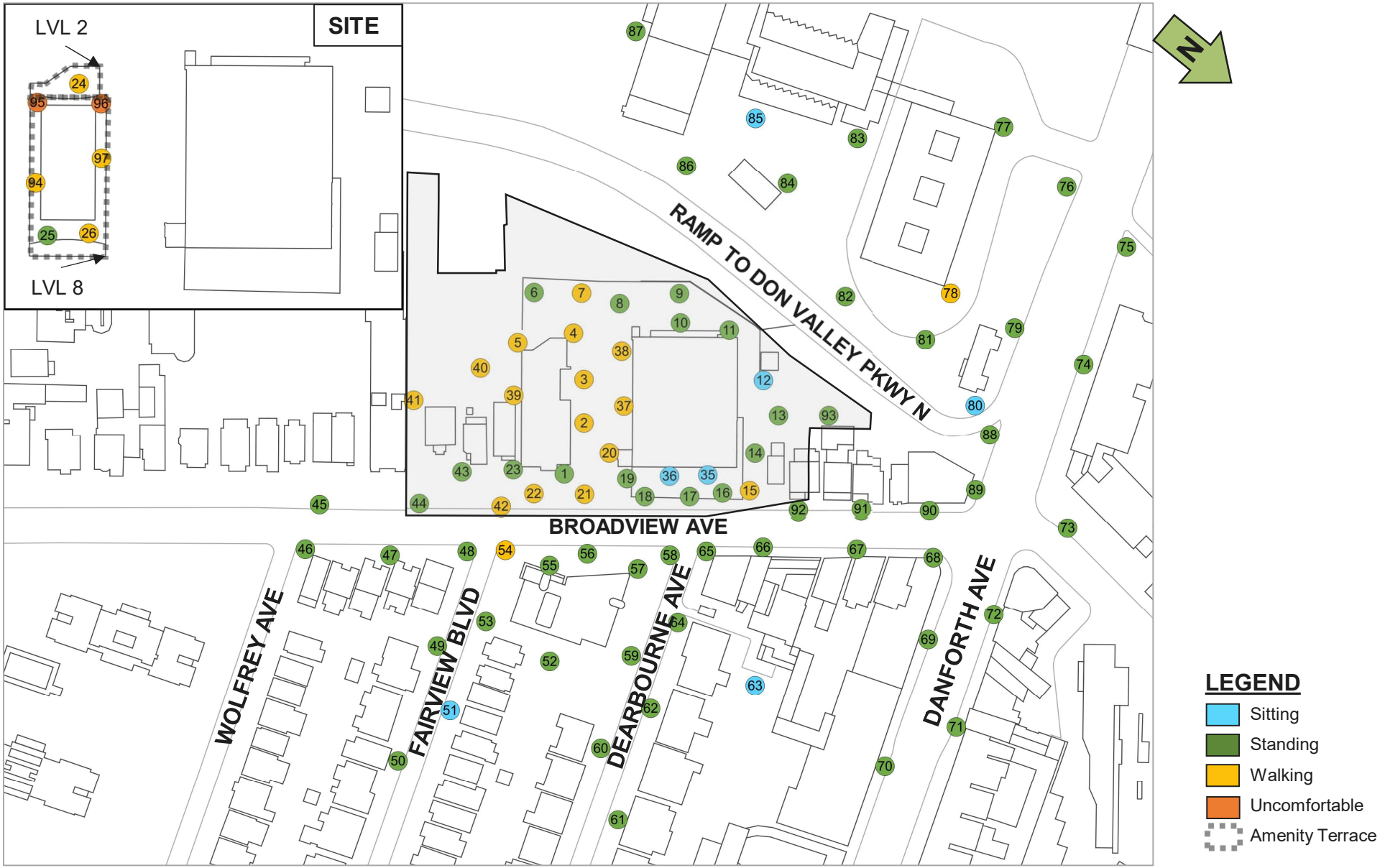

Figure A2b: Phase 1 Configuration – Pedestrian Wind Comfort Conditions – Autumn

