Appendix E Replacement Pages of Air Ventilation Assessment – Expert Evaluation

Issue No. : 2

Issue Date : Dec 2023

Project No. : 2127

AIR VENTILATION ASSESSMENT - EXPERT EVALUATION

FOR

APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A FOR THE TOWN PLANNING ORDINANCE (CAP. 131) FOR MIXED USE DEVELOPMENT AT LOTS 796 AND 1008RP IN D.D. 77 AND ADJOINING GOVERNMENT LAND IN PING CHE, TA KWU LING, NEW TERRITORIES

Prepared by

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

Allied Environmental Consultants Limited
Member of AEC Group (HKEX Stock Code: 8320.HK)
27/F, Overseas Trust Bank Building, 160 Gloucester Road, Wan Chai, Hong Kong
www.asecg.com T: +852 2815 7028 F: +852 2815 5399

沛然環境評估工程顧問有限公司
沛然環保集團成員（港交所股份代號：8320.HK）
香港灣仔告士打道 160 號海外信託銀行大廈 27 樓

Document Verification

Project Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A FOR THE TOWN PLANNING ORDINANCE (CAP. 131) FOR MIXED USE DEVELOPMENT AT LOTS 796 AND 1008RP IN D.D. 77 AND ADJOINING GOVERNMENT LAND IN PING CHE, TA KWU LING, NEW TERRITORIES	**Project No.**	2127
Document Title	AIR VENTILATION ASSESSMENT - EXPERT EVALUATION		

Issue No.	Issue Date	Description	Prepared by	Checked by	Approved by
1	Oct 2023	1st Submission	Various	Cathy Man	Grace Kwok
2	Dec 2023	2nd Submission	Various	Cathy Man	Grace Kwok

Allied Environmental Consultants Limited
Member of AEC Group (HKEX Stock Code: 8320.HK)
27/F, Overseas Trust Bank Building, 160 Gloucester Road, Wan Chai, Hong Kong
www.asecg.com T: +852 2815 7028 F: +852 2815 5399

沛然環境評估工程顧問有限公司
沛然環保集團成員（港交所股份代號：8320.HK）
香港灣仔告士打道 160 號海外信託銀行大廈 27 樓

Table of Contents

List of Tables

List of Figures

List of Appendices

1. INTRODUCTION

1.1.1. Allied Environmental Consultants ("AEC") has been appointed to conduct an Air Ventilation Assessment – Expert Evaluation ("AVA-EE") to support of a Section 12A application for the mixed use development at LOT 796 & 1008RP at D.D. 77 and adjoining government land in Ping Che, Ta Kwu Ling, New Territories (hereinafter referred to as "Application Site").

2. OBJECTIVES

2.1.1. The main objectives of the study are to conduct a qualitative review and to evaluate potential air ventilation impact on the pedestrian wind environment within and in the vicinity of the Application Site using the methodology framework set out by relevant environmental standards, guidelines and technical circulars.

2.1.2. The methodology framework of this study is set out in the Technical Circular No. 1/06 and its Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong. The Technical Circular is jointly issued by Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Work Bureau (ETWB) in July 2006 (Technical Guide).

2.1.3. The scope of this study shall cover the following:

- To identify any potentially affected areas due to the proposed building design including building heights, layout and deposition;
- To provide recommendations for alleviating the potential air ventilation impact identified;
- To identify any major wind corridors which should be preserved or reserved; and
- To identify good design features.

3. ASSESSMENT METHODOLOGY

3.1. WIND AVAILABILITY DATA

Hong Kong Observatory

3.1.1. The Hong Kong Observatory records the metrological data in Hong Kong. Among all the weather stations in Hong Kong, the nearest weather station to the Application Site is Ta Kwu Ling Weather Station. Thus, the wind data from Ta Kwu Ling Weather Station shall be used for the discussion on overall wind environment in the region.

3.1.2. According to the wind availability data from Ta Kwu Ling Weather Station from 1986-2020, the annual wind rose revealed winds flowing from N, E and ESE while summer wind rose revealed winds flowing from E, ESE and SSW.

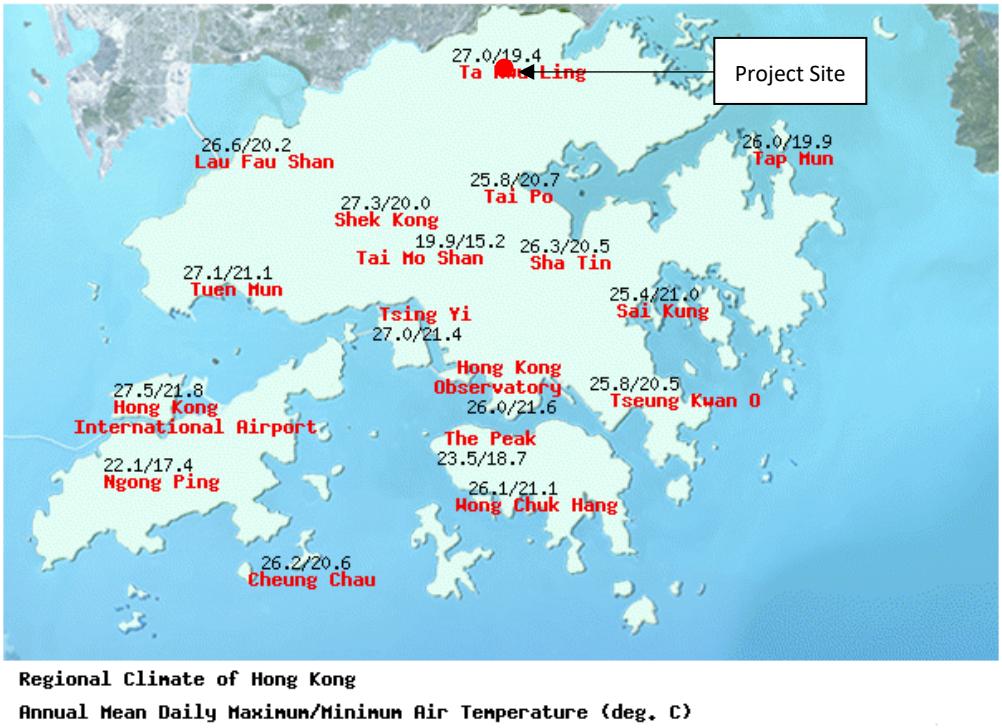


Figure 3-1 Location of Hong Kong Observatory Weather Station

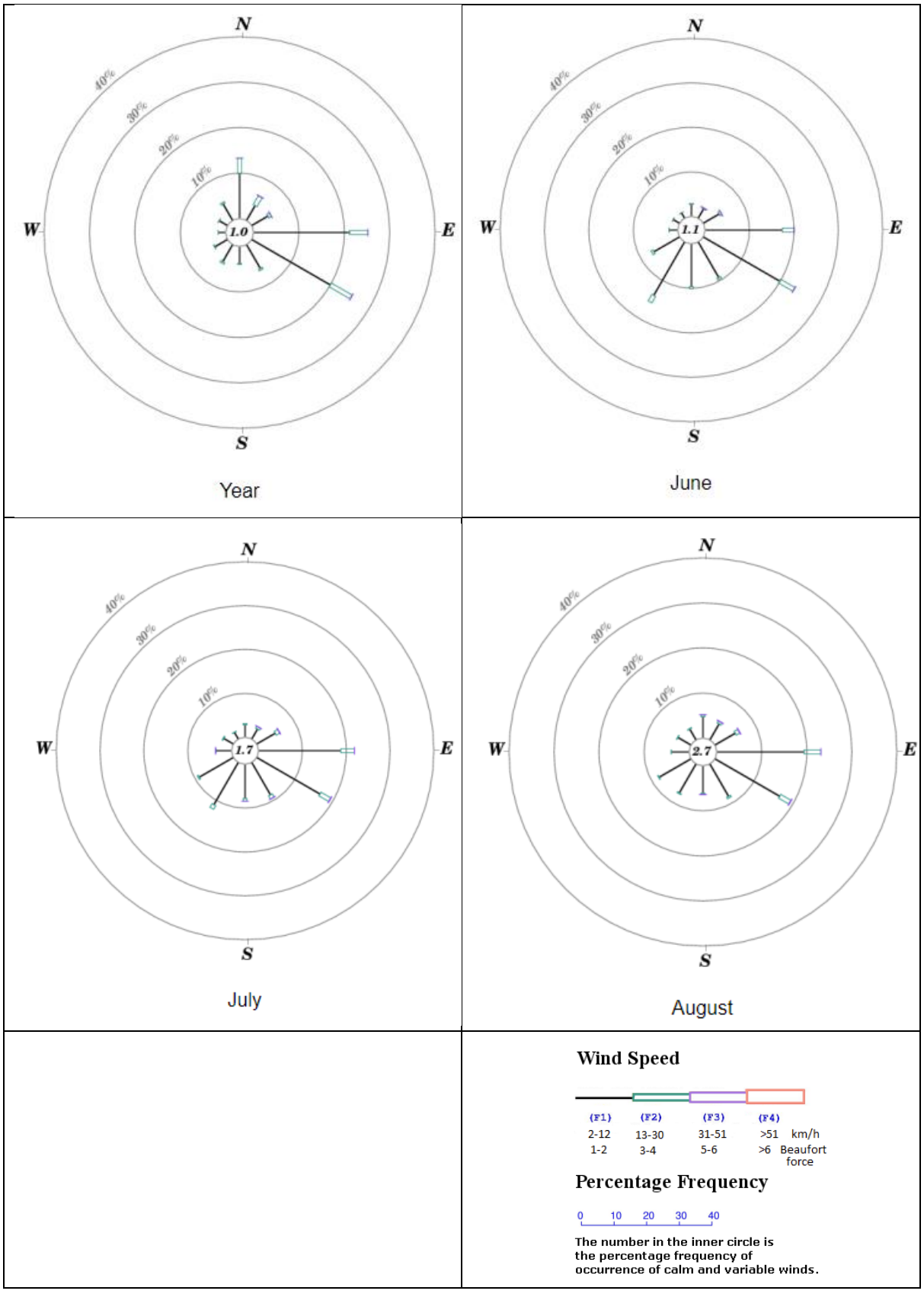


Figure 3-2 Annual Wind Rose of Ta Kwu Ling Weather Station between 1986-2020

Regional Atmospheric Modelling System (RAMS)

3.1.3. Wind availability to the Application Site is evaluated with reference to the "Consultancy Study on Establishment of Simulated Site Wind Availability Data for Air Ventilation Assessments in Hong Kong" simulated by the meso-scale model of Regional Atmospheric Modelling System (RAMS) Version 6.0 at the horizontal resolution of 0.5km * 0.5km.

3.1.4. The Application Site is located within grid (077, 087) and grid (078, 087) in DD77 lot 796 and 1008RP, Ping Che. Wind availability data at 200m was adopted in this assessment. According to Planning Department's simulated data, wind roses, wind direction and wind probability data are provided in ***Figure 3-3*** and ***Figure 3-4.***

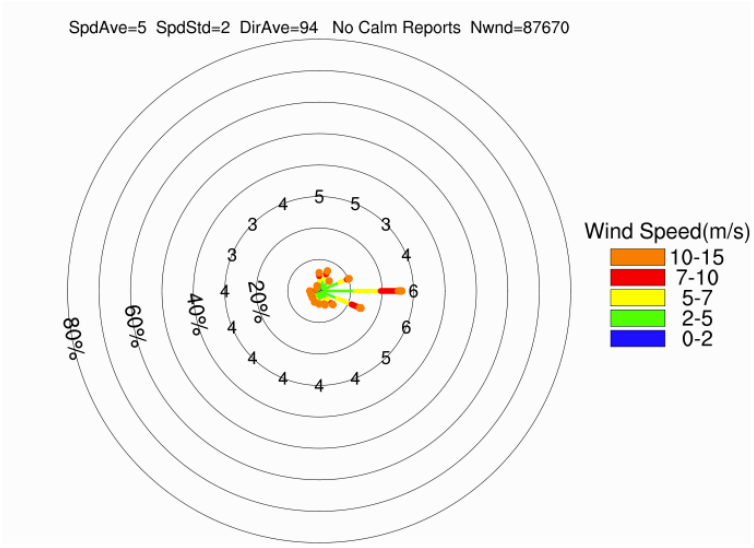
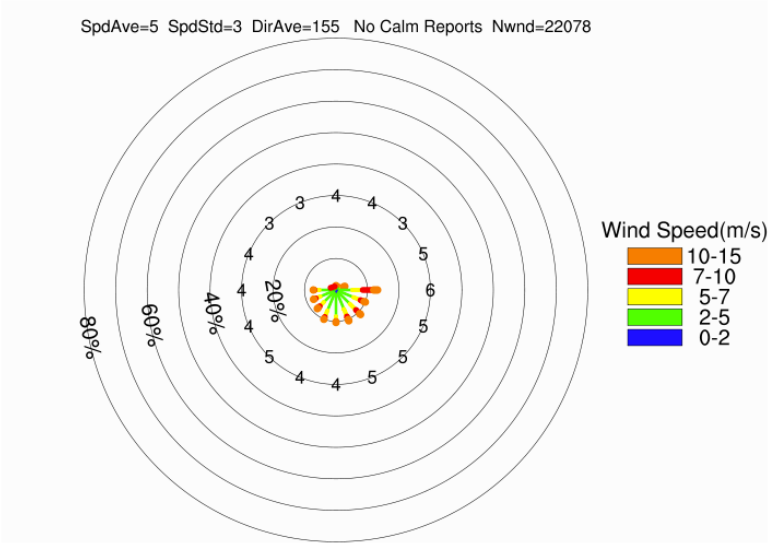
	Wind Rose – Annual
200m	
	Wind Rose – Summer
200m	

