Appendix 6

Air Ventilation Assessment (Expert Evaluation)

Prepared for

Sime Darby Motor Services Limited

Prepared by

Ramboll Hong Kong Limited

PROPOSED EV MOBILITY CITY WITH ANCILLARY STAFF QUARTERS AND TALENT ACCOMMODATION AT VARIOUS LOTS IN D.D. 51 AND ADJOINING GOVERNMENT LAND, FANLING

AIR VENTILATION ASSESSMENT (EXPERT EVALUATION)

Date	**August 2025**
Prepared by	**Mike KWAN** **Environmental Consultant**
Signed	
Approved by	**Billy FAN** **Principal Consultant**
Signed	
Project Reference	**SDMFLD51EI00**
Document No.	**R9821_V1.0.docx**

Ramboll Hong Kong Limited

21/F, BEA Harbour View Centre
56 Gloucester Road, Wan Chai, Hong Kong

Tel: (852) 3465 2888
Fax: (852) 3465 2899
Email: hkinfo@ramboll.com

Q:\Projects\SDMFLD51EI00\04 Deliverables\02 AVAEE Report\R9821_V1.0.docx

CHAPTERS

TABLES

FIGURES

APPENDIX

1. INTRODUCTION

1.1 Project Background

1.1.1 The Application Site at various lots in D.D. 51, Fanling currently falls within the "Government, institution of Community" ("G/IC") zone, according to the Approved Fanling / Sheung Shui Outline Zoning Plan ("Approved OZP") No. S/FSS/28. The Applicant proposed to rezone from "G/IC" to "Other Specified Uses (Innovation and Technology)" ("OU(I&T)") zone, given the unique nature of the EV and low-altitude aerial vehicles industries with R&D and business needs.

1.1.2 Ramboll Hong Kong Limited has been commissioned to prepare the Air Ventilation Assessment – Expert Evaluation (AVA-EE report) in support of the planning application. The AVA-EE report will assess the air ventilation issues of the Application Site and the surrounding area.

1.2 Objective

1.2.1 This AVA-EE report has been prepared to identify opportunity and good design features that can be practicably adopted in the Proposed Scheme from air ventilation standpoint and evaluate if there would be any impact on the overall air ventilation performance of the assessment area by comparing the Proposed Scheme with the Baseline Scheme.

1.3 Application Site and its Environs

1.3.1 The Application Site is of about 5,480m^2 in area and elevated at around +15mPD currently. It is located in Wo Hop Shek Tsuen and currently bounded to the northwest by Wo Hing Road and to the northeast by Tai Wo Service Road West and Fanling Highway.

1.3.2 The Application Site is currently paved and occupied by warehouses and open area. The area immediately to the southwest consists mainly low-rising village houses, open carpark and brownfield development at Wo Hop Shek Village (about +31mPD). To the further southwest side, low-rise development at Wo Hing Tsuen is located (about +37.5mPD). To the immediate northwest are open spaces and green belt areas which comprised of woodland, cycling track and Pak Wo Road. Fanling Government Secondary School (+45.6mPD) and Dawning Views (+114mPD) are distributed further northwest and west of the Application Site. On the northern and north-east side of the Application Site, there are mainly existing and planned roads including Tai Wo Service Road West, Fanling Highway, Fanling Bypass Eastern Section, and a proposed freshwater pumping station (+26mPD).

1.3.3 It is noted that Public Housing Development at Fanling Area 48, located immediately to the east and southeast of the Application Site, is planned to be completed tentatively in 2027/28. A technical feasibility study of the proposed Public Housing Development was submitted as one of the supporting documents for the OZP amendment (RNTPC Paper No. 1/16). The Section 16 Planning Application (Application No.: A/FSS/295) has been submitted and approved by Town Planning Broad (TPB) in 2024. The findings have been referenced where appropriate. The proposed building heights of Public Housing Development are ranging from +118mPD to +175mPD.

1.3.4 **Figure 1** shows the location of the Application Site and its environs.

1.4 Baseline Scheme

1.4.1 The Baseline Scheme refers to the existing site condition. The Application Site is mainly occupied by temporary structures and open area. The maximum building height of the temporary structures and factories are approximately +22mPD.

1.5 Proposed Scheme

1.5.1 The Proposed Scheme comprises one 12 storeys Residential Institution (Talent Accommodation) and one 6 storeys Staff Quarters elevated at 99.55mPD and 80.65mPD respectively. The two towers are atop of an 7-storey podium building, comprising 6 storeys for R&D and innovations & technology related uses (research laboratory, pre-delivery inspection, training space/testing centre, battery charging/swapping station, EV showrooms, workbay, main office, storage/warehouse, utility and workshop) and 1 storeys of ancillary and supporting business and training facilities (i.e. conference, seminars, training course, and administration & accounting office). A podium garden (not less than 3m height) is proposed and lies between the podium and the two residential towers.

1.5.2 There will be a semi-open car ramp at the southwestern façade of the proposed podium, providing car access to each floor level (from basement to 5/F). Tentatively, the ramp is assumed to be the same as the elevation of 5/F, which is 44.75mPD, and permeable design will be adopted to enhance building block's permeability.

1.5.3 Design measures have been adopted to enhance air ventilation performance of the Proposed Scheme. At least 15m building separation is proposed between the Residential Institution and the Staff Quarters atop of 8-storey podium (+55.75mPD). This will serve as an air path that promotes high-level wind penetration across the Application Site and then gradually descends to the pedestrian level over distance. The podium garden (not less than 3m height), which contains few building structures, also provides a gap between the 7-storey podium and residential blocks to enhance building's permeability. That helps reduce the impediment of impermeable building blocks and provide more open spaces at high level for wind penetration and improve wind availability at downwind areas. Additionally, there is a building setback from northwest site boundary and provision of a large open area in the north and east to south-east side of the Application Site to facilitate wind flow at pedestrian level. Permeable ramp design in the south will also enhance wind penetration across the Application Site. The indicative layout plan of the Proposed Scheme is shown in **Appendix 1**.

2. SITE WIND AVAILABILITY DATA

2.1 Site Wind Availability Data From RAMS

2.1.1 According to the Planning Department's website, a meso-scale Regional Atmospheric Modelling System (RAMS) was used to produce a simulated 10-year wind climate at the horizontal resolution of 0.5 km x 0.5 km covering the whole territory of Hong Kong. The simulated wind data represents the annual, winter and summer wind condition at various levels, e.g. 300 m, and 500 m above terrain.

2.1.2 The RAMS data of the grid (X: 075, Y:079) has been extracted from the Site Wind Availability Data of Planning Department's website as the Application Site falls into the grid.

2.1.3 Among the wind roses with respect to different heights (200, 300 or 500m) available, the 200 m site wind availability data represents wind data that takes into account the topographical effect around the Application Site. Therefore, a lower level of wind roses at 200 m height is selected to study the prevailing wind condition as it represents the incoming wind to the Application Site and considers the influence on the prevailing winds by the surrounding topography.

2.1.4 According to the wind roses at 200 m altitude, annual prevailing wind directions for the Application Site are E, ESE and SE whereas summer prevailing wind directions are ESE, SE, SSE, S, and SSW. **Figure 2** shows the relevant wind roses diagrams representing the frequency and wind speed distribution at 200m height in annual and summer conditions. The wind frequency data is provided in **Table 2.1** below.

Table 2.1 Summary of RAMS Data and Wind Direction at 200m

	(X: 075, Y: 079)	
Wind Direction	**Probability for Annual Condition (%)**	**Probability for Summer Condition (%)**
N	5.5%	1.3%
NNE	6.1%	1.1%
NE	6.1%	1.1%
ENE	5.4%	1.9%
E	**12.7%**	6.8%
ESE	**18.3%**	**10.5%**
SE	**14.0%**	**13.4%**
SSE	8.4%	**16.3%**
S	4.3%	**10.2%**
SSW	4.2%	**10.7%**
SW	2.8%	7.5%
WSW	1.9%	4.8%
W	2.7%	5.9%
WNW	1.9%	3.8%
NW	2.5%	3.0%
NNW	3.2%	1.6%

Note: Bolded characters highlighted in grey represent the selected prevailing wind directions for evaluation.

2.2 Simulated Site Wind Availability Data from AVA-EE report (Agreement No. CE 47/2020) for Proposed Housing Development at Area 48, Fanling

2.2.1 According to the wind availability data from the Agreement No. CE 47/2020 (CE) – Term Consultancy for Site Formation and Infrastructure Works for Proposed Housing Development in Zone 2 (2021-2024), Final AVA-EE report for Public Housing Development at Fanling Area 48, completed in November 2023 (referred as FPHD-EE), it is summarized that the annual prevailing wind direction for the study area is primarily from the E, ESE, and SE directions, while the summer prevailing wind directions are ESE, SE, SSE, S, and SSW.

