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March 29, 2022

Preliminary Pedestrian Level Wind Assessment
272 Innisfil Street
Barrie, Ontario

Theakston Project No. 22824

Submitted To:

Typhon Group Limited
c/o Ollie Switch Developments
110-5409 Eglinton Avenue
Toronto, ON

Submitted By:

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Stephen Pollock, P.Eng.

1. EXECUTIVE SUMMARY

Based upon our analysis, wind conditions on and around the proposed 272 Innisfil Street Development site are considered mainly suitable for standing, or better, throughout the year with localised walking conditions through the winter months along Jacobs Terrace and Innisfil Street, in the existing setting.

The proposed Development occupies a portion of a block of land bounded by Jacobs Terrace to the north, Anne Street South to the west, Caroline Street to the south, and Innisfil Street to the east, in the City of Barrie. A low-rise warehouse building currently occupies the site and will be removed. The development site shares the block with low-rise commercial and residential buildings, as well as related open space and mature vegetation.

The 272 Innisfil Street Development involves a proposal to construct a 17 storey residential building with a 12 and 10 storey wing extending to the east and a 4 storey podium. Outdoor Amenity Spaces are proposed on the 5th level atop the podium as well as on the 13th level atop the wing to the east of the tower.

With inclusion of the proposed Development, prevailing pedestrian comfort conditions are predicted to remain comfortable and suitable for mainly standing, or better, under normal to high ambient wind conditions. Localised areas proximate to the northwest and northeast corners of the building will realise windier conditions, but remain suitable for walking, or better, throughout the year. The overall upset to pedestrian comfort conditions with inclusion of the proposed Development is well managed by the proposed Development's wind mitigative design features, resulting in conditions that are, in many cases, similar to the existing setting.

Additional mitigation is recommended for the Outdoor Amenity Spaces at the 5th and 13th levels in order to achieve conditions that are seasonally suitable for the intended uses. Comfort conditions expected at the proposed Development site are in many cases similar to the existing setting, and considered appropriate to the surrounding context, based upon qualitative analysis.

Should you have questions or comments, please do not hesitate to call.

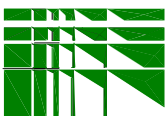
Kindest regards,



Stephen Pollock, P.Eng



Nicole Murrell, M.Eng



2. INTRODUCTION

We have been retained to conduct a preliminary pedestrian level wind assessment for the proposed residential development at 272 Innisfil Street in Barrie, Ontario, herein referred to as the proposed Development. The assessment is based upon project plans prepared by SRN Architects. The objective of this primary analysis is to estimate pedestrian level wind conditions resulting from inclusion of the proposed Development, relative to comfort and safety. The analysis is based upon the historical wind conditions and our experience with similar microclimatic analyses that were conducted on other properties in the area and/or on similar projects. The qualitative assessment utilises numerical analysis of local wind data predicted at the site and provides a synopsis of pedestrian comfort conditions anticipated on, and adjacent to, the property.

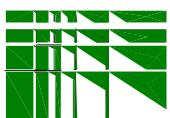
3. SITE INFORMATION & PROPOSED DEVELOPMENT

The proposed Development occupies the northeastern portion of a block of land bounded by Jacobs Terrace to the north, Anne Street South to the west, Caroline Street to the south, and Innisfil Street to the east. The site is currently occupied by a low-rise warehouse building that will be removed and related surface parking (Figure 1). The site shares the block with low-rise commercial and residential buildings, as well as related open space and mature vegetation.

It is proposed that the site be redeveloped to include a 17 storey residential building with a 12 and 10 storey wing extending to the east and a 4 storey podium. Rooftop Amenity Space is proposed on the 5th level atop the podium as well as on the 13th level atop the wing to the east of the tower. The Main Residential Entrances to the building are proposed along the northern and eastern façades, accessed via Jacobs Terrace and Innisfil Street, respectively. Vehicular access to the building is similarly proposed via private driveways connecting from Jacobs Terrace and Innisfil Street. The site plan is shown in Figure 2.

4. SURROUNDING AREA

Residential, commercial, institutional development, related open areas, and mature vegetation, as indicated in Figure 1, for all intents and purposes, surround the site. Lands to the immediate west through north to east of the Development site are comprised of low-rise commercial buildings and surrounding open lands and parking areas. Lands to the immediate south of the site are occupied by a low-rise commercial building and



surrounding parking, with lands beyond accommodating low-rise residential neighbourhoods with related mature vegetation.

The suburban landscape has mitigative effects upon the wind climate to varying degrees, providing surface roughness that reduces the wind's energy at the pedestrian level. Conversely, the more open areas present a relatively smooth surface to approaching winds, affording wind opportunity to accelerate. Figure 1 depicts the site and its immediate context.



272 Innisfil Street proposed Development Site Looking Southwest from Innisfil Street

5. METEOROLOGICAL DATA

For studies in the City of Barrie, historical weather data recorded at the Lake Simcoe Regional Airport are analysed for the seasons, and the resulting wind roses are presented as velocity and percent frequency in Figure 3. The Airport is approximately 17km to the northeast of the site, which considered in concert with the site's distance from Lake Simcoe indicate the wind climate at the proposed Development is well represented by said Airport. From the historical wind data it is apparent that winds can occur from any direction, however, the data indicates the directional characteristics of strong winds at Lake Simcoe Regional Airport are most likely to occur from the west by northwest with a far less significant northeasterly and southwesterly component.