Figure 3-3 Wind Rose at Grid (077, 087)

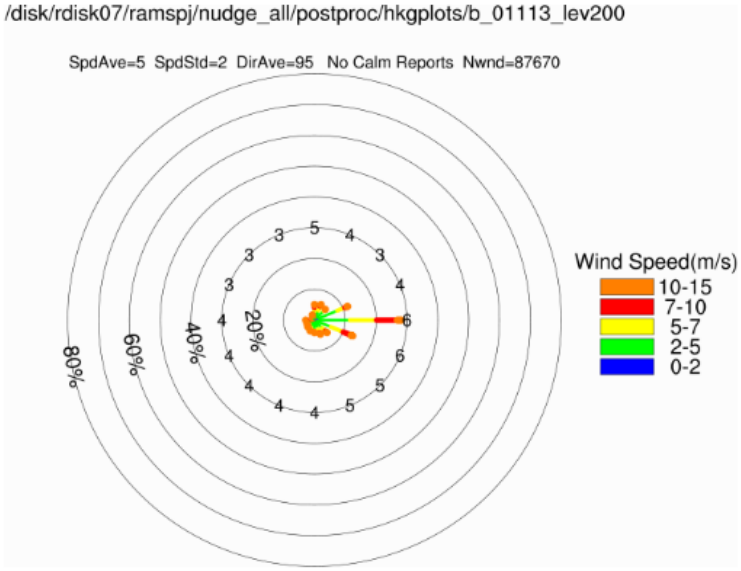
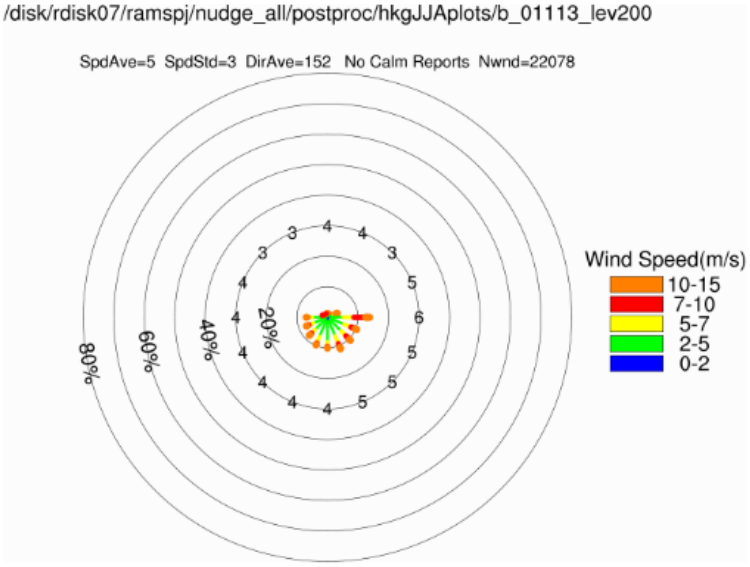
	Wind Rose – Annual
200m	
	Wind Rose – Summer
200m	

Figure 3-4 Wind Rose at Grid (078, 087)

3.1.5. According to RAMS wind data, annual prevailing winds are the incoming winds flowing from E, ENE and ESE, while summer prevailing winds are flowing from E, SE and SSE directions.

Wind Data from Previous Studies

3.1.6. There are several air ventilation assessments in Ta Kwu Ling area. Their wind availability are summarized in below:

- Liantang/Heung Yuen Wai Boundary Control Point and Associated Works (AVG/G/40); and
- Public Housing Development at Queen's Hill Site 1, Fanling (AVG/G/148)

3.1.7. The following air ventilation assessments do not cover the Application Site. The distance of site of assessment AVG/G/40 is 3km from Application Site, while the distance of site of assessment AVG/G/148 is 2km from Application Site. Therefore, the wind data from previous assessment around Application Site are considered not included as reference.

3.1.8. In summary, different wind data reference have been review, ***Table 3-1*** summarises the identified prevailing wind conditions of Lot 796 and 1008RP, Ping Che. For a comprehensive discussion on air ventilation performance of the Application Site and the wind environment at pedestrian level, RAMS data is more appropriate as it is the most updated. In view of the close proximity of the HKO Ta Kwu Ling Weather Station to the ApplicationSite, the wind data from HKO Ta Kwu Ling Weather Station is also adopted in this AVA-EE.

Table 3-1 Wind Data Summary

Sources	Annual Wind	Summer Wind
HKO Ta Kwu Ling Weather Station (1986-2020)	N, E, ESE	E, ESE, SSW
RAMS data (grid 077, 087)	E, ESE, ENE	E, SE, SSE
Summary	**E, ESE, ENE**	**E, SE, SSE, ESE**

4. PROJECT DESCRIPTION

4.1. SITE LOCATION AND PROPOSED DEVELOPMENT

4.1.1. The Application Site area is approximately 17,822 m2. It is bounded by Ping Che Road from the north to northeast, the unnamed village road to the east, village, agricultural land and open storage area at the south and west. The ApplicationSite is currently used as an open storage area.

4.1.2. The proposed development will consist of 5 blocks of residential tower ranging from 47 to 48-storey (excluding basement) in height, provided 2,205 residential unit, and 1 block of commercial tower with 35-storey (excluding basement) in height. The plot ratio for domestic use is 5.9and for non-domestic use is 1.1. The total GFA for domestic use is 105,145 m2, and 19,603 m2 for non-domestic use. The non-domestic use consisted of retail, office, hotel or service apartment, clubhouse, day care centre for the elderly and child care centre.

4.1.3. The Application Site is zoned as “Open Storage” (“OS”) on the approved Ping Che and Ta Kwu Ling Outline Zoning Plan (“OZP”) No. S/NE-TKL/14. The southern part of the Application Site is zoned as “Agriculture” (“AGR”) and a minor portion of the Application Site is shown as “Road”. The surrounding areas are the Ping Che New Village and Ta Kwu Ling Rural Centre Government Offices (“G/IC” zone) to the north, the industrial area (Group D) (“I(D)”) zone) to the northeast, agriculture land (“AGR” zone) to the south, industrial area and open storage (“OS” zone) to the east. ***Figure 4-1*** shows the location of the Application Site.

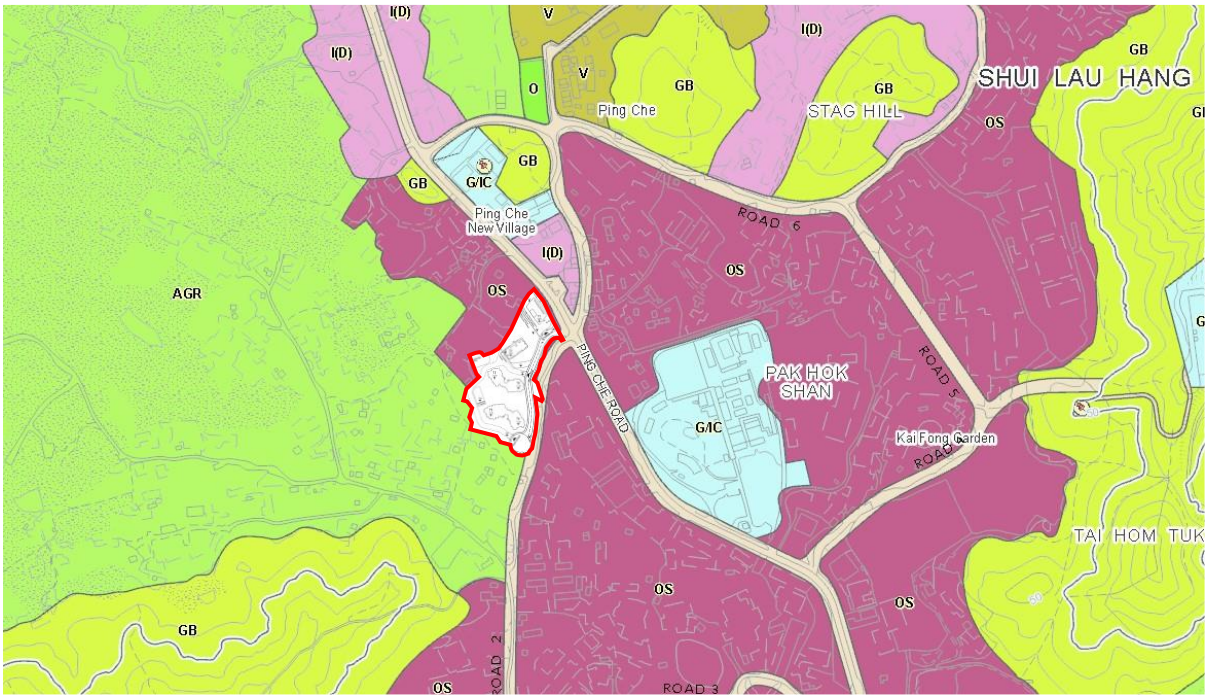


Figure 4-1 Application Site Location

4.2. SURROUNDING ENVIRONMENT AND WIND CHARACTERISTICS

Urban Morphology

4.2.1. As mentioned in Section 4.1, the Application Site is surrounding by "OS", "G/IC", "I(D)" and "ARG" zone with different building height. The Application Site is located in rural area, the surrounding buildings are low rise with a relatively low in building height. As the building is scattered around and not densely surrounding the Application Site, it is mainly open area and open storage around. The morphology is mostly flat at the ground area.

4.2.2. Noted that the Application Site is located within the proposed tentative boundary of New Territories North New Town which the EIA study for such is under preparation during the course of the study for this application. However, the exact programme and development details for its implementation is yet to be confirmed.

4.2.3. Based on the EIA Project Profile and Study brief for Development of New Territories North New Town and Man Kam To (NTN Development) (ESB-341/2021), the NTN remaining phase development is proposed for housing, economic and employment-generating developments. As refer to the Project Profile, the broad land use concepts identified for the NTN development would be further review, such as commercial, residential, industrial estate,

science park, logistic industries, etc.

4.2.4. Since the implementation details of NTN Development is yet to be confirmed, the urban morphology cannot be identified at this stage. The assessment will evaluate the scenario without NTN development in place for completeness and aims to demonstrate that there is feasible solution to meet relevant standards.

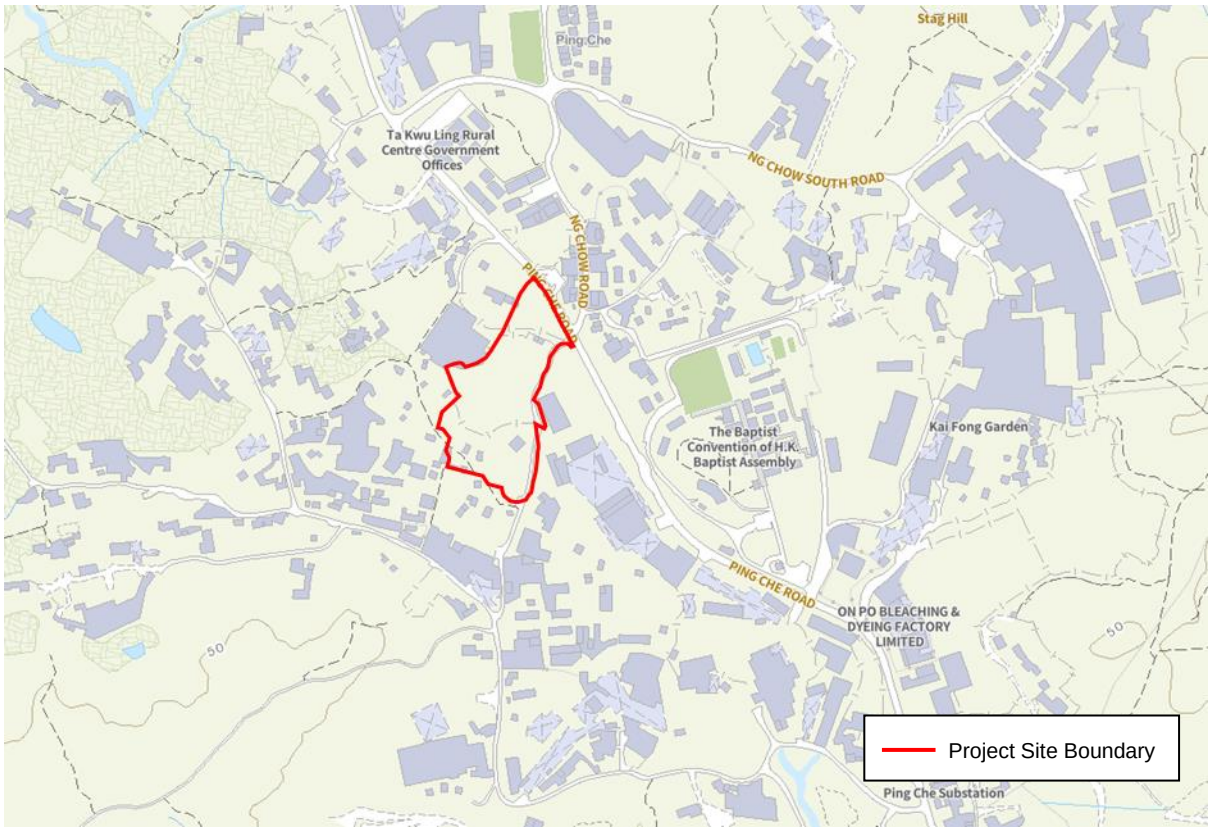


Figure 4-2 Existing Surrounding Developments

Current Site Wind Environment

4.2.5. Refer to Section 3.1.8, the wind availability in the Application Site mainly come from E, ESE, ENE in annual condition while winds from E, SE, SSE, ESE are available in summer condition.

