

## 60 DUNDAS STREET EAST

MISSISSAUGA, ON

PEDESTRIAN WIND STUDY

RWDI # 2202763

December 23, 2022

### SUBMITTED TO

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## EXECUTIVE SUMMARY

RWDI was retained to conduct a pedestrian wind assessment for the proposed 60 Dundas Street East project in Mississauga, ON (Image 1). Based on our wind tunnel testing for the proposed project under the Existing, Proposed Phase I, Proposed Phases I & II, and Future configurations (Images 2A through 2D), and the local wind records (Image 3), the potential wind comfort and safety conditions are predicted as shown on site plans in Figures 1A through 3D, while the associated wind speeds are listed in Table 1 (Existing configuration) and Table 2 (Proposed Phase I, Proposed Phases I & II, and Future configurations). These results can be summarized as follows:

- The existing wind conditions on and around the project site are predicted to be generally comfortable for the intended use throughout the year. However, uncomfortable wind conditions are predicted around the existing towers to the south of the site during the winter season.
- With the addition of the Proposed Phase I building to the project site, the overall predicted wind speeds are considered appropriate for the intended use in the summer, including the building main entrances, grade level outdoor amenity and sidewalks. The addition of the Proposed Phase II building to the project site is not expected to change the general grade level wind conditions, but higher wind speeds are anticipated around the Phase II building, including at the proposed outdoor amenity areas.
- In the winter, wind speeds increase from those in the summer months due to the occurrence of seasonally stronger prevailing winds. Uncomfortable wind conditions are predicted around the northeast, northwest and southwest corners of the Phase I building (project north). The addition of Phase II building is expected to improve some of the uncomfortable wind conditions around the Proposed Phase I building, but higher wind speeds are anticipated at most of the entrances, and uncomfortable wind conditions are predicted at multiple locations around the Phase II building.
- Wind speeds on the Level 3 outdoor amenity space are expected to be comfortable for the intended use year-round. Higher than desired wind speeds are predicted on Levels 14 and 28, with uncomfortable wind conditions at Level 14 north of the pool.
- The criterion used to assess the pedestrian wind safety is expected to be met at all locations for the Existing configuration. In the Proposed Phase I configuration, this criterion is expected to be exceeded at northern corners of the Phase I building. The addition of the Proposed Phase II building is expected to improve the predicted safety exceedance at the northeast corner of Phase I building, but wind speeds that exceed the wind safety criterion are anticipated in the north and south areas of Phase II, and on the Levels 14 and 28 outdoor amenity spaces.
- The addition of the future buildings is expected to improve the wind conditions and safety exceedances at localized areas at both grade and above-grade levels.
- Satisfactory wind speeds around the Phases I and II buildings, and on the Levels 14 and 28 outdoor amenity spaces of Phase II building can be achieved with various wind control measures.



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# 1 INTRODUCTION

RWDI was retained to conduct a pedestrian wind assessment for the proposed 60 Dundas Street East project in Mississauga, ON. This report presents the project objectives, background and approach, and discusses of the results from RWDI's assessment and provides conceptual wind control measures, where necessary.

## 1.1 Project Description

The project (site shown in Image 1) is located on the southeast corner of Dundas Street East and Shepard Avenue. The proposed project is a mixed-use development, comprised of three towers: Tower A at 16 storeys (59m), Tower B at 27 storeys (95m) and Tower C at 29 storeys (102m). Towers B and C will be connected via a 14-storey podium with an outdoor amenity area on the podium roof. Other outdoor amenity areas will be on the 3<sup>rd</sup> floor of Tower A and on the roof of Tower B.

## 1.2 Objectives

The objective of the study was to assess the effect of the proposed development on local conditions in pedestrian areas on and around the study site and provide recommendations for minimizing adverse effects, if needed. This quantitative assessment was based on wind speed measurements on a scale model of the project and its surroundings in one of RWDI's boundary-layer wind tunnels. These measurements were combined with the local wind records and compared to the Mississauga pedestrian wind criteria for gauging wind comfort and safety in pedestrian areas. The assessment focused on critical pedestrian areas, including buildings entrances, public sidewalks around the site and grade and above-grade levels outdoor amenity spaces.



Image 1: Aerial View of Site and Existing Surroundings (Photo Courtesy of Google™ Earth)

## 2 BACKGROUND AND APPROACH

### 2.1 Wind Tunnel Study Model

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

- |                             |   |
|-----------------------------|---|
| A - Existing:               | Existing site with existing surroundings (Image 2A),              |
| B - Proposed Phase I:       | Proposed Phase I with existing surroundings (Image 2B),           |
| C - Proposed Phases I & II: | Proposed Phases I & II with existing surroundings (Image 2C), and |
| D - Future:                 | Proposed Phases I & II with future surroundings (Image 2D).       |

The wind tunnel results for the Existing configuration are based on a previous test of the site, conducted in February 2022. The results for the other three configurations are based on a new wind tunnel test, conducted in December 2022.

The wind tunnel model included all relevant surrounding buildings and topography within an approximately 360 m radius of the study site. The wind and turbulence profiles in the atmospheric boundary layer beyond the modelled area were also simulated in RWDI's wind tunnel. The wind tunnel model was instrumented with 81 (for Existing configuration) and 107 (for the Proposed phases and Future configurations) specially designed wind speed sensors to measure mean and gust speeds at a full-scale height of approximately 1.5 m above local grade in pedestrian areas throughout the study site. Wind speeds were measured for 36 directions in a 10-degree increment. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the mean wind speed at a reference height above the model. The placement of wind measurement locations was based on our experience and understanding of the pedestrian usage for this site and reviewed by the design team.

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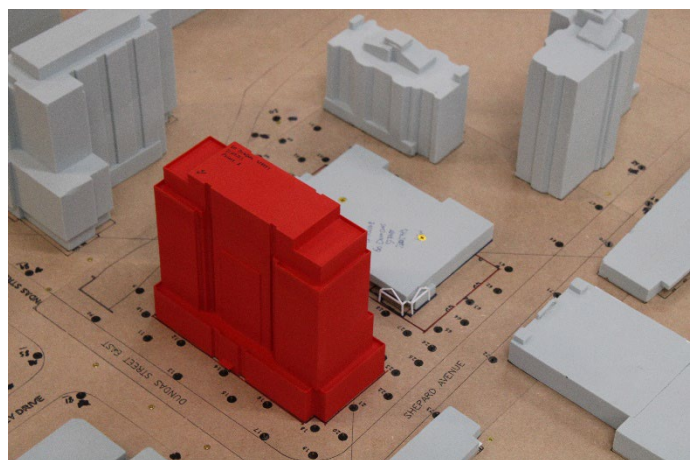
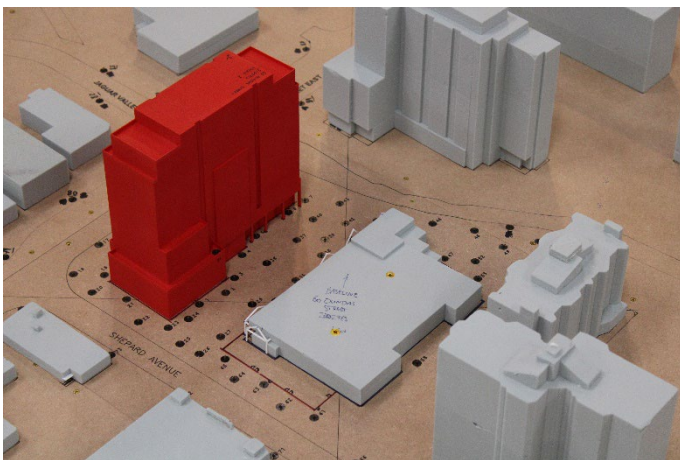
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**Image 2A: Wind Tunnel Study Model – Existing Configuration (Tested in February 2022)**

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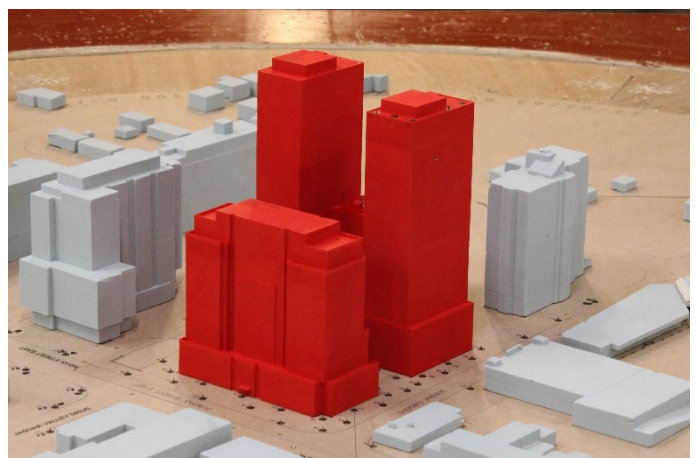
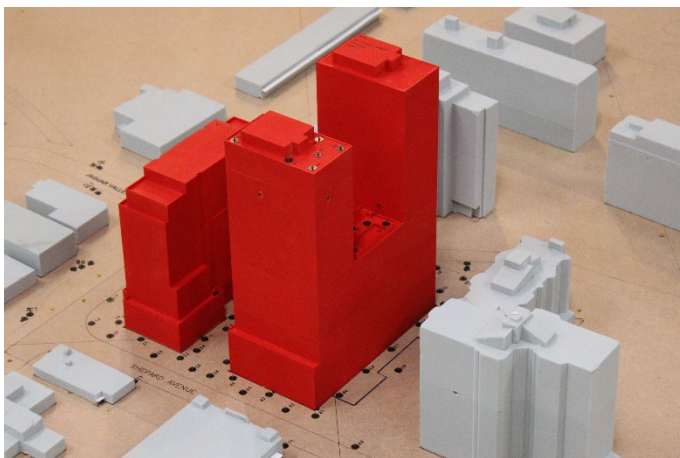
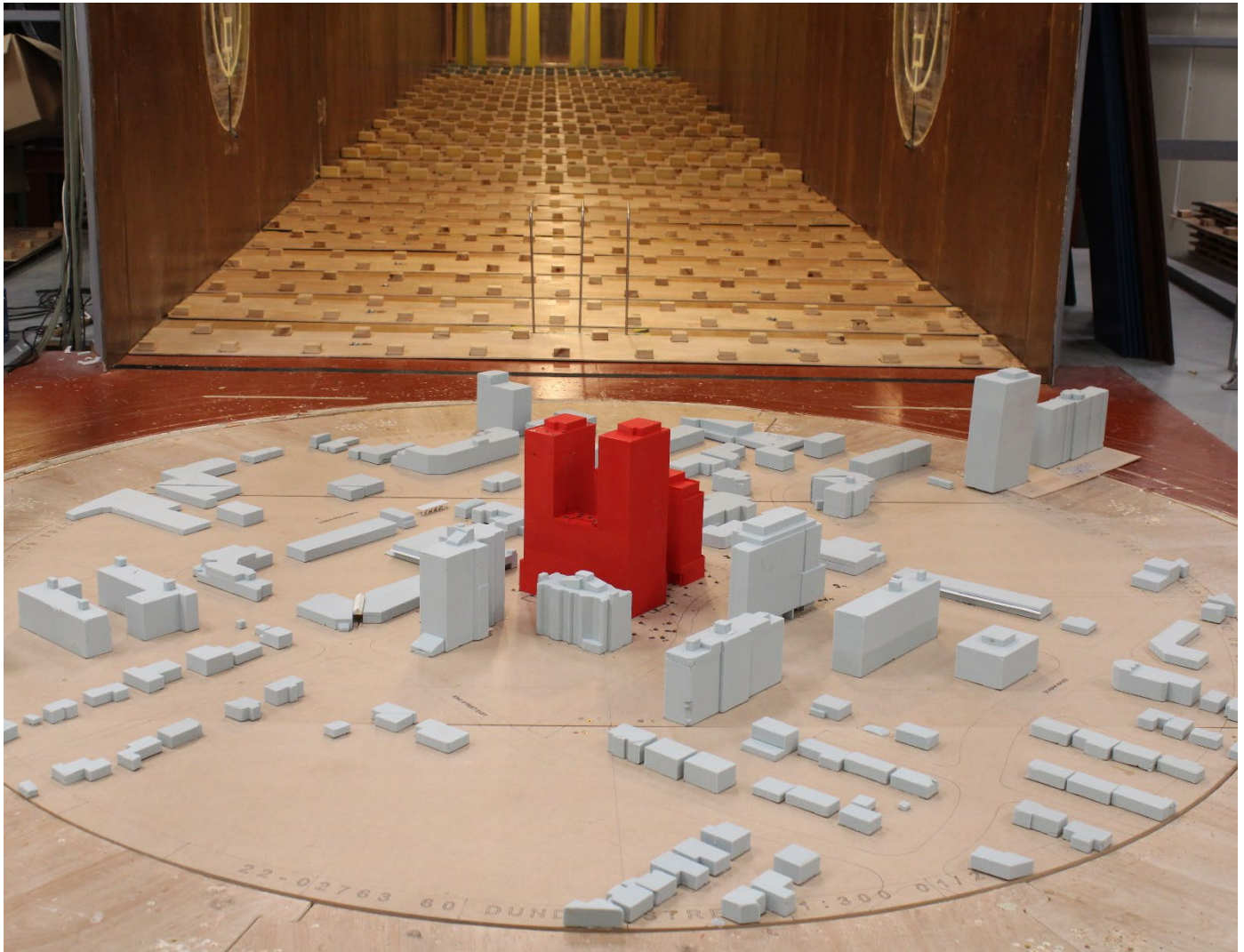
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**Image 2B: Wind Tunnel Study Model – Proposed Phase I Configuration (Tested in December 2022)**