2.2.2 Various sets of site wind availability data, including those from the Hong Kong Observatory's measurements in Ta Kwu Ling, the approved AVA-EE report for On Lok Tsuen (2016), Fanling Area 48 (2015), and the Hong Kong Planning Department, have been evaluated. Considering validity and topographical factors, outdated datasets and wind data recorded far from the study area have been excluded. FPHD-EE adopted the wind data from RAMS model at Grid (X: 075, Y:079) for wind environment evaluation, which is consistent with the finding of prevailing wind directions analysed in **Section 2.1**.

2.3 Topography

2.3.1 The Application Site is situated at the northern fringe of Wo Hop Shek Tsuen, a relatively flat area for residential development. According to the FPHD-EE, the slopes rise gradually from Wo Hop Shek Tsuen towards the northeast and south directions while the land at the west to north is generally flat reclamation land. To the further northeast side, Lung Shan, elevated up to 350mPD, is located approximately 1.3km from the Application Site. Although the Application Site is in proximity to the foothill of Lung Shan, there will be no signification impact on both annual summer prevailing wind ventilates through the site. To the further south and southwest are Kei Lak Tsai (about 1.8 km apart) and Pak Tai To Yan (about 3km apart) with hilly topography (up to about 250mPD at Lei Laak Tsai and 480mPD at Pak Tai To Yan). Pak Tai To Yan is expected to block a portion of the incoming prevailing S and SSW wind to the Application Site due to the shielding effect of the hills. However, the influence on the wind flow patterns from S and SSW directions are considered minimal due to long distance. Therefore, under the existing wind condition, it is expected that annual and summer prevailing winds can penetrate the Application Site and reach its downwind areas thus existing site wind availability and immediate surrounding is anticipated to be satisfactory.

2.4 Building Morphology

2.4.1 The Application Site is mainly surrounded by low-rise developments concentrated on the southwest side, e.g. Wo Hop Shek Village (~+18.3 to 31mPD) and Wo Hing Tsuen (~+25.9 to 29.1mPD). Under the existing wind condition, the building density of the surrounding is considered low. Although there are few gaps between the existing blocks in the surroundings, wind flow over the building blocks and subsequently reaching the pedestrian level is possible. High-rise residential/Commercial developments are situated further northwest of the Application Site, e.g. Dawning Views (~+112.6 to 114mPD) and Wah Sum Estate (~+60.9 to 126.2mPD). As these high-rise buildings are located in downwind areas with respect to identified prevailing wind directions from the Application Site, the potential building blockage effect due to the surrounding existing development is considered low.

2.4.2 According to published information in Statutory Planning Portal under the Town Planning Board regarding planned / committed developments in the surrounding area,

to the immediate southeast and south of the Application Site is proposed Public Housing Development. The proposed Public Housing Development includes one large irregular housing block (B1) at +118mPD atop a podium of 43.4mPD, and six "Y-shaped" housing blocks (B2-B7), i.e. B2 (+121mPD) atop a podium of 43.4mPD; B3 (+175mPD) atop a podium of 38.1mPD and B4 to B7 (range from +145mPD to 175mPD) atop the same podium of 34.7mPD. Additionally, a primary school of around 40mPD in height is proposed adjacent to the eastern side of the Public Housing Development. The building separations between B1/B2 and B3/B4 provide open space along NNE/SSW axis of the Public Housing Development site. The building disposition of B1, B2, B3, B4 and B7 creates building separation clearance along ESE/WSW axis of the Public Housing Development site that allow ESE and SE (prevailing under both annual and summer condition) wind penetration at pedestrian level. Other effective building separations on top of the low-rise podium of B4 to B7, along with the aforementioned building separations, would enhance wind penetration towards the Application Site. The building setbacks near the Application Site within Public Housing Development will also divert more portion of prevailing winds (e.g. E, SSE and SSW) towards the Application Site. Since the planned Public Housing Development is generally situated on upwind side of the Application Site with respect to identified prevailing wind directions, potential building blockage effect due to the Public Housing Development is considered medium to high. Therefore, the ventilation performance for the Public Housing Development evaluated from the FPHD-EE report will be taken into consideration when assessing the air ventilation performance of the Application Site. The air paths passing through the Public Housing Development have been identified as primary incoming wind corridors for the Application Site under different prevailing wind directions.

2.4.3 All noise barriers, elevated structures, planned and committed development, if any, are considered in this report. Fanling Highway is the major road within the surrounding area that facilitate air flow along NW/SE axis. Other major roads, including Tai Wo Service Road West and Wo Hing Road, located immediate northeast and southwest side of the Application Site. The planned Fanling Bypass Eastern Section is elevated at the immediate northeast side of the site. In addition, discrete sections of noise barriers are installed along Fanling Highway in the north and northwest directions of the site. There are also several elevated footbridges across Fanling Highway and the East Rail Line railway. It is anticipated that the wind availability at pedestrian level will be slightly lowered due to the blockage of noise barriers and elevated structures.

2.4.4 The building height information of these identified developments was extracted from Geo-Reference Database (BG1000) provided by Survey and Mapping Office/ Lands Department.

2.5 Summary of Existing Site Wind Availability

2.5.1 According to the wind availability data from RAMS, the summarised annual wind directions of the Application Site include E, ESE, and SE directions. While in summer wind condition, the prevailing winds mainly come from ESE, SE, SSE, S, and SSW directions.

2.5.2 The surrounding topography and existing low-rise residential development in proximity to the Application Site will not have significant impact on the wind availability to the Application Site at pedestrian level. It is anticipated that the surrounding traffic network and open areas would be the main air corridor under both annual and summer condition, including Fanling Highway, Tai Wo Service Road West and Wo Hing Road. The existing noise barriers, elevated structures and planned development should not impose any significant obstruction to wind flow.

2.5.3 The low-rise village type development is concentrated at the upwind areas under summer prevailing SSE, S and SSW wind directions so that summer prevailing wind is expected to flow above these building blocks before reaching the Application Site. Due to the low-rise nature, it should impose only some minor and insignificant obstruction to wind flow.

2.5.4 The Planned Public Housing Development, situated immediately to the east and southeast of the Application Site, is on upwind side of the Application Site under most identified prevailing wind directions (e.g. ESE, SE, SSE, and SSW). It is expected that the high-rise planned development would block the incoming wind and reduce wind availability to the Application Site. The air paths passing through the Public Housing Development would be identified as primary incoming wind corridors for the Application Site under prevailing ESE, SE, SSE, and SSW wind directions.

2.5.5 **Figure 3** to **Figure 5** show the annual and summer prevailing wind directions under the Baseline Scheme.

3. EXPERT EVALUATION OF AIR VENTILATION PERFORMANCE OF THE PROPOSED DEVELOPMENT

3.1 Important Pedestrian Areas

3.1.1 Important surrounding areas that the public would often access have been identified as the following:

- Roads surrounding the Application Site (Tai Wo Service Road West, Wo Hing Road, and roads further away)
- Open space; and
- Nearby residential and village-type developments.

3.2 Evaluation of Merit/Demerit of Design Features of the Proposed Development

3.2.1 Under the Proposed Scheme, various good design features are beneficial to air ventilation such as separation of building from site boundary, optimal building disposition and alignment, and building separation advantageous to prevailing wind penetration are incorporated.

- Open space is provided at northern side of the Application Site to facilitate wind flow along Tai Wo Service Road West. The northern open space allows annual and summer prevailing E and ESE winds to penetrate through.
- Open space is provided at eastern side of the Application Site to facilitate wind penetration across. The eastern open space allows annual and summer prevailing E, SE, SSE, and SSW winds to penetrate through.
- Building setback from the northwest site boundary of the Application Site with open spaces created will facilitate summer prevailing S and SSW winds penetration to benefit its surrounding areas.
- At least 15m building separation is proposed between the Residential Institution and the Staff Quarters atop of 8-storey Innovation & Technology building (+55.75mPD). This separation primarily facilitates high-level wind penetration and gradually descend to the pedestrian level over distance. Consequently, a wake area is anticipated immediately north of the Application Site under the summer prevailing S and SSW wind conditions.
- A podium garden (not less than 3m height) with permeable design is proposed between the 7-storey podium and the two residential towers (Residential Institution and Staff Quarters). The provision of open spaces at high level (+55.75mPD) will complement the building separation to further enhance high-level wind penetration under the summer prevailing S and SSW wind conditions. While improved high-level wind flows will gradually descend to the pedestrian level over distance, the effectiveness of podium garden on wind availability at immediate pedestrian areas are limited.

3.2.2 Further discussion of the scheme based on the good design features above is included below.

Air corridors/ Air paths

3.2.3 **Figure 3** to **Figure 5** illustrate the prevailing winds from annual and summer wind directions for the Baseline Scheme. **Figure 6** to **Figure 8** illustrate the prevailing winds from annual and summer wind directions for the Proposed Scheme.