4.2.6. The Application Site is currently used as open storage area at the ground level, the major wind path will be the Ping Che Road long the northeast side and the unnamed village road along the southeast area of the Application Site. The ESE and SE wind flow through the Application Site and further to the downwind area such as Ping Che New Village located at the northwest side of the Application Site, the prevailing wind environment is shown in ***Figure 4-3***. The ENE wind also flow through the Application Site and reaching the agriculture land and open space at downwind area.

Road/ Street Pattern

4.2.7. Road network facilitates wind penetration to the Application Site and the surrounding areas. The annual E and ESE wind would be facilitated by the major air path of Ping Che Road, the annual ENE wind would be facilitated by the village road and penetrate surrounding the site. The summer E, ESE and SE wind would be enhanced by the major air path of Ping Che Road and village road surrounding the Application Site. The major air paths around the Application Site are illustrated in ***Figure 4-3.***

Open Space

4.2.8. There is an open storage area and an open greenery located at the north of the Application Site. Locating at the downwind area of the Application Site under ESE and SE wind. The open areas are expected to receive sufficient downwind wind.

4.2.9. The open space located at the west of the Application Site are mostly greenery and open storage. These areas located at the downwind area and expected to receive sufficient downwind wind under E wind.

Topography

4.2.10. The topography of the Application Site is relatively hilly (with ground level of around 14 to 16 mPD) and surrounded by the Pak Hok Shan at the east and Ha Shan Kai Wat at the west. The topography descends from the high level at the northeast of the Application Site from Cheung Shan, and at the southwest from Cat Hill, making the Application Site located at relatively low ground between two hill. The topography around the Application Site is illustrated in ***Figure 4-4.*** Since the Stag Hill located at northeast side of the site is relatively low, and other hills such as Cheung Shan and Cat Hill are fom the Application Site. Therefore, the downhill wind

towards the Application Site is not anticipated to be weakened.

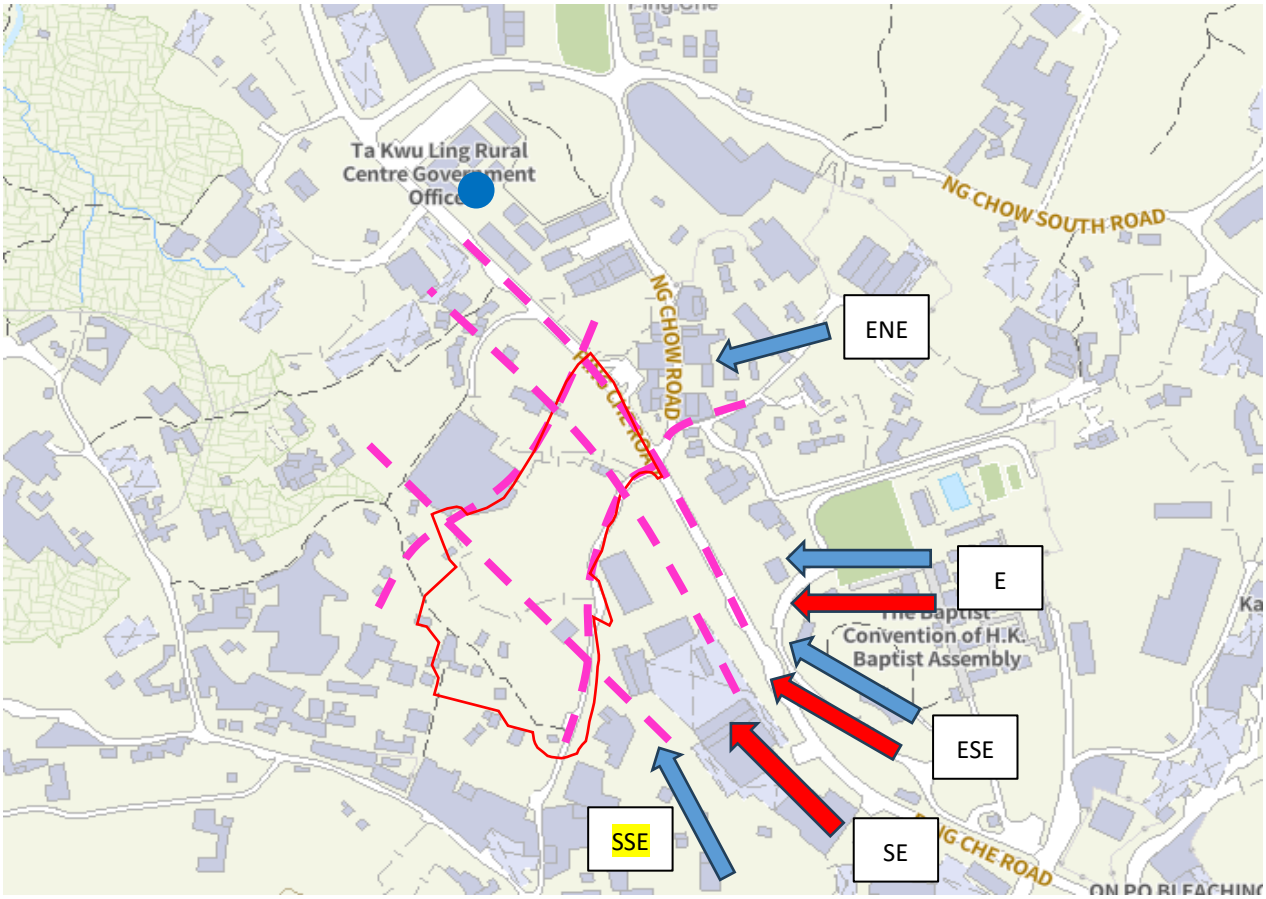


Figure 4-3 Prevailing Wind Environment in the Application Site

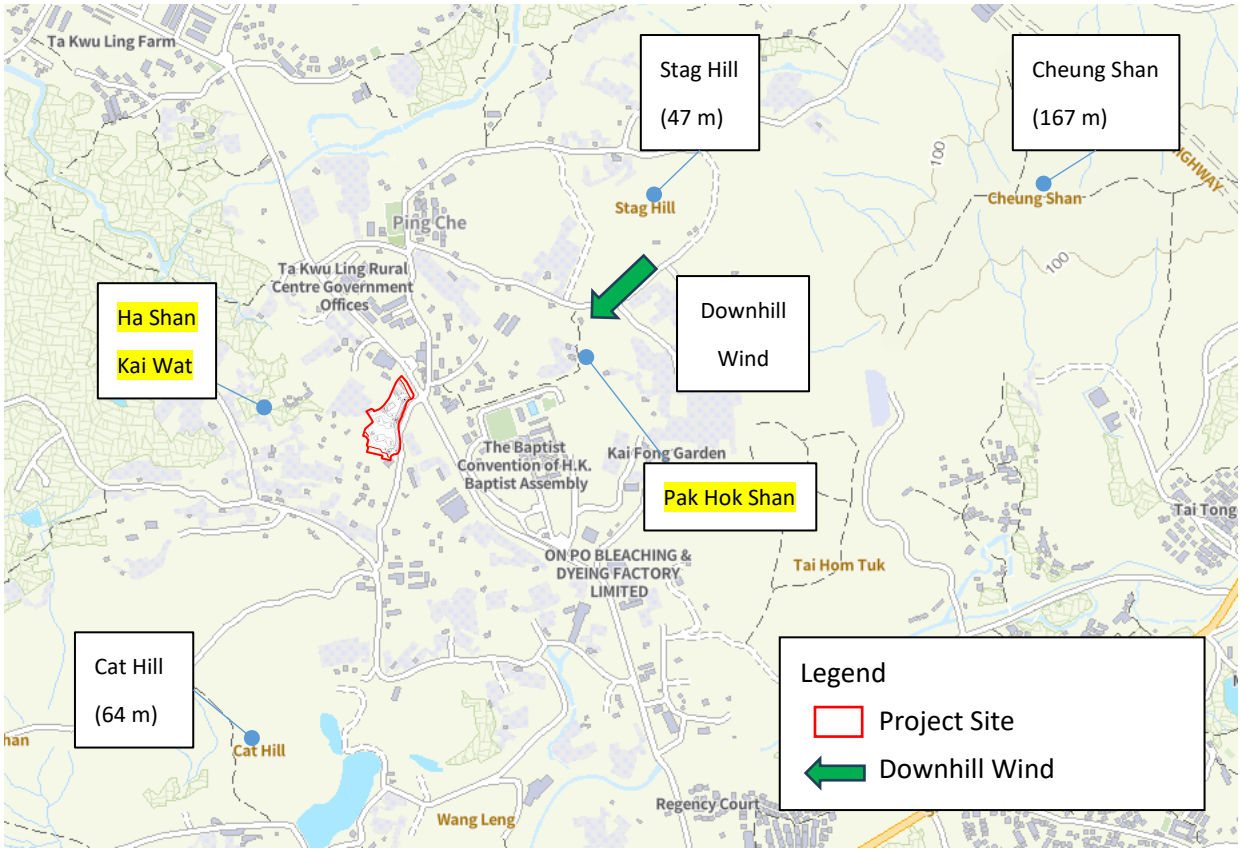


Figure 4-4 Topography Around the Application Site

5. BASELINE SCHEME AND PROPOSED SCHEME

5.1.1. The baseline scheme was prepared based on typical architectural layouts generally fulfilling the Building Ordinance. The residential towers (T2 to T6) comprised of residential unit mix and were placed to provide appropriate view and sightline for each unit. Building separations of 14.5m are provided between T2 and T3, T4 and T5 for air ventilation. The towers are grouped to the east facing the proposed access road, basic prescribed windows were also provided. To synergise with the future potential railway station and reduce potential noise impact, Tower 1 (Commercial block) is placed near Ping Che Road with building separation of 14m between T1 and T2.

5.1.2. Meanwhile, the Proposed Scheme comprised of 1 block of 48-storey residential tower with the maximum height of approximately 175mPD, another 4 blocks of 47-storey residential tower with the maximum height of approximately 172mPD, 1 commercial block with the maximum height of approximately 170mPD located near Ping Che Road, the building separation between the tower are ranged from 17m to 32m. the Proposed Scheme also consists of a one-storey clubhouse, and a swimming pool is provided. Similar to the Baseline Scheme, it consists of retail, office, child care centre, and elderly day care centre.

5.1.3. The major design parameters and layout plans between baseline scheme and proposed scheme are summarised in ***Table 5-1***. Layout plan and section drawing of both schemes are shown ***Appendix A*** and ***Appendix B*** respectively.

Table 5-1 Building Heights of Baseline Scheme and Proposed Scheme

	Baseline Scheme	**Proposed Scheme**
No. of Blocks	5 Blocks	6 Blocks
Building Height	T1: 169.70mPD T2: 175.00mPD T3: 175.00mPD T4: 171.85mPD T5: 171.85mPD	T1: 169.70mPD T2: 175.00mPD T3: 171.85mPD T4: 171.85mPD T5: 171.83mPD T6: 171.83mPD
Plot Ratio	7	7
Estimated No. of Units	2,205 units	2,205 units

5.1.4. All the good design features proposed for Baseline Scheme will be kept under Proposed

Scheme, and enhancement features will be incorporated in the Proposed Scheme upon the consideration of Application Site and design constraint criterion. These good design features are discussed in the following sections.

5.2. GOOD DESIGN FEATURES UNDER BOTH SCHEME

Permeable Design at Ground Floor

5.2.1. Under both schemes, the permeable design of PTT which is 7.5m tall with opening on 3 sides is adopted. The not enclosed ground level is expected to facilitate the east and southeast wind systems towards the downwind regions.

5.2.2. The design of PTT is similar in both schemes. ***Figure 5-1*** and ***Figure 5-2*** shows the layout of ground level PTT and the opening is indicated under both schemes.