The Historical meteorological data presented in the wind roses is measured at an elevation of 10m. This data is numerically processed with AERMET, a meteorological processor

that considers wind speed and direction. Thus, representative ground level velocities at a height of 2m, for an urban macroclimate, are 52% of the mean values indicated on the wind rose, (for suburban and rural macroclimates the values are 63% and 78% respectively).

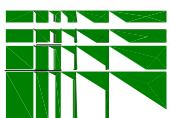
The macroclimate for the subject site is considered suburban. Figure 3 also depicts wind velocity categories relative to directionality at the airport with strong winds, greater than 30km/h, occurring approximately 1% of the time during the summer and 4% during the winter, and emanating from the aforementioned quadrants during both the winter and summer seasons, with calm conditions occurring approximately 7% of the time during the summer and 6% of the time during winter.

6. COMFORT CRITERIA

The assignment of pedestrian comfort takes into consideration pedestrian safety and comfort attributable to mean and gust wind speeds. Gusts have a significant bearing on safety, as they can affect a person's balance, while winds flowing at or near mean velocities have a greater influence upon comfort. The effects of mean and gust wind conditions are described as suitable for Sitting or Standing or Walking over 80% of the time. In order for a point to be rated as suitable for Sitting, for example, the wind conditions must be less than 10 km/h. The rating would include conditions ranging from calm up to wind speeds that would rustle tree leaves or wave flags slightly. As the name infers, the category is recommended for outdoor space such as terraces and patios where people might sit for extended periods and generally applied to the summer months.

The Standing category is slightly more tolerant of wind, including wind speeds from calm up to 14km/h. In this situation, the wind would rustle tree leaves and, on occasion, move smaller branches while flags would be partially extended. This category would be suitable for locations where people might sit for short periods or stand in relative comfort, such as building entrances and drop-off areas. The Walking category includes wind speeds from calm up to 19km/h. These winds would set tree limbs in motion, lift leaves, litter and dust, and the locations are suitable for sidewalks and parking. The Uncomfortable category covers a broad range of wind conditions, including wind speeds above 19km/h. These winds would set trees in motion, cause inconvenience when walking, and are not generally suitable to activities. Safety concerns are associated with wind speeds that are beyond the uncomfortable category, being sufficient to affect a person's balance.

Many variables contribute to a person's perception of the wind environment beyond the seasonal variations presented. While people are generally more tolerant of wind during the summer months, than during the winter, due to the wind cooling effect, people become



acclimatized to a particular wind environment. Persons dwelling near the shore of an ocean, large lake or open field are more tolerant of wind than someone residing in a sheltered wind environment.

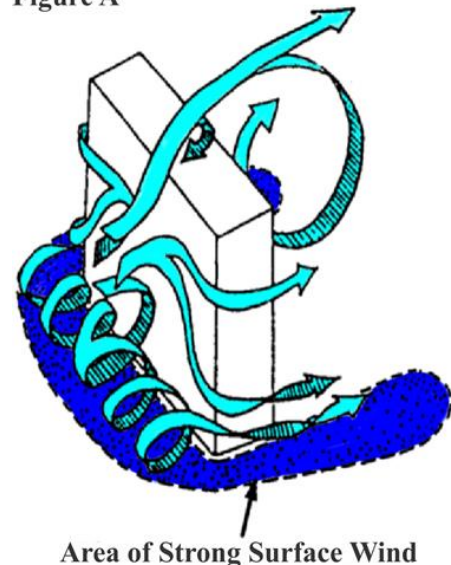
7. PEDESTRIAN LEVEL WIND ASSESSMENT

Variables beyond the orientation and conformation of a proposed development must be considered in predicting wind speed and occurrence at a given location. These include the previously discussed historical wind climate, surrounding terrain, and neighbouring buildings, each of which is quantified and/or analysed in the microclimatic analysis of pedestrian level winds. The results of such quantitative analyses have afforded a knowledge base that allows an estimation of pedestrian level wind conditions.

The site and the surrounds, in the present circumstances as a mix of suburban and urban residential neighbourhoods, commercial and industrial developments, and open spaces, have a sympathetic relationship with the existing wind climate. Urban development provides turbulence inducing surface roughness that can be wind friendly, while open settings afford wind the opportunity to accelerate as the wind's boundary layer profile thickens at the pedestrian level, owing to lack of surface roughness. Transition zones from open to urban settings can prove problematic, as winds exacerbated by the open setting are redirected to flow over, down, around and between buildings.

High-rise buildings may exacerbate wind conditions within their immediate vicinity, to varying degrees, by redirecting wind currents to the ground level and along streets and open areas. In general, wind will split upon impact with a high-rise building, with portions flowing down the face of the building to the pedestrian level as downwash, where it is deflected, or otherwise redirected to flow along the building and around its corners, creating localized zones of increased pedestrian level wind. Conversely, points situated to the leeward, or in the wake of buildings will often enjoy an improvement in pedestrian comfort. As such, it is reasonable to expect inclusion of the proposed development will alter wind conditions under specific wind directions and velocities from those of the existing site condition, resulting in an improvement over the existing conditions at some points, with more windy conditions at others.

Figure A



Discussion of Northerly Winds

Existing Setting

Northerly winds make up a less significant percentage of the prevailing wind climate; they tend to be of moderate velocity, and are preconditioned upon approach by mainly open lands interspersed with a few low-rise buildings. Lands to the north of the site present a relatively smooth terrain providing little surface roughness to winds, and as such wind will be afforded opportunity to accelerate on approach.

