

188 Beaumont Street Fast-track

Auckland Council Specialist Memo

Annexure 6:

Wind

Nick Locke

20 July 2026

1.0 APPLICATION DESCRIPTION

Application and property details

Fast-Track project name: 188 Beaumont Street

Fast-Track application number: BUN60464683

2.0 Technical Specialist Memo - Wind

To: Russell Butchers – Lead Planner & Lewis So - PPL

From: Nick Locke, Principal Research Engineer, WSP

Qualifications & Relevant Experience:

I hold the qualification(s) of: Master of Engineering (Mechanical) and have 19 years of experience in wind engineering.
I am a full member of Engineering New Zealand and the Australasian Wind Engineering Society. I have prepared expert evidence and technical assessments for resource consent applications, plan changes, and have appeared as an expert witness before consent authorities.

Preparation in Accordance with the Code of Conduct:

I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses ([Code](#)) and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

Signature:



Date:

20 July 2026

3.0 Executive Summary / Principal Issues

Existing wind conditions are typical of exposed waterfront areas and are categorised as unsuitable and unsafe for pedestrians in some areas.

The proposed development, with modifications to mitigate adverse wind effects of the original design, performs remarkably well for a building of its size and exposure to prevailing winds. Wind conditions are generally rated category C, which is acceptable for pedestrian transit, but not for leisure. Spaces intended for leisure activities will need careful design to account for the windier conditions.

Gust speeds around the proposed development are acceptable from an AUP safety perspective in that they are either (1) below or equal to the safety limit of 25 m/s, or (2) unchanged by the proposed development.

Wind conditions around the development are sensitive to relatively small changes in the building design. Any future changes to the proposed design should be wind tunnel tested to ensure that their impact on wind conditions is accurately assessed.

4.0 Documents Reviewed

The following documents have been reviewed in preparing this memorandum:

- *188 Beaumont Street, Auckland Central. Fast-track Approval Substantive Application. Assessment of Environmental Effects and Statutory Analysis, Barker & Associates Limited, 9 April 2026.*
- *Wind Tunnel Investigation of Pedestrian-Level Wind Conditions: Fast-track Application for 188 Beaumont St, Auckland, FidelicFlow, Ltd, February 2026. Referred to herein as “the wind report”.*
- *Spreadsheets of directional mean wind speeds and directional gust speeds provided by FidelicFlow.*

5.0 Additional Reasons for Consent Not included in AEE / Incorrect Reasons for Consent

- *Not applicable*

6.0 Specialist Assessment

Wind tunnel study

- 6.1 *The wind tunnel study reported by FedelicFlow has been conducted in general accordance with accepted wind engineering practice. The site wind analysis, the wind tunnel setup, the Irwin probe sensors used to measure wind speeds, and the physical scale-models appear to be of a high quality and more than adequate for assessing environmental wind flows around the proposed building.*
- 6.2 *One deficiency of the wind tunnel study that is apparent from the wind report is the spatial coverage and extent of wind speed measurements. That is, the locations where wind speed have been measured (i.e. Irwin probe placement) do not extend sufficiently far away from the proposed building to measure the full extent*

of changes in the surrounding wind environment. However, the lack of wind speed data further from the proposed building does not prevent the wind effects of the buildings from being generally understood. In addition, it is unlikely that conclusions about the compliance of the development with wind standards in the Auckland Unitary Plan (AUP) would change significantly if better data were available.

- 6.3 *CFD modelling of northeast and southwest wind flows around the proposed building is included in the wind tunnel report. This modelling has been done to an acceptable standard, within the limitations that are acknowledged in the report. CFD has been used in this project as an aid, to help visualize northeast and southwest wind flows around the proposed building and develop wind mitigation measures around the western end of the proposed building. In general, CDF does not accurately predict turbulence, which makes the results of the modelling less reliable at predicting wind gusts and highly turbulent wind flows. Therefore, in this review I have not used the CFD results to quantify wind conditions around the development or wind effects of the proposed building.*

Existing wind conditions

- 6.4 *The effects of new buildings under construction to the south of the Orams Marine building at 164 Beaumont Street on the existing wind environment have been measured and reported. These new buildings effectively block a gap in the buildings that sit along the western side of Beaumont Street and slightly improve wind conditions to the northeast of Orams Marine building and worsen wind conditions to the southeast of Orams Marine in Beaumont Street.*
- 6.5 *Overall, existing wind conditions in the area near the development site range from Category A to Category D conditions and are generally stronger over the western end of the site and more moderate over areas to the east of the site. Gust speeds are reported as “safe”, except for location 85 (i.e. in Beaumont Street, outside Orams Marine) that is “unsafe”. These existing wind conditions do not meet the Auckland Unitary Plan (AUP) wind standards at all locations, but are typical of winds in open, exposed waterfront locations.*