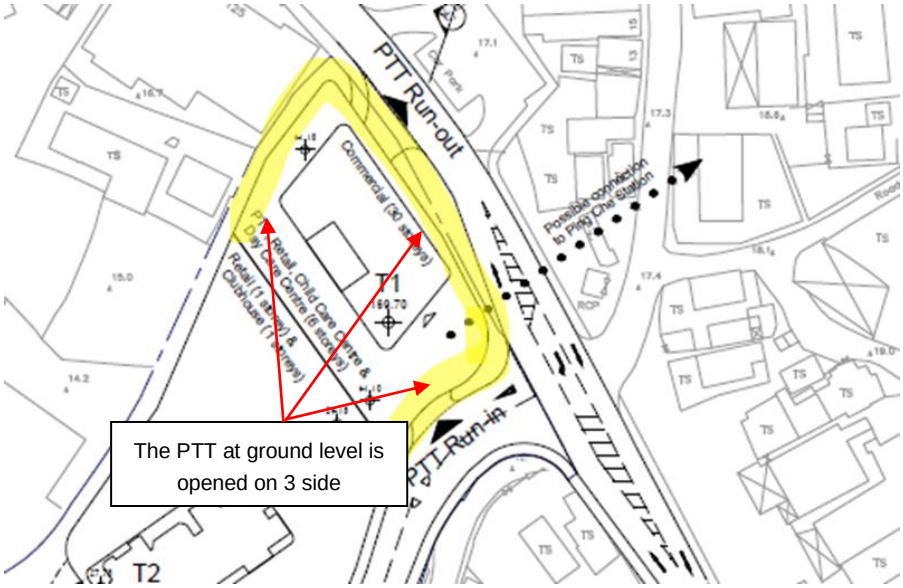


Figure 5-1 Ground Floor Layout Plan

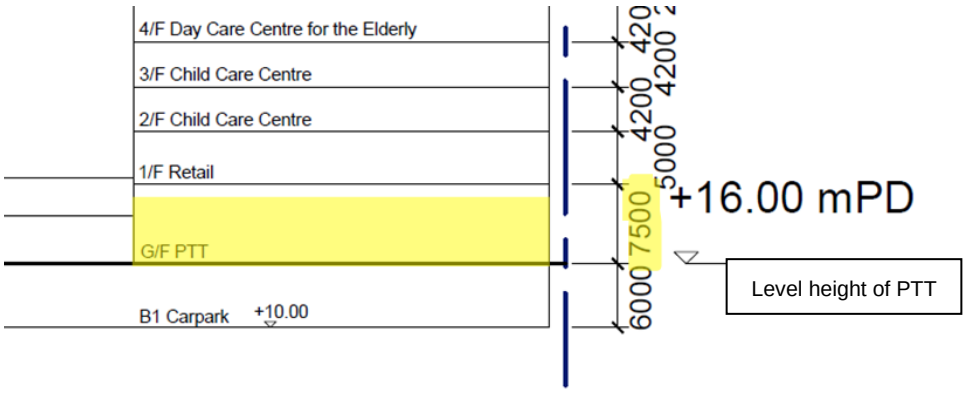


Figure 5-2 Cross section of Layout

Chamfered Design at Building Corner

5.2.3. Chamfered building corners would be adopted for the commercial building block and the podium in both baseline and proposed scheme, allowing smoother wind flow around the building structure. There is an air path between the commercial building and residential building, between podium and residential building, and air path at Ping Che Road, which the wind flows from the E, ESE, SE and SSE direction penetrate the building groups flow to the downwind area of northwest side of the Application Site. Chamfered building corners allows the building group to attract incoming east and southeast wind into the air path.

5.2.4. The design of Baseline Scheme and Proposed Scheme are illustrated in ***Figure 5-3***.

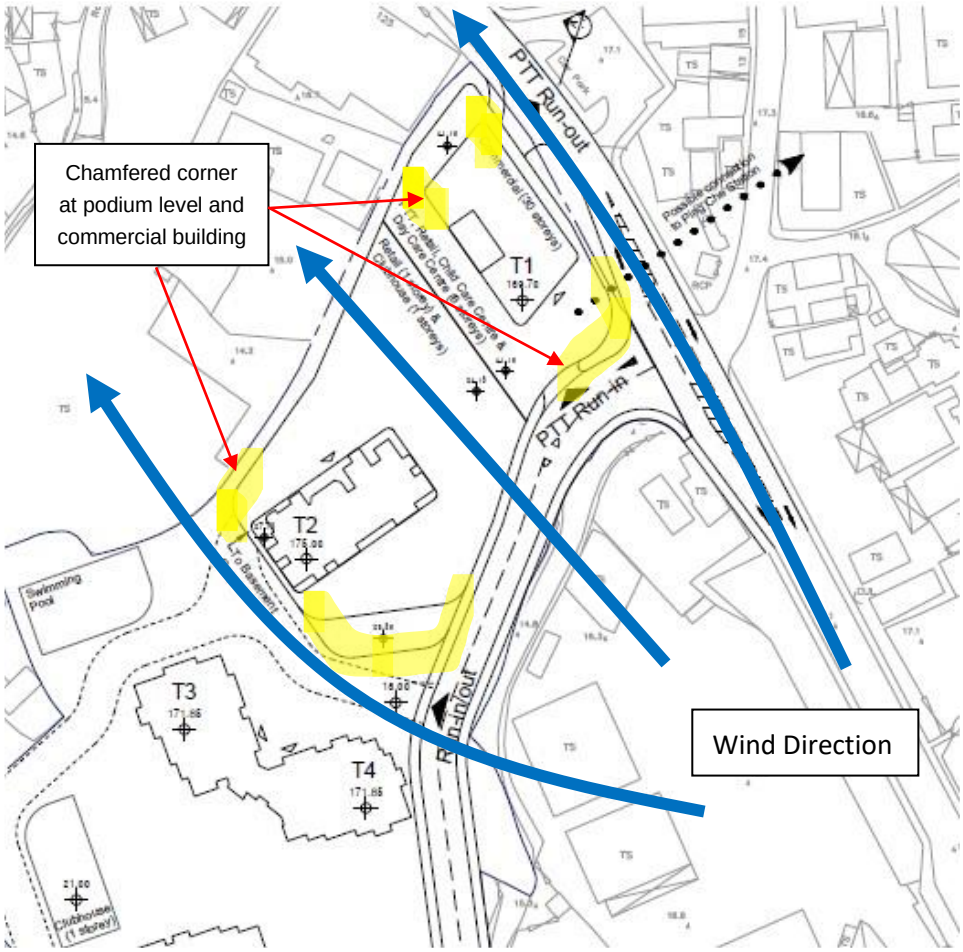


Figure 5-3 Layout Plan of Chamfered Building Corner

5.3. FURTHER ENHANCEMENT FEATURES UNDER PROPOSED SCHEME

Building Orientation Align with Wind Direction

5.3.1. For the baseline scheme, the building orientation is position in a line from northeast to southwest, the positioned of the towers are mostly blockage of the prevailing E, ESE, SE and SSE wind. The baseline scheme towers position and the wind flow direction is shown in ***Figure 5-4***.

5.3.2. Under the proposed scheme, T3 and T4 are aligned together, and the orientation of the towers are position in line from southeast to northwest, same goes to T5 and T6. The axis of tower blocks is aligned parallelly with the prevailing wind direction from E, ESE, SE and SSE. There is not more than one turning point of the wind flow direction after implemented this orientation parallel to wind flow. The building orientation provides air path to enhance the wind penetration through the gap between blocks.

5.3.3. The layout design is illustrated in Figure 5-5.

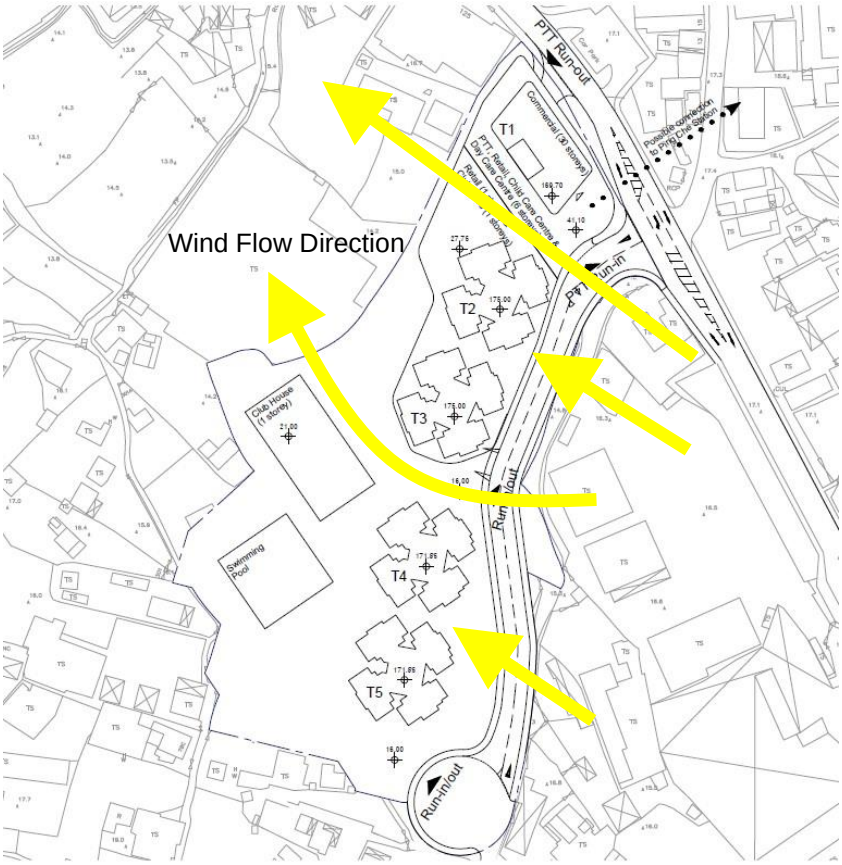


Figure 5-4 Layout of Building Orientation in Baseline Scheme

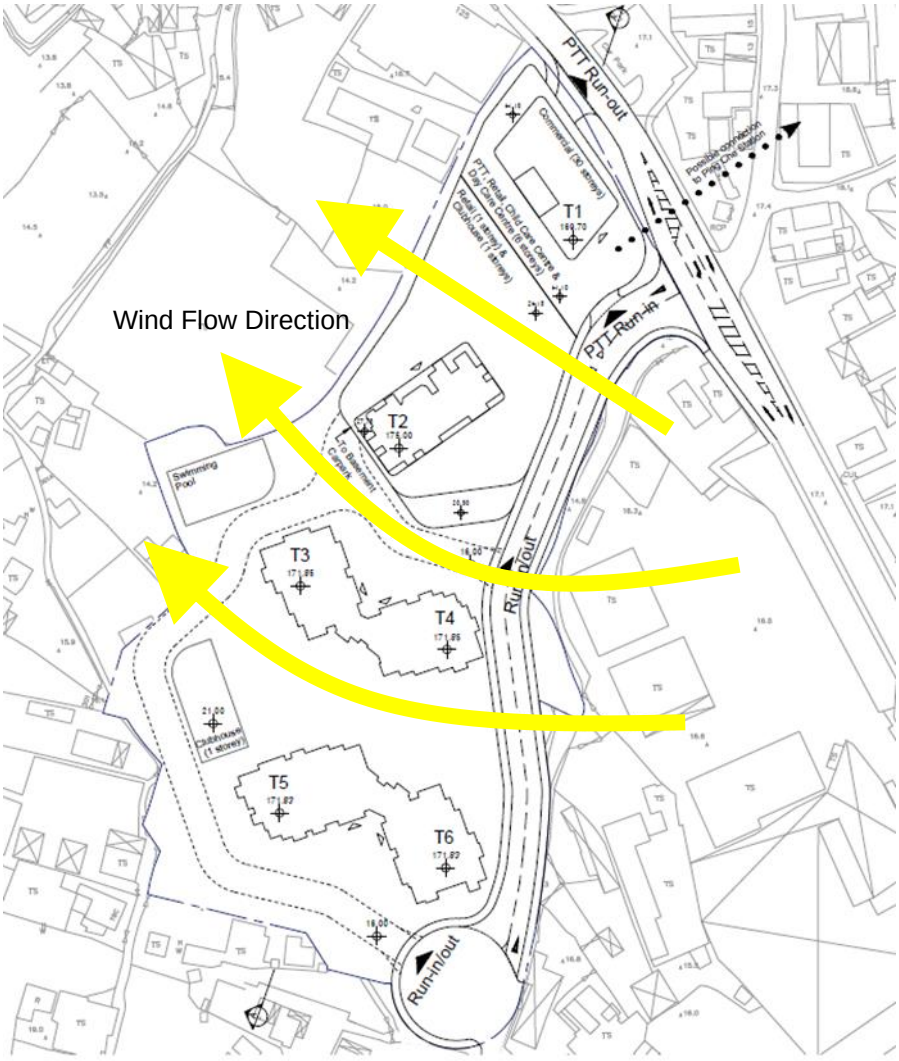
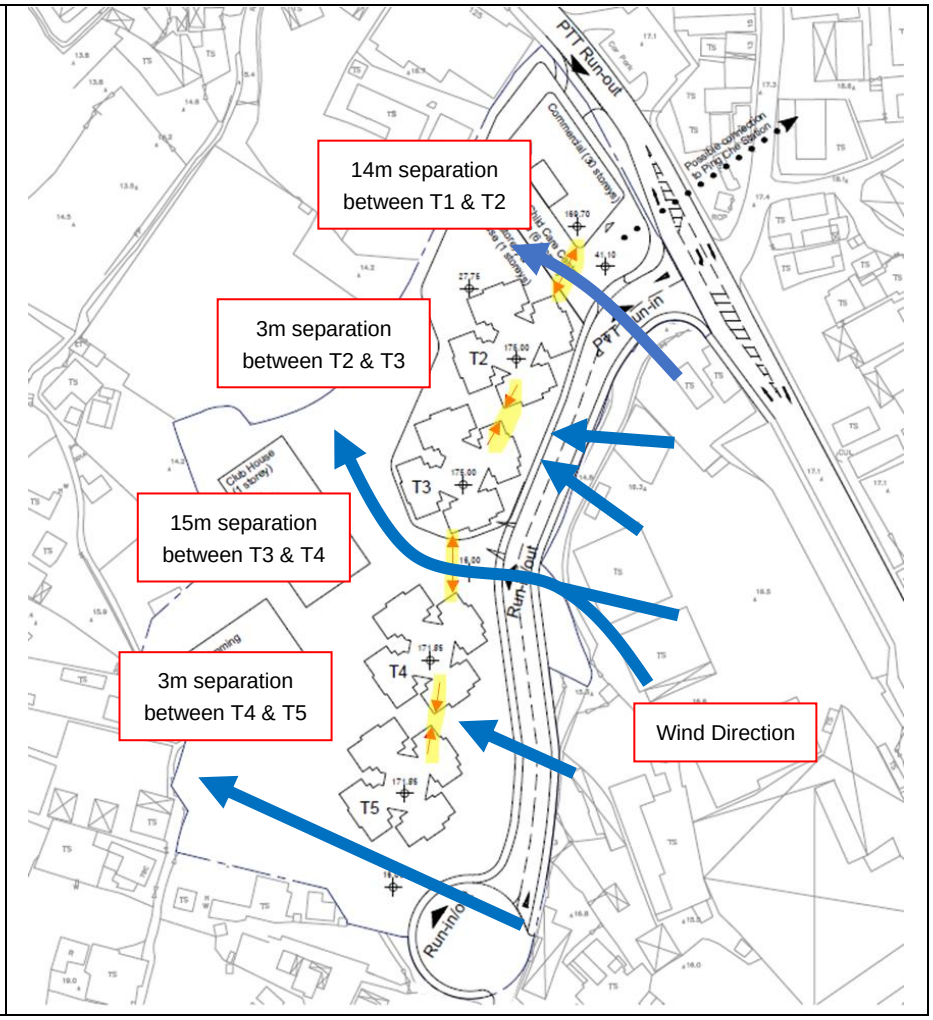