**Z**

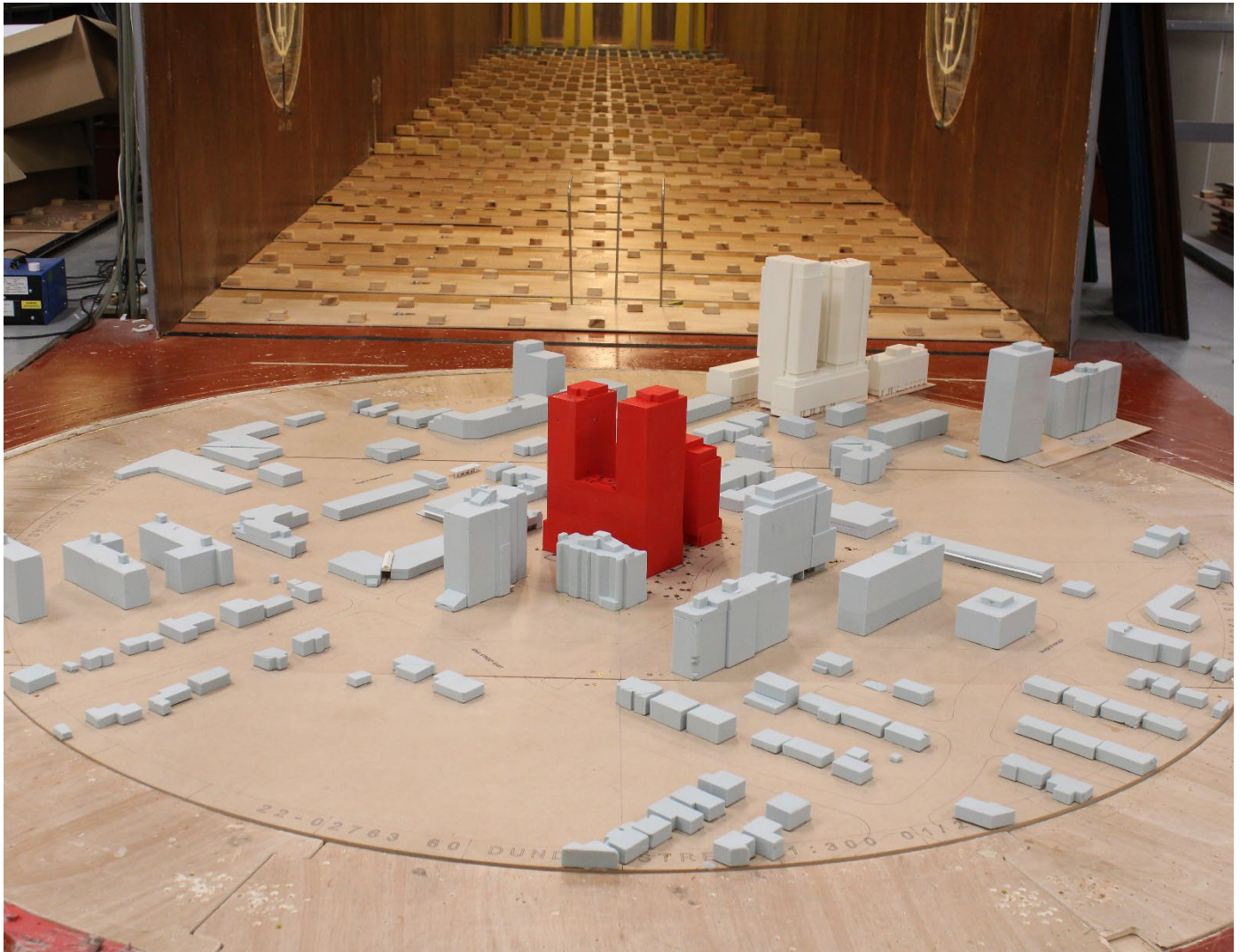




**Image 2C: Wind Tunnel Study Model – Proposed Phases I & II Configuration (Tested in December 2022)**

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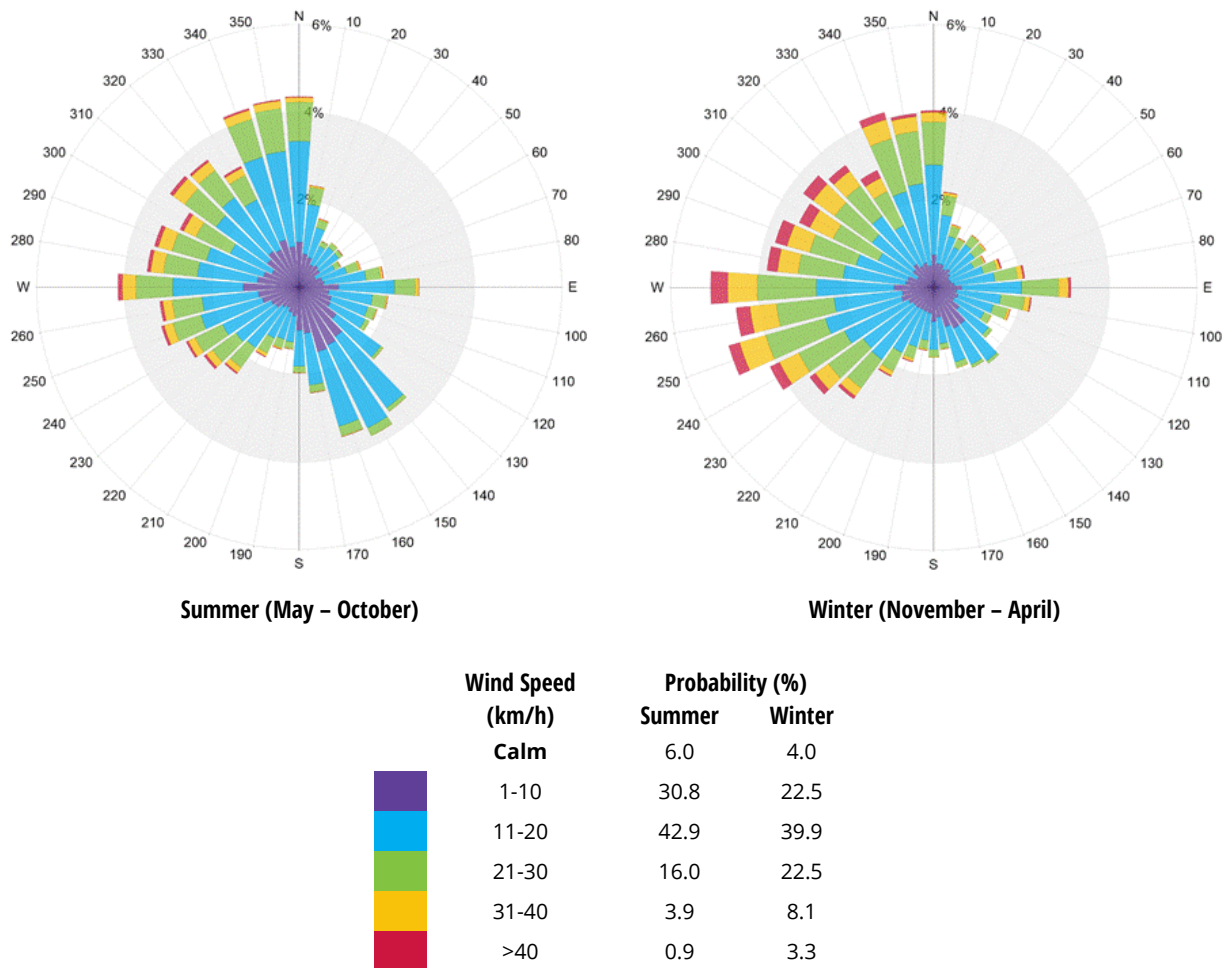


**Image 2D: Wind Tunnel Study Model – Future Configuration (Tested in December 2022)**

## 2.2 Meteorological Data

Wind statistics recorded at Toronto Pearson International Airport between 1990 and 2020, inclusive, were analyzed for the Summer (May through October) and Winter (November through April) seasons. Image 3 graphically depicts the directional distributions of wind frequencies and speeds for these two seasons. Winds from the southwest, west and northwest directions are predominant during both summer and winter. During the winter season, the prevailing winds from the east direction are also frequent, as indicated by the wind roses. The southeast winds are frequent in the summer, but typically of low wind speeds. Strong winds of a mean speed greater than 30 km/h measured at the airport (at an anemometer height of 10 m) occur for 4.8% and 11.4% of the time during the summer and winter seasons, respectively.

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



**Image 3: Directional Distribution of Winds Approaching Toronto Pearson International Airport between 1990 and 2020**

## 2.3 Mississauga Pedestrian Wind Criteria

The Mississauga pedestrian wind criteria, developed in June 2014, are specified in the Urban Design Terms of Reference, "Pedestrian Wind Comfort and Safety Studies". The following defines the criterion in detail.

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

**Notes:**

- (1) GEM Speed = max (Mean Speed, Gust Speed/1.85) and Gust Speed = Mean Speed + 3\*RMS Speed;
- (2) GEM speeds listed above are based on a seasonal exceedance of 20% of the time between 6:00 and 23:00.

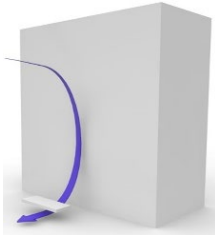
Safety Criterion	Gust Speed (km/h)	Description
<b>Exceeded</b>	> 90	Excessive gust speeds that can adversely affect a pedestrian's balance and footing. Wind mitigation is typically required.

**Notes:**

- (1) Based on an annual exceedance of 9 hours or 0.1% of the time for 24 hours a day.

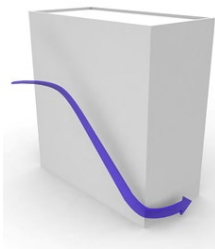
## 2.4 Generalized Wind Flows

In our discussion of wind conditions, reference may be made to the following generalized wind flows (Image 4):



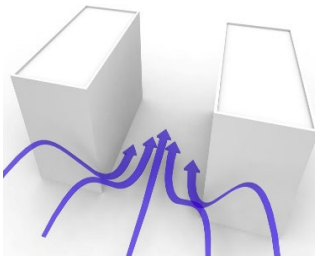
### **DOWNWASHING**

Tall buildings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. This is often the main cause for wind accelerations around large buildings at the pedestrian level.



### **CORNER ACCELERATION**

When winds approach at an oblique angle to a tall façade and are deflected down, a localized increase in the wind activity or corner acceleration can be expected around the exposed building corners at pedestrian level.



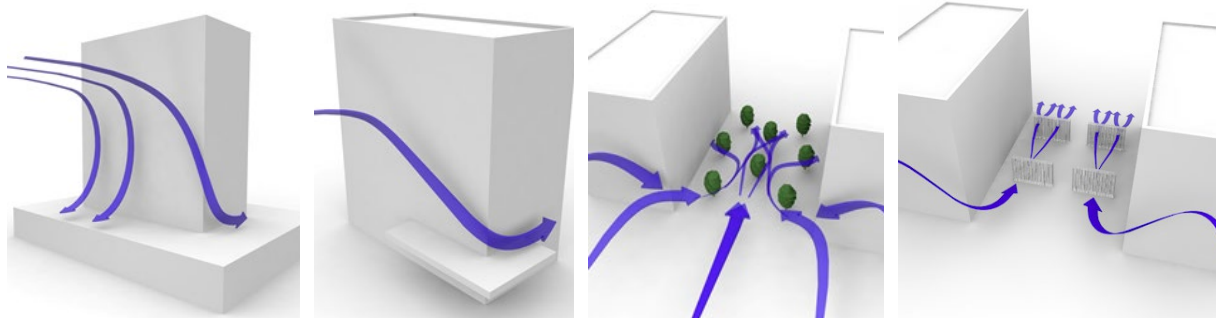
### **CHANNELLING EFFECT**

When two buildings are situated side by side, wind flow tends to accelerate through the space between the buildings due to channelling effect caused by the narrow gap.

**Image 4: Generalized Wind Flows**

If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity. Design details such as setting back a tall tower from the edges of a podium, deep canopies close to ground level, wind screens, tall trees with dense landscaping, etc. (Image 5) can help reduce wind speeds. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.

### **Podium/tower setback, canopy, landscaping and wind screens (left to right)**



**Image 5: Common Wind Control Measures**

## 3 RESULTS AND DISCUSSION

The predicted wind conditions are shown on a site plan in Figures 1A through 3D located in the “Figures” section of this report. These conditions and the associated wind speeds are also represented in Table 1 (Existing configuration) and Table 2 (Proposed Phase I, Proposed Phases I & II, and Future configurations), located in the “Tables” section of this report.

In general, wind speeds suitable for sitting or standing are considered desirable for building entrances where pedestrians are apt to linger. These low wind speeds are also preferred in areas such as outdoor amenity spaces and terraces where passive patron activities are anticipated during the summer. For sidewalks and walkways, where pedestrians are active and less likely to remain in one place for prolonged periods of time, higher wind speeds comfortable for walking are appropriate. The following is a detailed discussion of the suitability of the predicted wind conditions for the anticipated pedestrian use of each area of interest.

### 3.1 Existing Configuration

The existing wind conditions on and around the existing site are comfortable for standing or sitting at most locations in the summer (Figure 1A). Higher wind speeds comfortable for walking occur to the east and south areas of the existing building, and along the sidewalk to the south of Dundas Street East. These conditions are appropriate for the intended pedestrian usage.

During the winter season, wind conditions remain appropriate for standing at most locations; however, due to seasonally stronger winds, more areas with conditions comfortable for walking are predicted (Figure 2A). Uncomfortable wind conditions are also predicted at localized areas around the existing tall buildings to the south of the project site.

The pedestrian wind safety criterion is met at all areas assessed in the Existing configuration (Figure 3A).

### 3.2 Proposed Configurations

#### 3.2.1 Grade Level (Locations 1 through 90)

The addition of the Proposed buildings to the project site is generally predicted to cause higher wind speeds, compared to the Existing configuration, which is primarily due to the height of the proposed towers and the low surroundings in the predominant wind directions. Downwashing of the prevailing winds off the tall buildings’ façades will redirect them to the ground level. These redirected winds can be relatively strong and turbulent, especially around exposed building corners and in areas between buildings where winds accelerate due to the channelling effect (see Image 4).

With the Proposed Phase I building in place, wind speeds on and around the site are predicted to remain comfortable for standing or sitting at most locations in the summer, including the entrances (Locations 1 and 14 in Figure 1B) and the outdoor amenity south of the building (Locations 37 – 42 in Figure 1B). Slightly higher wind speeds conducive for walking are predicted mostly around the corners of the Phase 1 building, which is appropriate. The addition of Phase II building to the project site is expected to result in more locations with wind speeds conducive for walking, including the Phase I outdoor amenity (Locations 37-40 in Figure 1C), and the Phase II outdoor amenity south of the building (Locations 56 and 58 in Figure 1C).

These wind speeds are higher than desired for passive uses. Nonetheless, wind conditions at the entrances of the Phase II building are comfortable for standing (Locations 28 and 34 in Figure 1C), which is appropriate for the intended use.

In the winter, the seasonally stronger winds are expected to cause increased wind speeds throughout the site (Figure 2B), with uncomfortable wind conditions around the northeast (Locations 9 and 10), northwest (Location 18) and southwest (locations 23 and 25) corners of the building. While the addition of the Proposed Phase II building to the site is expected to reduce wind speeds at some of the uncomfortable locations identified in the Proposed Phase I configuration, uncomfortable wind conditions are predicted at more areas around the Phase II building (Locations 36, 37, 46, 61, 54, 56 and 58 in Figure 2C). Increased wind speeds comfortable for walking are also predicted at the south entrance of Phase I (Location 1), and the entrances of Phase II (Locations 28 and 34 in Figure 2C). These wind speeds are slightly higher than desired for entrances.

Wind speeds at most locations assessed in the Proposed configuration of Phase I meet the pedestrian wind safety criterion, except for Locations 10 and 18, around the northern corners of the Phase I building (Figure 3B). The addition of the Phase II building is expected to mitigate the safety exceedance predicted around the northeast corner of the Phase I Building (Location 10 in Figure 3C), but more safety exceedances are predicted in the north (Locations 27 and 32 in Figure 3C) and south (Locations 56 and 58 in Figure 1C) areas of the Phase II building.

RWDI received a landscaping plan on December 15, 2022, which includes trees and shrubs throughout the site (Image 6). The proposed landscaping features will be beneficial toward reducing the wind speeds locally around them when they are in full foliage. To extend the wind benefits of landscaping to the winter season, coniferous species and trees that retain their foliage all year-round should be considered.