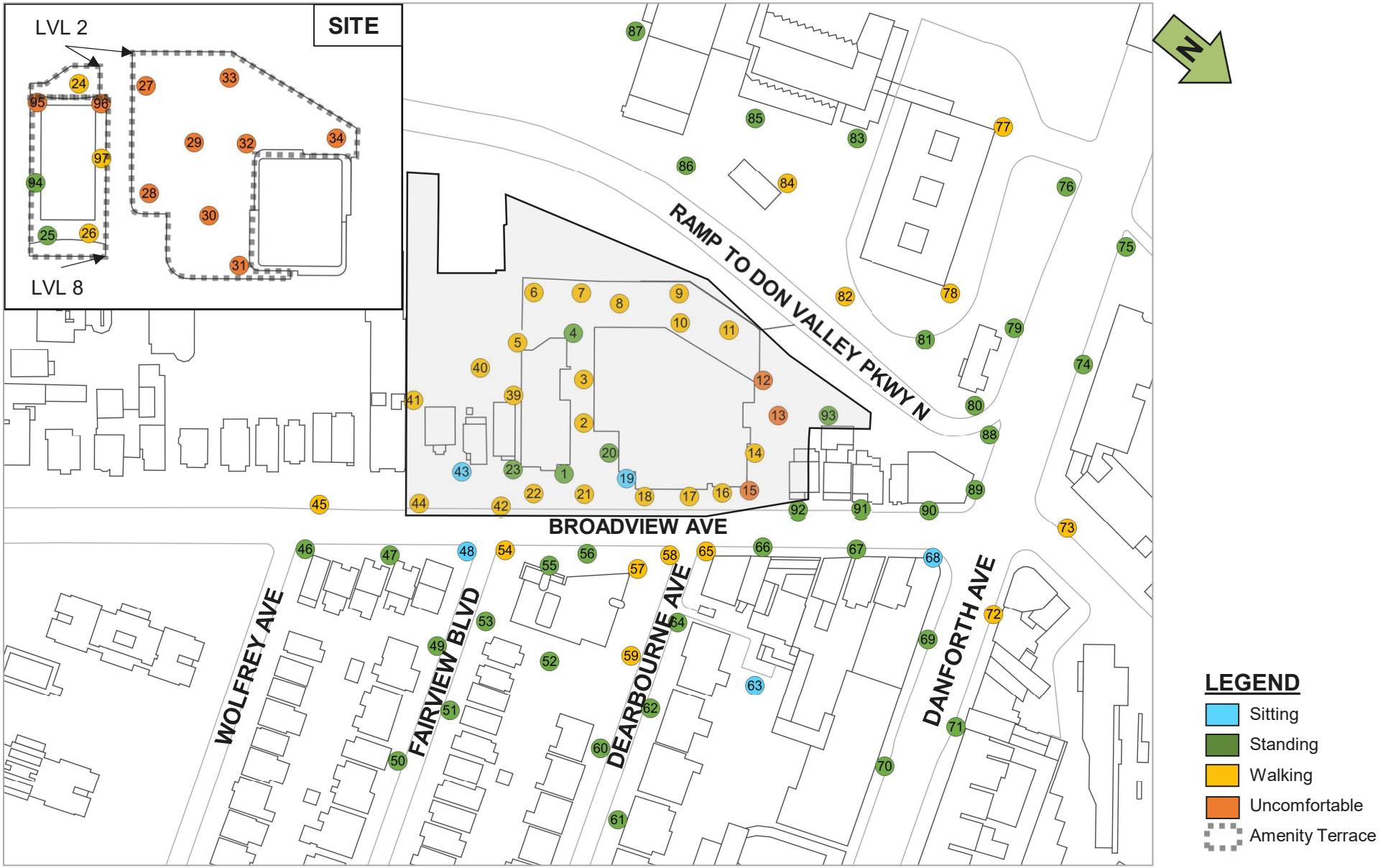

Figure A3a: Full Build Configuration – Pedestrian Wind Comfort Conditions – Spring

