

Pedestrian Wind Study



The Pedestrian Wind Study was based on climate wind data from Hamilton Airport. (32 km - driving distance - away) which would have been the best available at the time.

Our location experiences very significant winds which may not be reflected from that far away.

Suggest monitoring be setup on 2025 Maria Street over as long a time as possible to get more local data to inform a revised study.

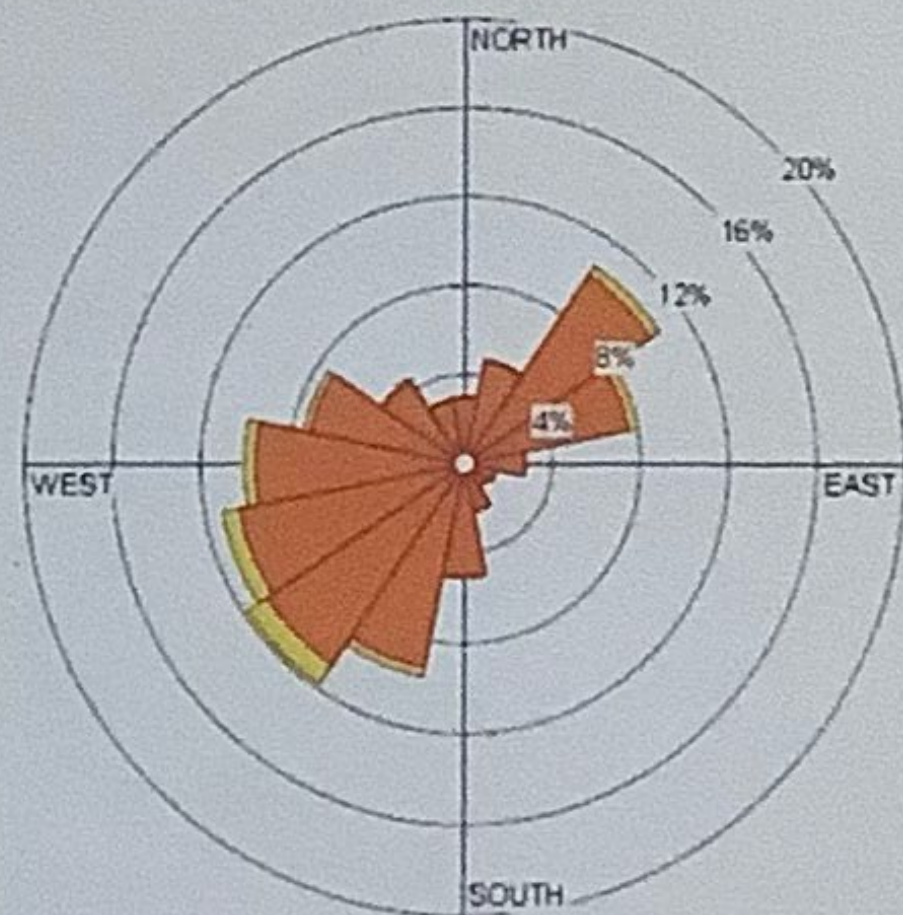
Wind gauge monitoring by a former resident indicated winds averaging 35 km/h daily and up to 55 km/h. A one time reading in excess of 80 km/h was recorded.



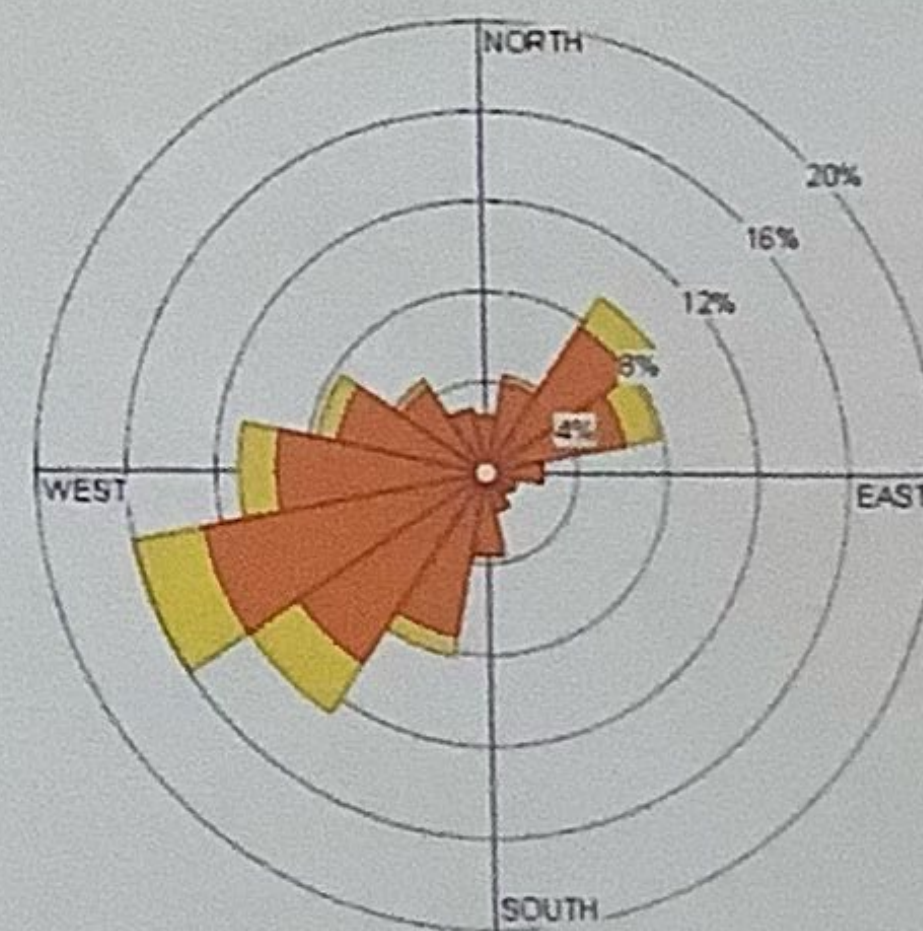
- **Open balconies with high winds pose a severe safety hazard**
- **Many objects have flown off balconies onto the ground below.**
- **Currently many residents have found that balconies are so windy they are unusable much of the time.**
- **Residents have taken to tying down or securing furniture, planters etc in order to prevent them blowing away.**



Annual Winds



Summer Winds
(May-Oct)



Winter Winds
(Nov-Apr)

Wind Speed

■ > 30 km/h

■ < 30 km/h

- Based on resident measurements it is believed that winds in excess of 30 km/h are present on an all too frequent basis.
- The study states “The directions from which stronger winds (eg > 30 km/h) approach are also of interest as they have the highest potential of creating problematic wind conditions...”
- Resident’s readings were above 30 km/h much of the time.

Figure 5: Wind Roses for John C. Munroe International Airport (1993 to 2019)