To mitigate the wind impact of the proposed project, wide canopies along the exposed façades that wrap around the corners can help deflect downwashing winds and moderate the wind impact of the tall buildings. Additionally, strategic use of wind screens and evergreen/marcescent landscaping elements near the building corners, between the buildings and throughout the outdoor amenity areas is recommended to diffuse the energy of accelerating winds. To create a sheltered doorway area, the design team, may consider recessing the entrances behind their respective façades (approximately 1 – 1.5m). Alternatively, screens/landscaping should be placed on both sides of the entrances. Examples of the proposed wind control solutions are shown in Image 7.

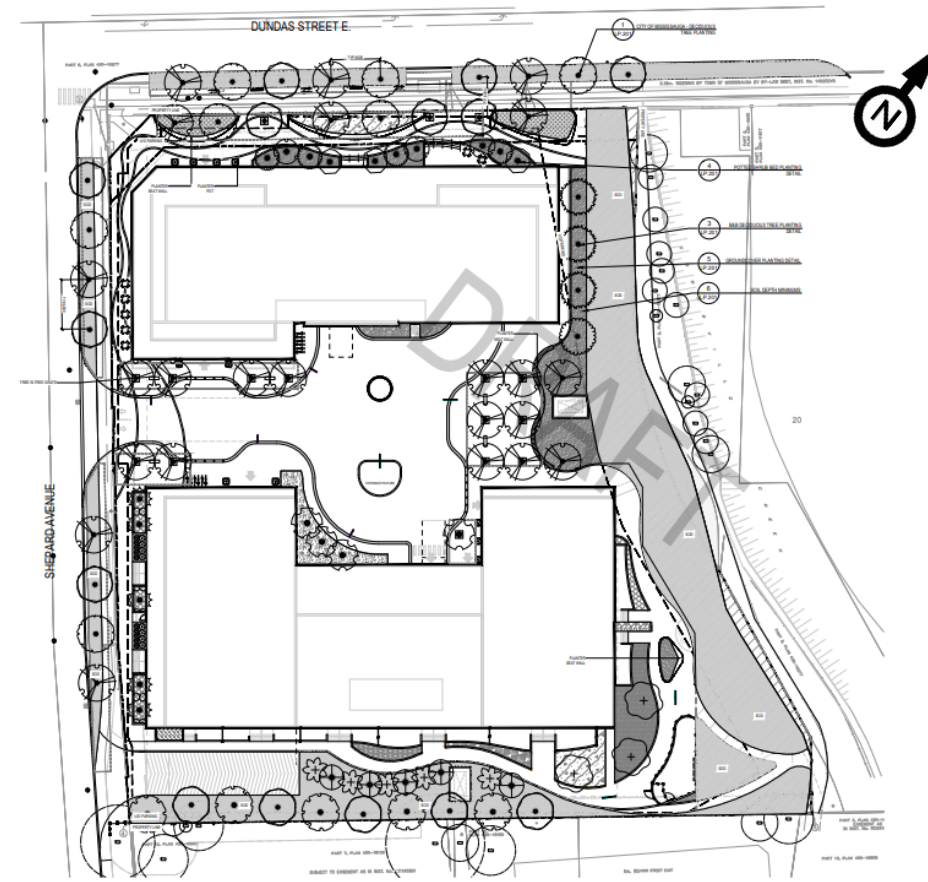


Image 6: Landscaping Plan for the Proposed Project Site (Received December 15, 2022)

### 3.2.2 Above-Grade Levels (Locations 91 through 107)

It is generally desirable for wind conditions on terraces intended for passive activities to be comfortable for sitting or standing more than 80% of the time in the summer. During the winter, it is anticipated that these areas would not be used frequently, and increased wind activity may be considered appropriate.

Wind conditions comfortable for sitting are predicted at Level 3 – Phase I building outdoor amenity area, throughout the year (Figures 1B and 1C), which is ideal for the intended use. The addition of Phase II building to the site is predicted to cause slight increase in wind speeds at Level 3 terrace, resulting in wind speeds comfortable for standing. Additionally, higher wind speeds comfortable for walking are predicted at most areas of the Levels 14 and 28 amenities of the Phase II building, during the summer. Uncomfortable wind conditions are also predicted at the Level 14 outdoor amenity space in the north side of the pool (Locations 94 and 96 in Figure 1C). These wind speeds are higher than desired for passive use or lounging at the pool deck. Higher wind activity is expected in the above-grade amenity terraces during the winter season, but this may not be a concern due to reduced usage of these outdoor spaces during the cold winter months.

Wind speeds that meet the safety criterion are predicated at Level 3, and at most areas on Level 28 outdoor amenity spaces (Figure 3B and 3C), but this criterion will be exceeded at most areas on Level 14 and in the north side of Level 28 outdoor amenity areas.





To improve wind conditions on the outdoor amenities of Phase II, it is recommended to add minimum 2 m tall screen wall around the perimeters of the terraces. Additional landscaping/hardscaping elements can be used around designated seating areas to further reduce wind speeds and create sheltered zones. These elements may take the form of porous or impermeable screens, partitions, landscaping, and trellises. Examples of wind control measures are shown in Image 8.

### **3.3 Future Configuration**

The addition of the future surrounding buildings is expected to reduce wind speeds at grade and above-grade levels, relative to the conditions predicted in the Proposed Configurations (Figures 1D and 2D). Also, the future buildings are expected to mitigate all of the safety exceedances predicted at the grade level in the Proposed configurations, except for Location 27 near the northwest corner of Phase II (Figure 3C and 3D). Additionally, the future buildings are predicted to eliminate one of the safety locations on the Level 14 outdoor amenity space of Phase II.

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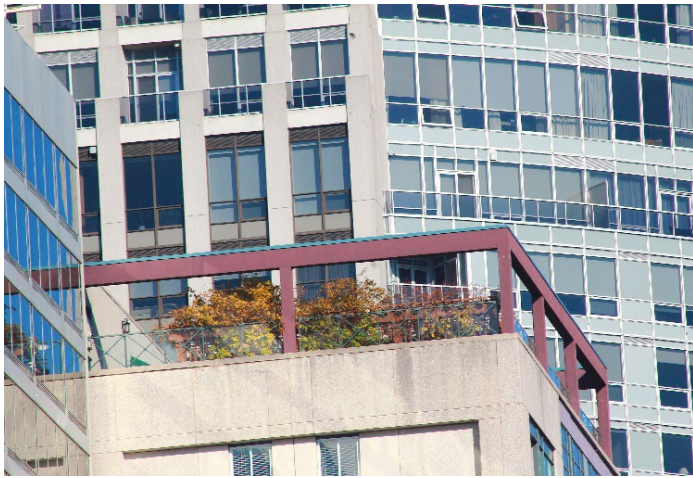
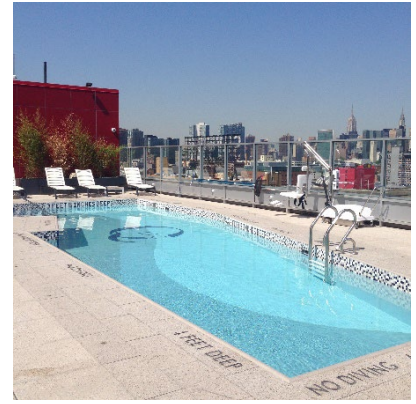
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**Image 7: Examples of Wind Control Options Applicable for Grade Level**

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**Image 8: Examples of Wind Control Options Applicable to the above-grade Outdoor Amenity Areas**



## 4 STATEMENT OF LIMITATION

### Limitations

This report, entitled 60 Dundas Street East – Pedestrian Wind Study, was prepared by Rowan Williams Davies & Irwin, Inc. (“RWDI”) for Bousfields Inc. (“Client”). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein (“Project”). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared.

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

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

### Design Assumptions

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

The findings and recommendations set out in this report are based on the following information disclosed to RWDI. Drawings and information listed below were received from Chamberlain Architect Services Limited and used to construct the scale model of the proposed 60 Dundas Street East project (“Project Data”)

File Name	File Type	Date Received (dd/mm/yyyy)
121022 - 60 Dundas - SD - BUILDING - 2022-08-29	Revit	27/10/2022
121022 - 60 Dundas - Full Set - 20221031	PDF	01/11/2022
2022-12-14 60 Dundas E_Landscape Set_ZBA-SPA Draft	PDF	15/12/2022

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

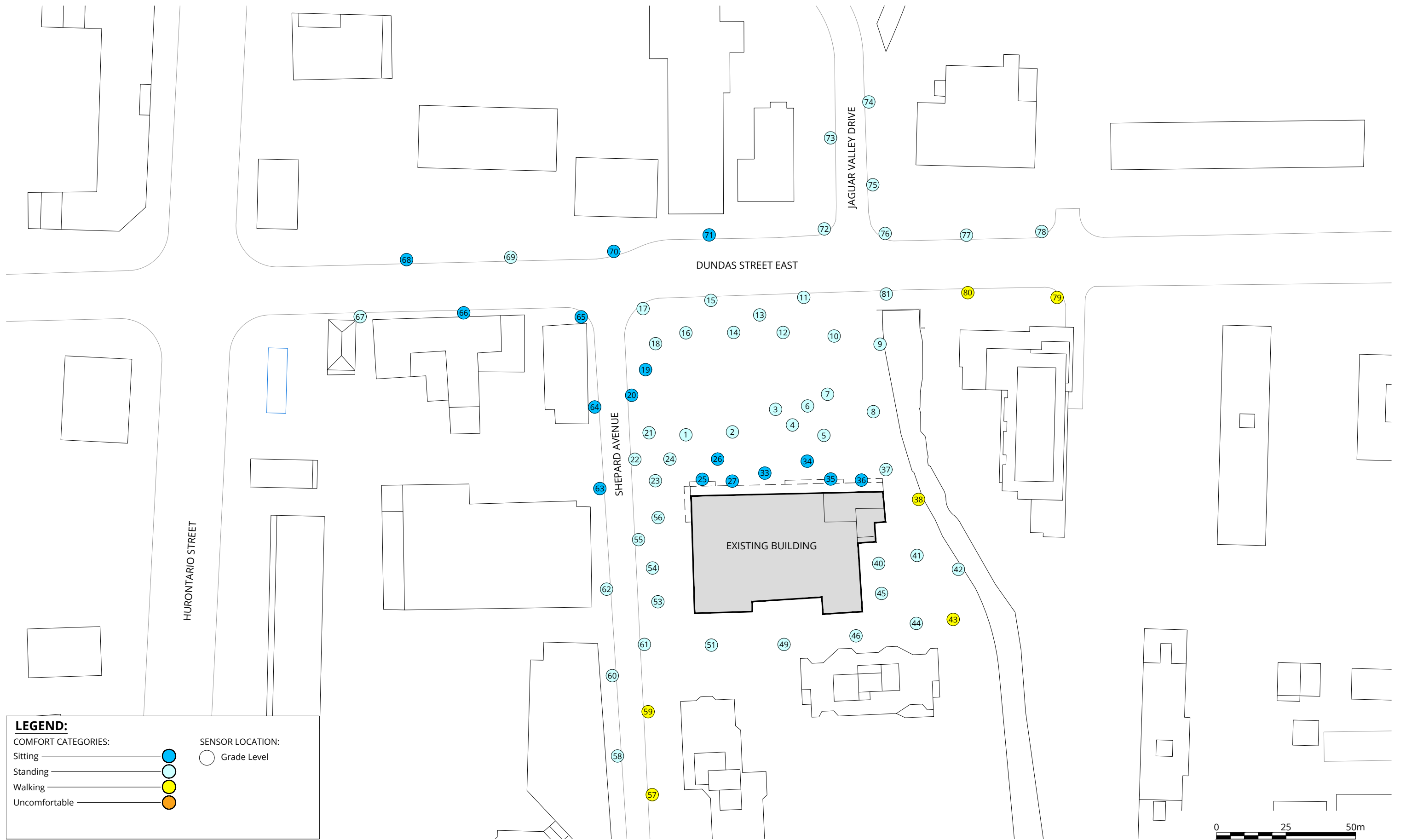
The opinions in this report can only be relied upon to the extent that the Project Data and Project Specific Conditions have not changed. Any change in the Project Data or Project Specific Conditions not reflected in this report can impact and/or alter the recommendations and conclusions in this report.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

## 5 REFERENCES

1. ASCE Task Committee on Outdoor Human Comfort (2004). *Outdoor Human Comfort and Its Assessment*, 68 pages, American Society of Civil Engineers, Reston, Virginia, USA.
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10. Wu, H., Williams, C.J., Baker, H.A. and Waechter, W.F. (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", *ASCE Structure Congress 2004*, Nashville, Tennessee.

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# FIGURES



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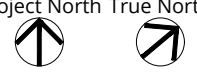
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- Sitting ●
- Standing ●
- Walking ●
- Uncomfortable ●

SENSOR LOCATION:

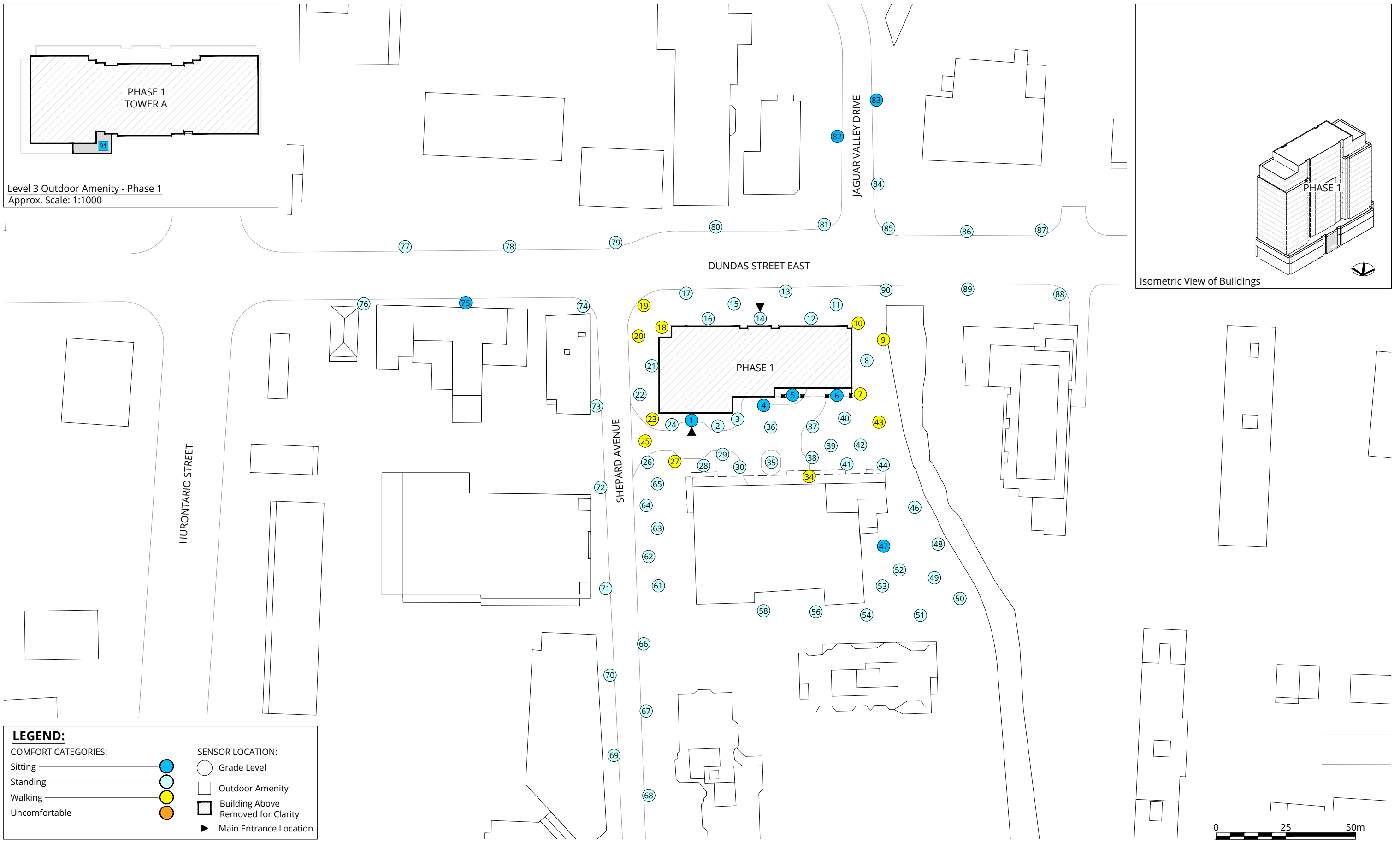
- Grade Level

**Pedestrian Wind Comfort Conditions**  
 Existing Configuration  
 Summer (May to October, 6:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North  
  