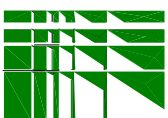
This results in somewhat windy conditions at the windward corners of the site, particularly the northeast corner proximate to the intersection of Innisfil Street and Jacobs Terrace. The area is susceptible to northerly winds flowing around the corner of the building, however the space is suitable for walking, or better throughout the year in the existing setting. The remainder of the site and immediate surrounds are expected to be suitable for standing, or better, throughout the year.

Conditions along Jacobs Terrace proximate to the Development site in the existing setting are mainly suitable for standing throughout the year, with the exception of areas near the intersection with Innisfil Street, as discussed above, that will realise occasional walking conditions. Innisfil Street and Anne Street South are more susceptible to northerly winds flowing in approximate alignment with the streets, however the sidewalks realise similar conditions, mainly suitable for standing throughout the year with occasional walking conditions through the winter months. Caroline Street is better protected from the northerly wind climate by the flanking low-rise residential buildings and mature vegetation and as such realises more comfortable conditions, mainly suitable for sitting on the occasion of northerly winds.

Proposed Setting

Northerly winds approaching at higher streamlines will come into contact with the upper levels of the northern façades of the proposed Development. The winds will display a propensity to split upon contact with the building to flow up and over the rooftop, along the façades of the building, around the corners and beyond, and/or downwash towards the pedestrian level below. The winds that deflect to flow up and around the proposed Development at elevations above the pedestrian level will have little consequence on the pedestrian level wind climate. Downwash is well mitigated by the large 4 storey podium and steps in the northerly façades that direct winds to flow around the building, above the pedestrian level. Downwash that finds its way to the pedestrian level will be relatively limited, for the above discussed reasons, however downwash will impact comfort conditions in localised areas along Jacobs Terrace.

Northerly winds approaching closer to the pedestrian level will come into contact with the northmost façade of the 4 storey podium where the wind streamlines will similarly



split and flow along the façades of the building, and around corners beyond. This will create localised windy conditions at the windward corners, particularly near the northwest corner and intersection of Jacobs Terrace and Innisfil Street. As such, conditions along the northern, eastern, and western façades of the building are mainly predicted suitable for standing on the occasion of northerly winds, with localised conditions suitable for walking near the northwest and northeast corners. Areas to the south of the proposed Development are within the aerodynamic shade region of the building for northerly winds and as such will realise conditions suitable for sitting throughout much of the year.

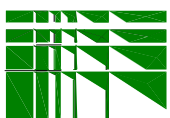
The Main Entrances to the proposed Development along the northern and eastern façades are set back into notches in the building and are protected from downwash by canopies and building overhangs and as such are protected from much of the northerly wind climate. The entrances will be suitable for standing or sitting throughout the year, and appropriate for the intended uses, on the occasion of northerly winds.

Northerly winds that formerly flowed across Jacobs Terrace and the low-rise site will be interrupted by the proposed Development. As such, Jacobs Terrace will be exposed to winds that are redirected to flow down and around the northern façade of the building, resulting in conditions that are mainly rated for standing, with localised walking conditions proximate to the northwest and northeast corners of the proposed Development. Innisfil Street will realise an increase in northerly winds as winds that formerly flowed over the low-rise site will be redirected to flow around the building and along Innisfil Street, however the sidewalks are predicted to remain suitable for standing or walking throughout the year. Anne Street South will realise similar conditions to the existing setting, mainly suitable for standing throughout the year, and Caroline Street will realise additional blockage from northerly winds, and remain suitable for sitting throughout the year.

Discussion of Westerly Winds

Existing Setting

Westerly winds make up a very significant percentage of the prevailing wind climate; they tend to be of moderate to higher velocity, and are preconditioned upon approach by a slightly coarser terrain than northerly winds. Lands to the south of Jacobs Terrace to the west of the proposed Development site are mainly occupied by low-rise commercial/warehouse buildings with surrounding open parking areas and mature vegetation. Lands to the north of Jacobs Terrace to the west of the site tend towards more open lands with a few low-rise commercial/warehouse buildings. The lands present a somewhat coarse approach, which will induce turbulence into the wind's approach flow, reducing the wind's energy realized at the site, particularly at the pedestrian level.



Winds emanating from northwesterly directions will be afforded more opportunity to accelerate as they approach the site.

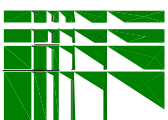
Much of the proposed Development site is in the aerodynamic shade region of the above-mentioned low-rise commercial/warehouse buildings along the south side of Jacobs Terrace. This results in fairly comfortable conditions throughout the existing site, suitable for standing throughout much of the year, with localised walking conditions proximate to the existing building's windward corners through the winter months. Jacobs Terrace is susceptible to westerly winds flowing in approximate alignment with the street, resulting in conditions suitable for standing or walking throughout the year in the existing setting. Anne Street South, Innisfil Street, and Caroline Street are better protected from westerly winds by the surrounds and as such realise conditions mainly suitable for sitting or standing throughout the year.

Proposed Setting

Similar to northerly winds, westerly winds approaching in higher streamlines will come into contact with the western façade of the 17 storey tower. These winds will split to flow up and over the tower, along the façades, around the corners and beyond. Portions of the westerly wind climate will also downwash towards the pedestrian level, however this is well mitigated by the large 4 storey podium that will interrupt winds downwashing from the tower before reaching the pedestrian level.