Wind conditions around the proposed development

- 6.6 *The proposed development comprises three large buildings, the tallest being 81m high, and together these buildings will cover the entire site. The development site is bounded by Beaumont Street to the east, Jellicoe Street to the north, a marina facility to the west and Orams Marine boatyard to the south. Given the size and massing of each of the buildings and the exposure of the site to prevailing strong winds, any one of these proposed buildings would be expected to have some effect on wind conditions in the surrounding area but combined these buildings create significant wind effects. This is somewhat inevitable when new developments occur in relatively open exposed areas, such as waterfront or greenfield locations.*
- 6.7 *Wind conditions around the development, without wind mitigation and without the new buildings at 164 Beaumont Street, are reported to range from Category B to Category E, and with ‘unsafe’ gust speeds at locations 7, 13, 23, 31, 45, 47, 49 and 51. These results are illustrated in Figures 19 and 22 of the wind report and are reproduced below for ease of reference.*

Figure 19 from the wind report

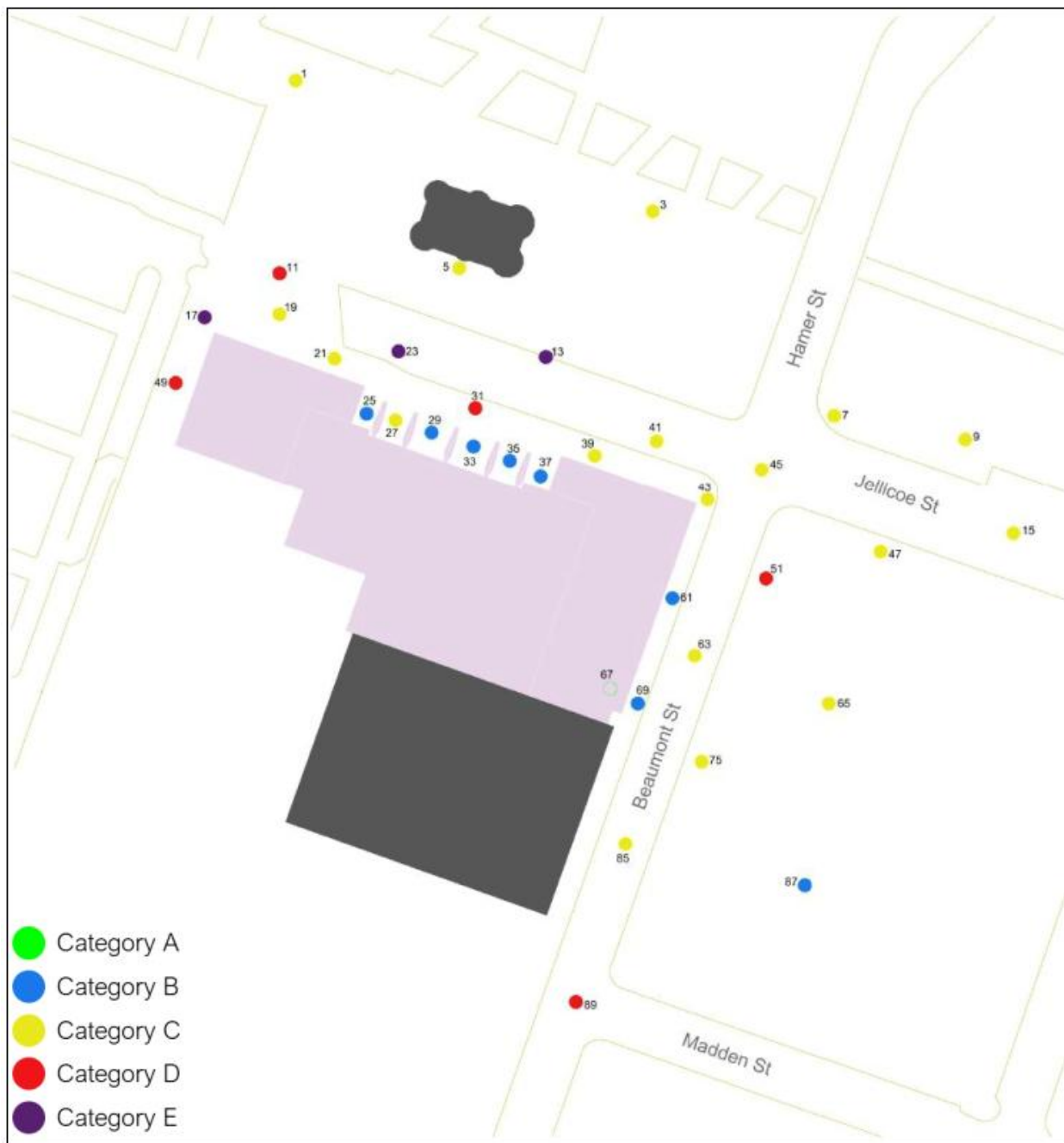
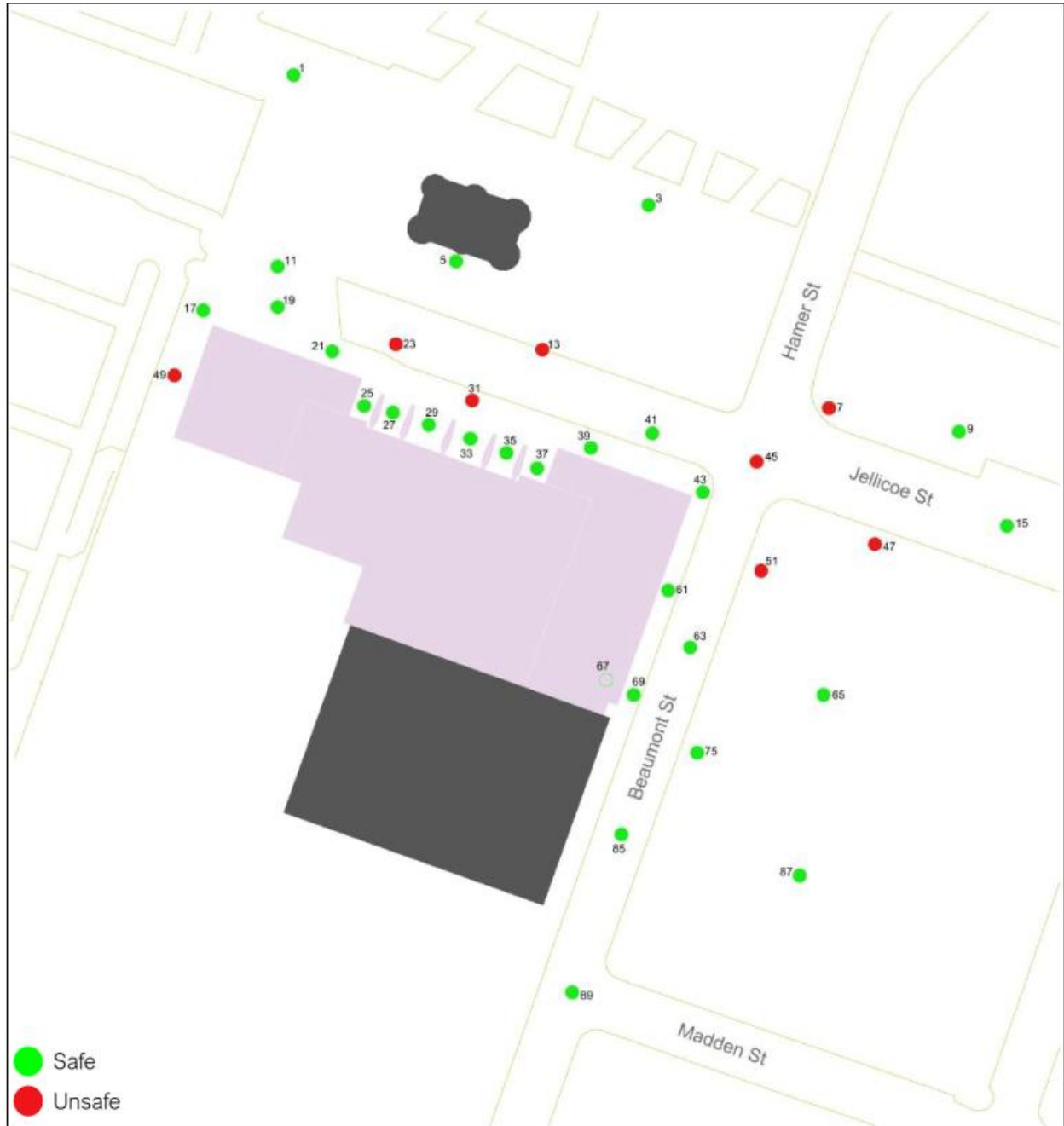