3.2.4 Nearest wind corridors from the Application Site are along Tai Wo Service Road West and Wo Hing Road which may allow ESE and SSW wind penetration respectively. With respect to these wind corridors, the Proposed Scheme is designed so that the building allow setback from boundary immediate to them. For instance, there is at least 5m building setback from the northwestern site boundary, which enable ventilation from Wo Hing Road under the summer prevailing S and SSW wind conditions. Moreover, there is northern open space which enable wind penetration from Tai Wo Service Road West under the annual and summer prevailing E and ESE wind conditions. Therefore, the impact due to the Proposed Scheme on air flow along wind corridors have been avoided/minimised.

3.2.5 The Planned Public Housing Development is located immediately to the east and southeast of the Application Site. The development comprises eight high-rise towers (+175mPD), with building separations and open spaces integrated into its design. It is positioned on the upwind side of the Application Site under both annual and summer prevailing wind conditions (e.g. ESE, SE, SSE, and SSW). It is considered the Public Housing Development may reduce wind availability for the Application Site due to the proximity and height of its towers. According to the FPHD-EE, the air paths passing through the Public Housing Development have been identified as primary incoming wind corridors for the Application Site under different prevailing wind directions. **Figure 3** to **Figure 5** illustrate these air paths across the Public Housing Development site for both annual and summer prevailing wind directions.

Building Disposition and Development Permeability

3.2.6 The Proposed Development are positioned in the centre of the Application Site, leaving large open spaces on north and southeast sides. The northern open space would allow wind flow from annual and summer prevailing ESE wind and the southeastern open space would allow wind from annual and summer prevailing E, SE, SSE, and SSW winds to flow across the Application Site to provide wind availability for the surroundings. Furthermore, at least 15m building separation is proposed between the Residential Institution and the Staff Quarters atop of 8-storey podium (+55.75mPD). It will primarily facilitate high-level wind penetration for summer prevailing S and SSW wind conditions. The high-level wind would gradually descend to the pedestrian level. Thus, wake area is expected on immediately north of the Application Site. Moreover, a 5-storey semi-open car ramp (+44.75mPD) is proposed at the southwestern façade of the podium under the Proposed Scheme. The permeable design of the car ramp would enable some portion of wind flow from annual and summer prevailing winds to penetration across to the downwind side.

3.2.7 Comparing to the existing condition of the Application Site, the building footprint of Proposed Development in the Proposed Scheme would impose some wind blockage impacts. However, various mitigated measures/ wind enhancement features are incorporated in the design of the Proposed Scheme, which would allow wind penetration across the Application Site and minimise the impact.

Building Height

3.2.8 The Proposed Scheme with taller building height (+99.55mPD), may increase wind blockage impact and it could be more challenging for wind to flow over the high-rise building and descend to the pedestrian level when compared to the existing condition. However, the planned Public Housing Development immediately to the east and southeast of the Application Site has even greater maximum building height (+175mPD) than the Proposed Scheme. Since this development lies on the upwind side, it will dictate the incoming wind corridors towards the Proposed Scheme under most prevailing wind conditions (e.g. ESE, SE, SSE, and SSW). Moreover, the northern

and southeastern open spaces are proposed to facilitate airflow paths from the nearby development towards the downwind area. As the result, the potential ventilation impact to the downwind area caused by the taller building height in the Proposed Scheme is expected to be mitigated.

3.3 Directional Analysis of the development

3.3.1 As discussed in **Sections 2.1** to **2.2**, winds from E, ESE and SE directions are annual prevailing winds whereas winds from ESE, SE, SSE, S and SSW are dominant in the summer. The following appraises the situation with respect to the Proposed Scheme.

E Wind

3.3.2 Under the annual prevailing E wind direction, a portion of wind flow would pass above Fanling Highway and Tai Wo Service Road West before reaching the Application Site. Since the E wind is not obstructed by upwind building structure, higher wind availability at the Application Site is anticipated under annual prevailing E wind condition. Some portion of the E wind would penetrate through the setback area between B1 and site boundary of the planned Public Housing Development to reach the Application Site. Under the Proposed Scheme, the E wind would further flow towards the downwind area by flowing atop of the proposed southeastern open space. In addition, some portion of the E wind would be directed towards the semi-open car ramp (+44.75mPD) on the southern façade of the proposed podium. The permeable design of the car ramp is expected to facilitate wind penetration through the Application Site. As the result, no adverse air ventilation impact on the downwind area is anticipated under the annual prevailing E wind.

ESE and SE Wind

3.3.3 The annual and summer prevailing ESE and SE winds would primarily flow through the building separations and open spaces of the planned Public Housing Development located on the upwind side before reaching the Application Site. The building separations B1/B4 and B2/B3 would channel ESE and SE winds though the Public Housing Development site. Then, the SE wind would flow over the southeastern open space until encountering the Proposed Development, which may cause a slight reduction in wind availability immediately to the north of the Application Site. However, as the northern area primarily consists of carriageway road rather than pedestrian walkways, the Proposed Scheme is not expected to create significant air ventilation impact in downwind area under SE wind condition.

3.3.4 The design features of the Proposed Scheme ensure continuous wind penetration through the Application Site. ESE wind would flow through the building separations B1/B4 and B2/B3 of the Public Housing Development site and reach the southeastern open space of the Proposed Scheme, maintaining air ventilation to west of the surrounding area. In addition, ESE winds along Tai Wo Service Road West would penetrate through the proposed northern open space to reach downwind areas. As a result, the Proposed Scheme would not adversely affect air ventilation performance or create significant impacts to the western and southern surrounding areas, including Wo Hop Shek Village and pedestrian area along Wo Hing Road, under annual and summer prevailing ESE and SE wind conditions.

SSE Wind

3.3.5 Under summer prevailing SSE wind condition, the primarily airflow would occur through the building separation B4/B7 of the planned Public Housing Development on the upwind side before entering the Application Site. This building separation would channel SSE wind towards the southeastern open space of the Proposed Scheme, which

would allow further penetrate through the Application Site for reaching the northern surrounding areas.

3.3.6 On the other hand, secondary airflow would approach the direction of the downwind area near the Application Site through the southwestern building setback of the Public Housing Development site boundary after flowing above low-rise structures in Wo Hop Shek Village (about +31mPD).

3.3.7 In general, the southeastern open space in the Proposed Scheme would enable continuous SSE wind penetration to downwind areas. Furthermore, the Proposed Scheme would be able to maintain the existing airflow patterns from the upwind Public Housing Development without creating significant obstructions under summer prevailing SSE wind condition.

S and SSW wind

3.3.8 Under summer prevailing S and SSW wind conditions, the wind would mainly approach to the Application Site after passing over the low-rise structures of Wo Hop Shek Village (about +31mPD). These winds further penetrate through the northwestern setback (at least 5m) in the Proposed Scheme reaching downwind areas.

3.3.9 S and SSW winds would flow towards the Application Site through the building separations and building setback areas of upwind Public Housing Development. The SSW wind would flow along the western building setback of the Public Housing Development site before crossing the proposed southeastern open space in the Proposed Scheme. Meanwhile, prevailing S wind would primarily penetrate through the building separation B4/B7 of the Public Housing Development, channelling directly toward northern surrounding areas while bypassing the Application Site.

3.3.10 Furthermore, the building separation (at least 15m) between the Residential Institution and the Staff Quarters, aligned along NE/SW axis, serves as a channel for high-level wind penetration. This opening predominantly facilitates SSW wind while allowing partial S wind penetration. Besides, the podium garden (not less than 3m height and elevated at 55.75mPD) allows more portion of S and SSW winds ventilate through the proposed development high up from the ground. Wind penetration at high level can be further enhanced due to increased building's permeability. These high-level winds gradually descend to pedestrian level over distance. On the other hand, at ground level, airflow from prevailing S and SSW winds would encounter the 8-storey podium building (+55.75mPD), they generate a wake zone immediately north of the Application Site due to lower-level blockage effects.

3.3.11 The Proposed Scheme maintains existing airflow patterns from the upwind Public Housing Development with design measures to mitigate potential ventilation impacts. The southeastern open space and at least 5m northwestern setback collectively ensure continuous wind penetration to downwind areas. High-level building separation (at least 15m) is also provided to mitigate the localized wake effect north of the Application Site under summer prevailing S and SSW wind conditions.

3.4 Summary of Relative Air Ventilation Performance

3.4.1 The air ventilation performance of the Baseline Scheme and the Proposed Scheme has been appraised. Under the Proposed Scheme, higher maximum building height (+99.5mPD) is proposed with air ventilation design measures of building setbacks between towers, open spaces, and high-level building separation between towers.

3.4.2 The building setback between the Proposed Development and northwestern site boundary facilitates summer prevailing S and SSW wind flow. The disposition of the Proposed Development would create open spaces at the northern and eastern site

boundary. These open spaces facilitate annual and summer prevailing E, ESE, SSE, and SSW wind penetration through the Application Site. In addition, at least 15m building separation between the Residential Institution and the Staff Quarters is aligned in NE/SW axis to facilitate high-level wind penetration. High-level wind flow from summer prevailing S and SSW wind would channel through the gap and gradually descend to the ground level further northern surrounding areas. The permeable podium garden atop the podium building will further promote the high-level wind flow and enhance ventilation to surrounding areas. Although its effectiveness in increasing wind availability at the immediate pedestrian level is limited, the wake area can be mitigated by other good designs such as building setback and the provision of open space at ground level.