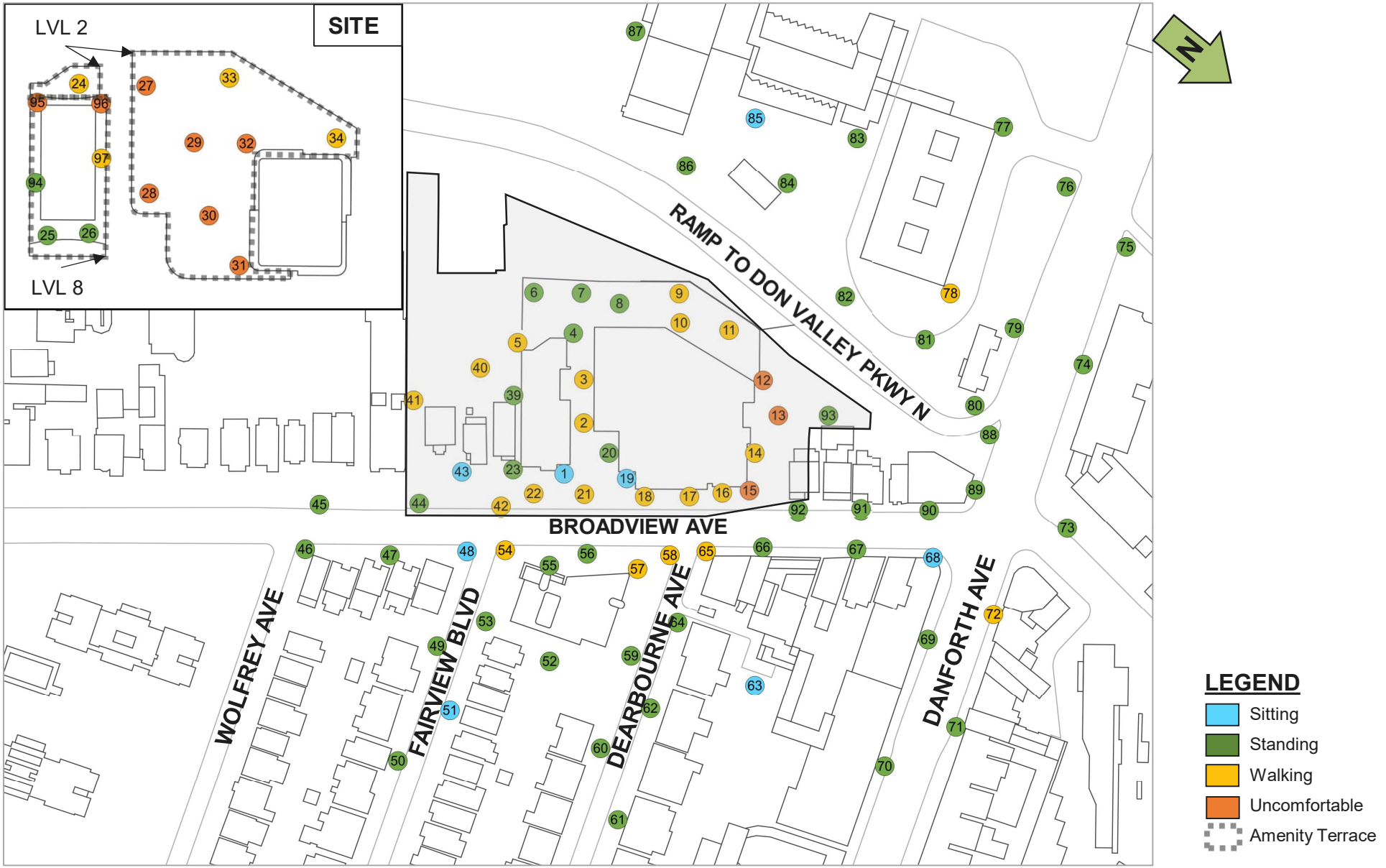

Figure A3b: Full Build Configuration – Pedestrian Wind Comfort Conditions – Autumn

Appendix B

Pedestrian Wind Comfort & Safety Tables

Interpretation of Results

Example Table 1 illustrates the wind comfort and safety criteria. The table provides the GEM (Gust Equivalent Mean) wind speed (in km/h) exceeded 20% of the time for comfort for each of the four seasons for each configuration. It also categorizes the wind speeds as either sitting, standing, walking or uncomfortable (see wind speed ranges in Example Table 2).
In addition, the table provides the gust wind speed exceeded 0.1% of the time annually.

For instance, at Location 1 there is not data in the Existing Configuration, while in the Proposed Configuration, wind conditions are suitable for walking in the winter, spring and autumn seasons, while in the summer wind conditions are suitable for standing.

At Location 3, wind conditions are suitable for walking in the winter, spring and autumn seasons in the Existing Configuration, while in the summer wind conditions are conducive to sitting. In the Proposed Configuration, wind conditions are suitable for walking in the spring and autumn, standing in the summer, and uncomfortable in the winter. In addition, the safety criteria is exceeded on an annual basis at Location 3 in the Proposed Configuration.