Figure 22 from the wind report



6.8 Wind conditions around the development, with modifications made to the western end of the development to mitigate wind and with the inclusion of new buildings at 164 Beaumont Street, range from Category A to Category D, and with an 'unsafe' gust speed at location 85. These results are illustrated in Figures 30 and 31 of the wind report and are reproduced below for ease of reference. These wind conditions are very good given the size and exposure of the proposed buildings at 188 Beaumont Street.

Figure 30 from the wind report

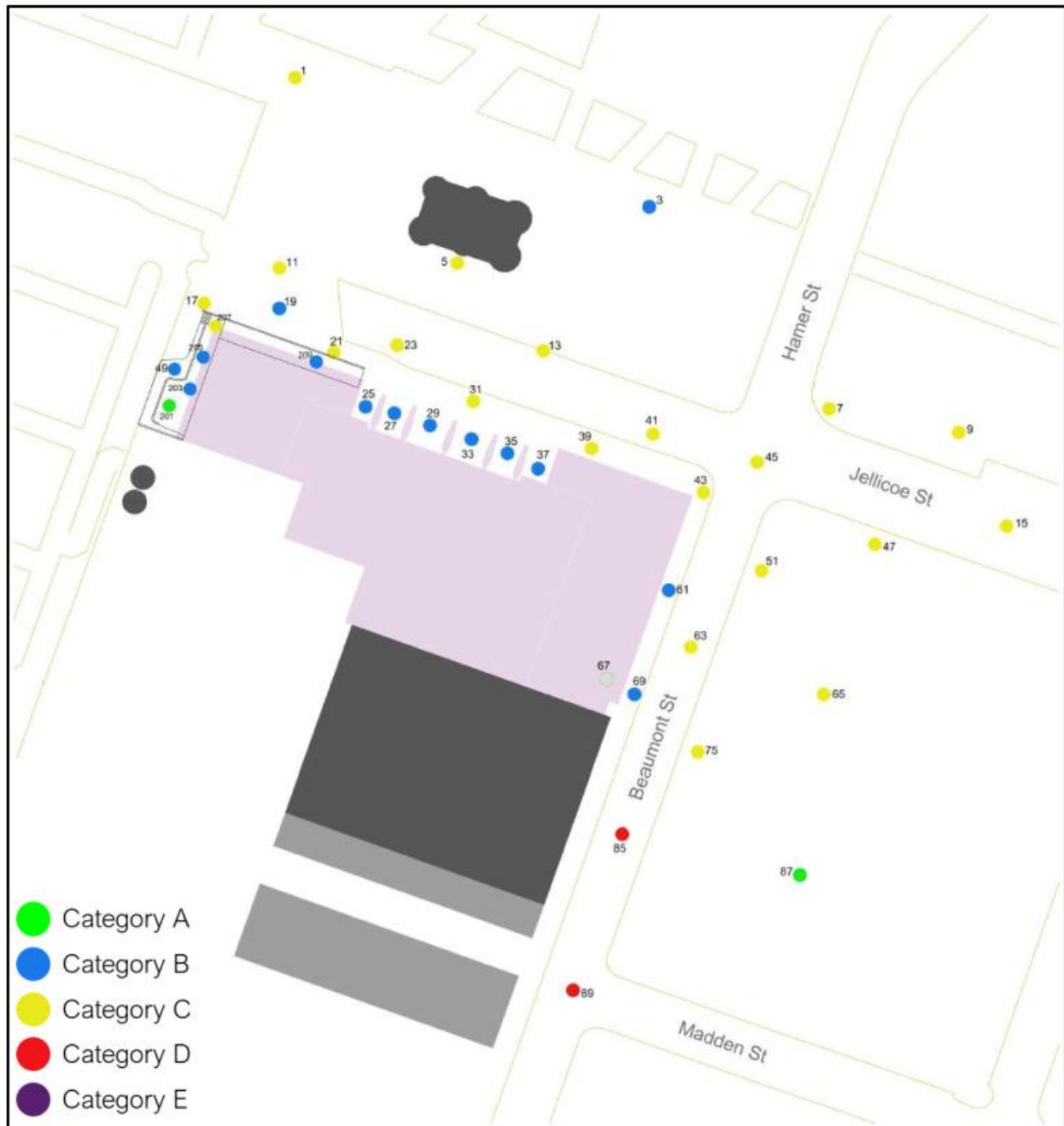
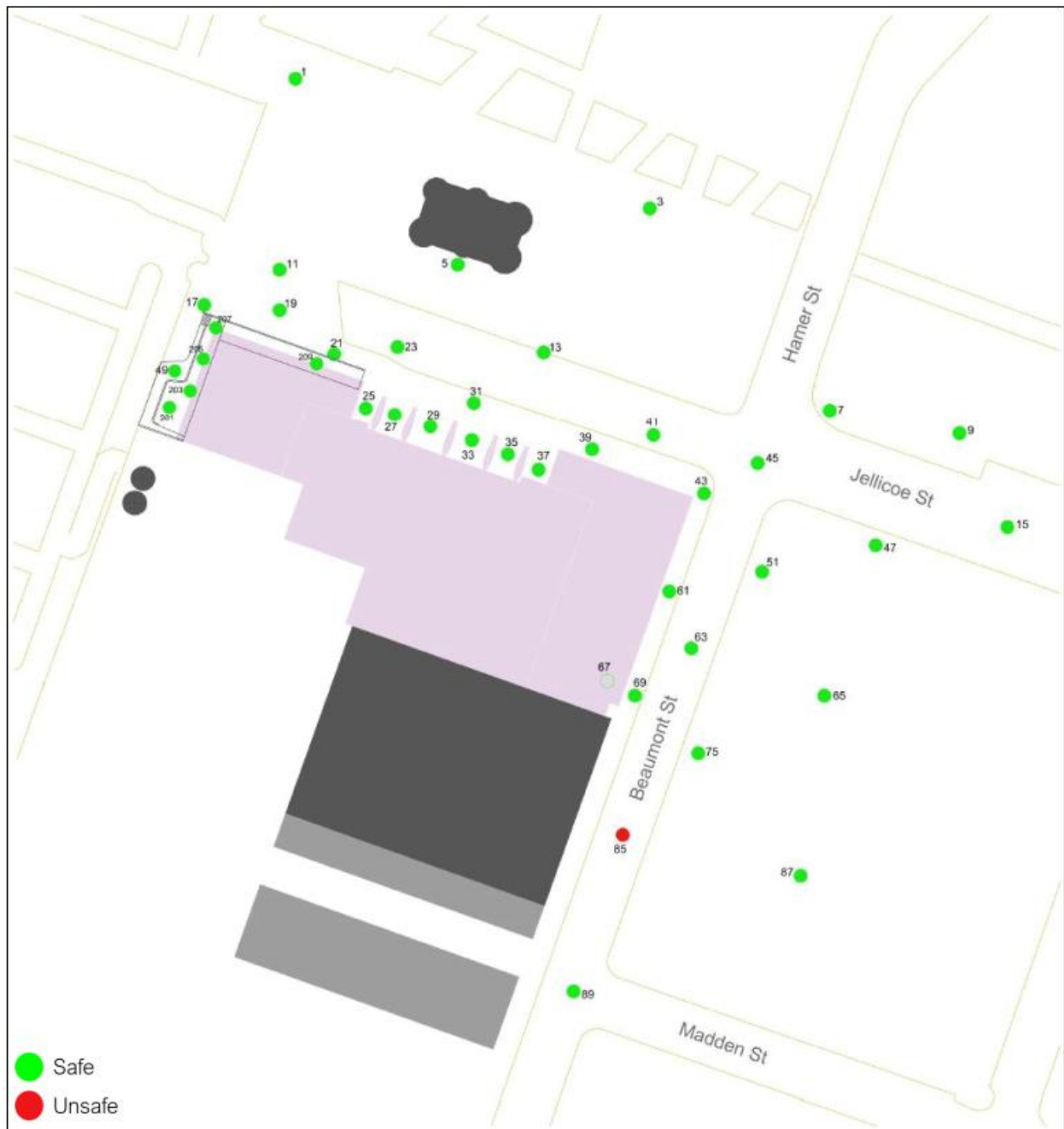