3.4.3 Overall, various good design measures have been incorporated so that the Proposed Scheme is considered unlikely to impose significant and worsened impacts on the surrounding areas in air ventilation perspective when compared with the Baseline Scheme.

4. CONCLUSION

4.1.1 A qualitative assessment on the air ventilation performance of the Proposed Development has been carried out.

4.1.2 According to the findings of this AVA-EE, the annual prevailing wind comes from E, ESE, and SE directions while the summer prevailing wind comes from ESE, SE, SSE, S, and SSW directions. Good design features of the Proposed Development include building setbacks between towers, open spaces, and high-level building separation between towers are provided to maintain good air ventilation performance.

4.1.3 After considering the potential air ventilation impacts on the Application Site under all prevailing wind directions, it is considered that the Proposed Scheme with the design measures incorporated would unlikely impose significant and worsened air ventilation impacts on the surrounding as compared with the Baseline Scheme.

Figures

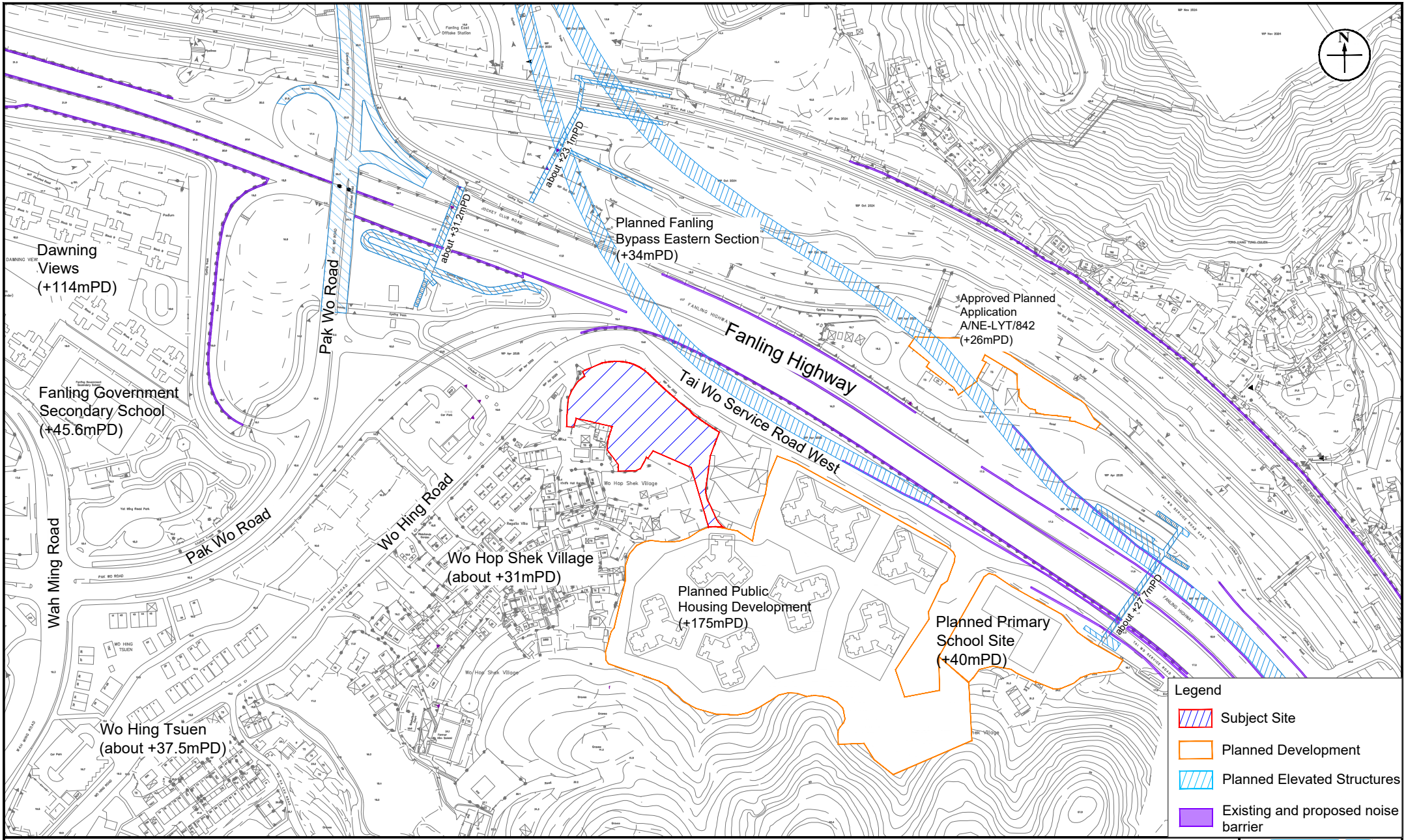


Figure: 1

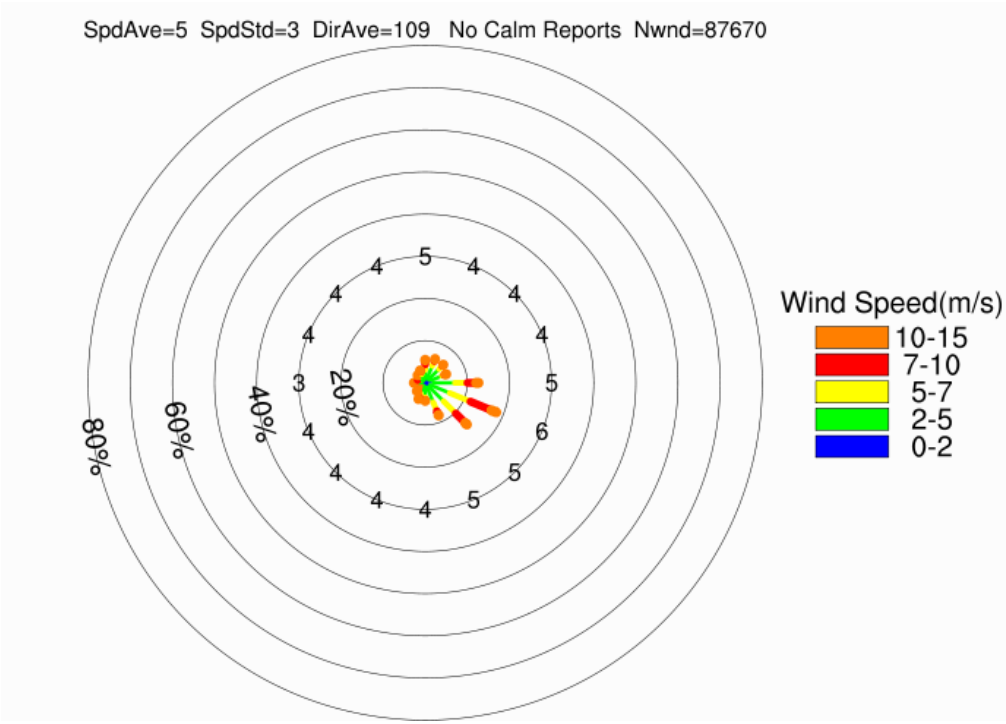
Title: Location of the Application Site and Its Environs

Project: Proposed Rezoning of "Government Institution or Community" Zone at Various Lots in D.D. 51, Fanling

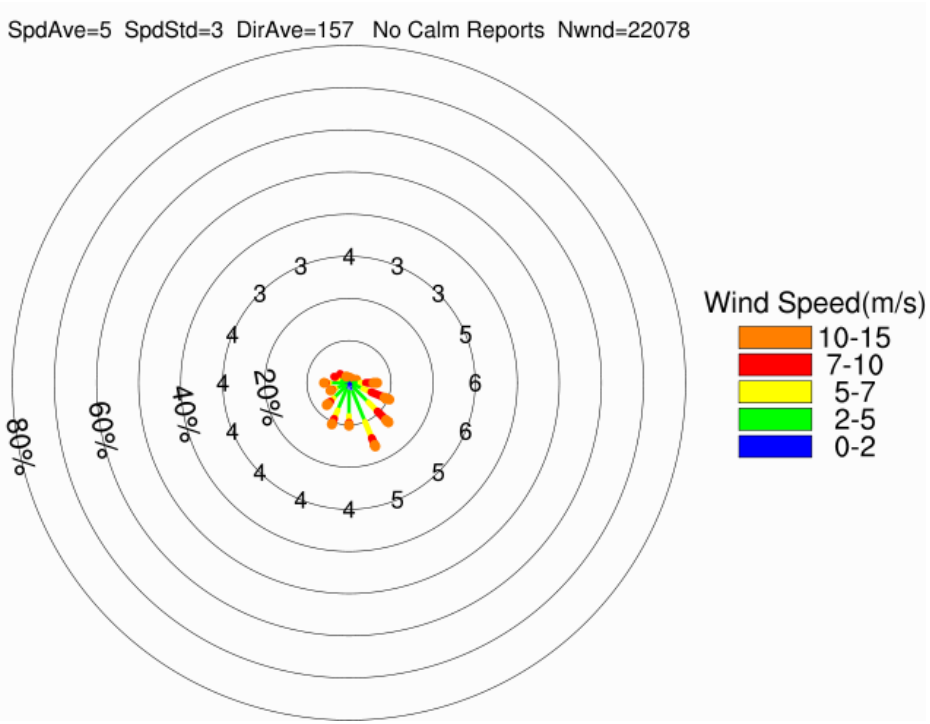
RAMBOLL

Drawn by:	AW
Checked by:	BF
Rev.:	1.0
Date:	Jul 2025

Q:\Projects\SDMFLD51EI00\05 Assessments\05 AVAEE\Figure 1_20250723.dwg



Annual



Summer

Figure: 2	RAMBOLL
Title: Windrose Diagram representing V∞ of the Area under Concern at 200m above ground (X:075, Y:079)	Drawn by: AW Checked by: BF
Project: Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