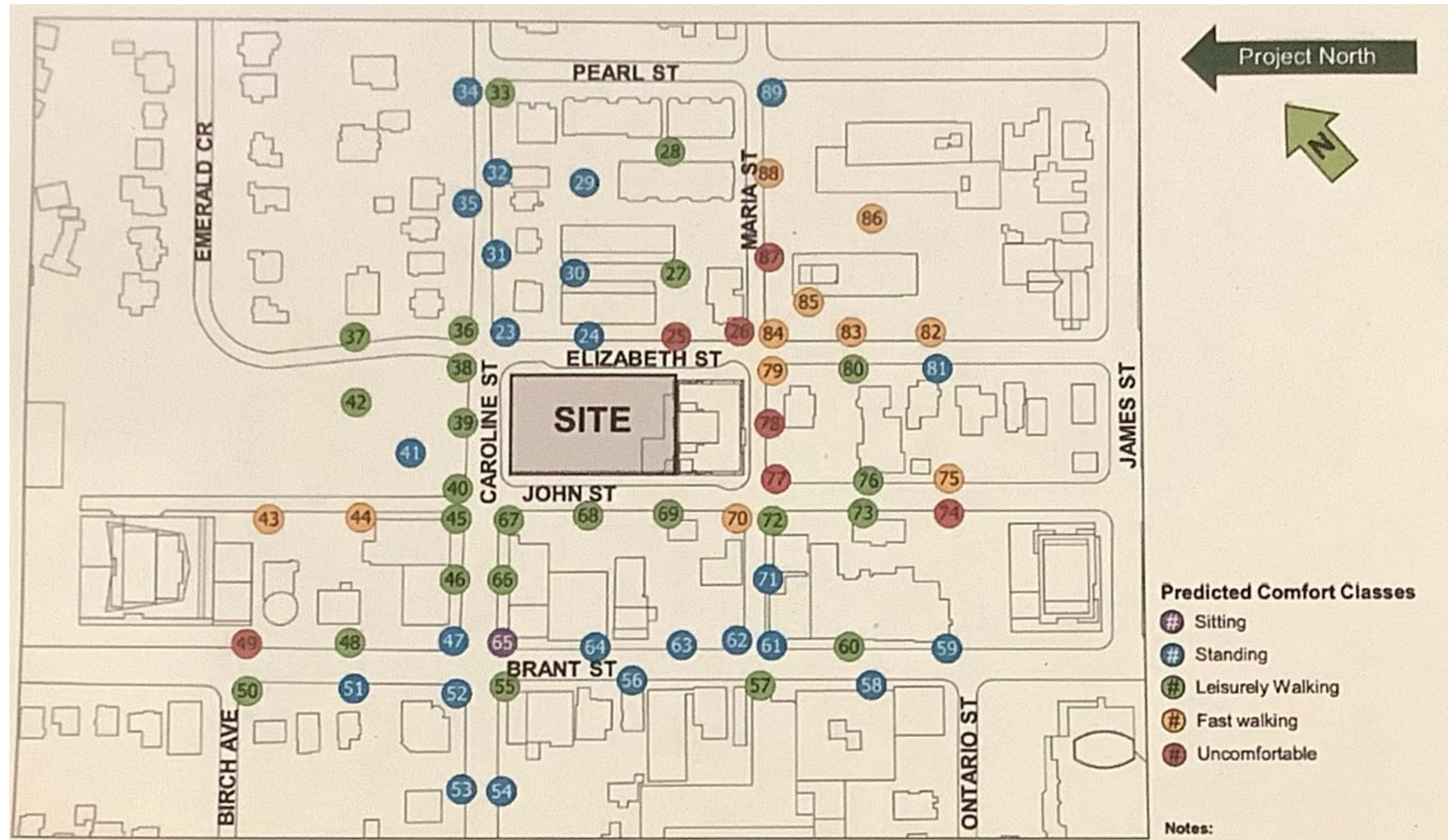
Table 1: Wind Comfort Criteria

Comfort Category	GEM Wind Speed Exceeded 20% of the Time	Description of Wind Comfort
Sitting	≤ 10 km/h	Calm or light breezes desired for outdoor restaurants and seating areas where one can read a paper comfortably.
Standing	≤ 14 km/h	Gentle breezes suitable for main building entrances and transit stops.
Leisurely Walking	≤ 17 km/h	Moderate breezes suitable for walking along pedestrian thoroughfares.
Fast Walking	≤ 20 km/h	Strong breezes that can be tolerated if one's objective is to walk, run or cycle without lingering.
Uncomfortable	> 20 km/h	Strong winds of this magnitude are considered a nuisance for most activities, and wind mitigation is typically recommended.

Table 2: Wind Safety Criterion

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

- The study designates wind speeds above 20 km/h more than 20% of the time “uncomfortable”.
- The study primarily concentrates on pedestrian levels however the balconies would also be classified as “uncomfortable” and possibly dangerous.
- Items falling from or flying off balconies is very much a concern.
- What parties will be considered liable when a pedestrian is injured or worse?



- **The study classifies pedestrian conditions along Maria Street north of the existing Berkeley on Elizabeth St as “uncomfortable”.**
- **The study results in this being only a winter condition.**
- **We believe an amended study will reflect that the windy conditions are year round.**
- **Elderly people walking along Elizabeth St can be overpowered by very strong winds.**
- **Mitigation methods are indeed required even for the existing conditions presented by The Berkeley.**

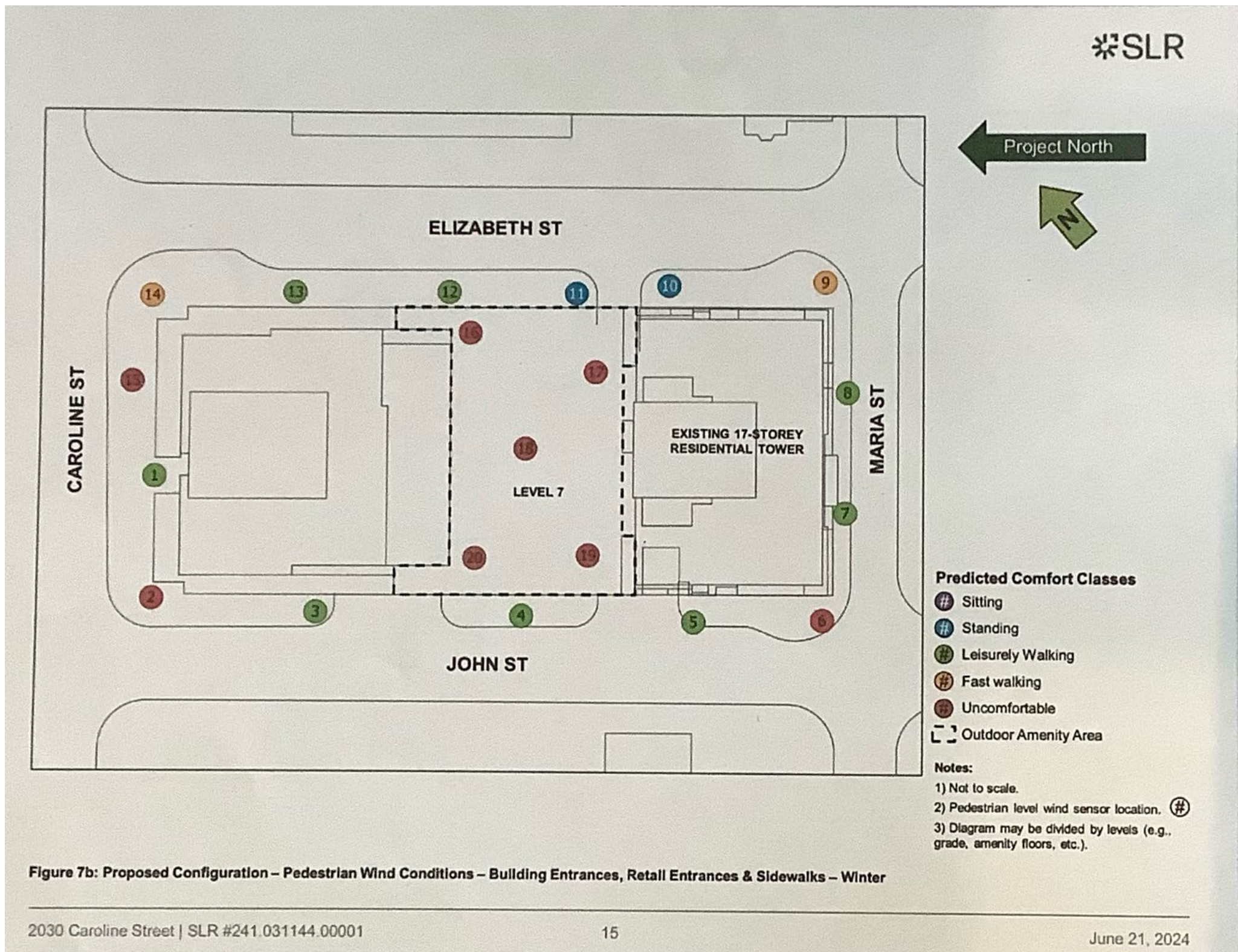
SLR

4.3 Surrounding Sidewalks (Locations 23 through 65)

Wind conditions on the surrounding sidewalks of Caroline Street, Maria Street, Elizabeth Street, John Street, and Brant Street are generally comfortable for fast walking or better throughout the year in the Existing Configuration (Figures 8a and 8b). The exceptions are along Maria Street and Elizabeth Street in the winter, where wind conditions are considered to be uncomfortable (Locations 25, 26, 77, 78, and 87). Uncomfortable wind conditions also occur on John Street (Location 74) and on Brant Street in the winter (Location 49). At the nearby transit stops (Locations 52 and 65) wind conditions are comfortable for sitting or standing year-round in the Existing Configuration.