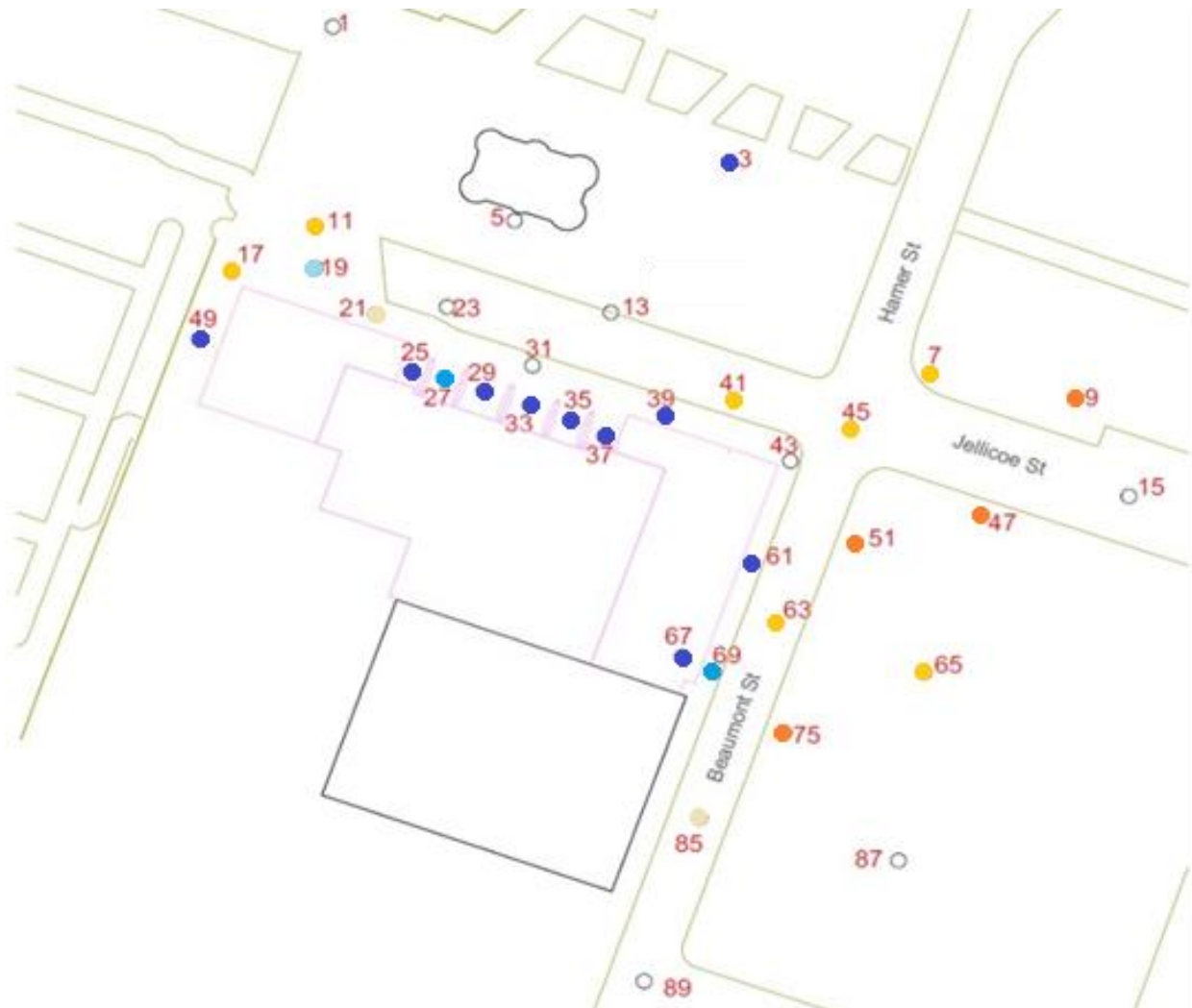
Figure 31 from the wind report



6.9 The mean wind speeds, for each wind direction, for the proposed development (with modifications made to the western end of the development to mitigate wind and with the inclusion of new buildings at 164 Beaumont Street) are shown in the table below. The right-hand column lists the non-directional mean wind speeds that are used to determine the wind category for the location. The colour shading shows the relative change in mean wind speed from the existing wind conditions (including the new buildings at 164 Beaumont Street) - orange indicates a deterioration in wind conditions, blue indicates an improvement in wind conditions and green indicates no substantial change with the development.

	Mean Wind Speed, 50 h/yr (m/s)																
Irwin_ID	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5	non-directional
1	3.5	5.5	5.8	5.3	3.9	1.8	1.6	2.0	1.8	3.3	5.9	8.0	8.3	5.6	3.6	2.6	8.8
3	3.8	3.5	3.0	3.5	2.5	1.6	1.8	1.9	2.0	2.4	4.2	4.8	5.6	5.9	5.7	4.3	6.8
5	2.1	3.1	5.1	6.0	4.6	2.6	2.1	2.7	1.6	2.4	4.8	5.9	8.4	7.8	6.6	2.1	8.6
7	3.4	4.1	4.0	2.9	2.6	2.0	2.2	3.1	2.8	3.9	8.1	5.3	6.1	3.7	3.4	2.8	8.2
9	3.8	4.4	3.4	2.3	2.5	1.5	1.8	2.2	2.1	3.5	7.3	7.6	3.6	3.5	3.5	3.0	8.2
11	2.4	4.5	6.0	5.3	3.8	1.5	1.6	2.1	1.7	2.9	6.4	7.7	8.2	6.0	3.5	2.0	8.5
13	3.0	3.6	3.8	3.9	3.1	1.9	2.2	2.5	2.8	3.4	8.1	8.2	7.8	6.7	4.4	2.6	8.9
15	2.7	4.5	4.7	5.2	3.8	2.0	2.0	2.6	2.3	2.7	5.1	6.3	6.5	3.4	2.7	2.6	7.1
17	4.4	6.4	6.8	5.8	4.1	1.2	1.4	1.7	1.4	2.9	7.3	7.6	7.8	6.1	3.4	2.1	8.8
19	2.3	3.9	5.1	4.1	2.8	1.2	1.3	1.9	1.2	2.0	3.4	4.3	4.3	4.6	3.8	1.5	5.8
21	2.3	4.7	6.9	7.2	5.1	1.3	1.2	1.3	1.1	2.0	3.5	5.2	4.9	2.7	3.3	2.1	8.1