Example Table 1: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort				Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)				Gust Speed Exceeded 0.1% of the Time (km/h)
		Winter	Spring	Summer	Autumn	
1	Existing					
1	Proposed	19.3	18.3	15.0	16.1	71.7
2	Existing	12.5	11.3	6.8	11.7	71.4
2	Proposed	16.6	18.1	14.7	15.8	80.0
3	Existing	17.6	14.2	9.8	15.8	79.5
3	Proposed	20.9	15.7	10.3	18.6	95.6

Example Table 2: Categories

Criteria	Speed
Sitting	≤ 10 km/h
Standing	≤ 15 km/h
Walking	≤ 20 km/h
Uncomfortable	> 20 km/h
Safety	> 90 km/h

Table B1-1: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
1	Existing	10.8	13.2	11.1	8.1	10.4	53.6
1	Phase 1	12.5	13.2	14.5	10.2	11.8	51.1
1	Full Build	10.4	10.8	12.0	8.5	9.8	46.2
2	Existing	11.7	15.6	11.4	8.9	11.4	67.5
2	Phase 1	16.0	19.8	16.4	12.3	15.5	80.5
2	Full Build	18.7	23.0	19.3	14.1	18.0	84.0
3	Existing	11.2	14.0	11.5	8.4	10.8	57.5
3	Phase 1	17.6	21.3	17.9	14.1	17.3	86.4
3	Full Build	17.8	21.3	18.4	14.4	17.4	81.7
4	Existing	12.2	16.1	12.0	9.1	12.0	68.1
4	Phase 1	19.8	23.3	20.6	14.9	18.8	86.2
4	Full Build	14.5	17.2	15.0	11.2	14.0	62.5
5	Existing	11.9	15.0	12.1	9.0	11.6	62.9
5	Phase 1	20.8	25.5	21.6	15.2	19.6	97.2
5	Full Build	18.4	23.4	18.7	13.6	17.6	90.6
6	Existing	13.6	17.6	13.4	10.2	13.3	72.2
6	Phase 1	15.8	18.1	17.0	12.2	14.7	76.7
6	Full Build	15.0	17.2	16.0	11.6	14.1	72.9
7	Existing	13.2	17.3	13.1	9.9	12.9	73.2
7	Phase 1	18.0	20.4	19.6	13.6	17.0	80.2
7	Full Build	14.7	16.9	15.5	11.2	13.9	71.0

Table B1-2: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
8	Existing	11.9	15.1	12.0	8.8	11.4	62.6
8	Phase 1	15.5	17.6	16.8	12.2	14.7	68.5
8	Full Build	14.7	17.2	15.2	11.2	14.0	72.1
9	Existing	12.5	15.8	12.5	9.4	12.1	65.9
9	Phase 1	12.9	16.3	12.9	10.0	12.5	65.9
9	Full Build	16.1	19.1	16.8	12.1	15.3	80.0
10	Existing	11.1	15.5	10.6	8.6	11.0	71.7
10	Phase 1	11.6	15.7	10.9	9.1	11.6	73.2
10	Full Build	17.2	21.7	16.9	13.3	16.9	87.5
11	Existing	13.1	17.1	12.7	10.4	12.9	83.3
11	Phase 1	14.1	19.0	13.6	11.0	14.0	93.0
11	Full Build	16.7	20.1	17.1	12.4	15.9	76.3
12	Existing	8.9	10.9	9.0	6.3	8.5	44.4
12	Phase 1	9.1	11.0	9.4	6.8	8.7	45.0
12	Full Build	21.1	25.6	21.8	16.8	20.6	104.4
13	Existing	9.8	12.2	10.0	7.4	9.4	49.3
13	Phase 1	11.0	13.4	11.5	8.6	10.7	53.1
13	Full Build	21.0	25.2	22.1	16.5	20.4	110.2
14	Existing	11.9	14.6	12.0	9.2	11.4	58.1
14	Phase 1	13.5	16.3	14.0	10.5	13.0	64.8
14	Full Build	18.0	21.1	19.6	13.3	17.2	81.6