Winds approaching at the pedestrian level, emanating from southwesterly directions, are well mitigated by the windward low-rise buildings that direct much of the wind climate to flow up and over the rooftops above the pedestrian level. As such these winds will contact upper levels of the proposed Development, as discussed above. Conversely, northwesterly winds approaching at the pedestrian level will be afforded opportunity to accelerate from over more open lands and will contact the northwest corner of the proposed Development. These winds will split to flow around the corner and along the western and northern façades of the building, resulting in localised windy conditions at the corner, suitable for walking, and conditions suitable for standing as winds dissipate along the façades. The Main Entrance, located along the northern façade of the building, is set back into a notch in the façade and as such is protected from winds flowing along the building, resulting in conditions suitable for standing or sitting throughout the year, and appropriate for the intended use.

Wind conditions along Anne Street South and Caroline Street will remain similar to the existing setting, suitable for sitting or standing throughout the year. Jacobs Terrace will be exposed to larger portions of the wind climate that are directed to flow around the proposed Development, resulting in conditions that are mainly suitable for walking throughout much of the year, with more comfortable conditions, suitable for standing, throughout the summer months. Localised areas of Innisfil Street will be in the



aerodynamic shade region of the proposed Development for westerly winds, resulting in sitting conditions in these areas, with the remainder of the street remaining suitable for sitting or standing throughout the year.

Discussion of Southerly Winds

Existing Setting

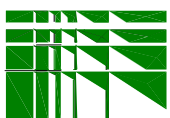
Southerly winds make up a less significant percentage of the prevailing wind climate, tend to be of lower velocity, and are mitigated by low-rise residential and commercial buildings and related mature vegetation to the south of the site.

The proposed Development site is for all intents and purposes in the aerodynamic shade region of the above-mentioned that direct much of the southerly wind climate to flow up and over the site, above the pedestrian level. This results in comfortable wind conditions throughout the existing site on the occasion of southerly winds, suitable for sitting or standing throughout the year. Jacobs Terrace realises relatively comfortable conditions in the existing setting, suitable for sitting in areas more sheltered from southerly winds, and suitable for standing adjacent to open parking areas along the street. Innisfil Street and Anne Street South are more susceptible to southerly winds flowing in approximate alignment with the streets, however the sidewalks are mainly suitable for standing throughout the year with occasional walking conditions through the winter months. Caroline Street is well protected from southerly winds by the flanking low-rise residential buildings and mature vegetation and as such realises more comfortable conditions, mainly suitable for sitting.

Proposed Setting

Southerly winds approaching the site in higher streamlines will come into contact with the southern façades of the proposed Development's 17 storey tower and 10 and 12 storey wings. These winds will split to flow up and over, or around, the building, with little consequence at the pedestrian level, or downwash down the southern façades of the building. The downwash will be well mitigated by the large 4 storey podium that will deflect the winds to flow around the building at elevations above the pedestrian level. Given the significant stepped conditions, minimal downwash will find its way to the pedestrian level and as such is not predicted to cause an influence upon pedestrian comfort conditions realised along the flanking streets and neighbouring properties.

Southerly winds approaching near the pedestrian level are well mitigated by the windward low-rise residential neighbourhoods and mature vegetation that direct winds to flow above the pedestrian level and contact upper levels of the proposed Development, resulting in conditions as discussed above.



Anne Street South and Caroline Street will realise conditions similar to the existing setting, suitable for sitting or standing throughout the year. Localised areas of Jacobs Terrace will be in the aerodynamic shade region of the proposed Development for southerly winds, resulting in more comfortable conditions than the existing setting, and remaining suitable for sitting or standing throughout the year. Innisfil Street will be exposed to larger portions of the southerly wind climate that are directed to flow around the proposed Development, resulting in conditions that are windier than the existing setting, but remain suitable for standing or walking throughout the year.

Discussion of Easterly Winds

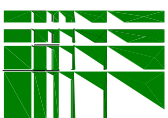
Existing Setting

Easterly winds are infrequent, and as indicated by the historical weather data, of light to moderate velocity, however they are often associated with storms. The approach terrain is comprised of low-rise commercial/warehouse buildings and large open parking areas that present varied surface roughness to winds. Winds approaching from southeasterly directions are more effectively mitigated by said low-rise buildings as they approach the site, whereas winds from northeasterly directions are afforded more opportunity to accelerate as they approach from more open lands.

Portions of the site are in the aerodynamic shade region of the above-mentioned low-rise commercial/warehouse buildings to the southeast of the site, resulting in conditions mainly suitable for standing to the southeast of the existing building and along the respective portions of Innisfil Street. Areas proximate to the northeast corner of the existing building, and the intersection of Innisfil Street and Jacobs Terrace, are more exposed to the easterly wind climate, resulting in localised conditions suitable for walking through the winter months. Remaining portions of Jacobs Terrace are also susceptible to easterly winds flowing in approximate alignment with the street, resulting in conditions suitable for standing or walking throughout the year in the existing setting. Anne Street South and Caroline Street are better protected from easterly winds by the surrounds and as such realise conditions mainly suitable for sitting throughout the year.

Proposed Setting

Winds that contact the eastmost façades of the 10 and 12 storey wings will split to flow up and over the wings and contact the 17 storey tower beyond. Other portions will split to flow around the façades or downwash towards the pedestrian level below. Downwash will be well mitigated by the 12 and 10 storey wings as well as the 4 storey podium that will interrupt significant portions of the easterly wind climate at elevations above the pedestrian level.



Southeasterly winds approaching near the pedestrian level will be well mitigated by the windward low-rise buildings that will direct much of the wind climate to flow up and over the rooftops above the pedestrian level. Northeasterly winds approaching at the pedestrian level will be afforded opportunity to accelerate from over open lands and will contact the northerly portions of the eastern façade of the proposed Development. These winds will split to flow along the eastern façade of the building and around the northeastern corner, resulting in localised windy conditions at the corner, suitable for walking throughout the winter and shoulder seasons. Conditions realised along the remaining portions of northern façade, and the southern façade of the building, will be mainly suitable for standing, with occasional walking conditions in the winter months.