 Project #2202763

Drawn by: ALJM Figure: 1A  
 Approx. Scale: 1:1250  
 Date Revised: Dec. 23, 2022





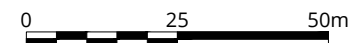
**LEGEND:**

**COMFORT CATEGORIES:**

- Sitting ●
- Standing ●
- Walking ●
- Uncomfortable ●

**SENSOR LOCATION:**

- Grade Level
- Outdoor Amenity
- Building Above Removed for Clarity
- ▲ Main Entrance Location



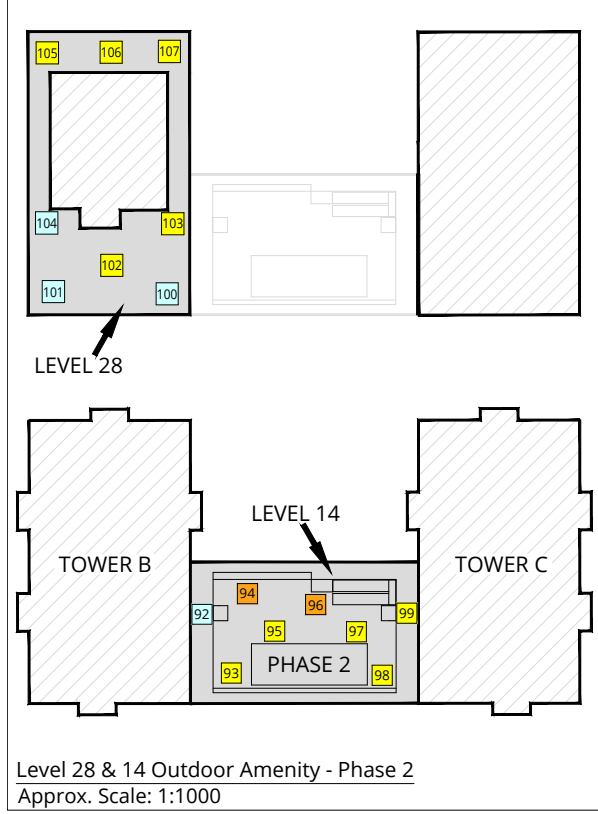
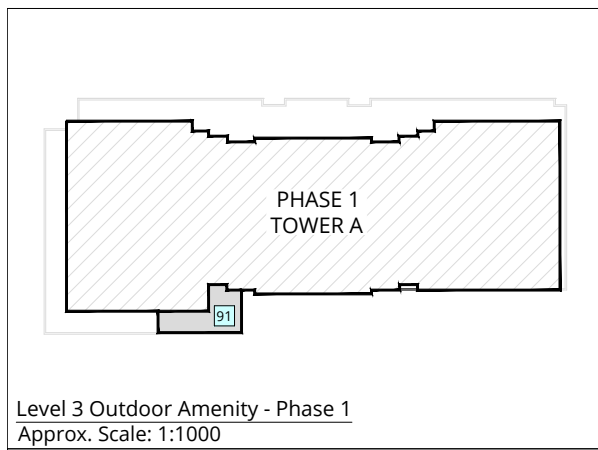
**Pedestrian Wind Comfort Conditions**  
 Proposed Phase I Configuration  
 Summer (May to October, 6:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

Drawn by: ALJM Figure: 1B  
 Approx. Scale: 1:1250  
 Date Revised: Dec. 22, 2022







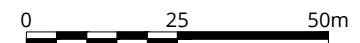
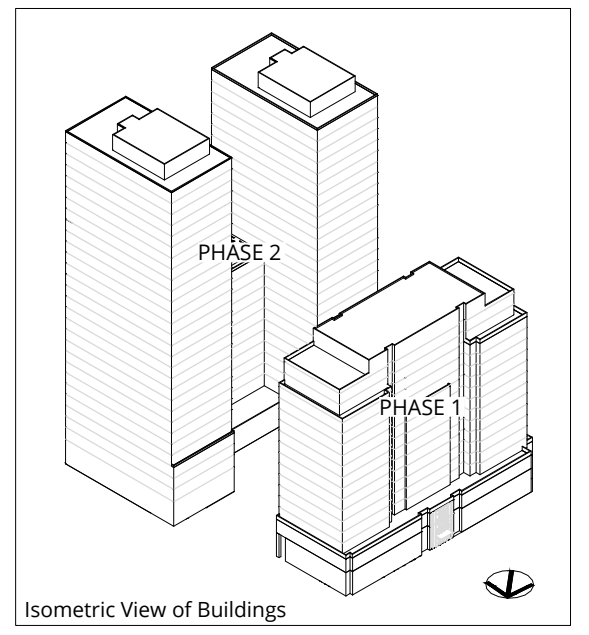
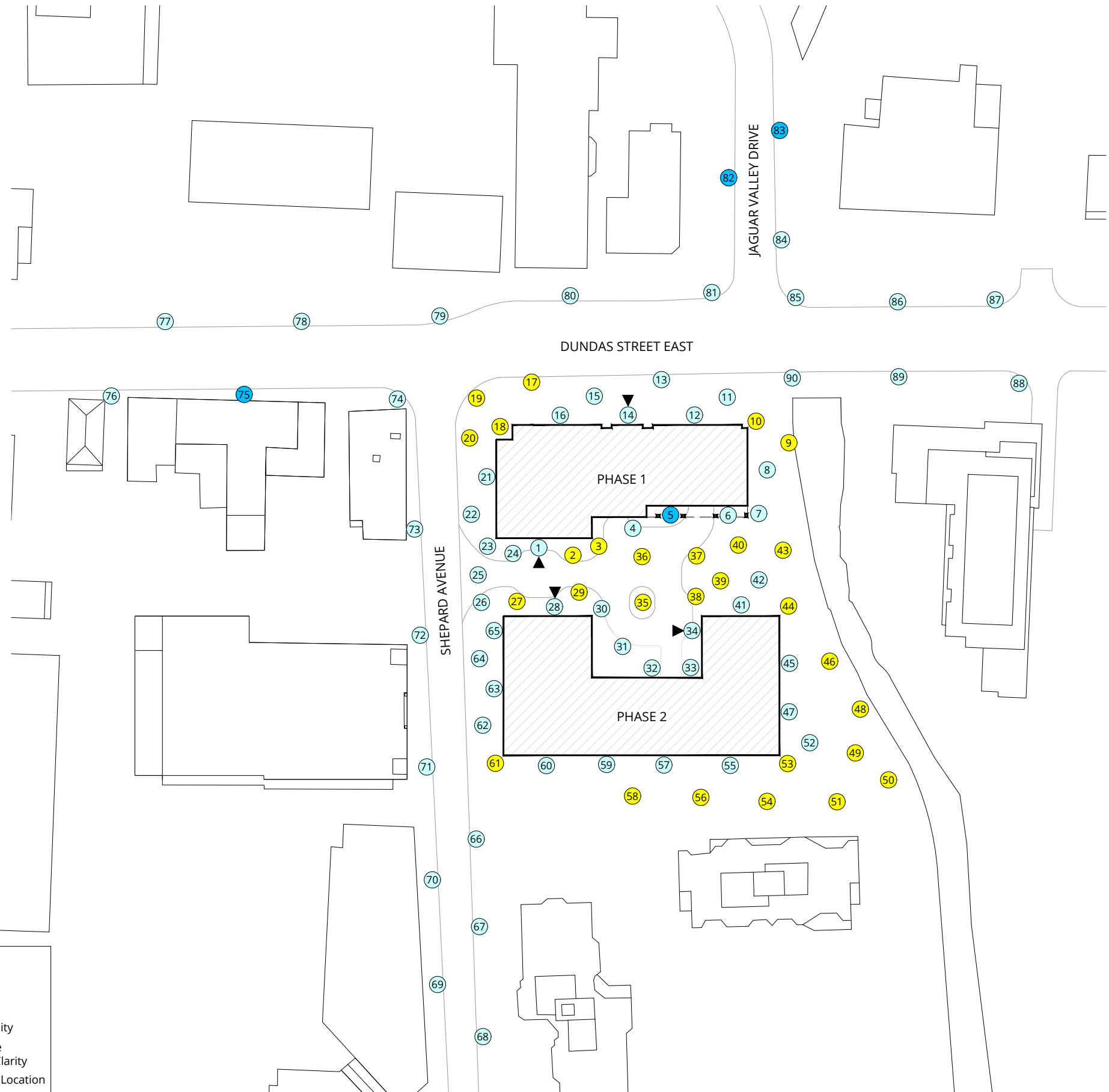
**LEGEND:**

COMFORT CATEGORIES:

- Sitting ●
- Standing ●
- Walking ●
- Uncomfortable ●

SENSOR LOCATION:

- Grade Level
- Outdoor Amenity
- Building Above Removed for Clarity
- ▶ Main Entrance Location



**Pedestrian Wind Comfort Conditions**  
 Proposed Phases I & II Configuration  
 Summer (May to October, 6:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

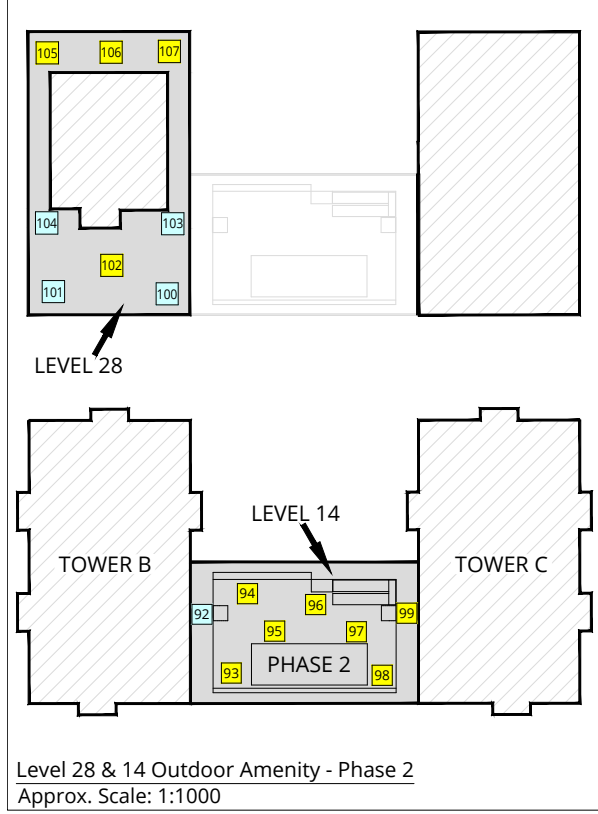
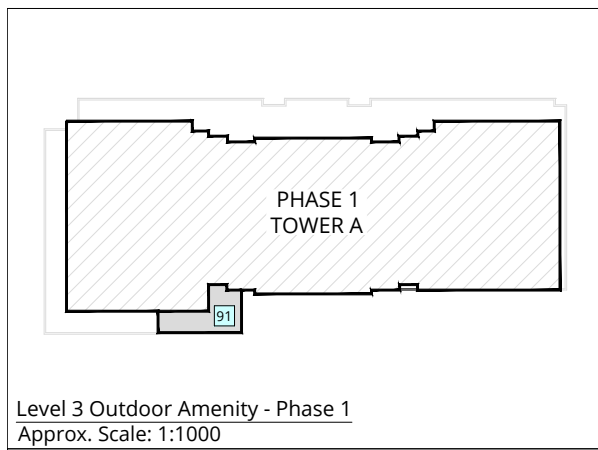
Drawn by: ALJM Figure: 1C