In the Proposed Configuration, wind conditions on the surrounding sidewalks are generally remain comfortable for fast walking or better year-round (Figures 9a and 9b). The exceptions are along Caroline Street and Maria Street in the winter where wind conditions uncomfortable in the winter (Locations 38, 39, 77 and 78). In addition, uncomfortable wind conditions occur on Brant Street (Location 39) and on John Street (Locations 68 and 74) in the winter. At the nearby transit stops wind conditions remain conducive to sitting or standing year-round (Locations 52 and 65) in the Proposed Configuration.

To improve wind conditions along the nearby sidewalks of Caroline Street at the Site Plan stage of development, the design team should consider wind mitigation measures to deflect and disrupt the downwashing flows from the prevailing southwesterly winds. The details of such features can be determined at the time.



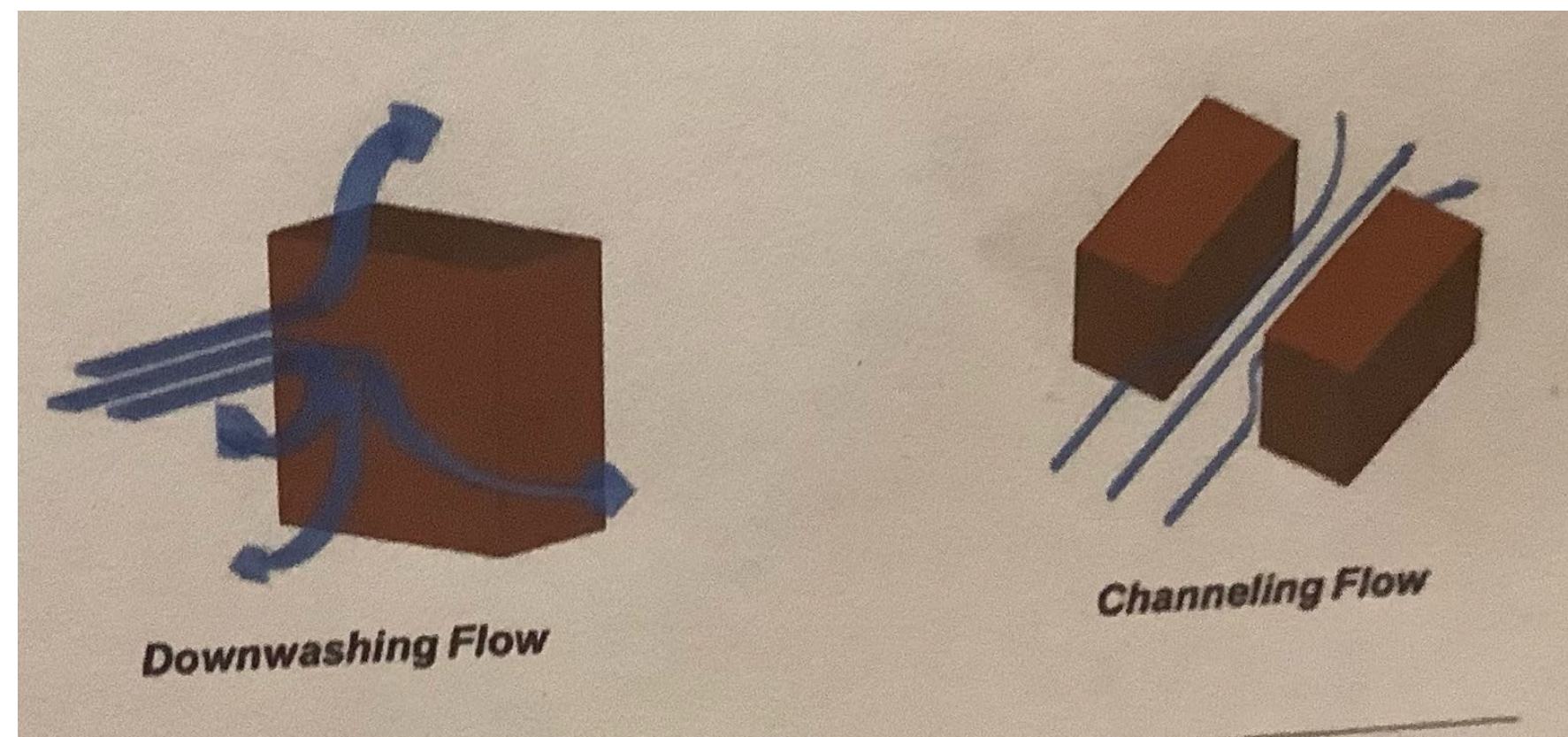
4.2 Outdoor Amenity Terraces (Locations 16 to 22)

Wind conditions on the 7th floor outdoor amenity terrace (Locations 16 through 20) are generally uncomfortable throughout the year (Figures 7a and 7b). The exception is on the southwest corner of the terrace (Location 19), where wind conditions in the summer are conducive to fast walking.

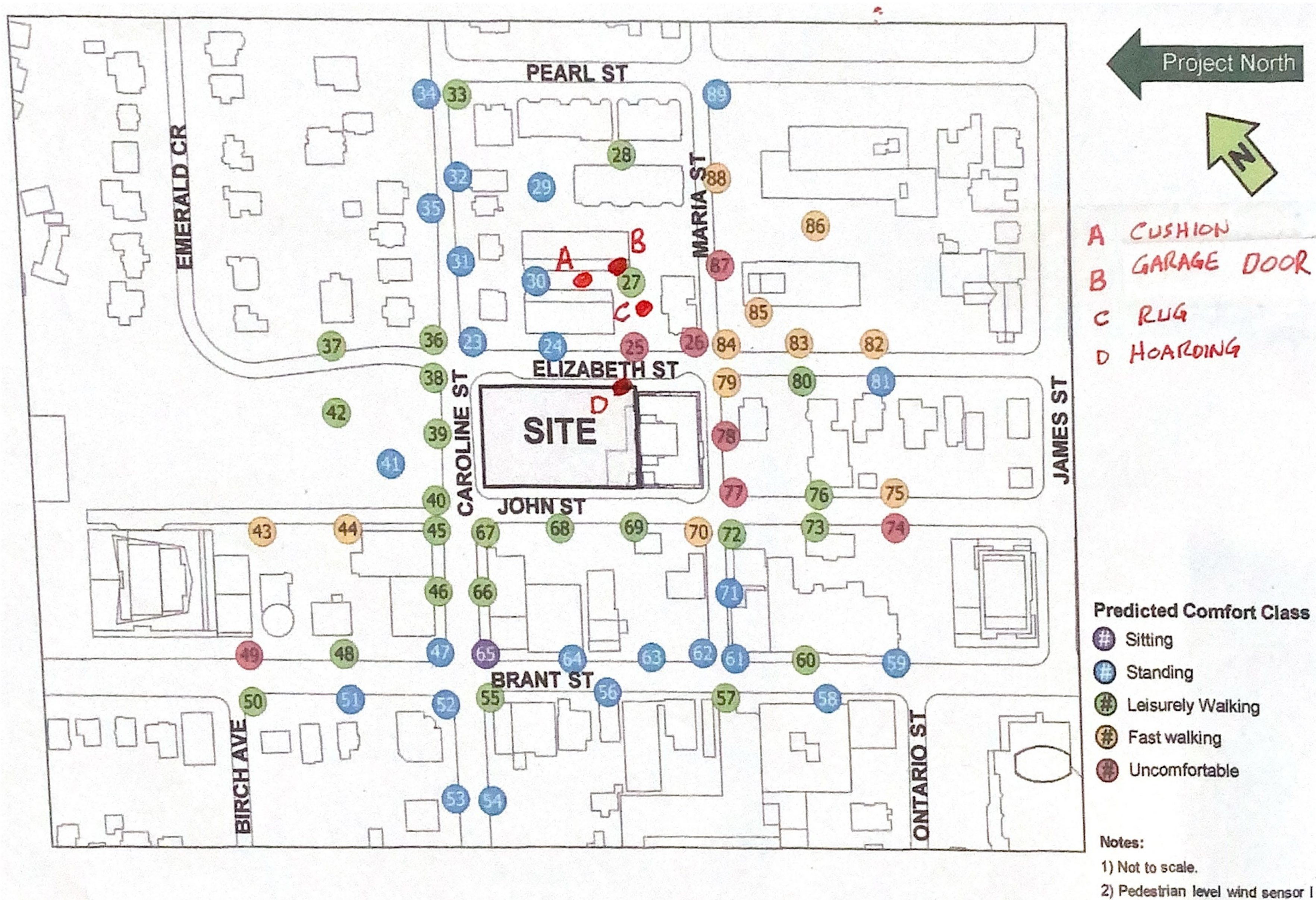
The strong wind flows that occur on the 7th floor terrace are partially due to the downwashing of the prevailing winds off the proposed and adjacent towers. These wind flows are then channel between the towers, creating local accelerations.