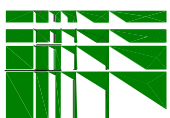
The Main Entrances to the proposed Development along the northern and eastern façades are set back into notches in the building and are protected from downwash by canopies and building overhangs and as such are protected from much of the easterly wind climate. The entrances will be suitable for standing or sitting throughout the year, and appropriate for the intended uses, on the occasion of easterly winds.

Jacobs Terrace will be exposed to easterly winds that are directed to flow around the proposed Development, resulting in conditions that are mainly suitable for standing or walking throughout the year. Innisfil Street will realise conditions mainly suitable for standing throughout the year with localised areas near the intersection with Jacobs Terrace that are rated for walking throughout the winter and shoulder months. Wind conditions along Anne Street South and Caroline Street will remain similar to the existing setting, suitable for mainly sitting year-round.

Discussion of Ordinal Winds

Ordinal Winds approaching from northwesterly, northeasterly, southeasterly, and southwesterly directions will contact the façades of the proposed development at skewed angles, and as such will for the most part, split upon contact with the building's corners and flow along the façades, resulting in similar conditions to those discussed above. Wind approaching at near right angles to the building generally results in the propensity for a downwash of wind to the pedestrian level, the magnitude of which is dependent upon several variables. Those variables commanding primary consideration are the building height, and the effective width of the presented façade. It is intuitively obvious that short and/or narrow façades will reduce the propensity for downwash, and the more narrow façades of the proposed Development presented to ordinal winds will display a marked tendency to deflect wind to flow over and/or around the building.

Mitigation of downwash is well understood and was applied through design whereby the building features a large 4 storey podium as well as a stepped wing extending to the



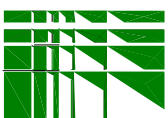
east of the tower. This, in addition to the building being punctuated with balconies, overhangs and other design features, as discussed in the Mitigation Strategies Section of this report, were employed to mitigate the effects of winds at the pedestrian level. At the pedestrian and amenities levels, landscape features incorporating plantings, and other features, help to control pedestrian comfort conditions.

Discussion of Outdoor Amenity

Outdoor Amenity Space is proposed on the roof of the podium at the 5th level. The area is, for the most part, higher than the neighbouring surroundings and as such will realise wind streamlines from most historically significant directions that are not significantly exacerbated or moderated by the surroundings. As such the space will realise wind conditions representative of its height, which will not be inordinate. Localized areas of the space are within the aerodynamic shade region of the proposed Development for specific directions, but exposed to winds from others. As such, much of the space is exposed to winds that are exacerbated by the tower from specific directions, resulting in somewhat windy conditions throughout the year. Northwesterly winds make up an appreciable percentage of the prevailing wind climate and will be deflected to flow down and around the tower and over much of the space below. The space is predicted to realise varying wind conditions, suitable for standing throughout much of the space in the summer and shoulder seasons, with localised areas proximate to the tower corners that are rated for walking on the occasion of strong northwesterly winds.

Outdoor Amenity Space is similarly proposed on the roof of the wing to the east of the tower, on the 13th level. The area is similarly higher than the neighbouring surroundings and as such is exposed to large portions of the wind climate that are not moderated by the surrounds. The area is in the aerodynamic shade region for much of the dominant northwesterly wind climate, however it is susceptible to the remainder of the wind climate and as such is predicted to realise conditions suitable for standing throughout much of the year.

Mitigation plans are recommended for the Outdoor Amenity Spaces in order to accommodate activities requiring longer exposure. The plans should be designed with input from the consultant and may include 1.8m high perimeter wind screens, coniferous trees, raised planters populated with coarse plantings, canopies, trellises, porous wind screens, and others, that will moderate winds in the areas. Consideration of appropriate mitigation plans for the space will result in more comfortable conditions that are seasonally suitable for the intended uses.



Discussion of Residential Entrances

The Main Residential Entrances to the proposed Development are located along the northern and eastern façades of the building. The northern entrance is exposed to northerly winds that downwash from the building above and flow along Jacobs Terrace, as well as easterly and westerly winds that are directed to flow around the building and along Jacobs Terrace. The entrance is set back into the façade of the building, incorporates a vestibule, and is protected by an overhead canopy, and as such is sheltered from large portions of the wind climate that are flowing along the building façade. The northern entrance is predicted to realise conditions suitable for standing or sitting throughout the year and will be suitable for the intended use.

The eastern entrance is similarly exposed to easterly winds that downwash from the building above and are directed to flow along Innisfil Street, as well as northerly and southerly winds that are directed to flow around the building and along the street. The entrance is also set back into the façade of the building, incorporates a vestibule, and is protected by an overhang of the building above, and as such is sheltered from winds flowing along the building façade. The eastern entrance is predicted to realise conditions suitable for standing or sitting throughout the year and will be suitable for the intended use.

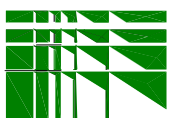
Comfort conditions appropriate for standing are preferable at building entrances, and conditions suitable for walking are appropriate for the related sidewalks. With consideration of the aforementioned mitigative features, the Main Residential Entrances to the proposed Development are predicted to be comfortable and suitable for the intended uses, year-round.