Approx. Scale: 1:1250

Date Revised: Dec. 23, 2022



Project #2202763



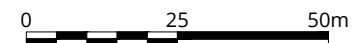
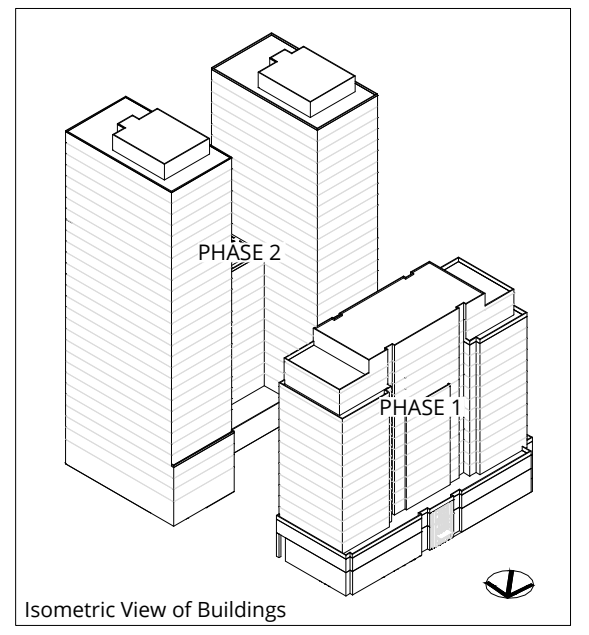
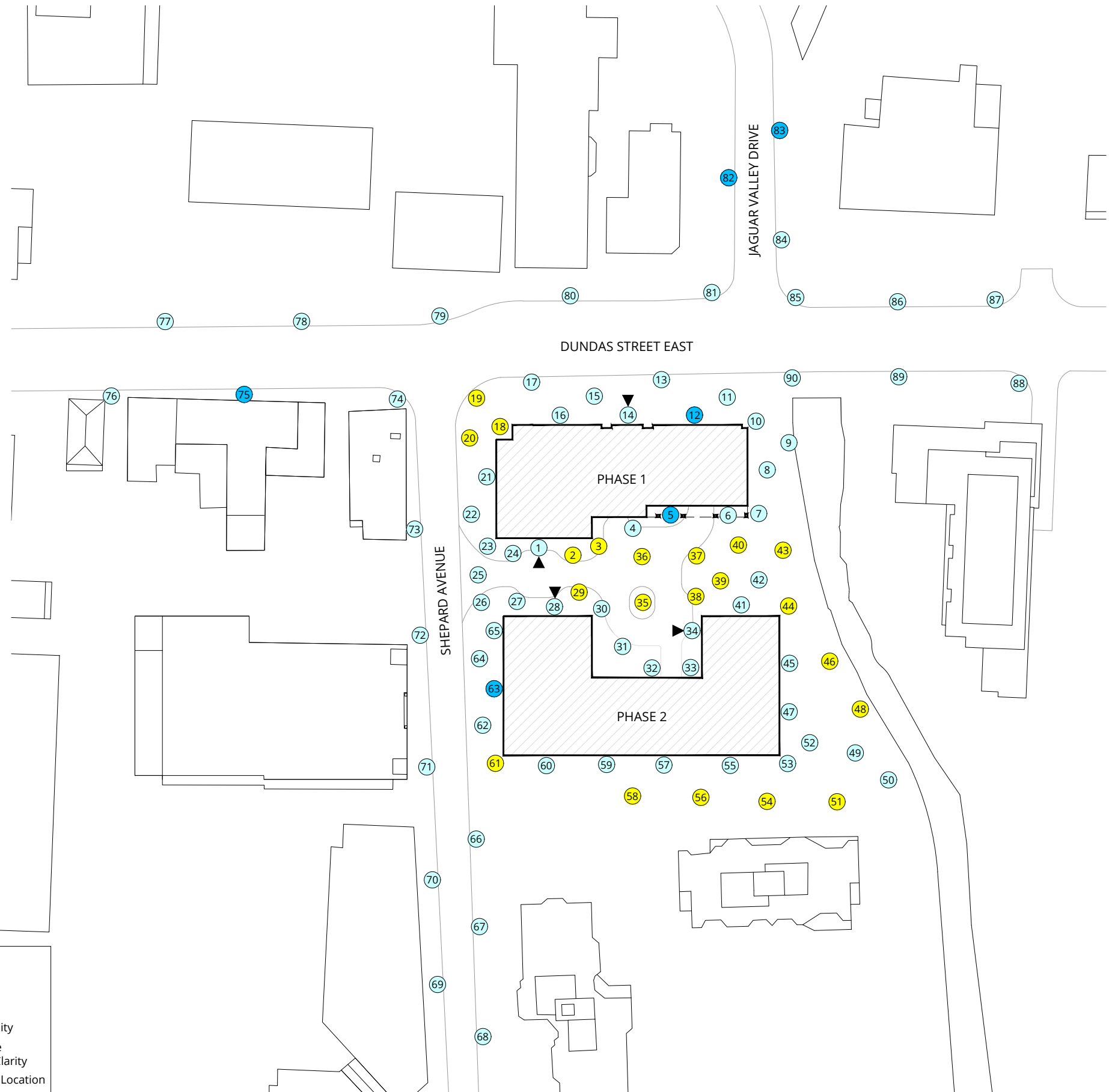
**LEGEND:**

COMFORT CATEGORIES:

- Sitting ●
- Standing ●
- Walking ●
- Uncomfortable ●

SENSOR LOCATION:

- Grade Level
- Outdoor Amenity
- Building Above Removed for Clarity
- ▶ Main Entrance Location



**Pedestrian Wind Comfort Conditions**  
 Future Configuration  
 Summer (May to October, 6:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

Drawn by: ALJM Figure: 1D  
 Approx. Scale: 1:1250  
 Date Revised: Dec. 23, 2022





**Pedestrian Wind Comfort Conditions**  
 Existing Configuration  
 Winter (November to April, 6:00 to 23:00)

60 Dundas Street East - Mississauga, ON

Project North True North



Drawn by: ALJM Figure: 2A

Approx. Scale: 1:1250

Date Revised: Dec. 23, 2022



Project #2202763



**LEGEND:**

**COMFORT CATEGORIES:**

- Sitting ●
- Standing ●
- Walking ●
- Uncomfortable ●

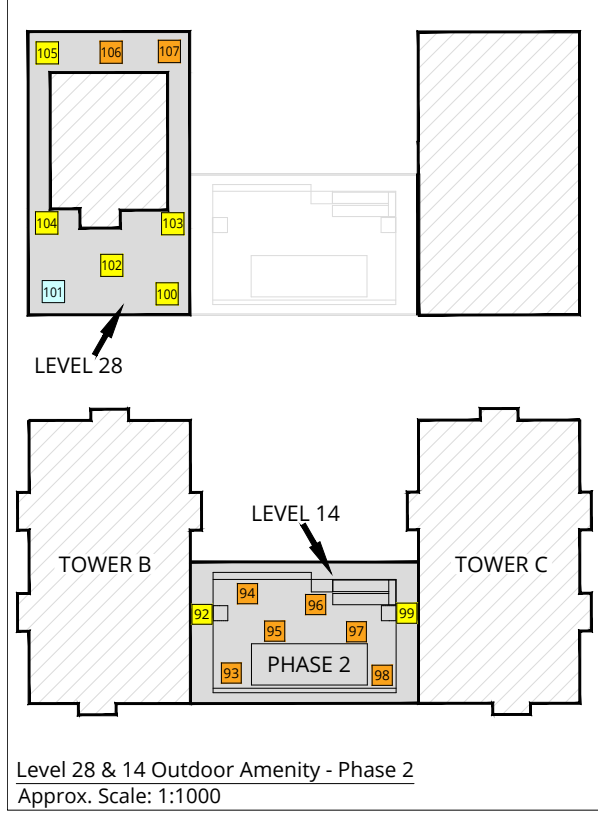
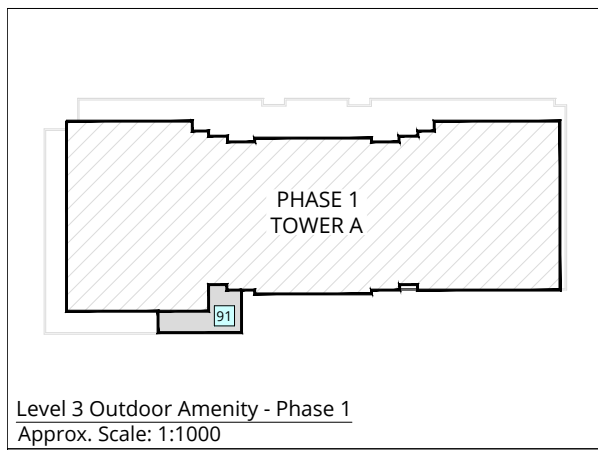
**SENSOR LOCATION:**

- Grade Level
- Outdoor Amenity
- Building Above Removed for Clarity
- ▶ Main Entrance Location

**Pedestrian Wind Comfort Conditions**  
 Proposed Phase I Configuration  
 Winter (November to April, 6:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North  
 Drawn by: ALJM Figure: 2B  
 Approx. Scale: 1:1250  
 Date Revised: Dec. 22, 2022





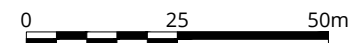
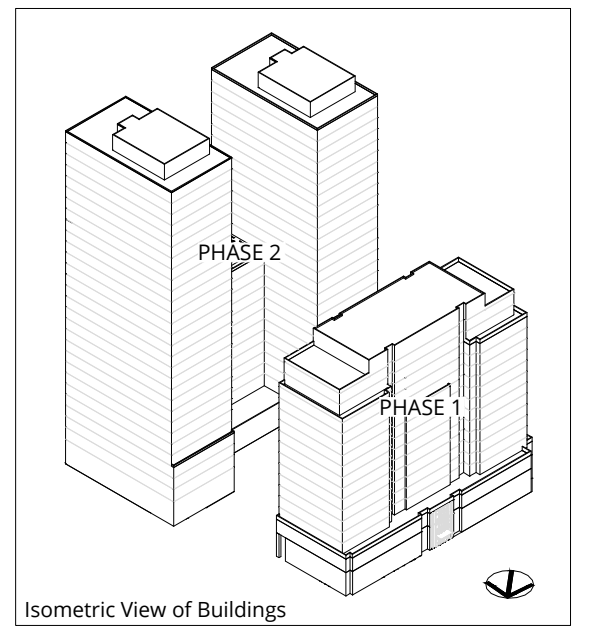
**LEGEND:**

COMFORT CATEGORIES:

- Sitting ●
- Standing ●
- Walking ●
- Uncomfortable ●

SENSOR LOCATION:

- Grade Level
- Outdoor Amenity
- Building Above Removed for Clarity
- ▶ Main Entrance Location



**Pedestrian Wind Comfort Conditions**  
 Proposed Phases I & II Configuration  
 Winter (November to April, 6:00 to 23:00)

60 Dundas Street East - Mississauga, ON

Project North True North

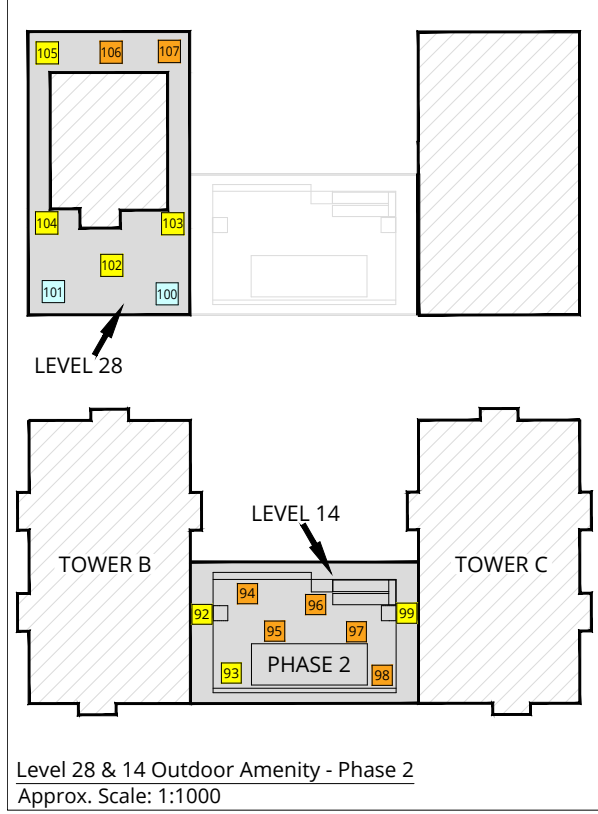
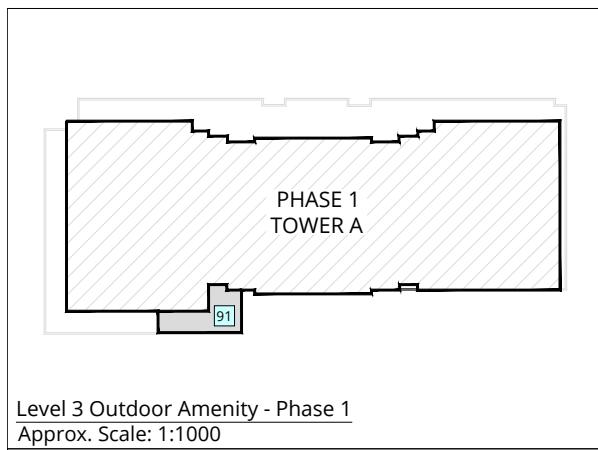
Drawn by: ALJM Figure: 2C

Approx. Scale: 1:1250

Date Revised: Dec. 23, 2022



Project #2202763



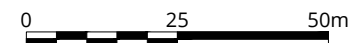
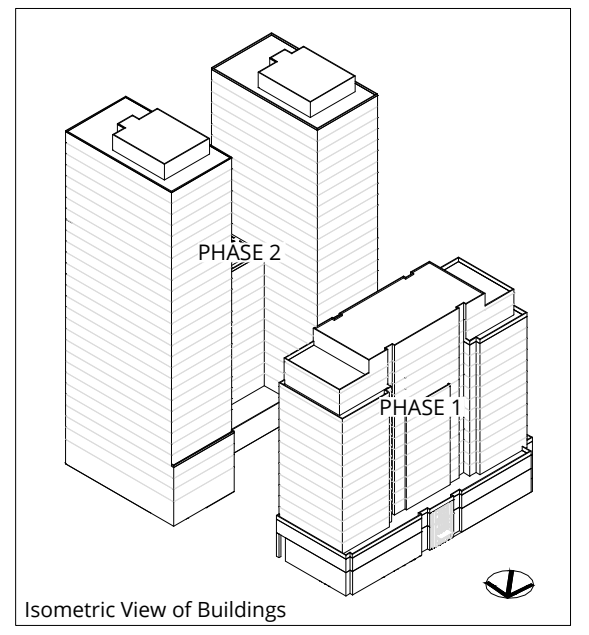
**LEGEND:**

COMFORT CATEGORIES:

- Sitting (Blue circle)
- Standing (Light Blue circle)
- Walking (Yellow circle)
- Uncomfortable (Orange circle)

SENSOR LOCATION:

- Grade Level (White circle)
- Outdoor Amenity (White square)
- Building Above Removed for Clarity (Hatched square)
- Main Entrance Location (Black triangle)



**Pedestrian Wind Comfort Conditions**  
 Future Configuration  
 Winter (November to April, 6:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