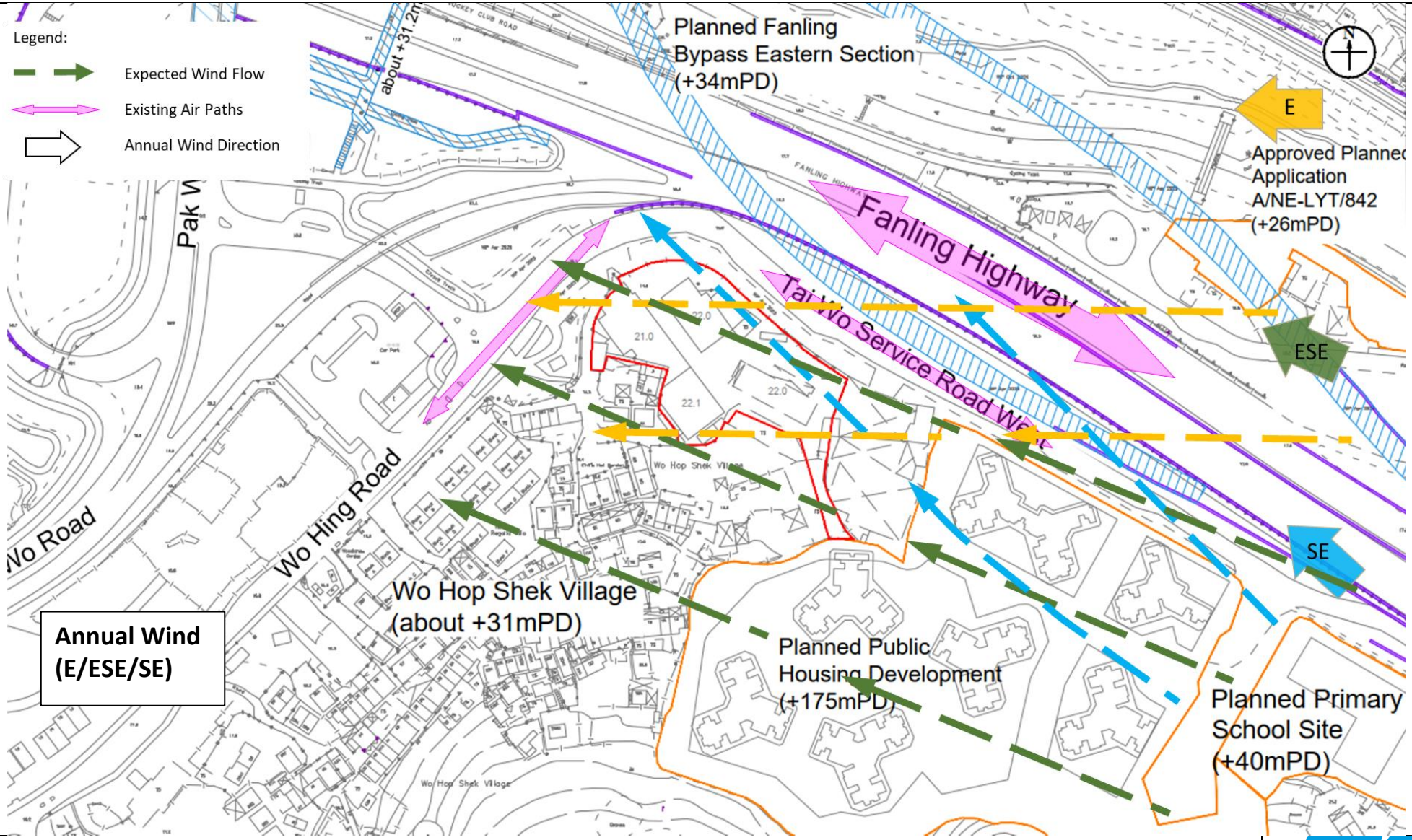


Figure: 3	RAMBOLL
Title: Illustration of Wind Flow from Annual Wind Directions for Baseline Scheme	Drawn by: AW Checked by: BF
Project: Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

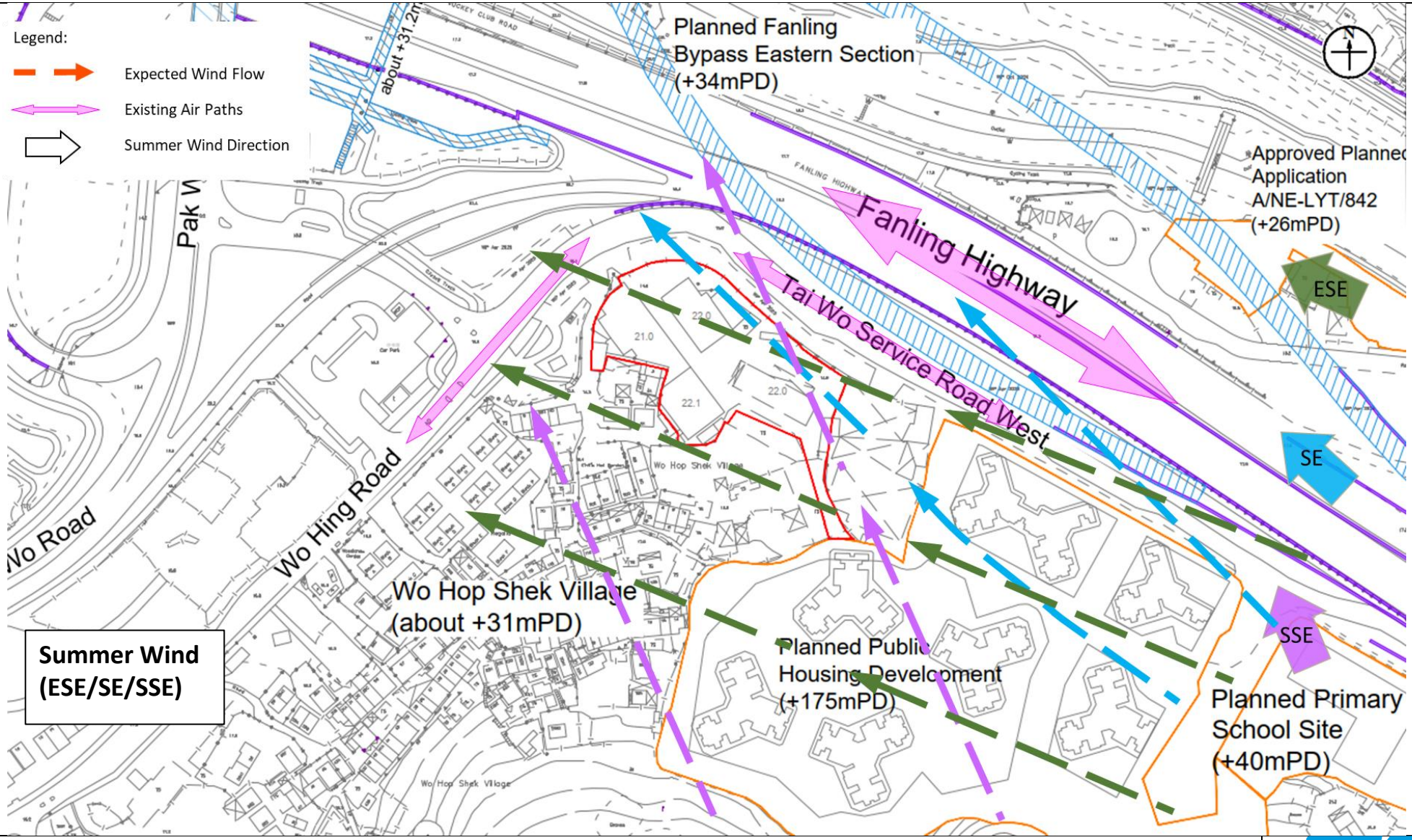


Figure: 4	RAMBOLL
Title: Illustration of Wind Flow from Summer ESE, SE and SSE Wind Directions for Baseline Scheme	Drawn by: AW Checked by: BF
Project: Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