8. MITIGATION STRATEGIES

The proposed 272 Innisfil Street Development plans establish a context for development in terms of height, massing, and location that allow the prediction of wind issues/problems that may persist once built.

The proposed Development employs an overall wind mitigative design that assists in moderating the upset in winds with inclusion of the building, causing limited influence upon pedestrian comfort conditions realised along the flanking streets and at neighbouring properties. The proposed Development's wind mitigative design features include:

- large podium
- stepped massing
- textured façades



- balconies
- overhangs
- landscaping

and others, that will increase surface roughness apparent to the wind.

Additional mitigation is recommended for the Outdoor Amenity Spaces at the 5th and 13th levels in order to achieve conditions that are suitable for the intended uses. The plans should be designed with input from the consultant and may include 1.8m high perimeter wind screens, coniferous trees, raised planters populated with coarse plantings, canopies, trellises, porous wind screens, and others, that will moderate winds in the areas in order to achieve more comfortable conditions.

Comfort conditions expected at, and around, the proposed Development site are considered suitable to the context, based upon qualitative analysis.

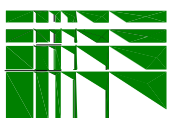


Figure 1: Site Aerial Photo

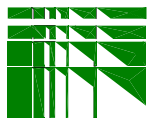
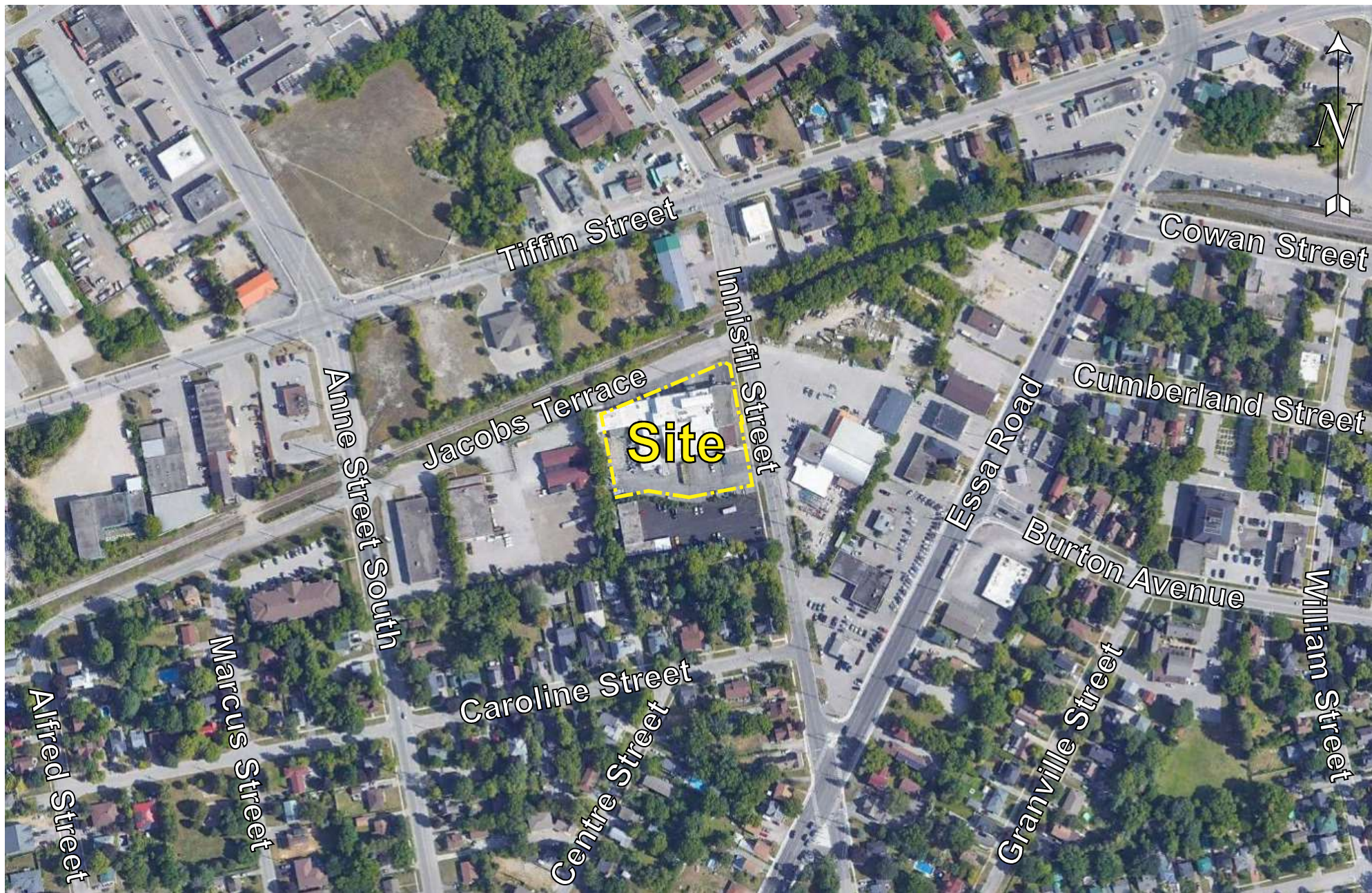