Drawn by: ALJM Figure: 2D

Approx. Scale: 1:1250

Date Revised: Dec. 23, 2022

Project #2202763



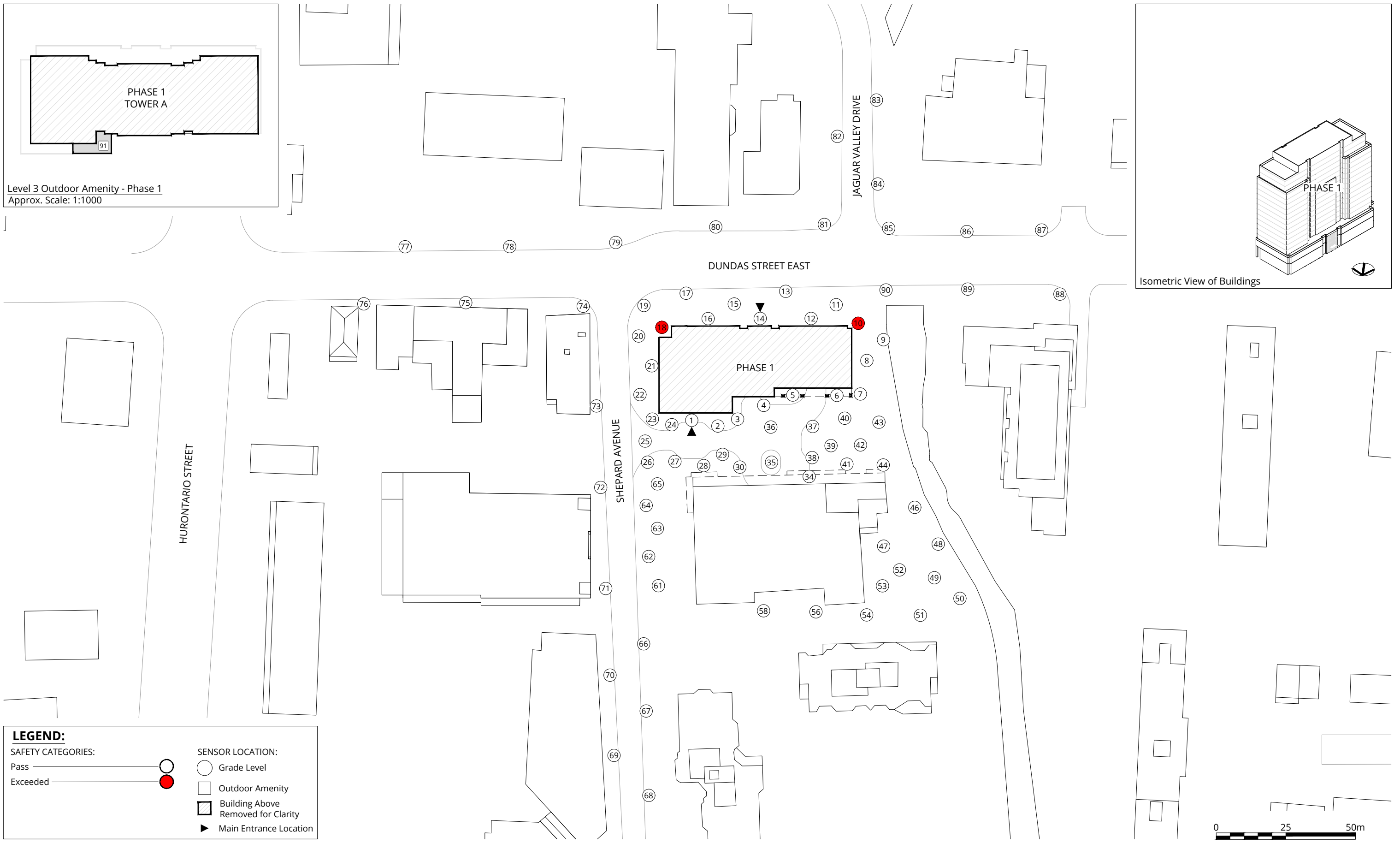


**Pedestrian Wind Safety Conditions**  
 Existing Configuration  
 Annual (January to December, 0:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

Drawn by: ALJM Figure: 3A  
 Approx. Scale: 1:1250  
 Date Revised: Dec. 23, 2022





**LEGEND:**

**SAFETY CATEGORIES:**

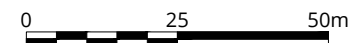
- Pass (White circle)
- Exceeded (Red circle)

**SENSOR LOCATION:**

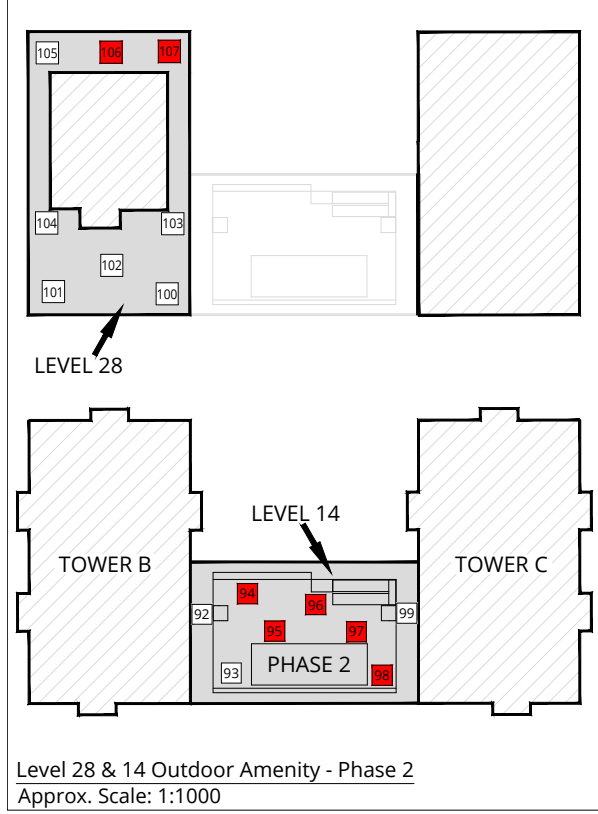
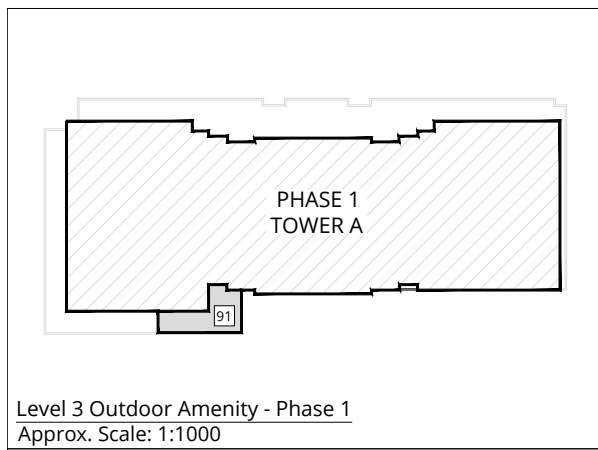
- Grade Level (White circle)
- Outdoor Amenity (White square)
- Building Above Removed for Clarity (Hatched square)
- Main Entrance Location (Black triangle)

**Pedestrian Wind Safety Conditions**  
 Proposed Phase I Configuration  
 Annual (January to December, 0:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North  
 Drawn by: ALJM Figure: 3B  
 Approx. Scale: 1:1250  
 Date Revised: Dec. 22, 2022







**LEGEND:**

**SAFETY CATEGORIES:**

Pass

Exceeded

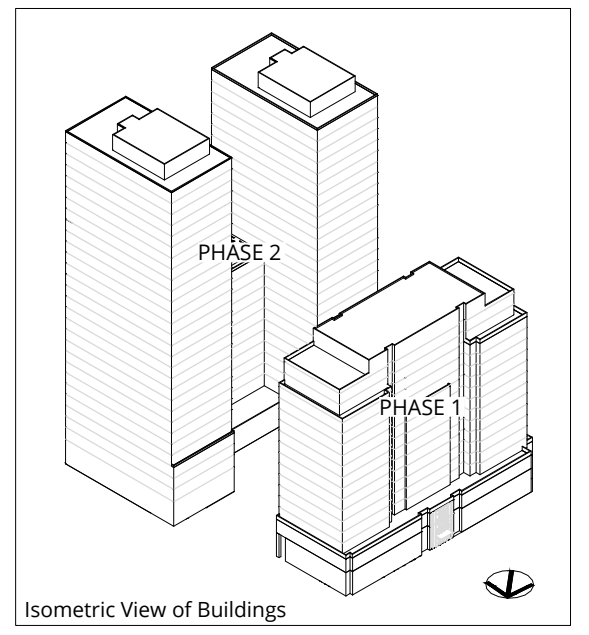
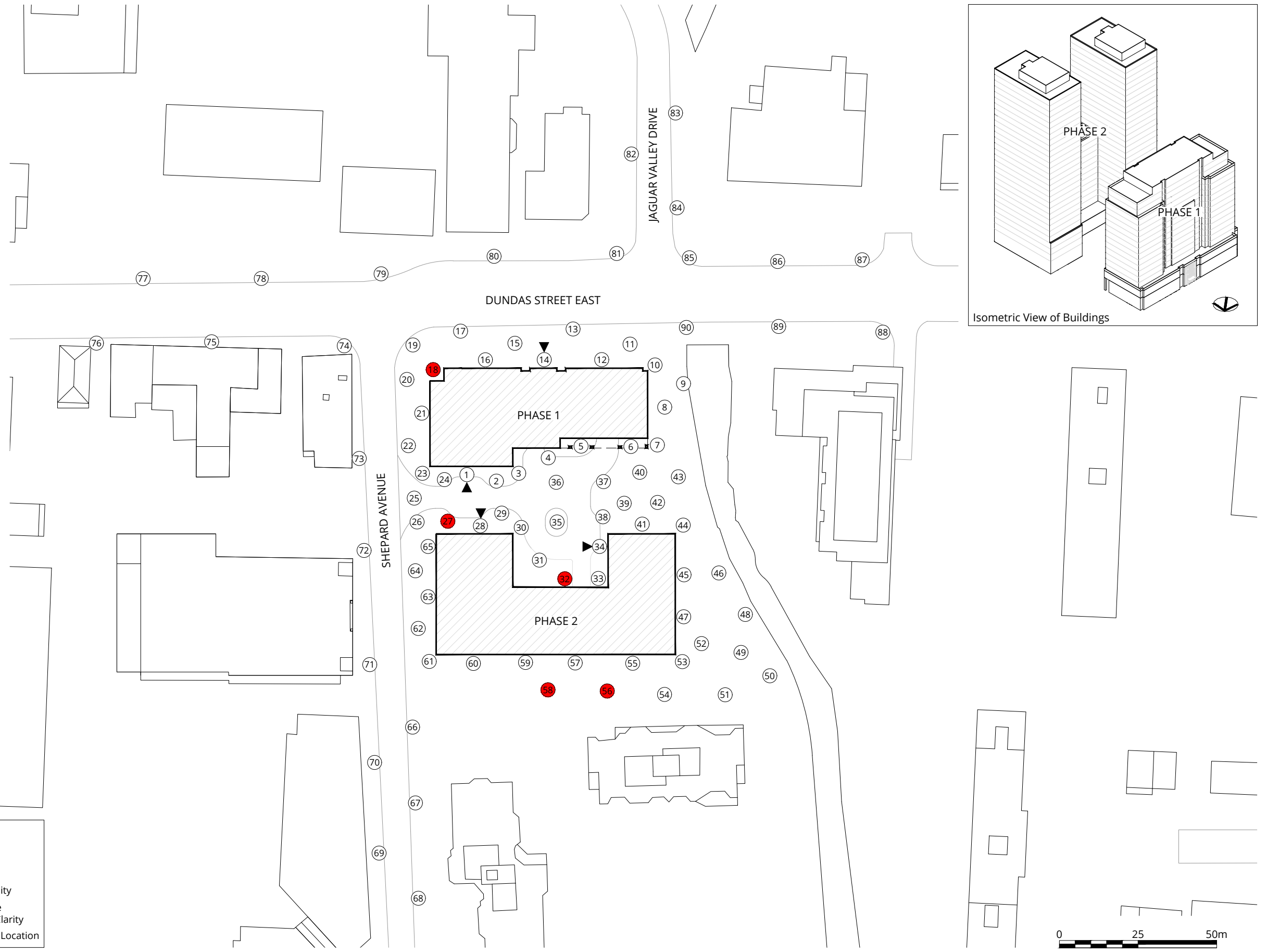
**SENSOR LOCATION:**

Grade Level

Outdoor Amenity

Building Above Removed for Clarity

Main Entrance Location



**Pedestrian Wind Safety Conditions**  
 Proposed Phases I & II Configuration  
 Annual (January to December, 0:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

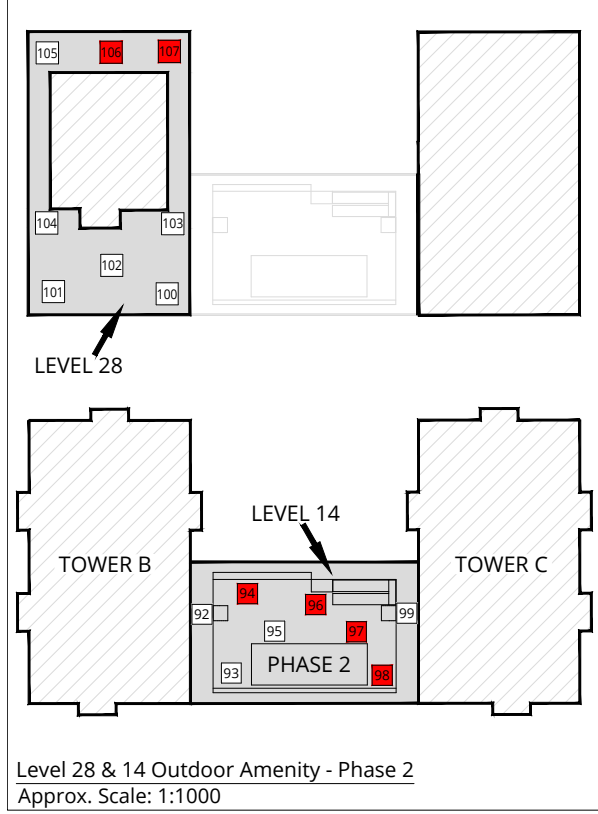
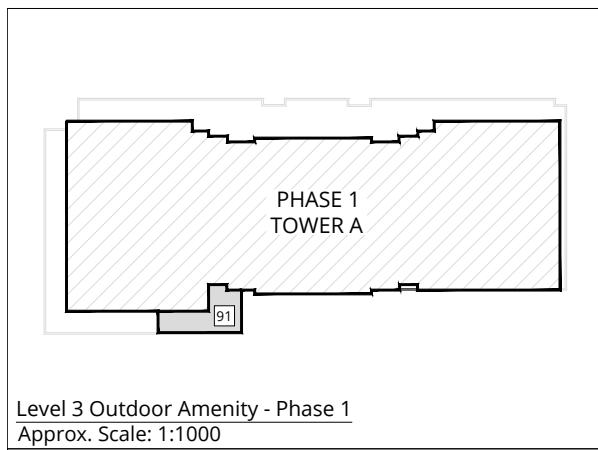
Drawn by: ALJM Figure: 3C