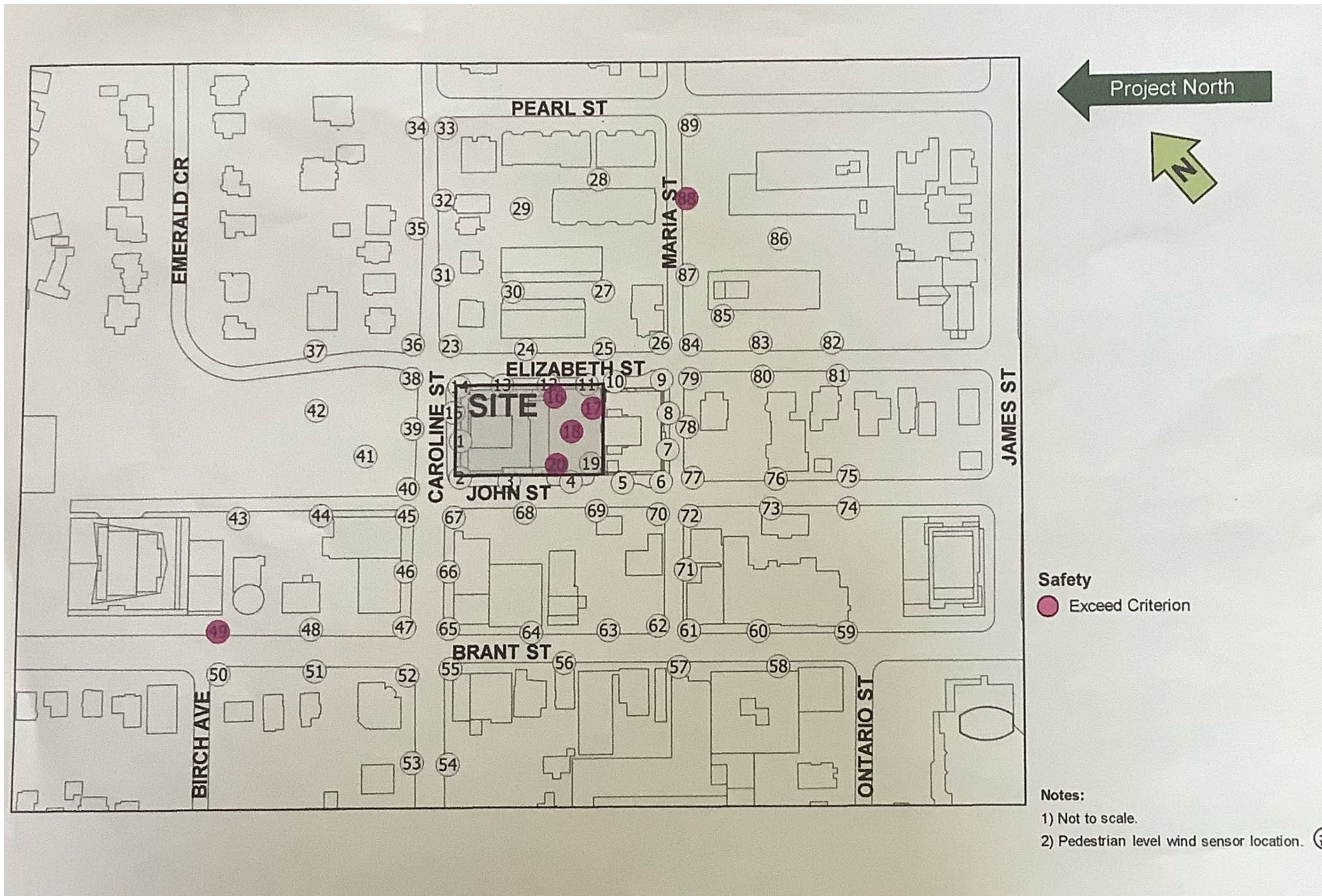
- **The study confirms that Level 7 would be “uncomfortable” throughout the year.**

- **Balconies so windy, they become unusable most days**
- **Residents have to tie down furniture to prevent movement**
- **Cushions, rugs, furniture on the ground after high wind events**
- **The strongest gusts seem to come from the south west, flow around the north west and south west corners at increased speed**
- **Hoarding blew down 4-5 times at NE corner of 2025 Maria**
- **Garage door at rear unit of 509 Elizabeth by flying debris required replacement**
- **Signs blown down or away - real estate signage frequently found in the creek**
- **Debris found in 509 Elizabeth service court**
- **Winds so severe at south corner of 509 Elizabeth that a tree and landscaping plants were destroyed and had to be replaced with decorative grass**