Table B1-3: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort GEM Speed Exceeded 20% of the Time (km/h)					Wind Safety Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
15	Existing	16.9	19.9	17.8	12.7	16.1	57.4
15	Phase 1	17.2	20.2	18.1	13.3	16.4	62.2
15	Full Build	23.5	29.1	24.4	17.1	22.2	103.5
16	Existing	10.1	12.1	10.5	7.5	9.7	46.1
16	Phase 1	11.4	13.7	11.7	9.1	11.0	57.9
16	Full Build	16.7	20.6	16.7	12.4	15.7	93.2
17	Existing	8.9	11.1	9.1	6.5	8.7	49.4
17	Phase 1	10.9	13.1	11.3	9.0	10.7	58.0
17	Full Build	16.8	19.5	17.7	13.4	15.8	89.3
18	Existing	10.3	12.8	10.5	7.6	10.0	55.5
18	Phase 1	13.5	14.7	14.6	11.4	12.9	54.8
18	Full Build	17.2	19.8	18.2	13.7	16.6	88.4
19	Existing	9.3	9.8	11.0	7.3	8.9	48.9
19	Phase 1	11.0	12.0	11.9	9.3	10.7	49.1
19	Full Build	8.5	9.6	9.0	7.1	8.2	44.4
20	Existing	8.5	10.6	8.6	6.8	8.3	47.9
20	Phase 1	18.4	20.9	20.0	14.6	17.5	73.2
20	Full Build	11.8	14.0	12.6	9.1	11.2	42.9
21	Existing	10.8	13.0	11.1	8.3	10.4	50.7
21	Phase 1	20.0	23.4	21.4	15.3	18.8	92.5
21	Full Build	18.2	21.3	19.4	14.3	17.3	92.9

Table B1-4: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
22	Existing	11.4	13.8	11.9	8.6	10.8	55.5
22	Phase 1	20.0	23.4	21.2	15.8	18.8	108.5
22	Full Build	17.5	20.2	18.5	14.2	16.7	86.0
23	Existing	12.4	14.6	13.3	9.2	11.7	58.8
23	Phase 1	14.6	16.8	15.3	11.6	13.9	65.9
23	Full Build	14.1	16.1	15.0	11.4	13.5	59.7
24	Existing						
24	Phase 1	20.1	23.6	21.2	14.7	18.8	93.2
24	Full Build	18.4	22.2	18.9	13.5	17.3	91.2
25	Existing						
25	Phase 1	14.9	17.2	15.4	11.6	14.3	66.6
25	Full Build	13.9	15.8	14.5	11.0	13.3	59.3
26	Existing						
26	Phase 1	20.2	23.3	22.2	14.7	18.6	99.1
26	Full Build	14.8	17.0	16.1	11.2	14.0	64.3
27	Existing						
27	Phase 1						
27	Full Build	20.6	24.8	21.2	16.4	20.1	94.1
28	Existing						
28	Phase 1						
28	Full Build	20.6	26.5	20.5	15.0	20.0	98.4

Table B1-5: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
29	Existing						
29	Phase 1						
29	Full Build	21.4	24.7	23.0	16.6	20.4	86.9
30	Existing						
30	Phase 1						
30	Full Build	25.1	31.0	25.5	18.7	24.3	118.3
31	Existing						
31	Phase 1						
31	Full Build	24.0	29.5	24.3	18.4	23.6	106.5
32	Existing						
32	Phase 1						
32	Full Build	24.0	28.1	25.9	17.9	22.7	106.1
33	Existing						
33	Phase 1						
33	Full Build	20.2	22.2	22.4	15.6	18.9	81.6
34	Existing						
34	Phase 1						
34	Full Build	19.4	22.6	20.4	15.4	18.7	84.3
35	Existing	8.7	9.7	9.5	6.5	8.3	39.6
35	Phase 1	10.4	10.9	11.9	8.7	10.0	48.9
35	Full Build						

Table B1-6: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort GEM Speed Exceeded 20% of the Time (km/h) Annual	Winter	Spring	Summer	Autumn	Wind Safety Gust Speed Exceeded 0.1% of the Time (km/h)
36	Existing	7.7	8.9	8.3	5.8	7.4	33.5
36	Phase 1	10.0	10.8	11.3	8.3	9.6	49.1
36	Full Build						
37	Existing	9.4	12.1	9.1	7.6	9.3	54.9
37	Phase 1	17.9	21.1	18.5	14.9	17.4	80.0
37	Full Build						
38	Existing	10.0	13.2	9.9	7.7	9.9	60.2
38	Phase 1	17.6	20.4	18.8	13.5	16.7	71.8
38	Full Build						
39	Existing	12.8	16.4	12.8	9.4	12.4	68.8
39	Phase 1	16.2	18.5	17.7	12.0	15.1	77.0
39	Full Build	15.0	17.8	16.0	10.9	14.2	73.0
40	Existing	11.1	13.9	11.4	8.5	10.8	56.4
40	Phase 1	18.2	22.1	18.5	13.7	17.1	93.1
40	Full Build	16.9	21.1	16.6	12.8	16.2	84.8
41	Existing	13.5	16.5	14.0	9.6	12.8	66.5
41	Phase 1	18.2	21.4	19.2	13.0	17.1	80.0
41	Full Build	18.4	21.8	19.5	13.2	17.4	83.7
42	Existing	11.5	13.9	12.1	8.5	10.9	55.0
42	Phase 1	19.6	22.9	21.0	14.1	18.3	102.2
42	Full Build	18.2	21.4	19.6	13.2	17.3	82.5