Figure 5-5 Layout of Building Orientation in Proposed scheme

Building Separation

5.3.4. Under the proposed scheme, the gap between commercial building and residence tower T2, gap between tower T2 and tower T3 & T4, and the gap between tower T3 & T4 and tower T5 & T6 is increased compared to the gap under baseline scheme. The gap distance from range of 3m to 15m in baseline scheme, increased to range of 17m to 32m in proposed scheme, which is 2 to 5 times larger by comparing baseline and proposed scheme. The gap distance facilitates more E, ESE, SE and SSE wind flow between the buildings towards the downwind area.

5.3.5. The layout and the gap distance of baseline and proposed scheme are illustrated in ***Figure 5-6***.

Baseline Scheme	

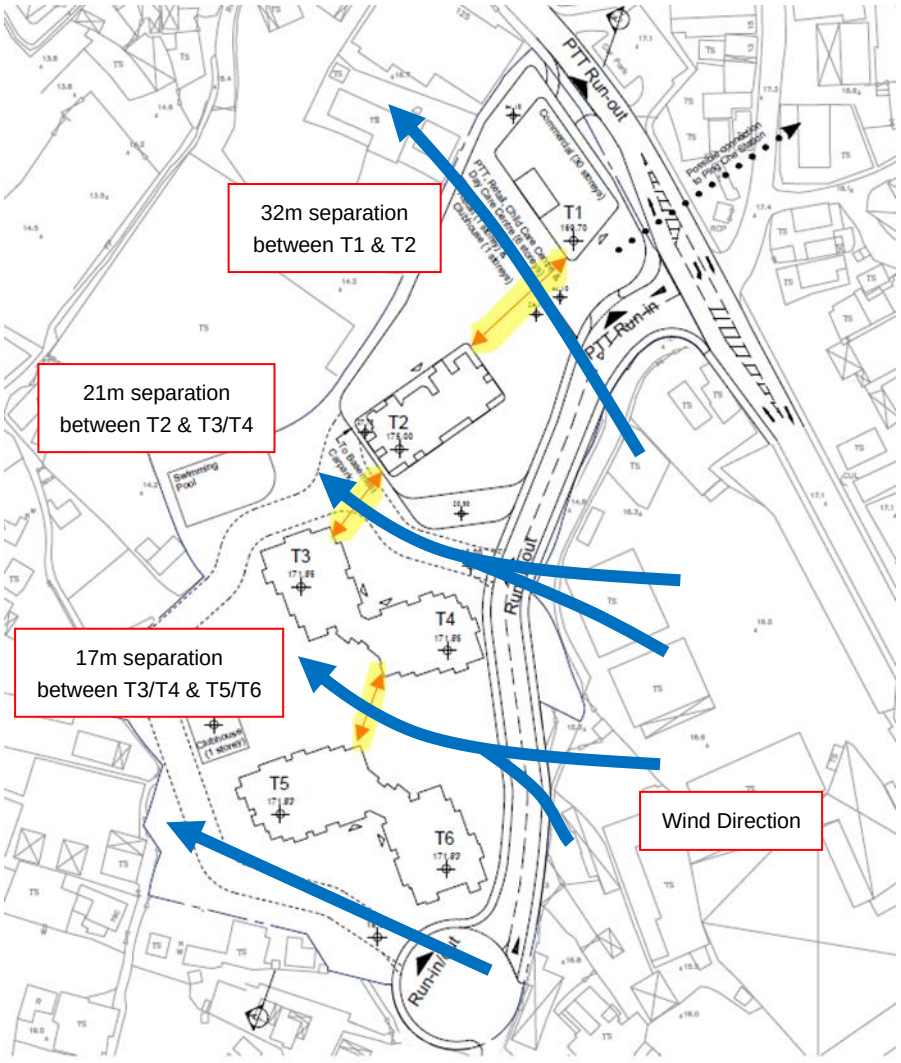
Proposed Scheme	

Figure 5-6 Comparison of Building Gap between Baseline and Proposed Development

Terraced Podium Design

5.3.6. Stepping terrace approach is adopted under Proposed Scheme at the podium design of Blocks T1 and T2 minimize building mass. The incoming mid and high-level wind from SSE and SE direction would flow along the stepping terraces and reach the downstream regions. The adverse impact to air ventilation would be minimized.

5.3.7. Under the proposed scheme, there is 3 steps of terrace at the podium design which is from 16mPD to 20.50mPD, followed by step from 20.50mPD to 24.15mPD, then finally from 24.15mPD to 41.10mPD. The proposed terraced podium design is illustrated in ***Figure***

5-7Figure 5-8.

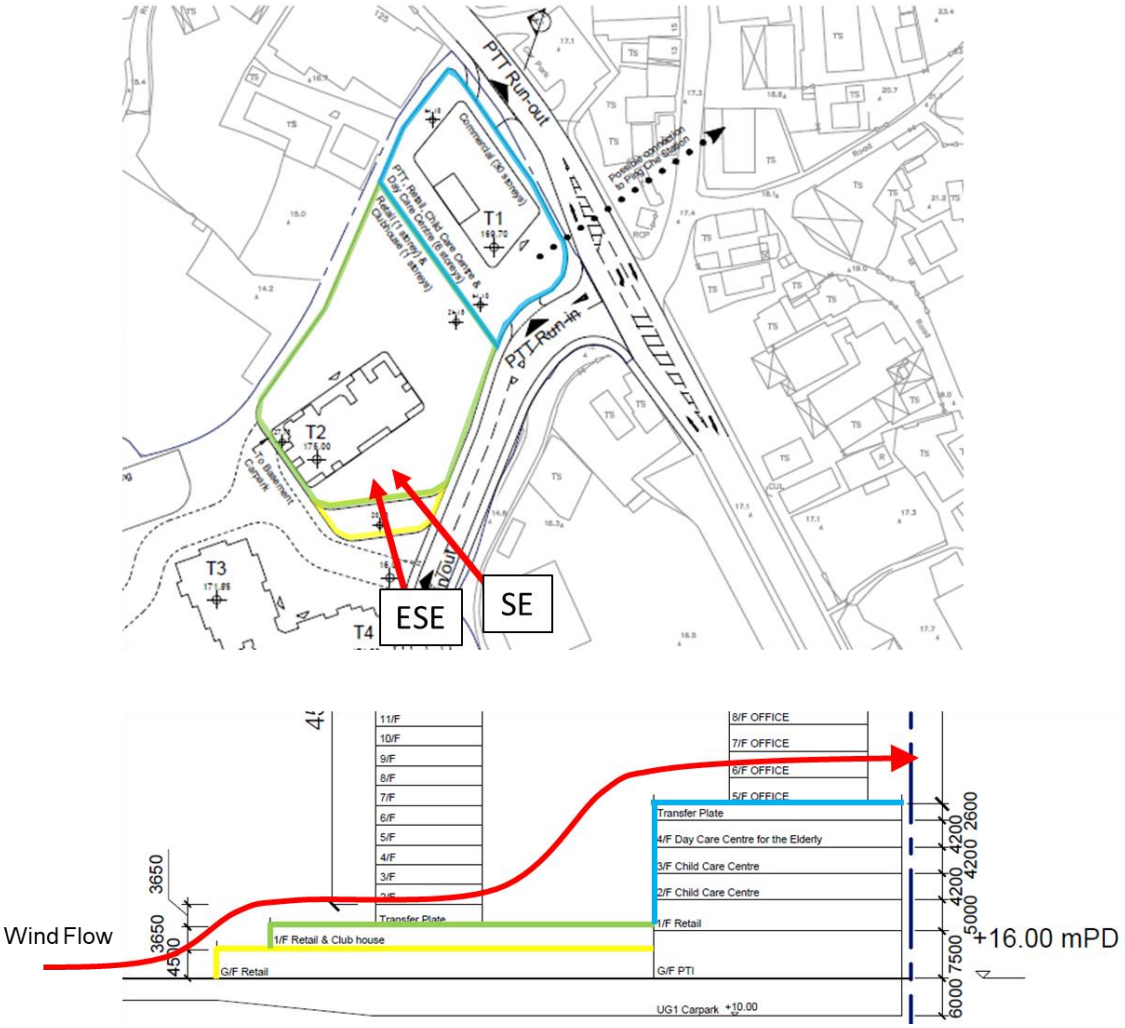


Figure 5-7 Terraced Podium Design under Proposed Scheme

Podium Height Level

5.3.8. The proposed scheme consists of podium structure with height of 24.15mPD, compared with the baseline scheme 27.75mPD. The incoming E and ESE wind is expected flow over the podium structure and reach the downwind areas.