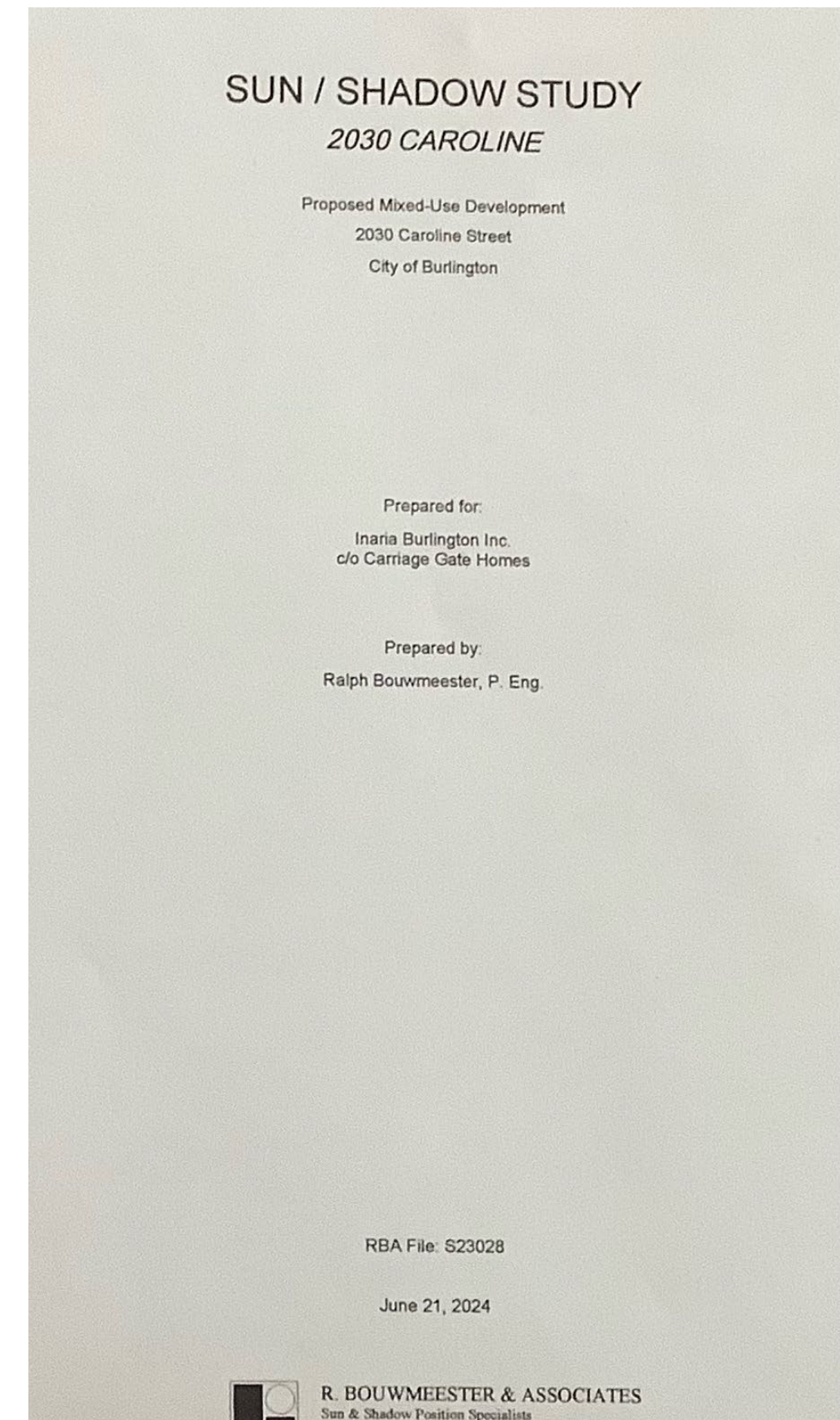


Wind event observations from 509 Elizabeth Street





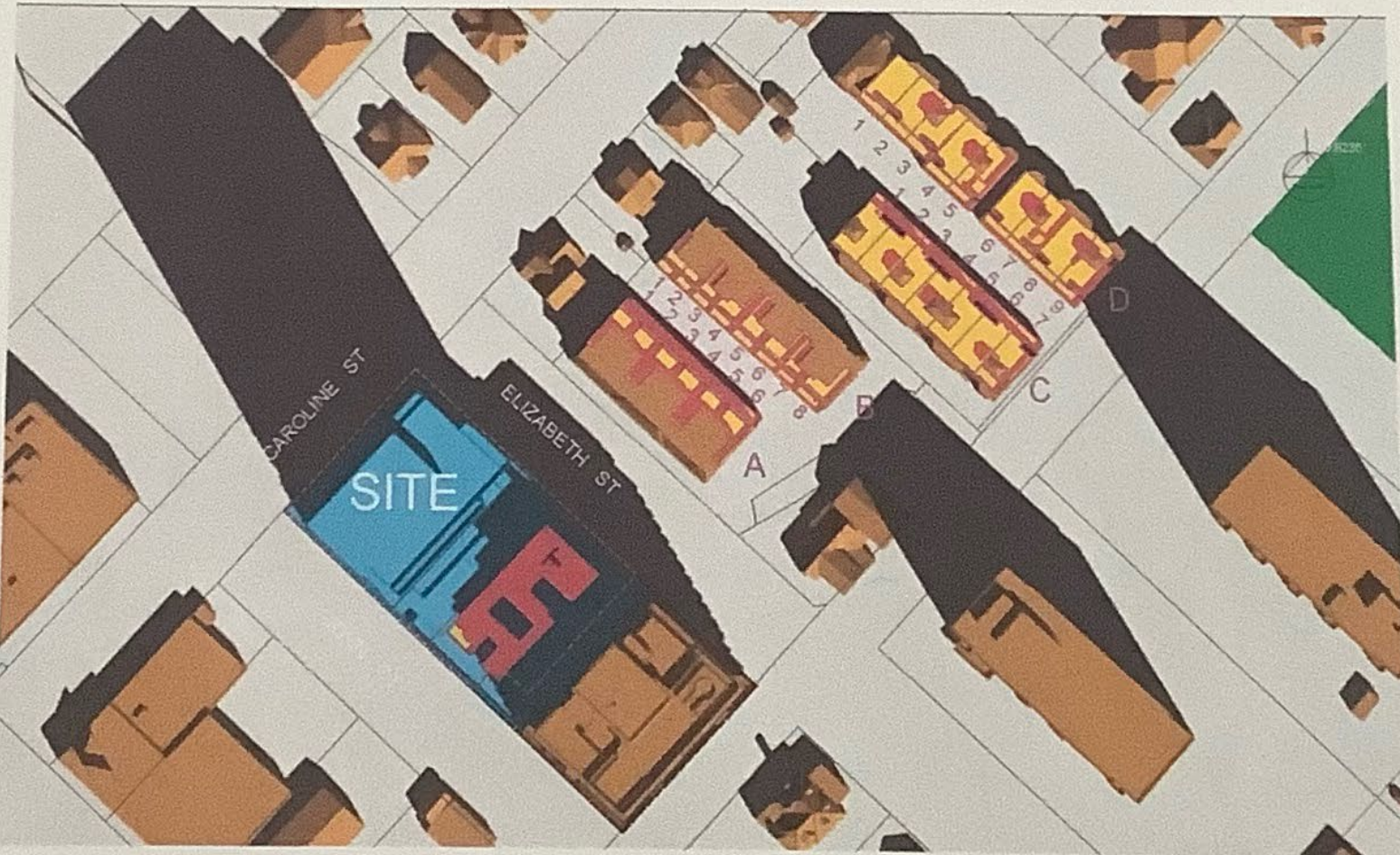
- **Wind Safety**
- **The balconies would also exceed the wind safety criteria**
- **Due to the very strong winds, no open balconies should be permitted. Recessed balconies would be safer**
- **Open balconies + high wind + tall buildings = DANGER**



- **Shadowing of the townhouses on the east side of Elizabeth is of considerable concern with the potential proximity of a 28 storey mass directly in front of it.**
- **Criterion 4.3 includes a requirement that the Sun Access Factor on a private outdoor amenity space be a minimum of 0.22 in all cases.**




Criteria 4.3 - Private Outdoor Amenity Space 11:00 AM
 ALL TIMES IN EDT
 0 10 50 100
 SCALE 1 : 1250



Criteria 4.3 - Private Outdoor Amenity Space 12:00 PM

MAR 21

SUN / SHADOW STUDY
 Proposed Mixed-Use Development
 2030 Caroline
 Inaria Burlington Inc.
 City of Burlington

 R. BOUWMEESTER & ASSOCIATES Sun & Shadow Position Specialists 165 Browning Trail, Barrie ON Tel/Fax: (705) 728-3392 Web: www.sunposition.com Email: rba@sunposition.com			
Calculated by:	RB	Project:	S23028
Drawn by:	RB	Scale:	1 : 1250
Checked by:	RB	Date:	JUN 21/24
			4.3-2

9. Shadow Criteria:

Criterion 4.2 - Key Civic and Cultural Spaces - Mar 21 and Sep 21

No net new shadows are permitted on Key Civic and Cultural Spaces between 10:00 and 16:00 hours on Mar 21 and Sep 21

Criterion 4.3 - Private Outdoor Amenity Spaces - Mar 21

Shadows from proposed developments should not exceed 2 hours in duration, between 09:00 and 18:00 on Mar 21.

Net new shadows resulting from proposed buildings should allow a minimum amount of sunlight to reach nearby private residential outdoor amenity areas, including common outdoor amenity areas, such that a Sun Access Factor of at least 0.22 is provided in such areas between the hours of 09:00 and 18:00 on Mar 21.

Criterion 4.3 – Proposed new shadows reach a number of private residential outdoor amenity areas (rooftop patios) at the townhomes in the block directly east of the site.

Our analysis of the above amenity areas is included in Drawings 4.3-1 to 4.3-5 and summarized in Tables 2 to 5 following. The Sun Access Factors for the individual amenity areas meet and exceed the minimum required 0.22 in all cases.

In addition to adjacent private residential outdoor amenity areas, the City has indicated that Criterion 4.3 applies to on-site common outdoor amenity spaces. Rooftop outdoor amenity space is proposed on the roof of the podium (at the 7th-floor level). Our analysis of this area is included in Drawings 4.3-1 to 4.3-5 and summarized in Table 1 following. The Sun Access Factor for this amenity area meets and exceeds the minimum required 0.22.

We are satisfied that this guideline criterion has been met.

?

Almost total shade along Elizabeth townhouses on March 21 at 5:00 pm and 6:00 pm.

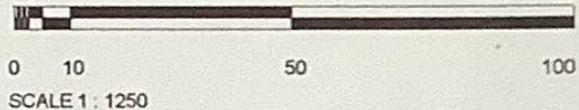


Criteria 4.3 - Private Outdoor Amenity Space

5:00 PM

ALL TIMES IN EDT

- ROOFTOP AMENITY SPACE
- AREA EXPOSED TO SUNSHINE
- AREA IN SHADOW



Criteria 4.3 - Private Outdoor Amenity Space

6:00 PM

MAR 21

SUN / SHADOW STUDY
Proposed Mixed-Use Development

2030 Caroline

Inaria Burlington Inc.
City of Burlington

R. BOUWMEESTER & ASSOCIATES Sun & Shadow Position Specialists 165 Browning Trail, Barrie ON Tel/Fax: (705) 725-3362 Web: www.sunposition.com Email: rba@sunposition.com			
Calculated by:	RB	Project:	S23028
Drawn by:	RB	Scale:	1 : 1250
Checked by:	RB	Date:	JUN 21/24
			4.3-5

Sun Access Factor Analysis - Existing Rooftop Amenity Space
Criteria 4.3 - Private Outdoor Amenity Spaces

Existing Townhouses Roof Amenity Space Areas (sm)