Approx. Scale: 1:1250

Date Revised: Dec. 23, 2022

Project #2202763





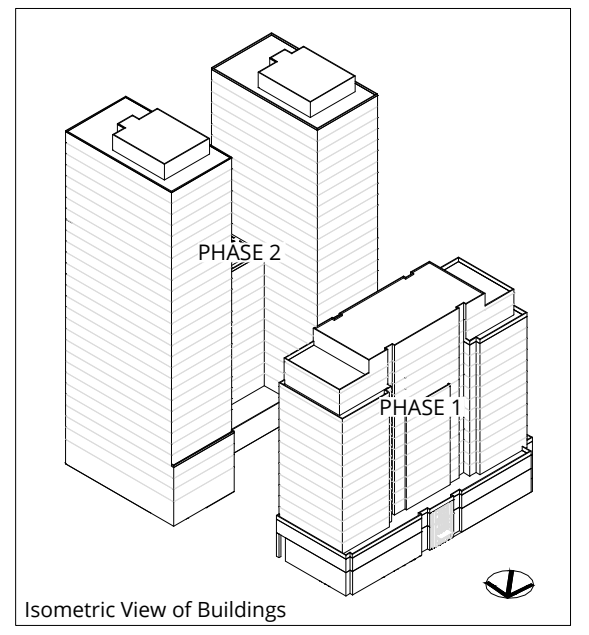
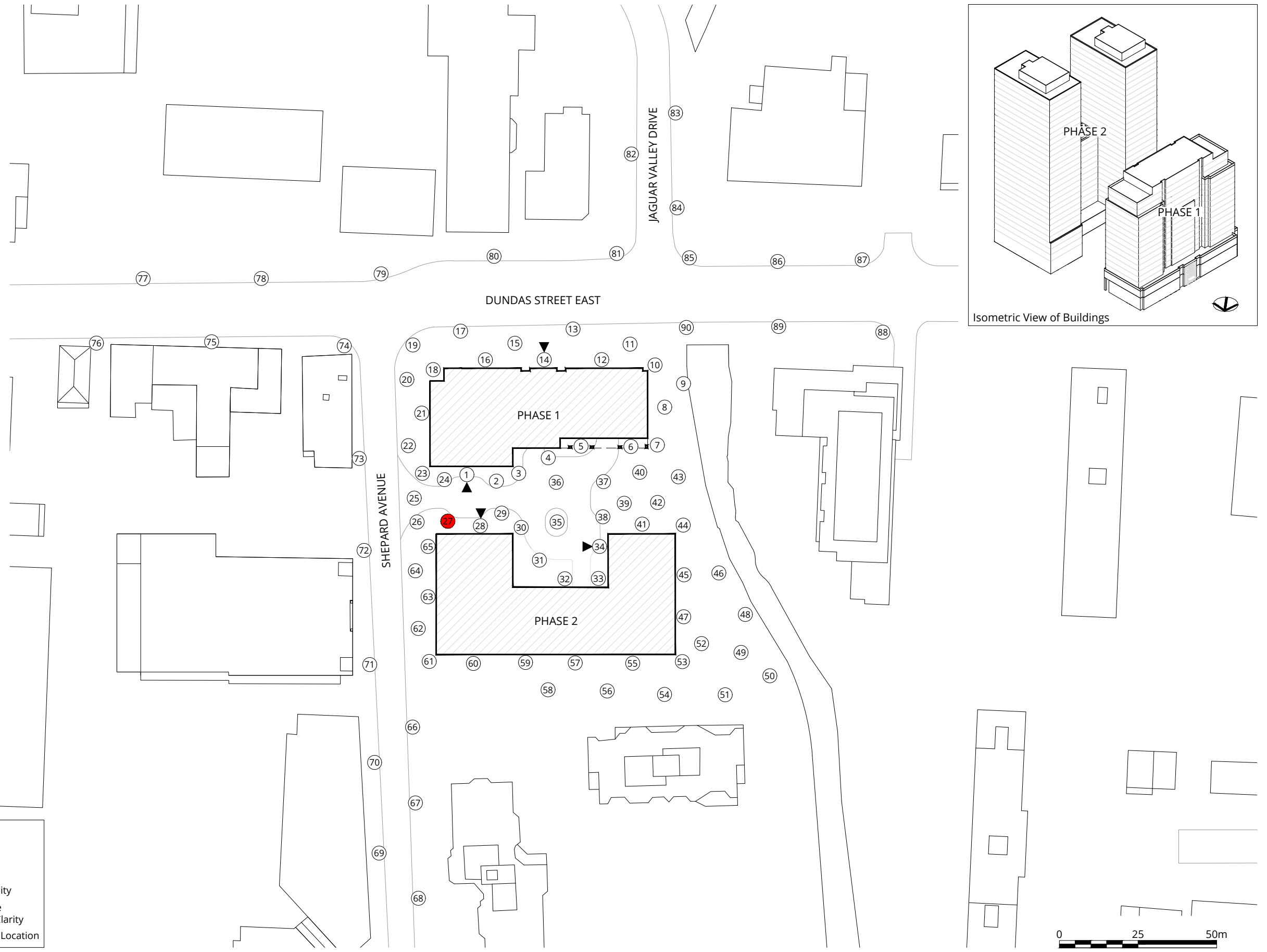
**LEGEND:**

**SAFETY CATEGORIES:**

- Pass
- Exceeded

**SENSOR LOCATION:**

- Grade Level
- Outdoor Amenity
- Building Above Removed for Clarity
- Main Entrance Location



**Pedestrian Wind Safety Conditions**  
 Future Configuration  
 Annual (January to December, 0:00 to 23:00)  
 60 Dundas Street East - Mississauga, ON

Project North True North

Drawn by: ALJM Figure: 3D

Approx. Scale: 1:1250

Date Revised: Dec. 23, 2022



Project #2202763

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# TABLES



**Table 1: Pedestrian Wind Comfort and Safety Conditions - Existing Configuration**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
1	Existing	11	Standing	12	Standing	50	Pass
2	Existing	11	Standing	13	Standing	51	Pass
3	Existing	12	Standing	14	Standing	57	Pass
4	Existing	11	Standing	13	Standing	59	Pass
5	Existing	11	Standing	14	Standing	63	Pass
6	Existing	12	Standing	14	Standing	64	Pass
7	Existing	13	Standing	16	Walking	71	Pass
8	Existing	14	Standing	17	Walking	76	Pass
9	Existing	15	Standing	17	Walking	72	Pass
10	Existing	14	Standing	17	Walking	69	Pass
11	Existing	12	Standing	15	Standing	58	Pass
12	Existing	12	Standing	14	Standing	57	Pass
13	Existing	12	Standing	14	Standing	57	Pass
14	Existing	11	Standing	13	Standing	56	Pass
15	Existing	11	Standing	13	Standing	56	Pass
16	Existing	11	Standing	13	Standing	55	Pass
17	Existing	11	Standing	13	Standing	58	Pass
18	Existing	11	Standing	12	Standing	56	Pass
19	Existing	10	Sitting	12	Standing	52	Pass
20	Existing	10	Sitting	11	Standing	47	Pass
21	Existing	11	Standing	12	Standing	50	Pass
22	Existing	11	Standing	13	Standing	50	Pass
23	Existing	12	Standing	13	Standing	51	Pass
24	Existing	11	Standing	13	Standing	50	Pass
25	Existing	9	Sitting	11	Standing	51	Pass
26	Existing	10	Sitting	11	Standing	49	Pass
27	Existing	9	Sitting	11	Standing	53	Pass
28	Existing	-	-	-	-	-	-
29	Existing	-	-	-	-	-	-
30	Existing	-	-	-	-	-	-



**Table 1: Pedestrian Wind Comfort and Safety Conditions - Existing Configuration**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
31	Existing	-	-	-	-	-	-
32	Existing	-	-	-	-	-	-
33	Existing	9	Sitting	11	Standing	49	Pass
34	Existing	10	Sitting	11	Standing	50	Pass
35	Existing	9	Sitting	10	Sitting	43	Pass
36	Existing	9	Sitting	11	Standing	52	Pass
37	Existing	14	Standing	16	Walking	78	Pass
38	Existing	16	Walking	19	Walking	81	Pass
39	Existing	-	-	-	-	-	-
40	Existing	11	Standing	13	Standing	55	Pass
41	Existing	13	Standing	16	Walking	73	Pass
42	Existing	15	Standing	18	Walking	80	Pass
43	Existing	18	Walking	21	Uncomfortable	80	Pass
44	Existing	14	Standing	17	Walking	71	Pass
45	Existing	12	Standing	15	Standing	67	Pass
46	Existing	12	Standing	15	Standing	59	Pass
47	Existing	-	-	-	-	-	-
48	Existing	-	-	-	-	-	-
49	Existing	15	Standing	17	Walking	68	Pass
50	Existing	-	-	-	-	-	-
51	Existing	15	Standing	18	Walking	75	Pass
52	Existing	-	-	-	-	-	-
53	Existing	11	Standing	13	Standing	58	Pass
54	Existing	11	Standing	12	Standing	49	Pass
55	Existing	11	Standing	12	Standing	52	Pass
56	Existing	11	Standing	12	Standing	49	Pass
57	Existing	18	Walking	22	Uncomfortable	84	Pass
58	Existing	15	Standing	18	Walking	79	Pass
59	Existing	16	Walking	18	Walking	72	Pass
60	Existing	12	Standing	14	Standing	66	Pass

**Table 1: Pedestrian Wind Comfort and Safety Conditions - Existing Configuration**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
61	Existing	13	Standing	15	Standing	71	Pass
62	Existing	11	Standing	12	Standing	48	Pass
63	Existing	10	Sitting	12	Standing	54	Pass
64	Existing	9	Sitting	10	Sitting	44	Pass
65	Existing	10	Sitting	12	Standing	55	Pass
66	Existing	10	Sitting	13	Standing	55	Pass
67	Existing	12	Standing	14	Standing	57	Pass
68	Existing	10	Sitting	13	Standing	56	Pass
69	Existing	11	Standing	13	Standing	57	Pass
70	Existing	10	Sitting	12	Standing	57	Pass
71	Existing	9	Sitting	10	Sitting	45	Pass
72	Existing	12	Standing	14	Standing	55	Pass
73	Existing	12	Standing	13	Standing	56	Pass
74	Existing	12	Standing	14	Standing	56	Pass
75	Existing	12	Standing	14	Standing	59	Pass
76	Existing	13	Standing	15	Standing	57	Pass
77	Existing	13	Standing	15	Standing	63	Pass
78	Existing	13	Standing	16	Walking	73	Pass
79	Existing	16	Walking	20	Walking	84	Pass
80	Existing	16	Walking	19	Walking	78	Pass
81	Existing	15	Standing	17	Walking	71	Pass
Season	Months	Hours		Comfort Speed (km/h)		Safety Speed (km/h)	
Summer	May - October	6:00 - 23:00 for comfort		(20% Seasonal Exceedance)		(0.1% Annual Exceedance)	
Winter	November - April	6:00 - 23:00 for comfort		≤ 10	Sitting	≤ 90 Pass	
Annual	January - December	0:00 - 23:00 for safety		11 - 15	Standing	> 90 Exceeded	
Configurations				16 - 20	Walking		
Existing	Existing site and surroundings			> 20	Uncomfortable		



**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
1	Proposed Phase I	10	Sitting	11	Standing	56	Pass
	Proposed Phases I & II	15	Standing	17	Walking	69	Pass
	Future	15	Standing	16	Walking	68	Pass
2	Proposed Phase I	11	Standing	14	Standing	78	Pass
	Proposed Phases I & II	17	Walking	20	Walking	82	Pass
	Future	17	Walking	19	Walking	81	Pass
3	Proposed Phase I	11	Standing	13	Standing	69	Pass
	Proposed Phases I & II	17	Walking	20	Walking	77	Pass
	Future	17	Walking	19	Walking	76	Pass
4	Proposed Phase I	8	Sitting	9	Sitting	47	Pass
	Proposed Phases I & II	11	Standing	13	Standing	56	Pass
	Future	11	Standing	13	Standing	55	Pass
5	Proposed Phase I	8	Sitting	9	Sitting	42	Pass
	Proposed Phases I & II	10	Sitting	12	Standing	56	Pass
	Future	10	Sitting	11	Standing	55	Pass
6	Proposed Phase I	10	Sitting	11	Standing	49	Pass
	Proposed Phases I & II	12	Standing	15	Standing	64	Pass
	Future	12	Standing	14	Standing	63	Pass
7	Proposed Phase I	17	Walking	19	Walking	77	Pass
	Proposed Phases I & II	15	Standing	17	Walking	68	Pass
	Future	15	Standing	17	Walking	68	Pass
8	Proposed Phase I	15	Standing	18	Walking	87	Pass
	Proposed Phases I & II	15	Standing	18	Walking	78	Pass
	Future	14	Standing	17	Walking	74	Pass
9	Proposed Phase I	17	Walking	21	Uncomfortable	86	Pass
	Proposed Phases I & II	16	Walking	20	Walking	81	Pass
	Future	15	Standing	18	Walking	72	Pass
10	Proposed Phase I	16	Walking	21	Uncomfortable	93	Exceeded
	Proposed Phases I & II	16	Walking	21	Uncomfortable	88	Pass
	Future	15	Standing	19	Walking	81	Pass
11	Proposed Phase I	13	Standing	16	Walking	65	Pass
	Proposed Phases I & II	12	Standing	15	Standing	64	Pass
	Future	12	Standing	15	Standing	65	Pass
12	Proposed Phase I	11	Standing	14	Standing	60	Pass
	Proposed Phases I & II	11	Standing	13	Standing	58	Pass
	Future	10	Sitting	13	Standing	57	Pass
13	Proposed Phase I	12	Standing	14	Standing	65	Pass
	Proposed Phases I & II	12	Standing	15	Standing	71	Pass
	Future	12	Standing	15	Standing	71	Pass
14	Proposed Phase I	11	Standing	14	Standing	57	Pass
	Proposed Phases I & II	11	Standing	13	Standing	58	Pass
	Future	11	Standing	13	Standing	59	Pass



**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
15	Proposed Phase I	12	Standing	15	Standing	75	Pass
	Proposed Phases I & II	12	Standing	15	Standing	85	Pass
	Future	13	Standing	15	Standing	83	Pass
16	Proposed Phase I	13	Standing	15	Standing	71	Pass
	Proposed Phases I & II	13	Standing	15	Standing	79	Pass
	Future	13	Standing	15	Standing	78	Pass
17	Proposed Phase I	15	Standing	18	Walking	74	Pass
	Proposed Phases I & II	16	Walking	18	Walking	78	Pass
	Future	15	Standing	18	Walking	77	Pass
18	Proposed Phase I	19	Walking	22	Uncomfortable	93	Exceeded
	Proposed Phases I & II	19	Walking	22	Uncomfortable	91	Exceeded
	Future	18	Walking	21	Uncomfortable	88	Pass
19	Proposed Phase I	17	Walking	19	Walking	72	Pass
	Proposed Phases I & II	16	Walking	19	Walking	72	Pass
	Future	16	Walking	18	Walking	70	Pass
20	Proposed Phase I	17	Walking	20	Walking	83	Pass
	Proposed Phases I & II	17	Walking	19	Walking	79	Pass
	Future	16	Walking	18	Walking	77	Pass
21	Proposed Phase I	12	Standing	15	Standing	83	Pass
	Proposed Phases I & II	12	Standing	14	Standing	78	Pass
	Future	11	Standing	12	Standing	65	Pass
22	Proposed Phase I	15	Standing	18	Walking	86	Pass
	Proposed Phases I & II	14	Standing	16	Walking	77	Pass
	Future	13	Standing	15	Standing	70	Pass
23	Proposed Phase I	17	Walking	21	Uncomfortable	82	Pass
	Proposed Phases I & II	14	Standing	17	Walking	74	Pass
	Future	13	Standing	16	Walking	67	Pass
24	Proposed Phase I	11	Standing	14	Standing	82	Pass
	Proposed Phases I & II	14	Standing	18	Walking	84	Pass
	Future	14	Standing	17	Walking	84	Pass
25	Proposed Phase I	17	Walking	21	Uncomfortable	85	Pass
	Proposed Phases I & II	14	Standing	17	Walking	71	Pass
	Future	13	Standing	16	Walking	64	Pass
26	Proposed Phase I	15	Standing	19	Walking	81	Pass
	Proposed Phases I & II	15	Standing	17	Walking	70	Pass
	Future	14	Standing	16	Walking	69	Pass
27	Proposed Phase I	16	Walking	20	Walking	77	Pass
	Proposed Phases I & II	16	Walking	20	Walking	98	Exceeded
	Future	15	Standing	19	Walking	97	Exceeded
28	Proposed Phase I	14	Standing	18	Walking	75	Pass
	Proposed Phases I & II	13	Standing	17	Walking	73	Pass
	Future	12	Standing	15	Standing	67	Pass