5.3.9. The height of podium and residential block of baseline scheme and proposed scheme are illustrated in ***Figure 5-8.***

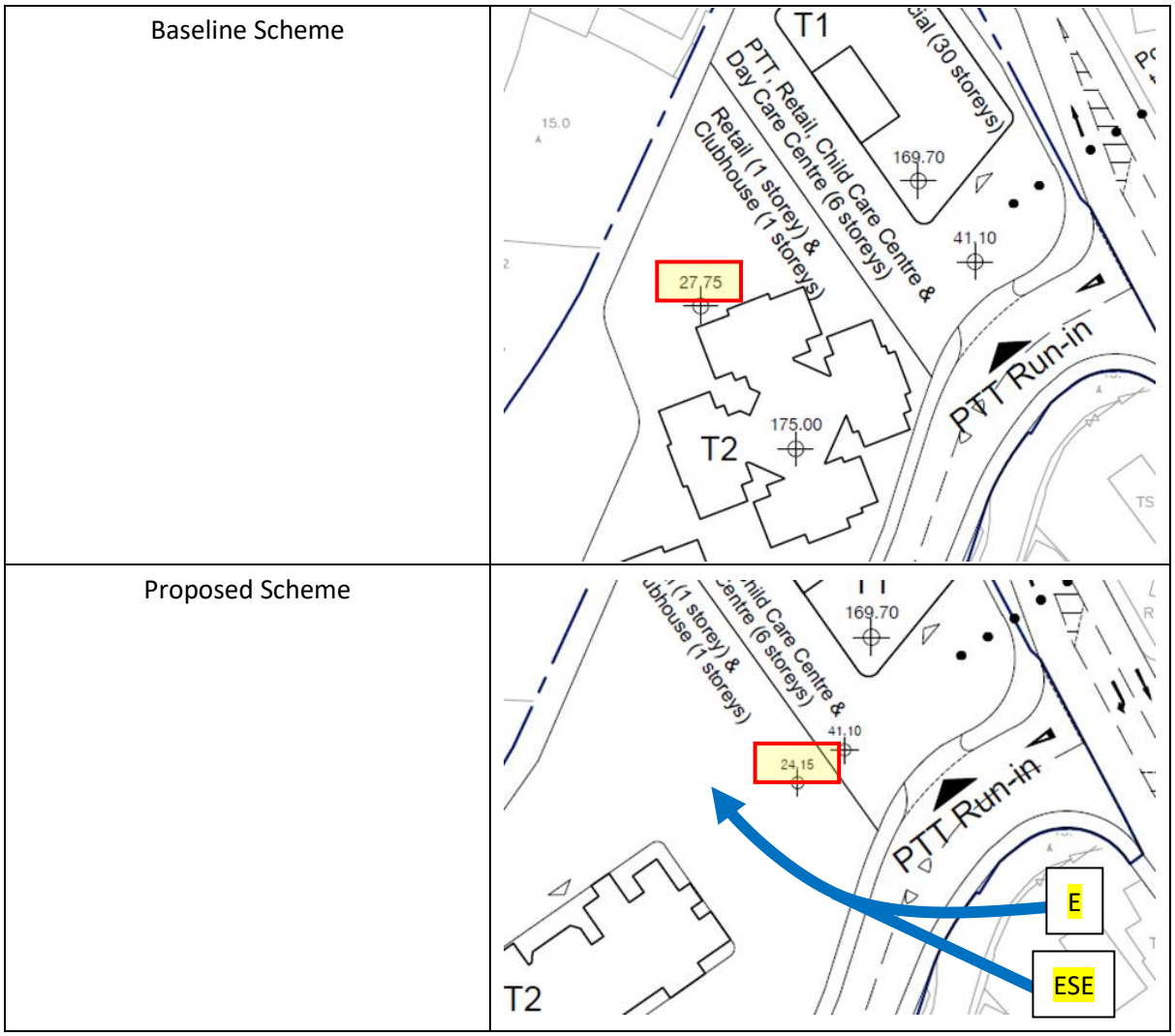


Figure 5-8 Comparison of Podium height between Baseline and Proposed Development

Reduced Ground Coverage of Clubhouse

5.3.10. Under the Proposed Scheme, the area of clubhouse building is reduced from baseline scheme. The small ground coverage is having lesser restriction to wind flow, thus allows more wind flow at ground level. The proposed clubhouse also located at the downwind area of Block T5, allowed enough gap distance between clubhouse and Block T3, allowed the wind flow from east and northeast direction flow through and reach the downwind area.

5.3.11. The design of baseline and proposed scheme are illustrated in Figure 5-9.

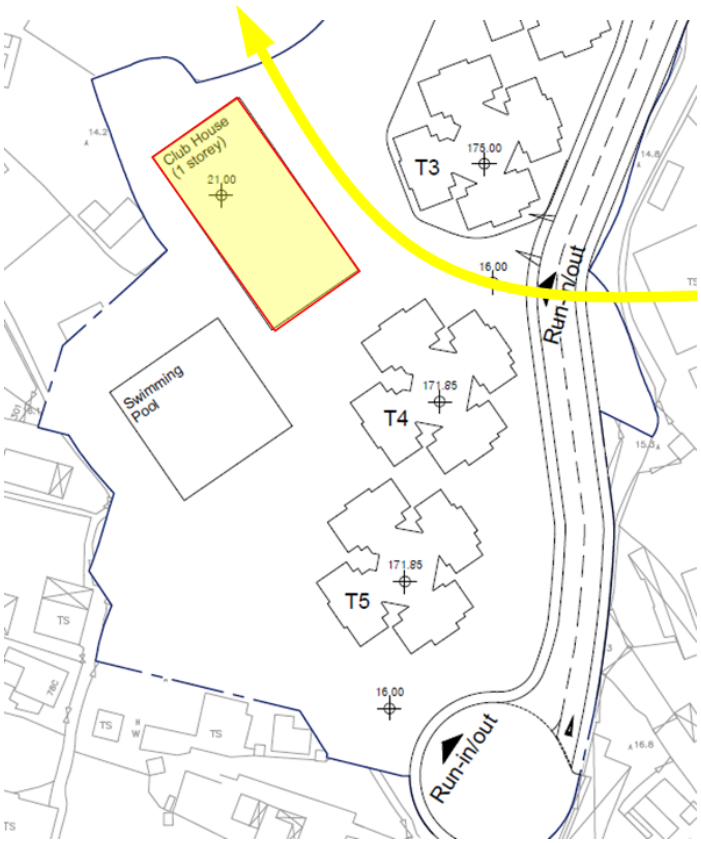
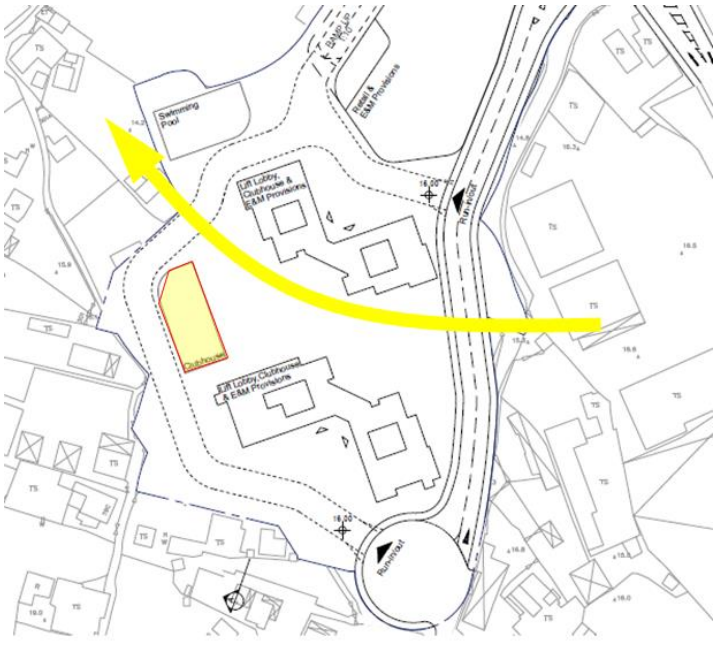
Baseline Scheme	
Proposed Scheme	

Figure 5-9 Comparison of Clubhouse Layout Plan

Permeable Design at Sky Garden

5.3.12. Under the proposed scheme, there are 3 sky garden design located at 21/F of T2, 20/F of T3 & T4, and 20/F of T5 & T6 respectively. The sky garden provided a vast opening at façade of the building, allows more wind flow through the building at the façade that facing east and southeast direction. Besides that, the sky garden is shaded by the building itself, allows the users of the building enjoy the thermally comfortable environment in the building.

5.3.13. The section layout of the sky garden is illustrated in Figure 5-10.

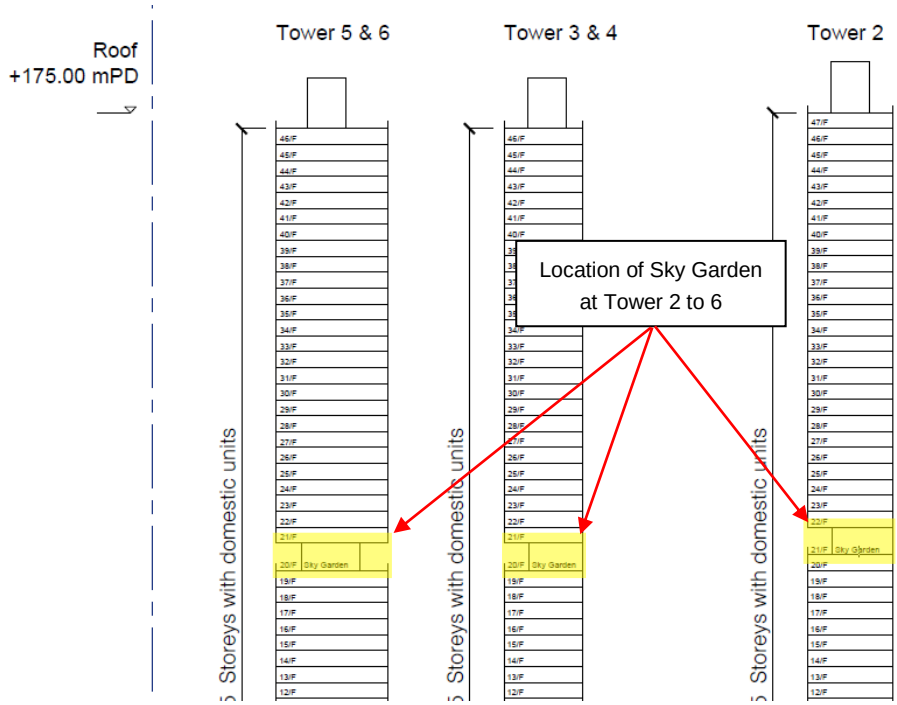


Figure 5-10 Section Layout of Sky Garden

Building Setback

5.3.14. Under proposed scheme, a minimum of 7.5m (width) x 15m (height) cross-sectional area, measuring from centreline of the street to building structure, is provide along full frontage of Ping Che Road. The setback provided the stepping effect and enhanced the prevailing wind from SE and SSE direction, which the main air path is along Ping Che Road. It is expected to benefit the downwind area of Ping Che new Village and open space at the northwest side of the Application Site. The layout is shown in ***Figure 5-11***.

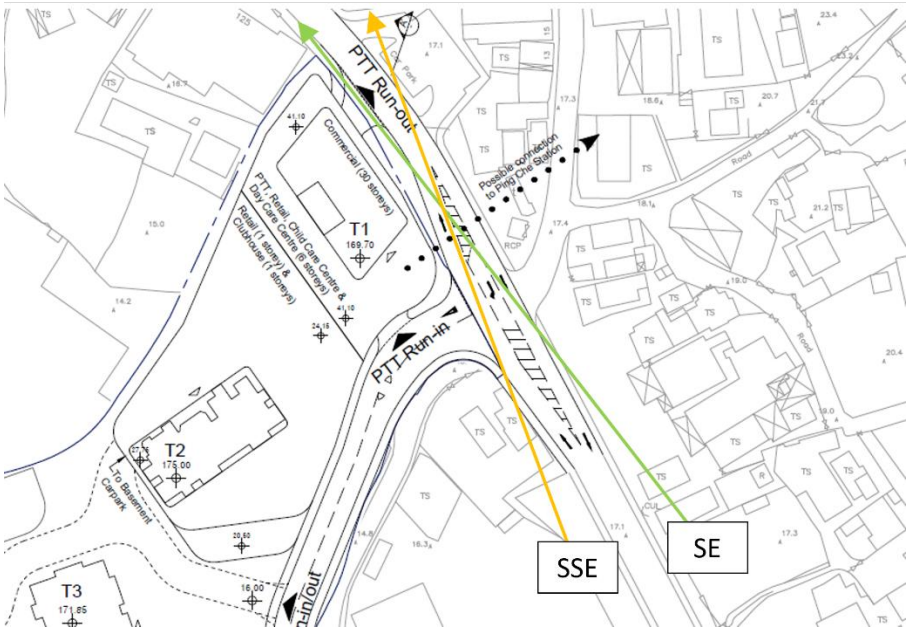


Figure 5-11 Layout of Building Setback with SE and SSE Wind Air Path

6. EXPERT EVALUATION

6.1. Annual Prevailing Wind – E and ESE WIND

6.1.1. E and ESE wind are the major prevailing wind under annual condition. Under the ESE wind, the major wind path will be flow along the Ping Che Road and flow through the Application Site. The wind flow will reach the Ping Che New Village, as well as the agriculture land and open storage area located at the downwind area. Under the E wind, the wind path will mainly flow through and wakes by the building within Application Site, towards the agriculture and open space located at downwind area.

6.1.2. Under the baseline scheme, the low-level wind of E and ESE wind is expected to enter the Application Site as the building surrounding are mostly low in height. It is expected that the wind will flow through the PTT as the ground level PTT having a vast opening at northeast and southeast side facing the wind direction. The chamfered corner of the podium of the proposed development also expected to further enhance the incoming wind flow. However, the building height is expected to slightly reduce the wind, as well as the small gap between building blocks and façade without opened wind path facing the wind direction will further weaken the wind flow.

6.1.3. Under the proposed scheme, the low-level wind of E and ESE wind is expected to enter the Application Site as the building surrounding are mostly low in height. Similar to the baseline scheme, the low-level wind is expected to skim through the ground level PTT unobstructed and further enhance by the chamfered corner. In addition, the good design features would facilitate the incoming wind. It is expected the mid-level wind flow via the separation gap between building, and the wind flow in higher level will flow through the sky garden, reaching the downwind area. The building orientation with axis aligning parallel to the ESE wind flow direction, and the terrace podium design will further enhance the wind flow.