Bldg A Unit 1 45

Time of Day	Area in Sun (sm)	
	Test Time Area (As) *	Interval Ave Area (Aa)
21-Mar		
9:00	11	
10:00	19	15
11:00	23	21
12:00	16	20
13:00	13	15
14:00	10	12
15:00	2	6
16:00	0	1
17:00	0	0
18:00	3	2

Total Area 90

Average Area 10
Amenity Area 45

Sun Access Factor (SAF) = 0.22
> 0.22; therefore, meets criteria

* Note: See Drawings 4.3-1 to 4.3-5

Bldg A Unit 2 47

Time of Day	Area in Sun (sm)	
	Test Time Area (As) *	Interval Ave Area (Aa)
21-Mar		
9:00	5	
10:00	22	14
11:00	24	23
12:00	17	21
13:00	14	16
14:00	13	14
15:00	13	13
16:00	0	7
17:00	0	0
18:00	0	0

Total Area 106

Average Area 12
Amenity Area 47

Sun Access Factor (SAF) = 0.25
> 0.22; therefore, meets criteria

* Note: See Drawings 4.3-1 to 4.3-5

Bldg A Unit 3 48

Time of Day	Area in Sun (sm)	
	Test Time Area (As) *	Interval Ave Area (Aa)
21-Mar		
9:00	5	
10:00	24	15
11:00	25	25
12:00	17	21
13:00	13	15
14:00	10	12
15:00	12	11
16:00	1	7
17:00	0	1
18:00	0	0

Total Area 105

Average Area 12
Amenity Area 48

Sun Access Factor (SAF) = 0.24
> 0.22; therefore, meets criteria

* Note: See Drawings 4.3-1 to 4.3-5

Bldg A Unit 4 48

Time of Day	Area in Sun (sm)	
	Test Time Area (As) *	Interval Ave Area (Aa)
21-Mar		
9:00	5	
10:00	24	15
11:00	25	25
12:00	17	21
13:00	14	16
14:00	12	13
15:00	13	13
16:00	10	12
17:00	0	5
18:00	0	0

Total Area 118

Average Area 13
Amenity Area 48

Sun Access Factor (SAF) = 0.27
> 0.22; therefore, meets criteria

* Note: See Drawings 4.3-1 to 4.3-5

Bldg A Unit 5 46

Time of Day	Area in Sun (sm)	
	Test Time Area (As) *	Interval Ave Area (Aa)
21-Mar		
9:00	4	
10:00	23	14
11:00	22	23
12:00	14	18
13:00	12	13
14:00	9	11
15:00	12	11
16:00	10	11
17:00	0	5
18:00	0	0

Total Area 104

Average Area 12
Amenity Area 46

Sun Access Factor (SAF) = 0.25
> 0.22; therefore, meets criteria

* Note: See Drawings 4.3-1 to 4.3-5

Bldg A Unit 6 46

Time of Day	Area in Sun (sm)	
	Test Time Area (As) *	Interval Ave Area (Aa)
21-Mar		
9:00	5	
10:00	28	17
11:00	28	28
12:00	25	27
13:00	22	24
14:00	15	19
15:00	9	12
16:00	10	10
17:00	0	5
18:00	0	0

Total Area 140

Average Area 16
Amenity Area 46

Sun Access Factor (SAF) = 0.34
> 0.22; therefore, meets criteria

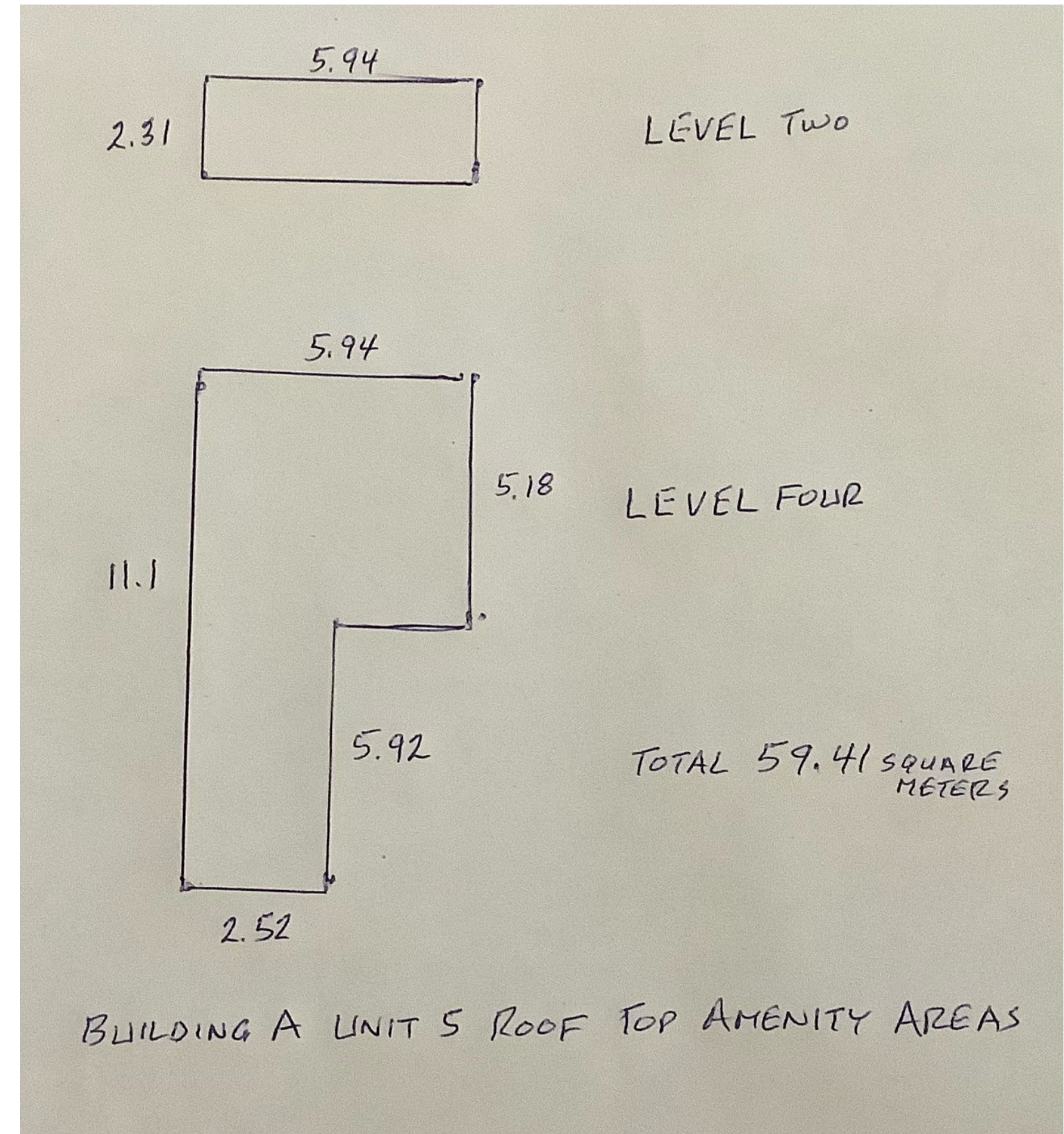
* Note: See Drawings 4.3-1 to 4.3-5

EACH OF THESE AREAS ARE
ACTUALLY APPROXIMATELY 59.41 SM

- Sun Access Factors (SAF) tabulated
- Amenity areas listed are not correct
- The amenity areas shown vary between 45 and 48 square metres while the actual area of each unit is about 60 square metres



- **Bldg A Unit 5 Rooftop Amenity area actual dimensions.**



Corrected Sun Access Factor Table

Location	Sun Access Factor as suggested in Study	Sun Access Factor With Amenity Area corrected dimension	
Bldg A Unit 1	0.22	0.168	
Bldg A Unit 2	0.25	0.202	
Bldg A Unit 3	0.24	0.201	
Bldg A Unit 4	0.27	0.218	
Bldg A Unit 5	0.25	0.202	

Planning department relied on SAF data presented, which were not correct.