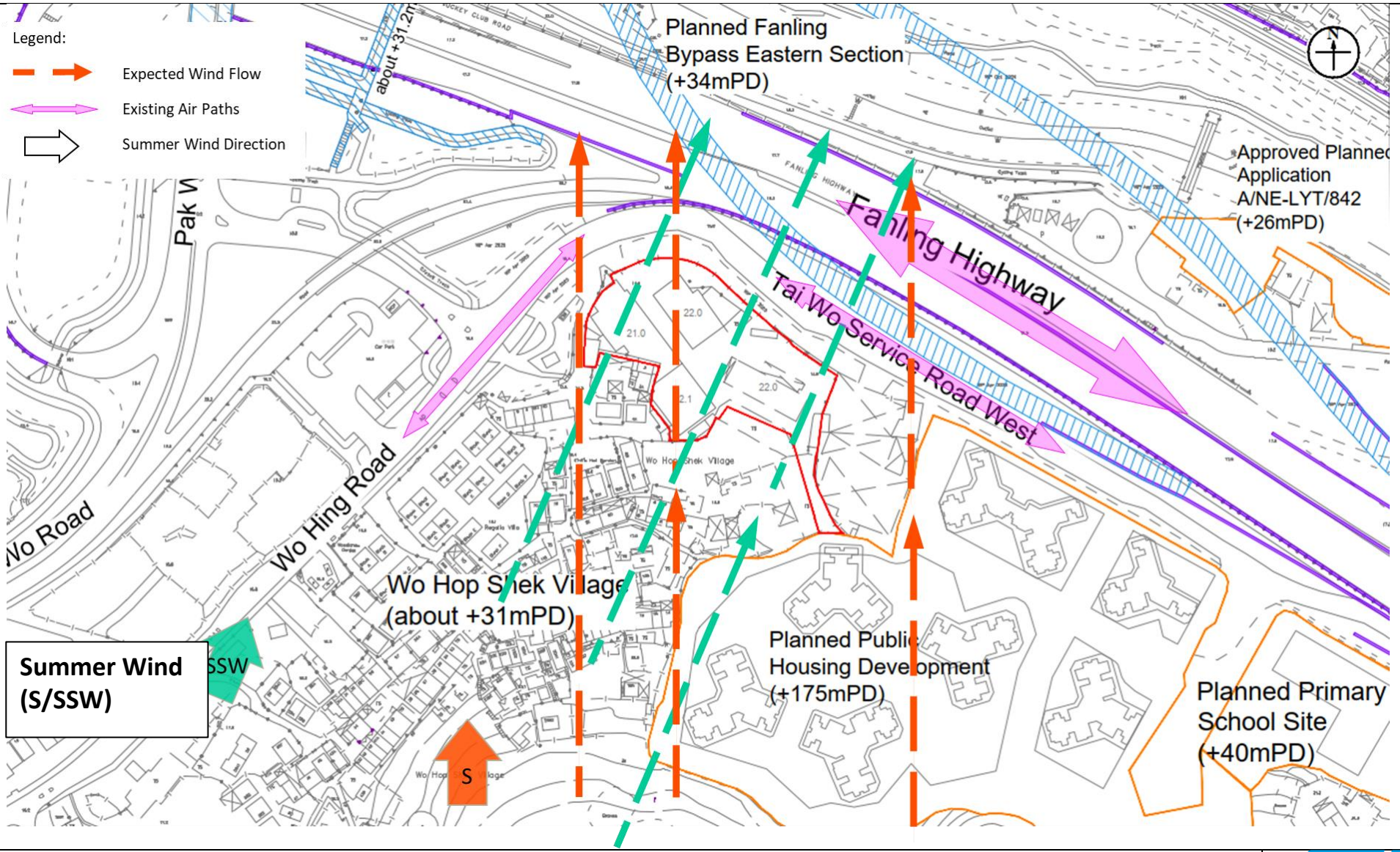


Figure:	5	RAMBOLL
Title:	Illustration of Wind Flow from Summer S and SSW Wind Directions for Baseline Scheme	Drawn by: AW Checked by: BF
Project:	Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

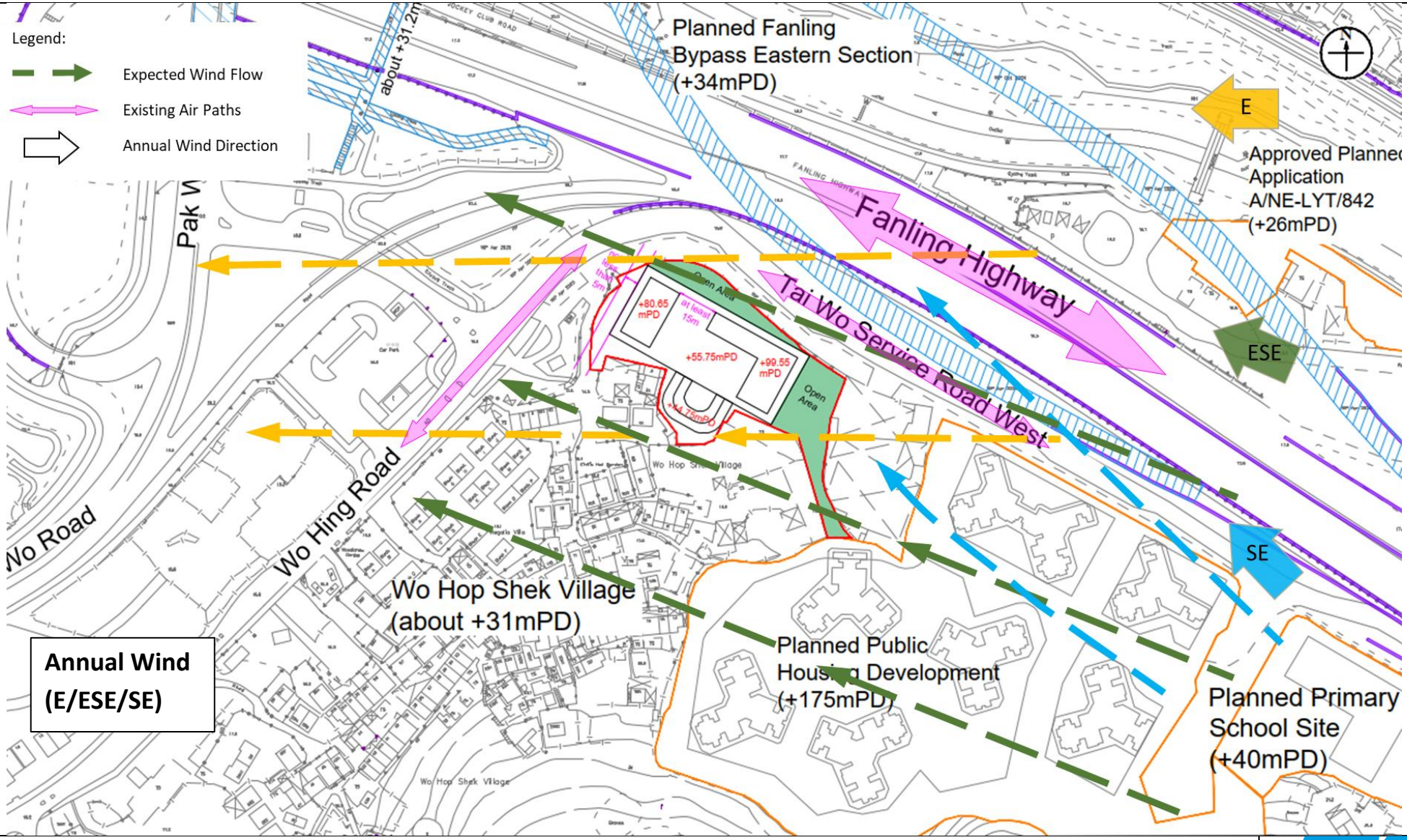


Figure: 6	RAMBOLL
Title: Illustration of Wind Flow from Annual Wind Directions for Proposed Scheme	Drawn by: AW Checked by: BF
Project: Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