Table B1-7: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
43	Existing	12.5	15.6	12.5	8.6	11.9	50.0
43	Phase 1	14.3	17.5	14.8	10.4	13.9	70.5
43	Full Build	5.1	5.5	6.1	4.0	5.0	53.6
44	Existing	14.0	16.0	15.2	10.6	13.2	62.7
44	Phase 1	14.8	17.4	15.5	10.5	13.9	74.0
44	Full Build	15.7	18.7	16.5	10.9	14.8	87.4
45	Existing	12.1	13.8	13.0	8.8	11.4	50.9
45	Phase 1	14.3	16.2	15.7	10.5	13.5	60.7
45	Full Build	13.7	15.7	15.0	10.1	13.1	59.6
46	Existing	13.3	17.0	13.5	10.0	12.8	74.4
46	Phase 1	12.8	17.3	12.5	9.4	12.5	77.2
46	Full Build	13.0	18.5	12.5	9.4	12.8	81.6
47	Existing	11.0	13.8	11.2	7.9	10.5	57.9
47	Phase 1	13.4	16.9	13.7	9.3	12.7	77.9
47	Full Build	13.7	17.1	14.0	9.5	12.9	80.3
48	Existing	11.1	13.6	11.4	8.5	10.6	52.4
48	Phase 1	10.6	13.2	10.8	7.2	10.0	65.0
48	Full Build	8.5	10.5	8.7	6.0	8.1	49.6
49	Existing	11.7	14.0	12.2	8.4	11.1	53.5
49	Phase 1	12.7	15.5	13.2	9.1	12.1	67.1
49	Full Build	11.9	14.2	12.4	8.7	11.3	55.8

Table B1-8: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort GEM Speed Exceeded 20% of the Time (km/h) Annual	Winter	Spring	Summer	Autumn	Wind Safety Gust Speed Exceeded 0.1% of the Time (km/h)
50	Existing	11.6	13.6	12.3	8.7	11.0	50.6
50	Phase 1	11.9	13.7	12.7	8.9	11.2	58.5
50	Full Build	11.1	12.6	12.1	8.7	10.6	57.4
51	Existing	10.5	13.5	10.6	8.0	10.2	60.0
51	Phase 1	9.8	11.4	10.3	7.9	9.5	51.0
51	Full Build	9.7	11.4	10.1	7.8	9.4	51.5
52	Existing	11.3	12.2	12.7	8.7	10.6	47.6
52	Phase 1	12.4	13.8	13.9	9.4	11.6	57.6
52	Full Build	12.8	14.5	14.3	9.6	12.0	65.3
53	Existing	13.4	17.6	13.4	9.5	13.1	74.5
53	Phase 1	12.3	14.4	12.9	9.6	12.1	56.6
53	Full Build	13.7	16.0	14.7	10.6	13.2	72.9
54	Existing	13.4	17.1	13.5	9.4	12.9	70.8
54	Phase 1	16.6	21.3	16.4	11.9	15.8	94.7
54	Full Build	17.3	23.0	16.8	12.0	16.5	105.6
55	Existing	11.1	15.0	10.9	7.8	10.8	65.8
55	Phase 1	14.3	19.0	13.9	10.4	13.8	81.1
55	Full Build	15.4	21.8	14.1	10.5	15.0	95.3
56	Existing	11.0	15.1	10.7	8.1	10.9	69.0
56	Phase 1	14.4	17.7	14.3	11.7	14.2	74.1
56	Full Build	15.1	19.0	14.9	12.0	14.9	79.5