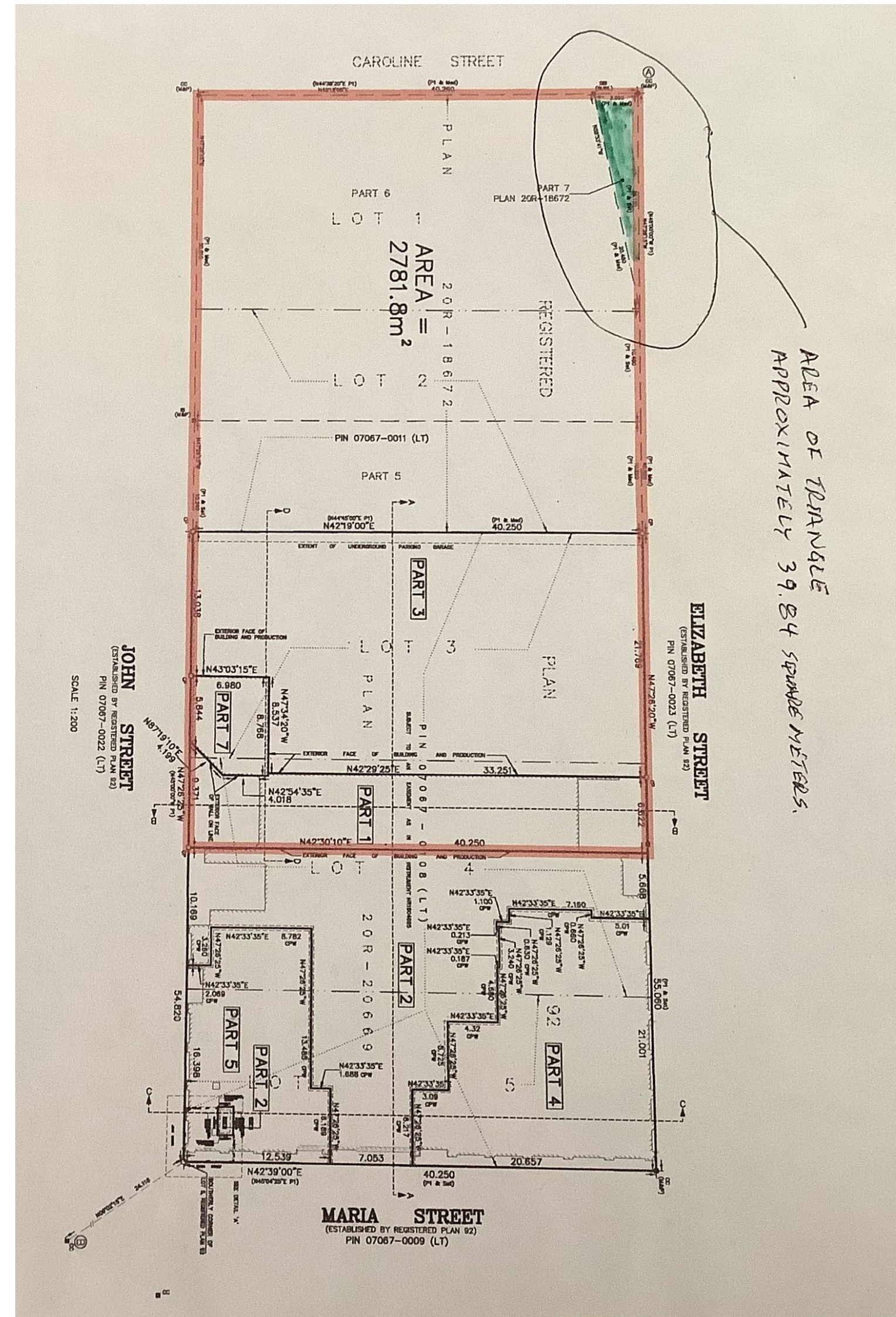
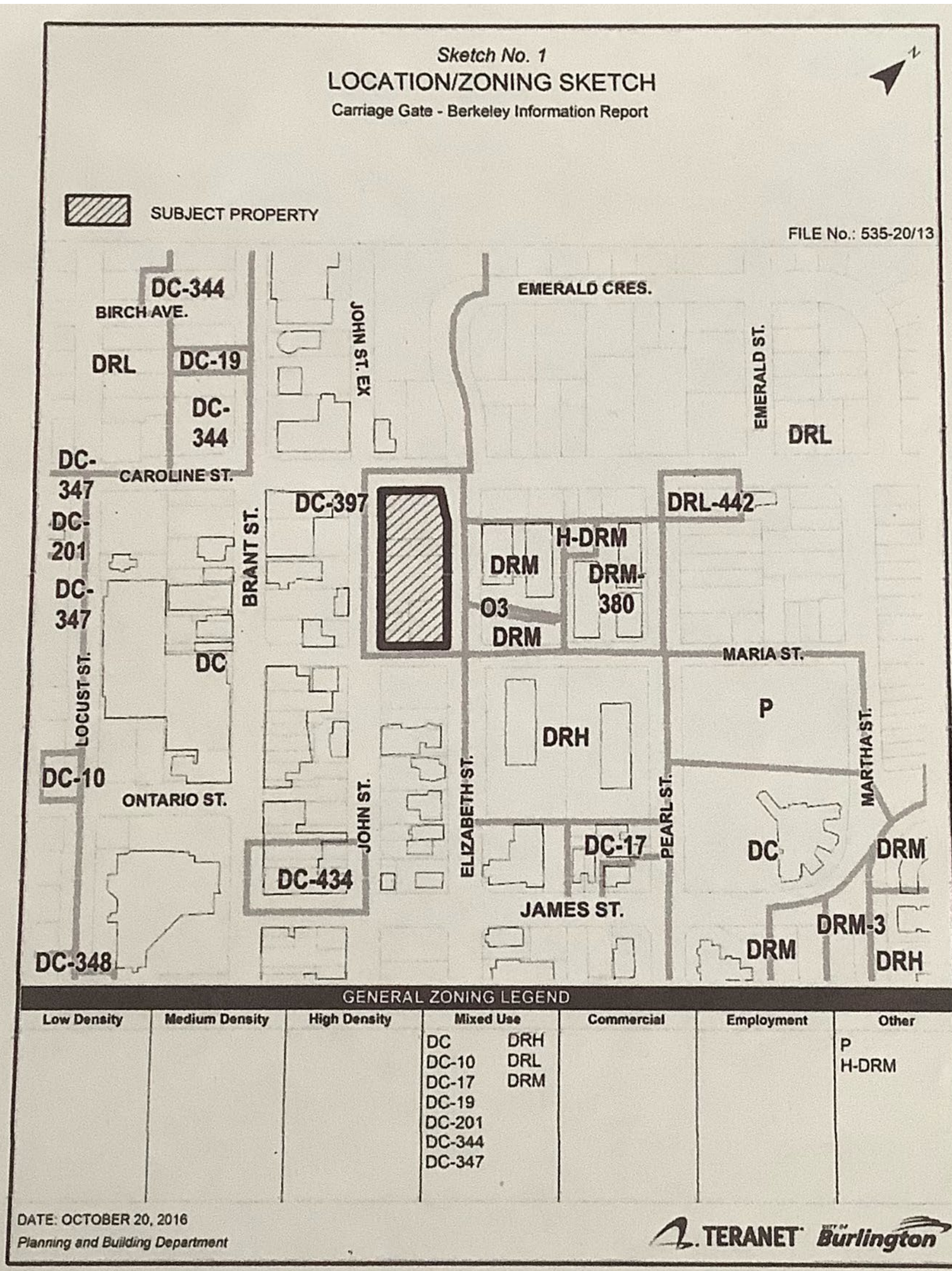
The significant garden plantings at 509 Elizabeth Street will be adversely affected by the shadows produced by a 28 storey building.