6.1.4. The E (**blue** arrow) and ESE (**brown** arrow) wind flow in baseline scheme are illustrated in the ***Figure 6-1*** and wind flow in proposed scheme are illustrated in the ***Figure 6-2***.

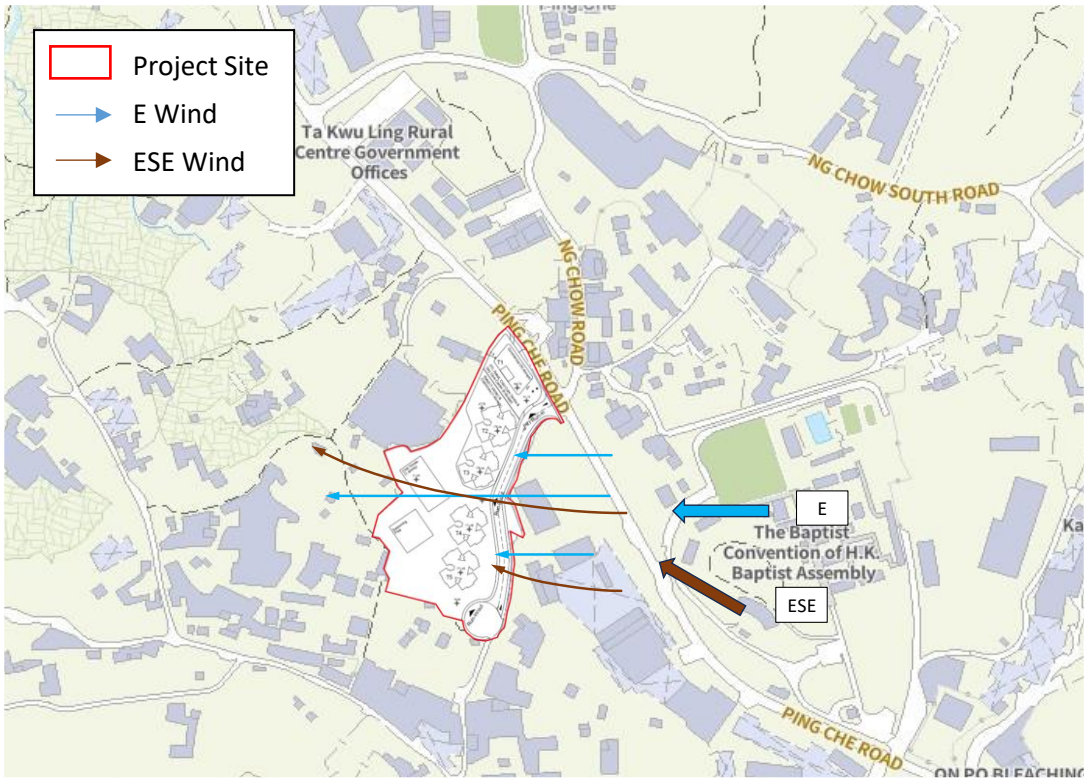


Figure 6-1 Annual Prevailing Wind – E and ESE Wind (Baseline Scheme)

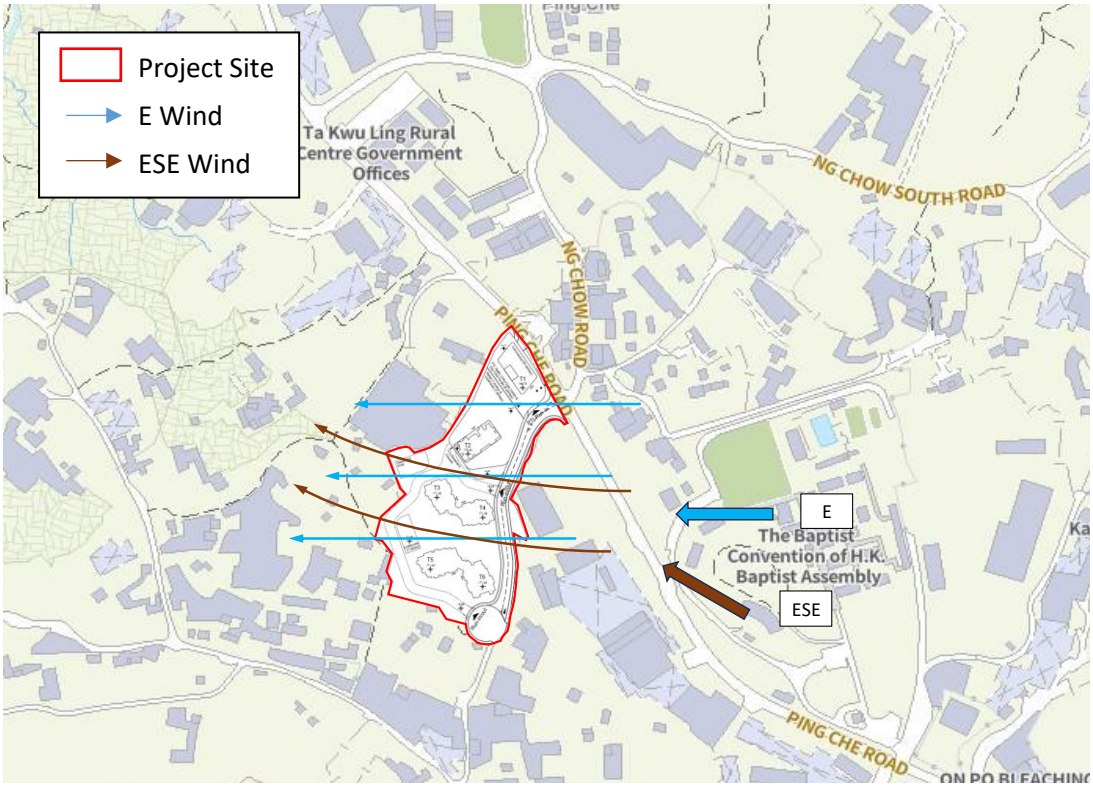


Figure 6-2 Annual Prevailing Wind – E and ESE Wind (Proposed Scheme)

6.2. Annual Prevailing Wind – ENE WIND

6.2.1. ENE wind is the 3rd prevailing annual wind. The ENE wind is expected to enter Application Site under annual condition, skim across the proposed development and finally reached open space and open storage area located at downwind area.

6.2.2. Under the baseline scheme, the low-level wind of ENE is expected to enter the Application Site as the building surrounding are mostly low in height. It is expected that the wind will flow through the PTT as the ground level PTT having a vast opening northeast side facing the ENE wind direction. The chamfered corner of the podium of the proposed development also expected to further enhance the wind flow. However, the building height, building orientation and small gap distance between blocks are expected to affect and reduce the wind flow, as the building is blocking some of the wind.

6.2.3. Under the proposed scheme, the low-level wind of ENE wind is expected to enter the Application Site as the building surrounding are mostly low in height. Similar to the baseline scheme, the low-level wind is expected to skim through the ground level PTT unobstructed and further enhance by the chamfered corner. In addition, the good design features would facilitate the incoming wind. It is expected higher level ENE wind will flow through the sky garden, reaching the downwind area. Since the separation of building provide less than 1 turning point for the wind flow, it is expected to not have effect on the wind flow from ENE direction and reduced in clubhouse building area and ground coverage smoothen the wind flow.

6.2.4. The ENE (blue arrow) wind flow in baseline scheme are illustrated in the ***Figure 6-3***, and wind flow in proposed scheme are illustrated in the ***Figure 6-2***.

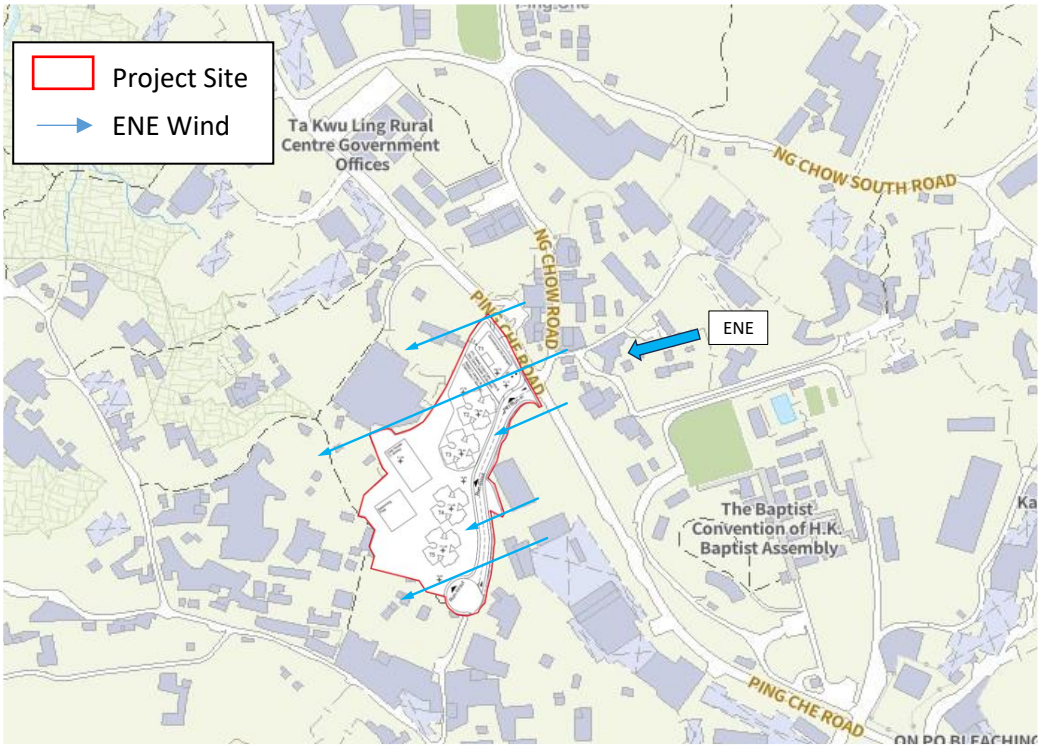


Figure 6-3 Annual Prevailing Wind – ENE Wind (Baseline Scheme)

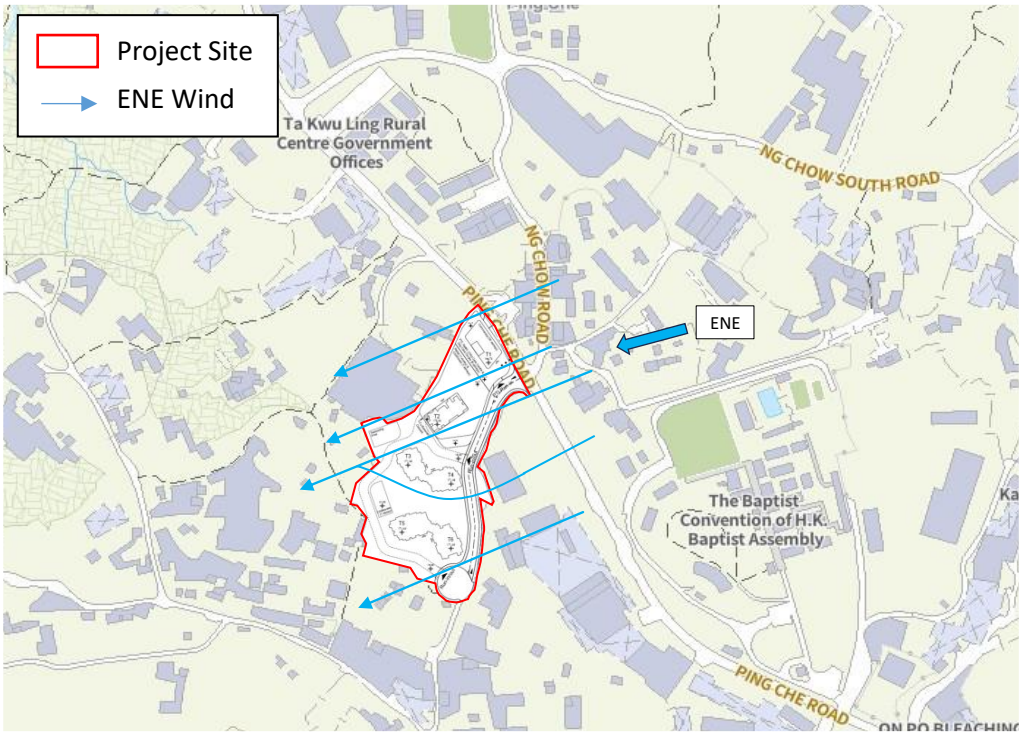


Figure 6-4 Annual Prevailing Wind – ENE Wind (Proposed Scheme)

6.3. Summer Prevailing Wind – E, ESE, SE and SSE Wind

6.3.1. E, ESE, SE and SSE wind are the prevailing wind under summer condition. Under the ESE and SE wind, the major wind path will be flow along the Ping Che Road and flow through the Application Site. The wind flow will reach the Ping Che New Village, as well as the agriculture land and open storage area located at the downwind area. Under the E wind, the wind path will mainly flow through and wakes by the building within Application Site, towards the agriculture and open space located at downwind area. Under the SSE wind, the wind will flow through the Application Site and penetrate through the building, and finally reached the downwind area of Ping Che New village and open space.