23	4.2	4.8	6.7	6.2	4.2	1.6	1.7	2.7	1.5	2.4	6.7	8.6	8.6	6.1	5.4	3.8	8.8
25	2.1	2.8	3.0	3.5	3.2	1.2	1.2	1.5	1.2	2.0	3.3	5.4	5.2	4.0	3.2	2.0	6.0
27	2.2	3.9	4.8	3.9	2.7	1.1	1.2	1.3	1.3	2.2	3.5	4.1	6.1	5.2	5.3	2.3	6.8
29	2.6	3.9	4.6	4.3	2.8	1.2	1.3	1.3	1.3	2.1	3.6	4.5	6.5	4.8	2.6	1.8	6.9
31	4.2	3.6	4.1	3.9	2.7	1.2	1.5	2.3	1.4	2.0	5.8	8.4	8.8	6.0	4.2	3.9	8.9
33	2.8	3.8	3.8	3.4	2.4	1.3	1.4	1.6	1.4	2.3	3.5	3.9	4.9	3.4	2.2	2.0	5.1
35	2.5	3.1	2.7	4.5	3.9	1.5	1.4	1.6	1.5	2.5	3.5	4.2	4.8	2.8	2.5	2.1	5.5
37	2.9	2.9	2.8	3.0	2.6	1.7	1.5	2.0	1.3	2.1	3.5	6.6	6.7	4.5	4.3	3.6	6.8
39	4.2	4.3	2.8	2.3	1.9	1.9	1.3	1.5	0.9	1.8	3.7	4.6	6.5	3.8	4.1	3.9	6.7
41	3.8	4.3	3.3	2.9	3.0	2.2	2.2	2.6	1.8	2.1	3.5	5.6	8.0	4.9	3.2	3.0	8.1
43	5.6	6.4	4.0	2.7	3.6	2.9	2.8	3.5	3.5	4.8	4.7	3.7	4.0	3.0	4.7	4.6	7.4
45	4.7	4.9	3.7	2.6	3.4	2.9	2.7	3.6	3.4	4.9	7.9	4.6	5.4	4.9	3.6	3.3	8.1
47	4.6	4.5	3.3	2.8	1.9	1.4	1.6	2.4	2.2	3.4	6.4	8.7	4.3	3.4	3.5	3.5	8.8
49	3.7	2.9	2.2	2.1	1.4	0.9	1.1	1.1	1.1	2.1	3.8	4.2	4.0	2.4	2.1	2.7	4.8
51	4.7	6.1	4.2	3.3	2.8	2.3	2.1	3.4	2.9	4.0	8.3	8.4	4.5	2.2	2.2	2.6	8.7
61	2.0	2.7	2.6	2.7	2.6	1.8	1.7	2.5	2.0	2.6	4.6	3.8	3.0	2.1	1.7	1.3	4.7
63	2.2	4.2	4.6	5.1	3.6	2.2	2.1	3.1	2.4	3.9	7.8	7.4	4.3	2.2	1.8	1.6	8.3
65	4.3	4.8	4.0	3.0	2.2	1.3	1.5	2.1	1.9	3.1	4.6	7.2	7.5	2.9	2.5	2.2	8.0
67	1.5	2.2	2.1	2.1	1.6	1.1	1.1	1.1	1.2	1.9	3.1	3.0	2.8	1.9	1.6	1.2	3.4
69	2.9	2.6	3.6	4.5	3.0	1.7	1.7	2.3	1.5	2.3	5.5	6.0	4.1	2.1	1.7	1.5	6.4
75	2.6	4.5	5.0	5.0	3.9	1.9	2.0	2.8	2.0	3.4	6.7	8.2	6.7	2.1	2.2	1.8	8.5
85	3.0	7.2	10.4	10.0	8.4	4.8	3.0	2.5	2.1	3.9	6.4	7.2	6.6	4.2	3.7	2.6	10.4
87	0.9	1.3	1.2	1.0	0.8	0.5	0.5	0.5	0.5	0.9	1.3	1.6	1.7	1.1	1.0	0.7	1.8
89	3.0	5.4	6.4	5.6	4.3	2.7	2.1	1.7	2.1	4.0	6.3	10.1	9.3	5.6	4.2	2.6	10.5