**2025 Maria St
Sight lines and
blocked views.**

Triangle of Land at Caroline / Elizabeth Streets

- Ownership
- Value
- Propose placing this land parcel “on hold”

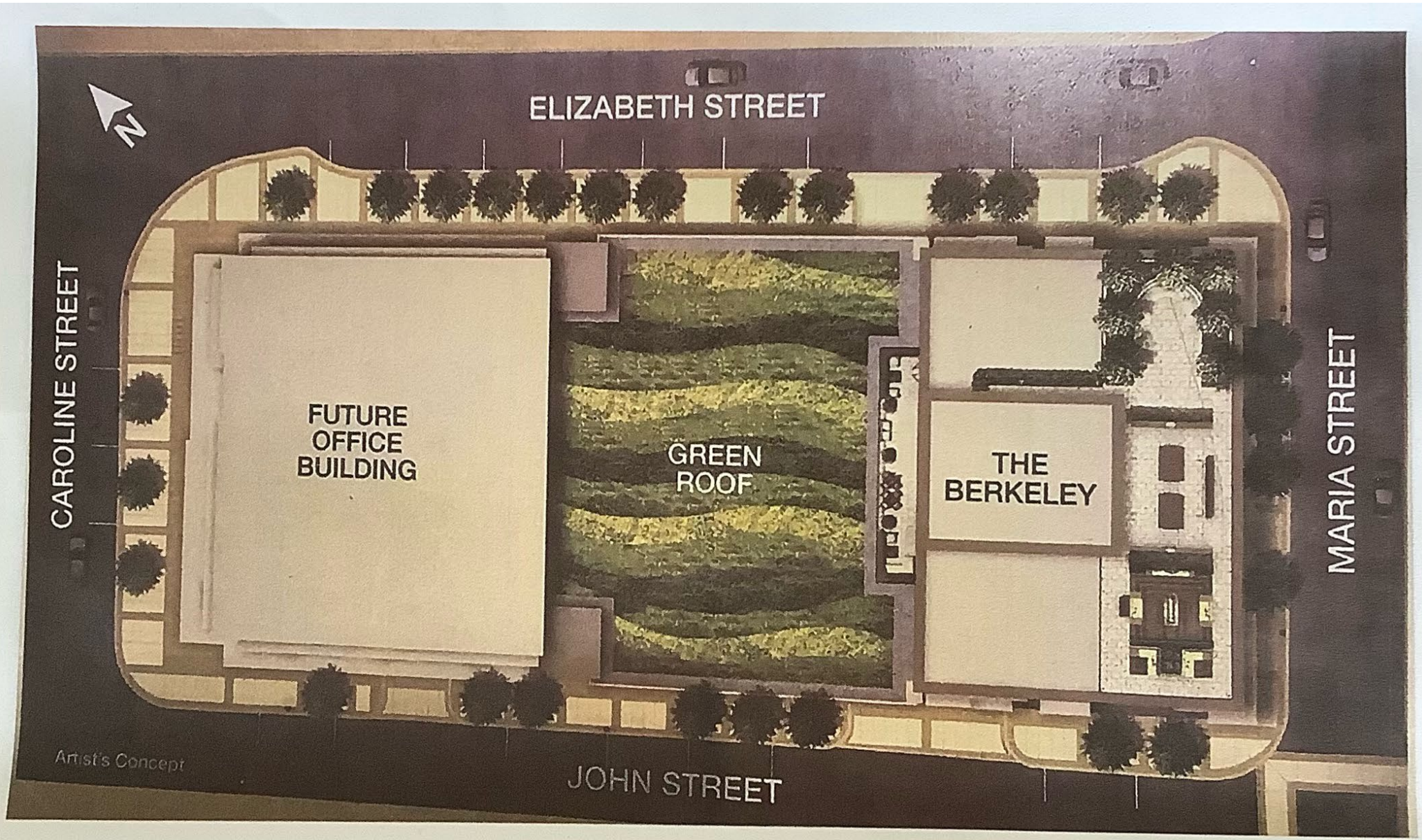


- **The triangle of land at the north west corner of Caroline and Elizabeth Street is in close proximity to a buried portion of Rambo Creek. Since 2010 this land was shown as outside the scope of the Carriage Gate development. The latest proposal includes this land. It is understood that a transfer of this parcel to the developer may not be complete.**
- **The area involved is about 40 square metres.**
- **Based on a 10:1 residential density, this land may have a value of over \$300,000. The value based on an 8 storey commercial building would be significantly lower. What combination of community benefit and cash is the city to receive in return? Is it in line with the potential value?**
- **If the transfer is not final could it be held until fair considerations are agreed to?**

Sustainability

Section	Requirement	Response, Description and Reference	Score	Weight
Section 6: WATER AND ENERGY EFFICIENCY	6.1.1.1.1.1.1	Water Management Plan: Review and update water conservation plan to include water conservation measures for all buildings.	1	1
	6.1.1.1.1.2	Water Management Plan: Review and update water conservation plan to include water conservation measures for all buildings.	1	1
	6.1.1.1.1.3	Water Management Plan: Review and update water conservation plan to include water conservation measures for all buildings.	1	1
	6.1.1.1.1.4	Water Management Plan: Review and update water conservation plan to include water conservation measures for all buildings.	1	1
	6.1.1.1.1.5	Water Management Plan: Review and update water conservation plan to include water conservation measures for all buildings.	1	1
	6.1.1.1.1.6	Water Management Plan: Review and update water conservation plan to include water conservation measures for all buildings.	1	1
Section 7: MAINTENANCE, REPAIRS AND COMMUNICATIONS	7.1.1.1.1.1	Maintenance Plan: Provide a maintenance plan that includes regular maintenance of all building systems and components.	1	1
	7.1.1.1.1.2	Maintenance Plan: Provide a maintenance plan that includes regular maintenance of all building systems and components.	1	1
	7.1.1.1.1.3	Maintenance Plan: Provide a maintenance plan that includes regular maintenance of all building systems and components.	1	1
	7.1.1.1.1.4	Maintenance Plan: Provide a maintenance plan that includes regular maintenance of all building systems and components.	1	1
Section 8: AIR QUALITY	8.1.1.1.1	Air Quality Management Plan: Provide an air quality management plan that includes measures to reduce air pollution and improve indoor air quality.	1	1
	8.1.1.1.2	Air Quality Management Plan: Provide an air quality management plan that includes measures to reduce air pollution and improve indoor air quality.	1	1

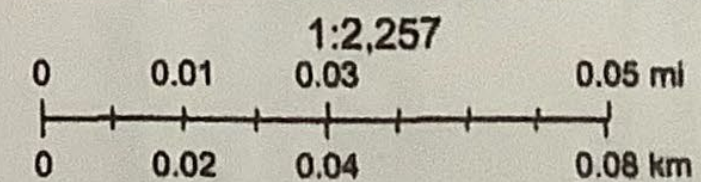
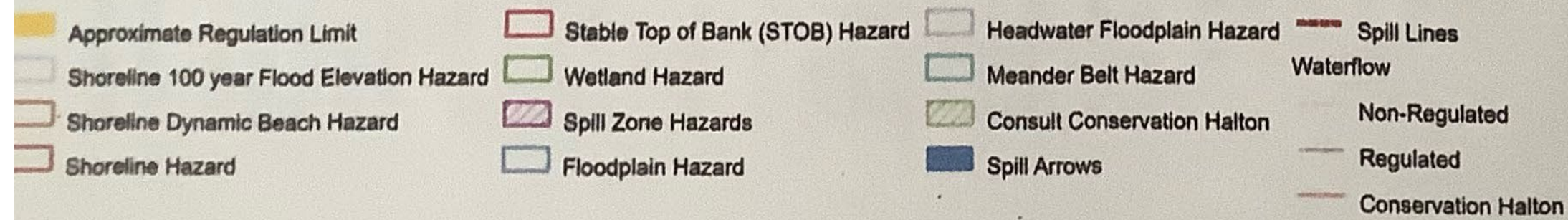
- The submitted proposal for 2030 Caroline Street does include a draft “Sustainable Building and Development Guideline”. However it does not indicate if LEED Certification will be pursued and obtained.
- Note that the scorecard table provided appears to be based on LEED however it does not include columns identifying which credits will be pursued, including values, which would normally be presented under the LEED program.
- The developer was to obtain LEED certification level but did not for Phase 1.
- It is not clear how certification will be ensured for this phase, in the event that the City of Burlington would require it.



Conservation Halton Regulation Mapping



10/5/2024, 11:45:30 AM



Town of Oakville, Maxar, Microsoft, Conservation Halton, 2023, Esri Community Maps Contributors, City of Burlington, City of Hamilton, Province of Ontario, Town of Oakville, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau

Conservation Halton, 20
Conservation Halton, 20

FLOODPLAIN

- Analysis was thoroughly reviewed by Conservation Halton
- Conservation Halton not able to support approval of proposal
- *“Likely to create conditions which might jeopardize the health and safety of persons”*



Incomplete PHASE 1

- **The Berkeley**
- **Downtown eyesore**
- **Incomplete**

***Is this landowner a
community citizen?***

Partially Completed Phase 1



The Berkeley

Phase 1 constructed with a building permit has never been completed in the area of the transformer vault and the parking ramp. The exposed insulation has not even been covered with an appropriate covering material(s).

This has been reviewed in person on several occasions with a representative of the City.

It is understood that the City of Burlington has been unable to have the developer attend to this even though 2025 Maria Street has been occupied for about five years.