Table B1-9: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
57	Existing	13.9	17.2	14.1	10.3	13.5	68.5
57	Phase 1	14.9	18.6	14.7	11.6	14.6	76.2
57	Full Build	15.7	19.3	15.7	12.4	15.4	81.8
58	Existing	14.2	17.4	14.6	10.5	13.9	68.4
58	Phase 1	14.8	18.0	14.8	11.7	14.5	70.2
58	Full Build	16.1	20.1	15.6	12.7	15.7	83.6
59	Existing	14.7	17.0	15.9	10.8	13.9	63.1
59	Phase 1	15.7	19.0	16.5	11.4	14.9	75.8
59	Full Build	14.6	17.2	15.5	10.7	13.8	66.2
60	Existing	11.4	13.5	12.1	8.1	10.7	55.9
60	Phase 1	12.2	15.2	12.4	8.5	11.5	62.1
60	Full Build	11.4	13.7	11.8	8.6	10.9	53.9
61	Existing	10.3	13.1	10.5	7.6	9.9	53.8
61	Phase 1	10.9	14.6	10.8	7.9	10.5	66.5
61	Full Build	10.5	13.0	10.5	8.0	10.2	51.2
62	Existing	11.0	14.5	10.9	7.9	10.6	64.0
62	Phase 1	12.1	16.6	11.6	8.7	11.7	80.1
62	Full Build	11.1	13.9	11.0	8.8	10.9	56.3
63	Existing	9.4	11.5	9.6	7.3	9.1	48.3
63	Phase 1	9.2	11.3	9.3	7.1	9.0	48.1
63	Full Build	9.2	10.8	9.4	7.4	8.9	40.0

Table B1-10: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
64	Existing	11.8	15.3	11.7	9.0	11.6	68.5
64	Phase 1	12.4	17.0	11.9	8.9	12.1	80.3
64	Full Build	11.8	14.8	11.6	9.1	11.5	65.0
65	Existing	12.4	16.5	12.1	8.9	12.0	73.4
65	Phase 1	13.7	18.0	13.3	10.1	13.3	78.0
65	Full Build	17.5	23.2	16.9	12.8	16.9	102.1
66	Existing	11.5	15.8	10.8	8.1	11.2	67.6
66	Phase 1	12.4	16.6	12.1	9.4	12.1	70.3
66	Full Build	14.3	17.4	14.9	11.1	13.8	73.1
67	Existing	13.2	18.7	12.0	9.7	13.1	81.4
67	Phase 1	13.5	19.5	12.3	9.9	13.6	86.9
67	Full Build	13.0	18.4	12.4	9.1	12.7	81.4
68	Existing	12.1	15.2	11.7	9.5	11.8	63.1
68	Phase 1	11.9	15.7	11.4	8.6	11.7	69.3
68	Full Build	10.2	13.6	9.8	6.8	9.8	58.6
69	Existing	13.3	17.2	13.6	9.2	12.7	79.3
69	Phase 1	13.2	16.7	13.5	9.2	12.5	77.5
69	Full Build	13.8	17.9	13.7	9.7	13.3	76.8
70	Existing	11.7	14.8	12.4	8.0	11.0	65.6
70	Phase 1	11.8	14.9	12.5	8.1	11.1	65.5
70	Full Build	11.7	14.9	12.2	7.7	11.0	66.3

Table B1-11: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
71	Existing	13.0	17.1	12.5	10.1	12.8	68.7
71	Phase 1	12.6	16.5	12.2	9.6	12.3	67.5
71	Full Build	14.6	19.3	14.0	11.2	14.5	75.5
72	Existing	15.1	19.7	14.8	11.6	14.8	73.0
72	Phase 1	14.7	19.2	14.5	11.4	14.3	72.0
72	Full Build	16.6	21.7	16.1	12.7	16.3	76.5
73	Existing	14.0	16.6	14.5	11.4	13.6	57.6
73	Phase 1	13.6	16.0	14.0	10.9	13.1	56.6
73	Full Build	15.0	18.0	15.3	12.0	14.6	64.3
74	Existing	13.2	17.7	12.8	9.5	12.8	77.3
74	Phase 1	12.9	17.6	12.4	9.4	12.6	77.0
74	Full Build	12.5	17.1	12.2	9.2	12.3	75.1
75	Existing	13.4	17.2	13.6	9.9	12.8	70.1
75	Phase 1	13.2	17.0	13.3	9.6	12.6	69.0
75	Full Build	13.2	16.8	13.4	9.6	12.6	67.8
76	Existing	14.9	20.1	14.7	10.4	14.6	78.8
76	Phase 1	14.6	19.9	14.2	10.2	14.3	77.8
76	Full Build	14.3	19.2	14.0	10.0	14.0	75.4
77	Existing	15.9	20.3	16.0	11.1	15.3	82.9
77	Phase 1	15.5	19.9	15.6	10.8	14.9	80.1
77	Full Build	15.3	19.3	15.5	10.7	14.7	77.4