Figure 2: Site Plan

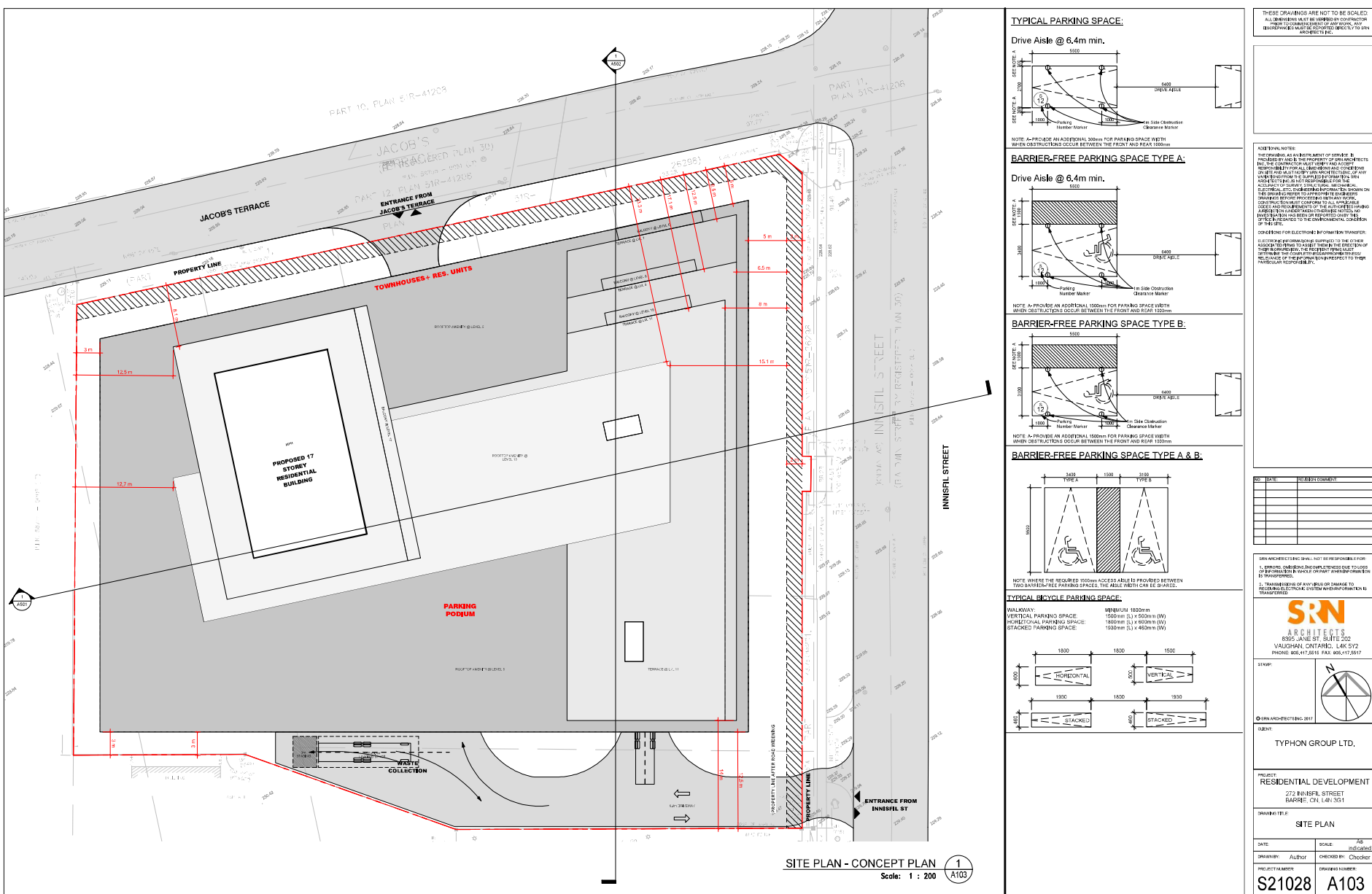
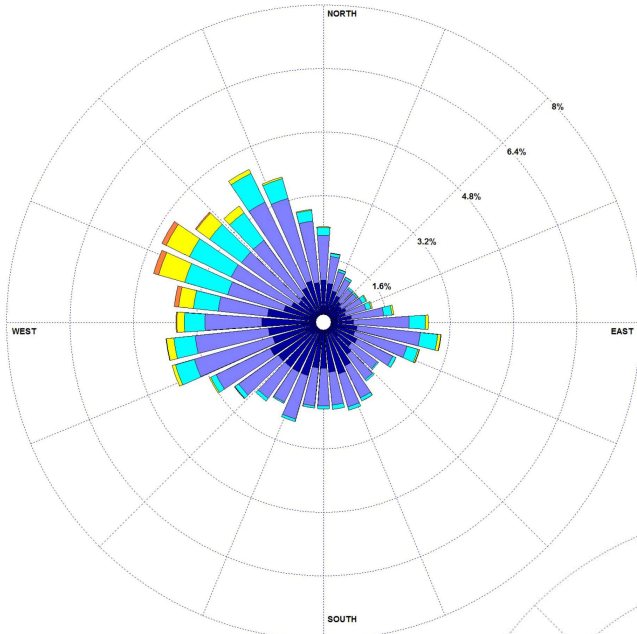