6.3.2. Under the baseline scheme, the low-level wind of E, ESE, SE and SSE wind is expected to enter the Application Site as the building surrounding are mostly low in height. It is expected that the wind will flow through the PTT as the ground level PTT having a vast opening at northeast and southeast side facing the wind direction. The chamfered corner of the podium of the proposed development also expected to further enhance the incoming wind flow. However, the building height is expected to slightly reduce the wind, as well as the small gap between building blocks and façade without opened wind path facing the wind direction will further weaken the wind flow.

6.3.3. Under the proposed scheme, the low-level wind is expected to enter the Application Site as the building surrounding are mostly low in height. Similar to the baseline scheme, the low-level wind is expected to skim through the ground level PTT unobstructed and further enhance by the chamfered corner. In addition, the good design features would facilitate the incoming wind. It is expected the mid-level wind flow via the separation gap between building, and the wind flow in higher level will flow through the sky garden, reaching the downwind area. The building orientation with axis aligning parallel to the wind flow direction. the terrace podium design is expected to further enhance the SSE and SE wind flow, while reduced in the podium height design will benefits the E and ESE wind flow towards the downwind area.

6.3.4. The E (**blue** arrow), ESE (**brown** arrow), SE (**green** arrow) and SSE (**orange** arrow) wind flow in baseline scheme are illustrated in the ***Figure 6-1*** and wind flow in proposed scheme are illustrated in the ***Figure 6-2***.

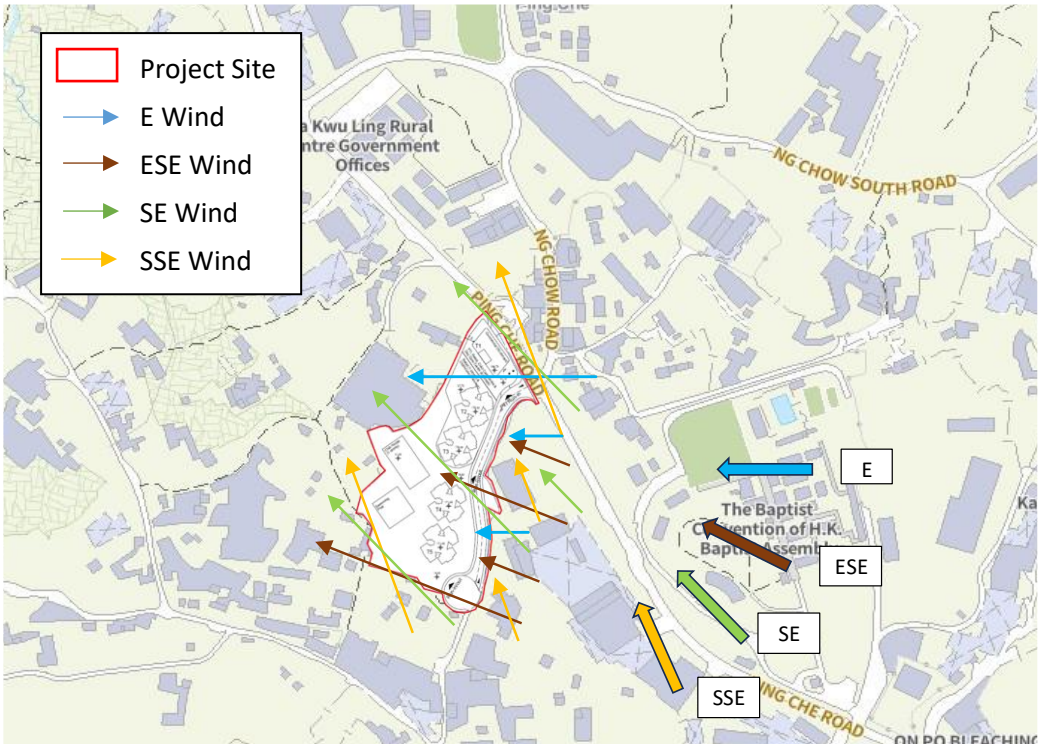


Figure 6-5 Summer Prevailing Wind – E, ESE, SE and SSE Wind (Baseline Scheme)

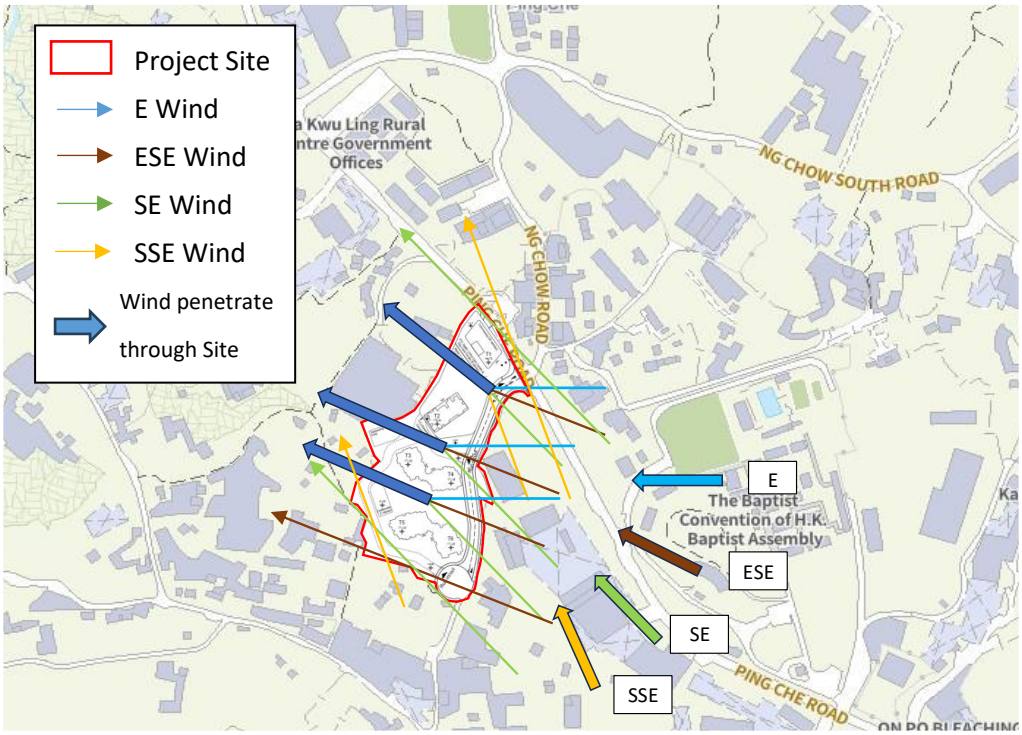


Figure 6-6 Summer Prevailing Wind – E, ESE, SE and SSE Wind (Proposed Scheme)

7. CONCLUSION

7.1.1. An AVA-EE study was conducted for the proposed mixed use development at Lot 796 & 1008 RP at D.D. 77 and adjoining government land in Ping Che, Ta Kwu Ling, New Territories to provide qualitative evaluation of wind performance of the proposed development under the Baseline and the Proposed Scheme.

7.1.2. There are some good design features are provided in both layout under Baseline Scheme and Proposed scheme, such as the permeable design of the ground level PTT at direction northeast and southeast facing the wind flow direction, and chamfered corner design of the building structure, allows the wind flow through the building unrestricted.

7.1.3. The layout under the Proposed scheme would keep the major air path along Ping Che Road and incorporate several good design measures mentioned in the Section 5 of report to facilitate the wind flow and keep it unblock. It includes the orientation of the building blocks align with the direction of the wind flow allows wind to skim through the building, maintained the separation distance between the building is more than 15m and design of sky garden to provide the vast opening on the façade to allow the wind flow unrestricted. The incorporated podium design such as terraced design and lower height the wind flow through the building structure, and the reduced in ground coverage of the clubhouse also lower the blockage to the wind flow. The building setback of 7.5m from the centreline of the Ping Che road to building structure also enhanced the wind flow especially at Air Path of Ping Che road, towards the downwind area of northwest site of Application Site such as Ping Che New Village and open space.

7.1.4. In conclusion, the current proposed scheme has implemented the strategies and good design for design optimization as recommended. The proposed scheme is comparable to the baseline scheme. As such, significant wind deterioration on district level after the construction of proposed development is not anticipated.

Appendix A

Layout Plan of Baseline Scheme

BLOCK PLAN (BASELINE SCHEME) SK-14
PROPOSED DEVELOPMENT AT PING CHE DD77, N.T.

0 10 20 50m

SINGULAR STUDIO LTD
12 OCTOBER 2023

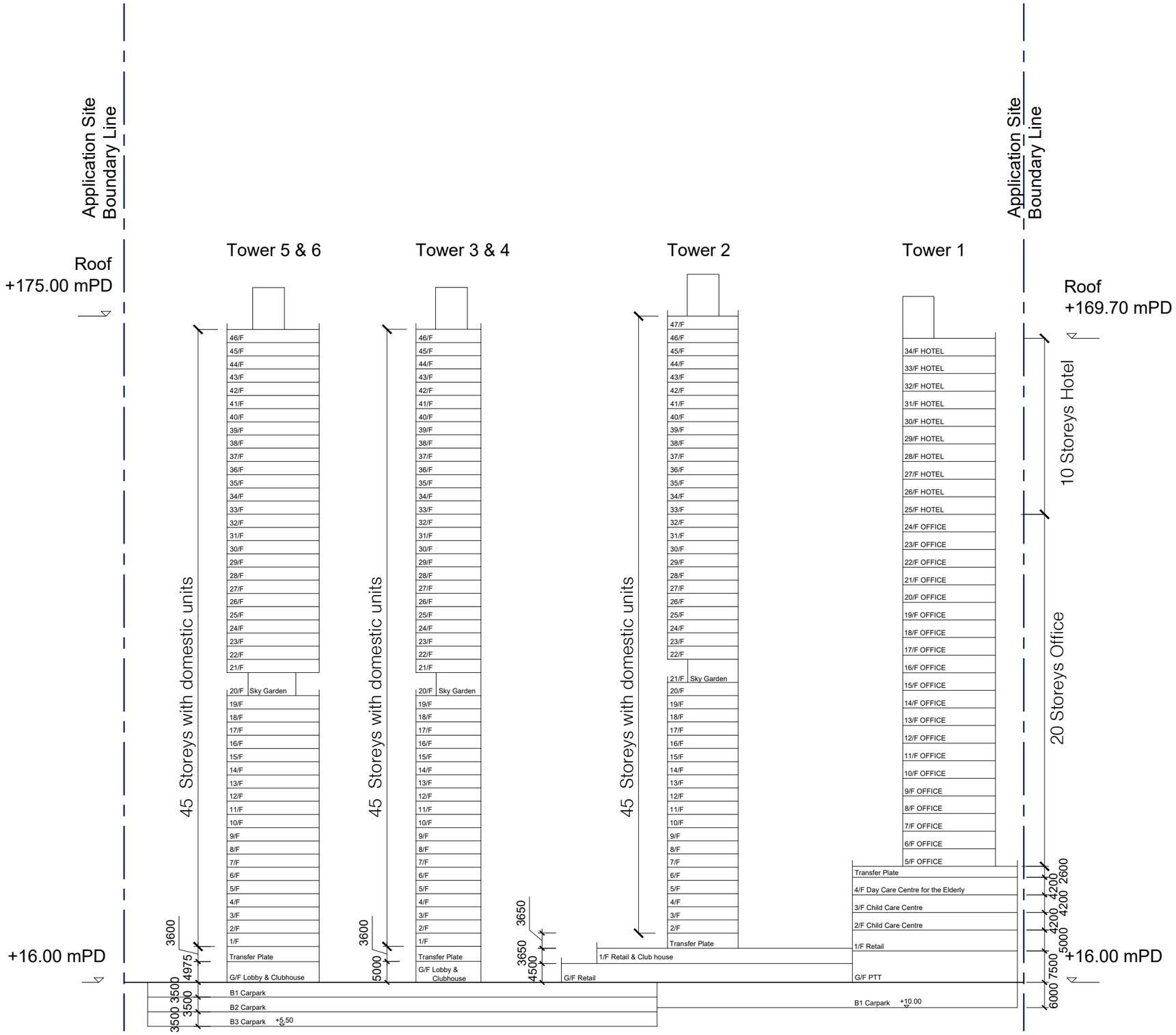
Appendix B

Layout Plan and Section Drawing of Proposed Scheme

BLOCK PLAN (WITH DIVERSION OF WATER MAINS) SK-15
PROPOSED DEVELOPMENT AT PING CHE DD77, N.T.

0 10 20 50m

SINGULAR STUDIO LTD
11 DECEMBER 2023



SCHEMATIC SECTION AA' SK-2
PROPOSED DEVELOPMENT AT PING CHE DD77, N.T.

0 10 20 50m

SINGULAR STUDIO LTD
6 OCTOBER 2023