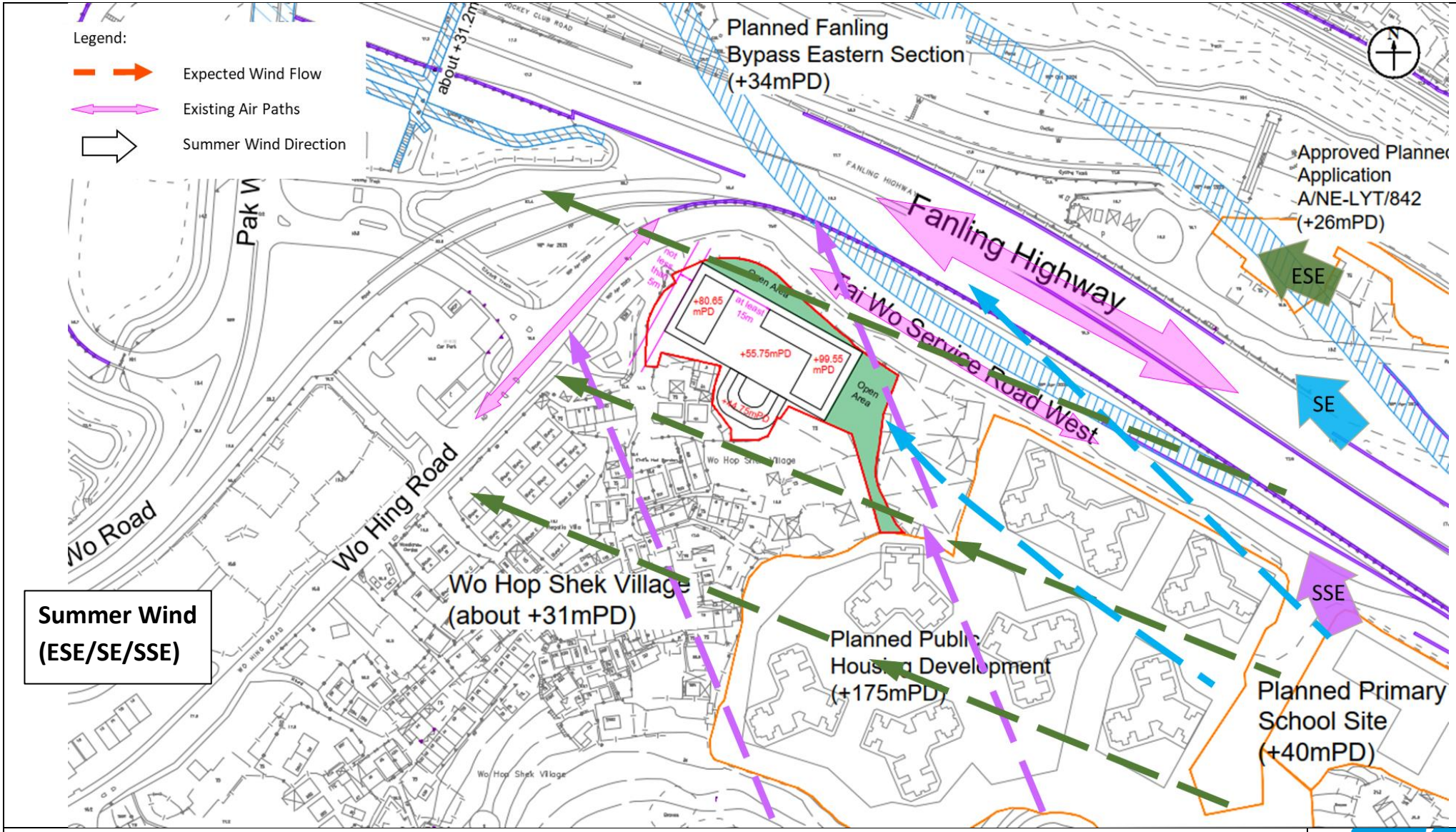


Figure:	7	RAMBOLL
Title:	Illustration of Wind Flow from Summer ESE, SE and SSE Wind Directions for Proposed Scheme	Drawn by: AW Checked by: BF
Project:	Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

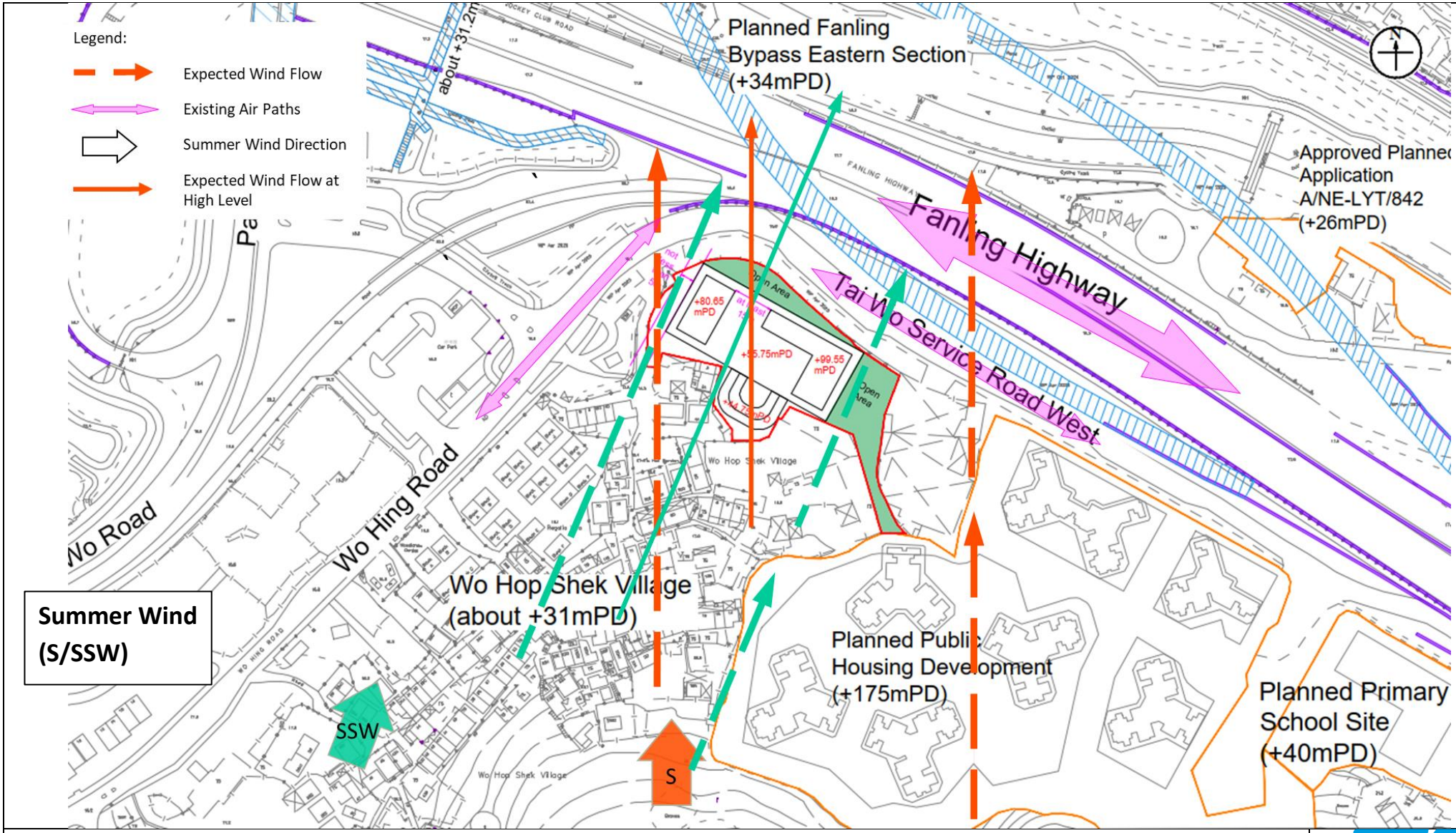


Figure: 8	RAMBOLL
Title: Illustration of Wind Flow from Summer Wind S and SSW Directions for Proposed Scheme	Drawn by: AW Checked by: BF
Project: Proposed EV Mobility City with Ancillary Staff Quarters and Talent Accommodation at Various Lots in D.D. 51 and Adjoining Government Land, Fanling	Rev.: 1.0 Date: Jul 2025

Appendix 1

The Master Layout Plan of the Proposed Scheme

MAIN ENTRANCE

N

Not less than 5m

At least 15m

A

A'

B

B'

Residential Institution (Talent Accommodation)

Staff Quarters

Innovation & Technology

和合石村

Wo Hop Shek Village

京士豪庭

King's Hall Garden

大嵩西支路

WIP Nov 2024

Residential Institution (Talent Accommodation)