Figure 3: Windroses - Lake Simcoe Regional Airport

17

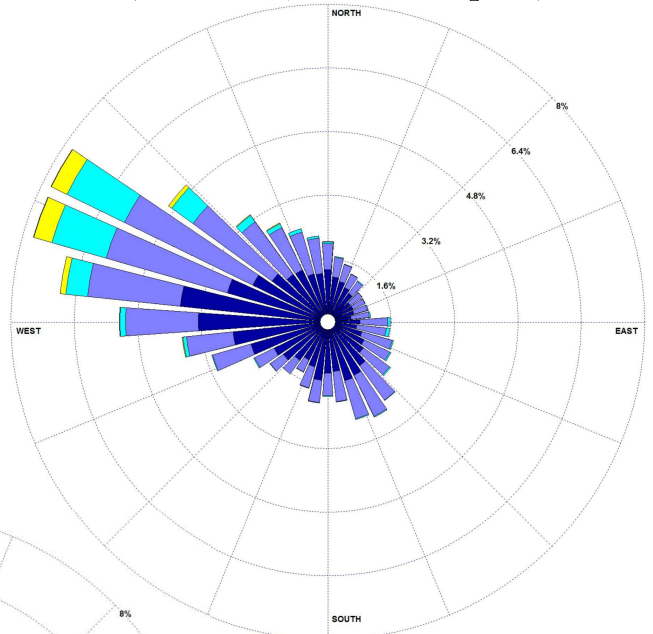
A) Winter (Nov 16 to Mar 31)



Winter Speed Range

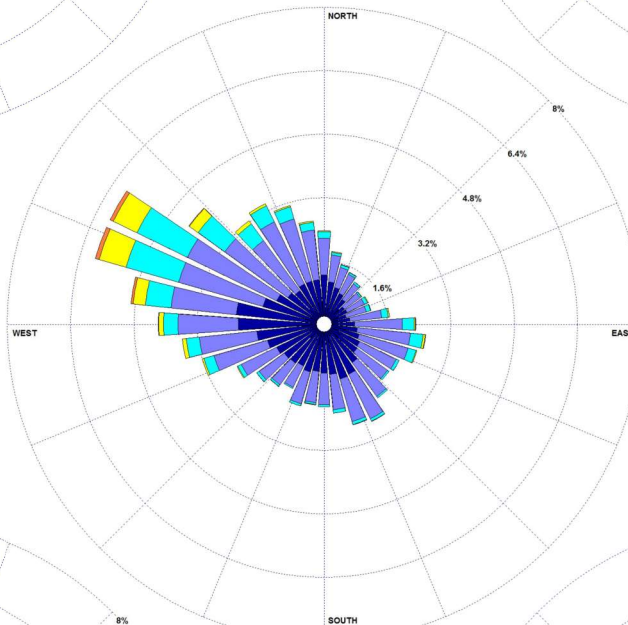
●	Calm	6%
●	1 - 10km/h	38%
●	11 - 20km/h	42%
●	21 - 30km/h	11%
●	31 - 40km/h	3%
●	> 40km/h	> 1%

C) Summer (June 16 to Sept 15)

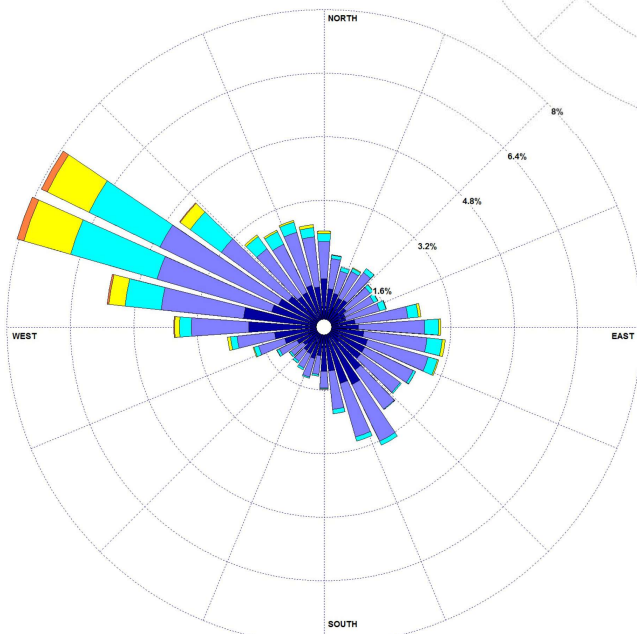


Summer Speed Range

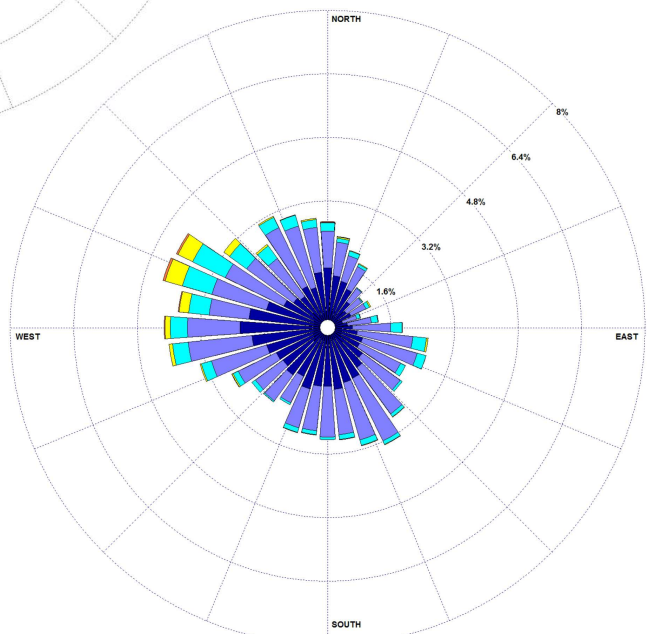
●	Calm	7%
●	1 - 10km/h	51%
●	11 - 20km/h	35%
●	21 - 30km/h	6%
●	31 - 40km/h	1%
●	> 40km/h	> 1%



E) Annual



B) Spring (Apr 1 to June 15)



D) Fall (Sept 16 to Nov 15)