Locations where mean wind speeds were measured around the site. Orange indicates a deterioration in wind conditions, blue indicates an improvement in wind conditions and clear indicates no substantial change with the development.



6.10 The gust wind speeds, for each wind direction, for the proposed development (with modifications made to the western end of the development to mitigate wind and with the inclusion of new buildings at 164 Beaumont Street) are shown in the table below. The right-hand column lists the non-directional gust wind speed that is used to assess safety of winds at the location. The colour shading shows the relative change in gust speed from the existing wind conditions (including the new buildings at 164 Beaumont Street) - orange indicates an increase in gust speed, blue indicates a reduction in gust speed and green indicates no substantial change in gust speed with the development

average annual max gust wind speeds (m/s)																	
Irwin_ID	0.0°	22.5°	45.0°	67.5°	90.0°	112.5°	135.0°	157.5°	180.0°	202.5°	225.0°	247.5°	270.0°	292.5°	315.0°	337.5°	Max all dir
1	13	16	16	16	13	10	7	9	8	13	20	23	21	16	14	11	23
3	16	14	11	12	10	9	8	9	9	15	18	19	20	19	16		20
5	10	12	17	19	15	12	9	13	7	9	17	20	24	23	24	12	24
7	13	13	12	10	10	10	9	12	11	13	24	18	20	13	13	11	24
9	13	14	12	9	11	8	8	10	9	12	22	22	12	13	13	11	22
11	10	16	18	17	14	8	8	9	7	11	20	22	23	19	15	9	23
13	15	16	14	14	11	10	10	11	11	12	22	23	21	22	17	12	23
15	11	14	14	15	13	9	8	9	9	10	16	20	18	13	12	10	20
17	15	19	18	17	15	6	6	8	6	12	23	24	22	18	16	10	24
19	11	14	15	14	11	6	6	9	5	7	12	16	14	16	15	7	16
21	11	17	19	19	16	7	5	6	4	7	12	18	17	11	14	10	19
23	15	17	18	17	14	9	7	12	6	9	22	23	22	21	17	12	23
25	9	10	11	13	13	6	5	6	5	7	11	17	17	16	15	10	17
27	10	15	15	14	11	6	5	6	5	8	12	14	18	20	18	10	20
29	12	14	14	14	11	6	5	6	5	7	13	16	20	17	11	8	20
31	16	14	14	13	10	7	7	11	6	8	20	23	22	21	16	15	23
33	13	13	13	12	9	7	6	7	6	8	12	13	15	13	10	9	15
35	12	12	10	17	14	9	6	7	6	9	12	14	15	11	12	10	17
37	13	10	10	12	11	10	7	9	5	7	13	23	23	17	18	15	23
39	17	16	10	9	9	11	6	7	4	7	12	15	18	14	17	14	18
41	16	16	12	11	12	12	10	11	8	7	12	19	23	20	14	13	23
43	18	20	15	11	14	14	11	13	12	13	17	13	14	13	18	15	20
45	16	15	12	10	14	15	11	14	12	15	23	17	18	18	14	12	23
47	16	14	11	11	8	8	8	11	10	12	23	22	15	14	14	13	23
49	14	11	8	7	6	4	5	5	4	8	14	14	13	10	10	11	14
51	18	18	14	14	14	14	11	14	12	14	21	21	15	9	11	12	21
61	9	10	9	11	11	10	8	11	9	9	17	14	9	8	7	6	17
63	11	16	14	19	16	12	10	14	11	13	24	24	15	9	8	8	24
65	17	14	12	12	11	8	7	10	9	11	16	22	24	11	11	11	24
67	7	7	7	7	6	5	4	5	5	7	10	10	9	7	7	5	10
69	13	10	12	17	13	10	8	11	7	9	18	19	14	8	7	7	19
75	12	15	14	20	17	12	10	13	9	12	22	23	21	8	10	8	23
85	14	20	25	28	23	18	12	11	9	14	21	21	19	18	17	13	28
87	11	11	11	14	10	9	6	6	6	9	17	17	17	13	12	8	17
89	15	17	19	19	16	15	10	8	9	13	20	24	24	21	18	12	24

Locations where gust speeds were measured around the site. Orange indicates an increase in the maximum gust speed, blue indicates a decrease in the maximum gust speed and clear indicates no substantial change with the development



- 6.11 Paragraphs 6.7 and 6.8 show that large improvements in wind conditions occur with the addition of wind mitigation to the original design and with the inclusion of new buildings at 164 Beaumont Street. This large improvement shows that the wind environment is sensitive to relatively small changes in the building design (i.e. the wind mitigation at the western end of the development is small in scale compared to the height and massing of the buildings, but has large effects). Paragraphs 6.9 and 6.10 show the wind effects of the development are also sensitive to wind direction. Therefore, it is important that any changes to the proposed design (including wind mitigation measures) are evaluated (potentially including further wind tunnel testing) to ensure that wind effects are accurately quantified and that safe and acceptable wind conditions are maintained.

- 6.10 *The directional wind speeds in paragraphs 6.9 and 6.10 show the development shelters the adjacent footpaths along Jellicoe and Beaumont Streets and increases wind speeds further away, to the north and east of the site. This pattern of deflecting wind away from the site is typical for new buildings that are introduced to vacant sites. Gust speeds at a number of locations are near the safety limit of 25 m/s, highlighting that wind conditions will be uncomfortable at times. The greatest changes in wind conditions occur during northeast, northwest and southwest winds.*
- 6.10 *The design of the proposed development limits adverse wind effects by massing the buildings towards the middle of the site, i.e. reducing the height of the buildings at the eastern and western ends of the site. It is important to acknowledge that any meaningful development in this part of the city is unlikely to fully comply with the AUP wind standards, making the wind conditions that are achieved with the wind mitigation modifications and the inclusion of the new buildings at 164 Beaumont Street very good. The category C conditions that generally prevail with the proposed development are suitable for footpaths used for pedestrian transit, but are not ideal for leisure activities (where category A or B conditions are desirable), which should be factored into the design of any outdoor leisure spaces.*

7.0 Section 67 Information Gap

Not applicable

Information gap	Nature of deficiency	Decision-making impact	Risk / uncertainty created
<i>Not applicable</i>			

8.0 Recommendation

- 8.1 *The proposed development (including the wind mitigation measures) achieves wind conditions that are relatively good given the size and exposure of the proposed buildings to prevailing winds. The category C conditions that generally prevail with the modified development are suitable for footpaths used for pedestrian transit, but not outdoor leisure activities.*
- 8.2 *Wind conditions are categorised as “safe” with the proposed development.*
- 8.3 *The wind effects of the development are sensitive to small changes in the building design. The proposed wind mitigation needs to be faithfully reproduced in the completed development to ensure that the predicted wind conditions are achieved in practice. Any future changes should be wind tunnel tested to accurately assess their impact on wind conditions.*