Table B1-12: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
78	Existing	16.7	19.6	18.0	12.3	15.5	84.3
78	Phase 1	16.1	18.9	17.4	11.9	15.1	81.1
78	Full Build	17.1	19.6	18.6	12.6	16.0	80.7
79	Existing	12.4	16.2	12.6	8.9	11.9	67.8
79	Phase 1	12.3	15.8	12.4	8.8	11.7	67.0
79	Full Build	12.3	15.8	12.5	8.9	11.8	65.8
80	Existing	10.8	13.3	11.1	8.0	10.4	51.4
80	Phase 1	10.4	12.7	10.5	7.7	9.9	49.7
80	Full Build	10.4	12.8	10.6	7.8	10.0	50.9
81	Existing	14.8	18.5	14.9	10.4	14.0	81.6
81	Phase 1	14.3	17.8	14.3	10.1	13.5	78.7
81	Full Build	14.7	18.5	14.7	10.5	14.0	77.9
82	Existing	12.2	14.5	12.7	9.7	11.9	61.7
82	Phase 1	12.8	15.6	13.1	10.2	12.4	71.5
82	Full Build	14.9	18.8	15.1	11.4	14.4	80.2
83	Existing	10.2	11.7	11.0	7.8	9.7	45.1
83	Phase 1	10.8	12.2	11.9	8.5	10.4	45.5
83	Full Build	11.7	13.3	12.7	9.0	11.1	50.5
84	Existing	11.2	12.7	12.1	9.0	10.8	49.2
84	Phase 1	12.0	13.6	13.0	9.5	11.5	56.6
84	Full Build	14.0	16.0	15.1	10.8	13.3	67.7

Table B1-13: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
85	Existing	9.1	10.6	9.7	7.3	8.7	40.6
85	Phase 1	9.7	11.2	10.3	7.7	9.2	42.0
85	Full Build	10.0	11.9	10.5	7.7	9.5	45.2
86	Existing	12.4	14.6	13.2	9.6	11.9	56.8
86	Phase 1	13.7	16.2	14.5	10.5	13.0	63.5
86	Full Build	13.8	16.8	14.2	10.3	13.2	68.5
87	Existing	10.8	13.6	10.9	8.7	10.6	62.3
87	Phase 1	10.9	13.5	10.9	8.8	10.7	61.4
87	Full Build	10.7	13.3	10.7	8.6	10.5	59.1
88	Existing	12.8	15.7	13.2	9.5	12.3	62.4
88	Phase 1	12.6	15.5	13.0	9.5	12.1	61.0
88	Full Build	13.0	15.9	13.4	9.9	12.5	62.0
89	Existing	12.6	15.4	13.3	9.1	12.0	63.1
89	Phase 1	12.5	15.3	13.1	9.1	11.9	62.1
89	Full Build	13.4	16.2	14.0	10.0	12.9	63.2
90	Existing	12.2	15.0	12.6	9.0	11.7	62.7
90	Phase 1	12.0	15.0	12.4	8.8	11.6	61.0
90	Full Build	12.1	14.6	12.6	9.0	11.6	56.5
91	Existing	11.5	14.1	11.8	8.8	11.1	59.1
91	Phase 1	11.3	14.4	11.4	8.6	11.0	64.6
91	Full Build	12.0	14.4	12.8	9.2	11.5	61.2

Table B1-14: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort					Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)					Gust Speed Exceeded 0.1% of the Time (km/h)
		Annual	Winter	Spring	Summer	Autumn	
92	Existing	12.5	15.4	12.7	9.3	12.2	61.9
92	Phase 1	12.7	16.0	12.9	9.8	12.4	70.7
92	Full Build	13.5	16.1	14.3	10.5	13.0	67.8
93	Existing	11.7	15.5	11.2	8.2	11.1	66.9
93	Phase 1	11.0	15.1	10.4	7.6	10.6	67.0
93	Full Build	13.5	17.5	13.6	10.1	13.0	83.7
94	Existing						
94	Phase 1	15.7	18.3	16.4	13.0	15.2	69.2
94	Full Build	14.3	16.6	14.9	12.0	13.9	65.4
95	Existing						
95	Phase 1	22.9	31.8	22.2	17.0	22.2	129.4
95	Full Build	22.3	31.5	21.3	16.6	21.7	127.6
96	Existing						
96	Phase 1	31.4	38.5	31.4	23.5	30.3	132.2
96	Full Build	28.4	36.0	27.7	21.5	27.7	130.1
97	Existing						
97	Phase 1	18.1	21.4	19.1	12.2	16.8	89.2
97	Full Build	17.2	20.7	17.7	11.4	16.3	85.9