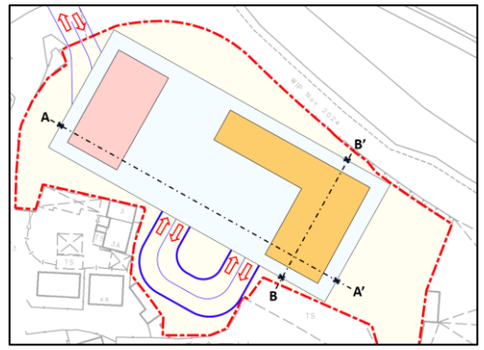
Staff Quarters

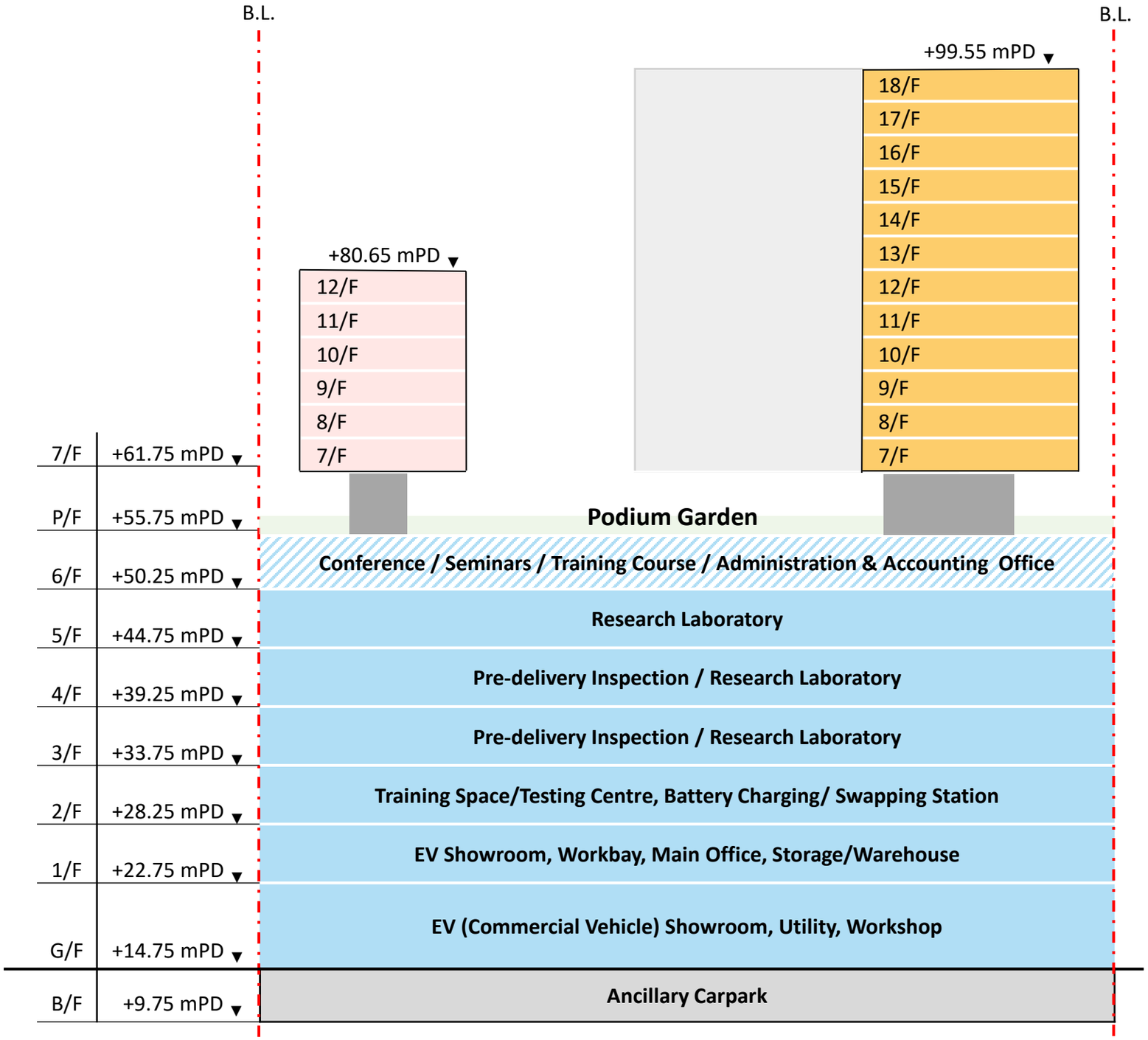
Podium Garden

EV Mobility City (Conference / Seminars / Training Course / Administration & Accounting Office)

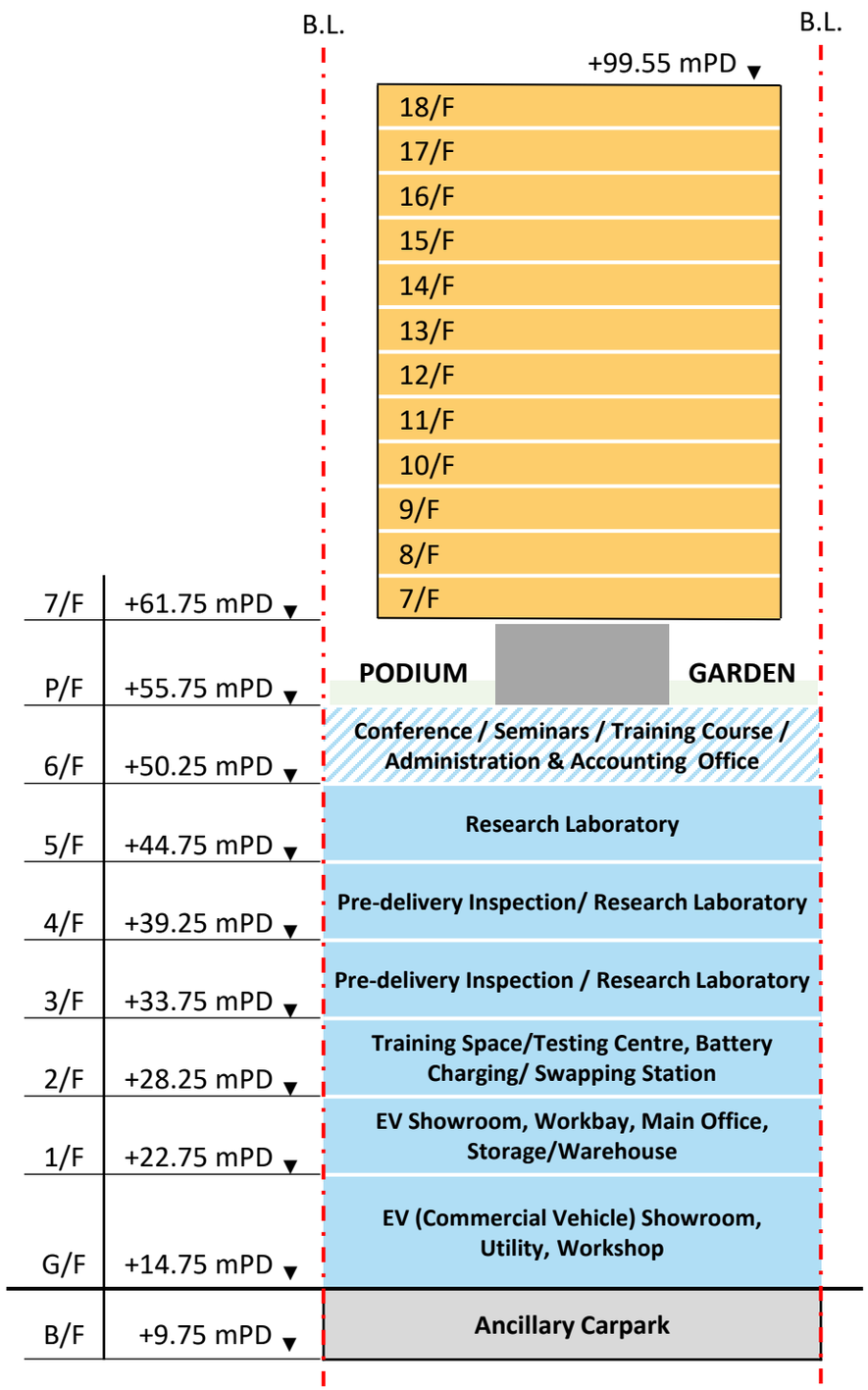
EV Mobility City (Innovation & Technology)

Ancillary Carpark





SECTION A-A'



SECTION B-B'

LIFT LOBBY / LIFT AREA / STAIRCASE

ANCILLARY CARPARK

B/F PLAN

LIFT LOBBY / LIFT AREA
/ STAIRCASE

EV (COMMERCIAL VEHICLE)
SHOWROOM

WORKSHOP
(WITH SUMP PIT)

UTILITY

G/F PLAN

LIFT LOBBY / LIFT AREA / STAIRCASE

WORK BAY

STORAGE / WAREHOUSE

MAIN OFFICE

EV SHOWROOM

1/F PLAN

LIFT LOBBY / LIFT AREA / STAIRCASE

TRAINING SPACE / TESTING CENTRE

BATTERY CHARGING/SWAPPING STATION

2/F PLAN

LIFT LOBBY / LIFT AREA
/ STAIRCASE

PRE-DELIVERY INSPECTION / RESEARCH LABORATORY

3/F & 4/F PLAN

LIFT LOBBY / LIFT AREA
/ STAIRCASE

RESEARCH
LABORATORY

5/F PLAN

LIFT LOBBY / LIFT AREA
/ STAIRCASE

CONFERENCE / SEMINARS / TRAINING COURSE /
ADMINISTRATION & ACCOUNTING OFFICE

6/F PLAN

LIFT LOBBY / LIFT AREA
/ STAIRCASE

PODIUM GARDEN

P/F PLAN

LIFT LOBBY / LIFT AREA
/ STAIRCASE

Staff Quarters
(Tower 1)

Residential Institution
(Talent Accommodation)
(Tower 2)

7-18/F PLAN