**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
29	Proposed Phase I	14	Standing	17	Walking	81	Pass
	Proposed Phases I & II	17	Walking	20	Walking	83	Pass
	Future	16	Walking	19	Walking	82	Pass
30	Proposed Phase I	14	Standing	18	Walking	78	Pass
	Proposed Phases I & II	15	Standing	18	Walking	77	Pass
	Future	15	Standing	18	Walking	76	Pass
31	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	17	Walking	75	Pass
	Future	14	Standing	16	Walking	74	Pass
32	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	18	Walking	91	Exceeded
	Future	14	Standing	17	Walking	89	Pass
33	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	13	Standing	15	Standing	76	Pass
	Future	12	Standing	15	Standing	73	Pass
34	Proposed Phase I	17	Walking	20	Walking	79	Pass
	Proposed Phases I & II	13	Standing	16	Walking	79	Pass
	Future	12	Standing	15	Standing	76	Pass
35	Proposed Phase I	14	Standing	17	Walking	68	Pass
	Proposed Phases I & II	17	Walking	20	Walking	83	Pass
	Future	17	Walking	20	Walking	81	Pass
36	Proposed Phase I	11	Standing	13	Standing	63	Pass
	Proposed Phases I & II	19	Walking	22	Uncomfortable	84	Pass
	Future	19	Walking	22	Uncomfortable	83	Pass
37	Proposed Phase I	11	Standing	13	Standing	56	Pass
	Proposed Phases I & II	18	Walking	21	Uncomfortable	86	Pass
	Future	17	Walking	20	Walking	85	Pass
38	Proposed Phase I	15	Standing	17	Walking	71	Pass
	Proposed Phases I & II	17	Walking	20	Walking	77	Pass
	Future	17	Walking	19	Walking	76	Pass
39	Proposed Phase I	15	Standing	17	Walking	74	Pass
	Proposed Phases I & II	16	Walking	18	Walking	75	Pass
	Future	16	Walking	18	Walking	75	Pass
40	Proposed Phase I	15	Standing	17	Walking	72	Pass
	Proposed Phases I & II	17	Walking	20	Walking	79	Pass
	Future	17	Walking	20	Walking	78	Pass
41	Proposed Phase I	13	Standing	15	Standing	64	Pass
	Proposed Phases I & II	13	Standing	15	Standing	64	Pass
	Future	13	Standing	15	Standing	64	Pass
42	Proposed Phase I	15	Standing	17	Walking	72	Pass
	Proposed Phases I & II	14	Standing	17	Walking	84	Pass
	Future	14	Standing	17	Walking	82	Pass



**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
43	Proposed Phase I	17	Walking	20	Walking	82	Pass
	Proposed Phases I & II	16	Walking	19	Walking	74	Pass
	Future	16	Walking	19	Walking	73	Pass
44	Proposed Phase I	12	Standing	14	Standing	59	Pass
	Proposed Phases I & II	16	Walking	20	Walking	82	Pass
	Future	16	Walking	19	Walking	81	Pass
45	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	13	Standing	15	Standing	62	Pass
	Future	12	Standing	15	Standing	60	Pass
46	Proposed Phase I	15	Standing	18	Walking	76	Pass
	Proposed Phases I & II	18	Walking	22	Uncomfortable	86	Pass
	Future	17	Walking	21	Uncomfortable	83	Pass
47	Proposed Phase I	10	Sitting	12	Standing	48	Pass
	Proposed Phases I & II	11	Standing	13	Standing	57	Pass
	Future	11	Standing	13	Standing	55	Pass
48	Proposed Phase I	15	Standing	18	Walking	76	Pass
	Proposed Phases I & II	17	Walking	20	Walking	83	Pass
	Future	16	Walking	19	Walking	78	Pass
49	Proposed Phase I	13	Standing	16	Walking	68	Pass
	Proposed Phases I & II	16	Walking	18	Walking	72	Pass
	Future	15	Standing	17	Walking	67	Pass
50	Proposed Phase I	14	Standing	17	Walking	69	Pass
	Proposed Phases I & II	16	Walking	18	Walking	75	Pass
	Future	15	Standing	18	Walking	71	Pass
51	Proposed Phase I	13	Standing	16	Walking	67	Pass
	Proposed Phases I & II	16	Walking	18	Walking	74	Pass
	Future	16	Walking	18	Walking	73	Pass
52	Proposed Phase I	12	Standing	14	Standing	60	Pass
	Proposed Phases I & II	14	Standing	16	Walking	64	Pass
	Future	14	Standing	16	Walking	63	Pass
53	Proposed Phase I	11	Standing	13	Standing	58	Pass
	Proposed Phases I & II	16	Walking	18	Walking	73	Pass
	Future	15	Standing	18	Walking	72	Pass
54	Proposed Phase I	13	Standing	15	Standing	64	Pass
	Proposed Phases I & II	18	Walking	21	Uncomfortable	84	Pass
	Future	18	Walking	21	Uncomfortable	83	Pass
55	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	17	Walking	72	Pass
	Future	13	Standing	16	Walking	69	Pass
56	Proposed Phase I	13	Standing	16	Walking	65	Pass
	Proposed Phases I & II	20	Walking	24	Uncomfortable	91	Exceeded
	Future	19	Walking	23	Uncomfortable	89	Pass



**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
57	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	16	Walking	67	Pass
	Future	13	Standing	15	Standing	66	Pass
58	Proposed Phase I	13	Standing	14	Standing	63	Pass
	Proposed Phases I & II	18	Walking	22	Uncomfortable	91	Exceeded
	Future	18	Walking	21	Uncomfortable	89	Pass
59	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	17	Walking	73	Pass
	Future	14	Standing	16	Walking	71	Pass
60	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	13	Standing	15	Standing	73	Pass
	Future	12	Standing	15	Standing	72	Pass
61	Proposed Phase I	11	Standing	13	Standing	55	Pass
	Proposed Phases I & II	19	Walking	23	Uncomfortable	89	Pass
	Future	17	Walking	21	Uncomfortable	87	Pass
62	Proposed Phase I	12	Standing	14	Standing	61	Pass
	Proposed Phases I & II	14	Standing	16	Walking	68	Pass
	Future	13	Standing	14	Standing	64	Pass
63	Proposed Phase I	12	Standing	14	Standing	63	Pass
	Proposed Phases I & II	11	Standing	12	Standing	61	Pass
	Future	10	Sitting	11	Standing	51	Pass
64	Proposed Phase I	13	Standing	16	Walking	72	Pass
	Proposed Phases I & II	14	Standing	16	Walking	65	Pass
	Future	13	Standing	15	Standing	60	Pass
65	Proposed Phase I	14	Standing	17	Walking	75	Pass
	Proposed Phases I & II	13	Standing	14	Standing	60	Pass
	Future	12	Standing	13	Standing	56	Pass
66	Proposed Phase I	13	Standing	15	Standing	69	Pass
	Proposed Phases I & II	14	Standing	18	Walking	79	Pass
	Future	14	Standing	16	Walking	78	Pass
67	Proposed Phase I	15	Standing	16	Walking	69	Pass
	Proposed Phases I & II	13	Standing	15	Standing	66	Pass
	Future	12	Standing	14	Standing	65	Pass
68	Proposed Phase I	15	Standing	18	Walking	76	Pass
	Proposed Phases I & II	15	Standing	18	Walking	78	Pass
	Future	14	Standing	17	Walking	77	Pass
69	Proposed Phase I	15	Standing	17	Walking	75	Pass
	Proposed Phases I & II	12	Standing	15	Standing	69	Pass
	Future	11	Standing	14	Standing	68	Pass
70	Proposed Phase I	11	Standing	13	Standing	62	Pass
	Proposed Phases I & II	11	Standing	13	Standing	56	Pass
	Future	11	Standing	13	Standing	56	Pass



**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
71	Proposed Phase I	11	Standing	12	Standing	55	Pass
	Proposed Phases I & II	14	Standing	17	Walking	67	Pass
	Future	13	Standing	15	Standing	65	Pass
72	Proposed Phase I	13	Standing	16	Walking	65	Pass
	Proposed Phases I & II	14	Standing	17	Walking	79	Pass
	Future	14	Standing	17	Walking	77	Pass
73	Proposed Phase I	15	Standing	17	Walking	82	Pass
	Proposed Phases I & II	13	Standing	15	Standing	74	Pass
	Future	13	Standing	15	Standing	75	Pass
74	Proposed Phase I	13	Standing	16	Walking	76	Pass
	Proposed Phases I & II	13	Standing	15	Standing	73	Pass
	Future	12	Standing	14	Standing	71	Pass
75	Proposed Phase I	10	Sitting	12	Standing	57	Pass
	Proposed Phases I & II	10	Sitting	12	Standing	58	Pass
	Future	10	Sitting	12	Standing	60	Pass
76	Proposed Phase I	11	Standing	13	Standing	54	Pass
	Proposed Phases I & II	11	Standing	13	Standing	54	Pass
	Future	11	Standing	13	Standing	54	Pass
77	Proposed Phase I	11	Standing	13	Standing	54	Pass
	Proposed Phases I & II	11	Standing	13	Standing	53	Pass
	Future	11	Standing	13	Standing	53	Pass
78	Proposed Phase I	11	Standing	13	Standing	51	Pass
	Proposed Phases I & II	11	Standing	13	Standing	52	Pass
	Future	11	Standing	13	Standing	53	Pass
79	Proposed Phase I	13	Standing	16	Walking	71	Pass
	Proposed Phases I & II	13	Standing	15	Standing	69	Pass
	Future	12	Standing	15	Standing	65	Pass
80	Proposed Phase I	14	Standing	16	Walking	65	Pass
	Proposed Phases I & II	14	Standing	16	Walking	66	Pass
	Future	14	Standing	16	Walking	66	Pass
81	Proposed Phase I	14	Standing	16	Walking	76	Pass
	Proposed Phases I & II	15	Standing	18	Walking	79	Pass
	Future	13	Standing	16	Walking	75	Pass
82	Proposed Phase I	9	Sitting	11	Standing	61	Pass
	Proposed Phases I & II	10	Sitting	12	Standing	71	Pass
	Future	10	Sitting	12	Standing	70	Pass
83	Proposed Phase I	10	Sitting	12	Standing	56	Pass
	Proposed Phases I & II	10	Sitting	12	Standing	61	Pass
	Future	10	Sitting	12	Standing	59	Pass
84	Proposed Phase I	11	Standing	12	Standing	62	Pass
	Proposed Phases I & II	11	Standing	13	Standing	69	Pass
	Future	11	Standing	13	Standing	68	Pass

**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
85	Proposed Phase I	13	Standing	16	Walking	69	Pass
	Proposed Phases I & II	14	Standing	17	Walking	75	Pass
	Future	12	Standing	15	Standing	72	Pass
86	Proposed Phase I	13	Standing	14	Standing	60	Pass
	Proposed Phases I & II	12	Standing	14	Standing	65	Pass
	Future	11	Standing	13	Standing	63	Pass
87	Proposed Phase I	13	Standing	16	Walking	76	Pass
	Proposed Phases I & II	13	Standing	16	Walking	76	Pass
	Future	12	Standing	15	Standing	74	Pass
88	Proposed Phase I	15	Standing	19	Walking	83	Pass
	Proposed Phases I & II	15	Standing	19	Walking	83	Pass
	Future	14	Standing	18	Walking	81	Pass
89	Proposed Phase I	15	Standing	18	Walking	70	Pass
	Proposed Phases I & II	14	Standing	18	Walking	72	Pass
	Future	14	Standing	17	Walking	70	Pass
90	Proposed Phase I	15	Standing	18	Walking	72	Pass
	Proposed Phases I & II	15	Standing	18	Walking	73	Pass
	Future	14	Standing	17	Walking	71	Pass
91	Proposed Phase I	9	Sitting	10	Sitting	54	Pass
	Proposed Phases I & II	14	Standing	15	Standing	67	Pass
	Future	13	Standing	14	Standing	65	Pass
92	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	15	Standing	17	Walking	78	Pass
	Future	15	Standing	16	Walking	77	Pass
93	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	19	Walking	21	Uncomfortable	82	Pass
	Future	18	Walking	20	Walking	82	Pass
94	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	21	Uncomfortable	24	Uncomfortable	99	Exceeded
	Future	20	Walking	23	Uncomfortable	96	Exceeded
95	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	20	Walking	23	Uncomfortable	94	Exceeded
	Future	19	Walking	22	Uncomfortable	89	Pass
96	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	21	Uncomfortable	25	Uncomfortable	104	Exceeded
	Future	20	Walking	23	Uncomfortable	98	Exceeded
97	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	19	Walking	24	Uncomfortable	112	Exceeded
	Future	19	Walking	23	Uncomfortable	110	Exceeded
98	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	20	Walking	25	Uncomfortable	109	Exceeded
	Future	19	Walking	23	Uncomfortable	109	Exceeded



**Table 2: Pedestrian Wind Comfort and Safety Conditions - Proposed Phases and Future Configurations**

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
99	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	17	Walking	20	Walking	76	Pass
	Future	17	Walking	20	Walking	74	Pass
100	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	16	Walking	68	Pass
	Future	13	Standing	15	Standing	62	Pass
101	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	14	Standing	15	Standing	69	Pass
	Future	14	Standing	15	Standing	69	Pass
102	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	16	Walking	18	Walking	76	Pass
	Future	16	Walking	17	Walking	69	Pass
103	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	16	Walking	17	Walking	79	Pass
	Future	15	Standing	17	Walking	75	Pass
104	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	15	Standing	18	Walking	82	Pass
	Future	15	Standing	17	Walking	78	Pass
105	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	17	Walking	20	Walking	90	Pass
	Future	18	Walking	20	Walking	89	Pass
106	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	20	Walking	24	Uncomfortable	116	Exceeded
	Future	20	Walking	25	Uncomfortable	111	Exceeded
107	Proposed Phase I	-	-	-	-	-	-
	Proposed Phases I & II	17	Walking	21	Uncomfortable	118	Exceeded
	Future	17	Walking	22	Uncomfortable	114	Exceeded

Season	Months	Hours	Comfort Speed (km/h)	Safety Speed (km/h)
Summer	May - October	6:00 - 23:00 for comfort	(20% Seasonal Exceedance)	(0.1% Annual Exceedance)
Winter	November - April	6:00 - 23:00 for comfort	≤ 10 Sitting	≤ 90 Pass
Annual	January - December	0:00 - 23:00 for safety	11 - 15 Standing	> 90 Exceeded
<b>Configurations</b>			16 - 20 Walking	
Proposed Phase I	Phase I with existing surroundings		> 20 Uncomfortable	
Proposed Phases I & II	Phases I & II with existing surroundings			
Future	Phases I & II with future surroundings			