RNTPC Paper No. 7/12
For Consideration by the
Rural and New Town
Planning Committee
On 5.10.2012

PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN NO. S/ST/26

1. Introduction

The purposes of this paper are to seek Members' agreement:

a) that the proposed amendments to the approved Sha Tin Outline Zoning Plan (OZP) No. S/ST/26 and its Notes are suitable for exhibition for public inspection under section 5 of the Town Planning Ordinance (the Ordinance); and

b) that the revised Explanatory Statement (ES) is an expression of the Town Planning Board (the Board)'s planning intention and objectives for various land use zones on the OZP.

2. Status of the Current Sha Tin OZP

2.1 The draft Sha Tin OZP No. S/ST/25 was approved by the Chief Executive in Council (CE in C) under section 9(1)(a) of the Ordinance on 13.3.2012. The approved OZP, renumbered as S/ST/26, was exhibited for public inspection under section 9(5) of the Ordinance on 23.3.2012.

2.2 On 5.6.2012, the CE in C referred the approved Sha Tin OZP No. S/ST/26 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 15.6.2012 under section 12(2) of the Ordinance.

3. Background of the Major Amendments

Fo Tan Public Rental Housing (PRH)

3.1 In view of the structural changes in the economy of Hong Kong and the movement of the manufacturing process to the Mainland, the Planning Department (PlanD) has been monitoring the demand and supply of industrial land with a view to rezoning surplus industrial land for other uses to better utilize the land resources. Since 2000, PlanD started to undertake 'Area Assessments of Industrial Land in the Territory' (Area Assessments) to identify suitable "Industrial" ("I") sites for rezoning to other suitable uses. The latest Area Assessment was completed in September 2010, and the recommendations of which were subsequently endorsed in principle by the Board subject to detailed proposals to be worked out in the context of proposed amendments to the OZP.

3.2 In the Area Assessments, the subject site (The Site) in Fo Tan which is currently zoned "I", "Green Belt" and "River Channel" on the OZP has been identified as suitable for residential use. The Site, which covers the ex-Fo Tan Cottage Area and the adjacent industrial land (**Plans A1** to **A3**), is located in the northwestern fringe of the Fo Tan Industrial Area (FTIA). The ex-Fo Tan Cottage Area is vacant and the adjacent industrial land is largely under various temporary uses including bus depots, storage, workshop and car park (Photo on **Plan A-4a**). Being located at the fringe of the industrial area on higher ground with only a short frontage to the southeast fronting industrial buildings, the Site could be considered for rezoning for comprehensive PRH development so that the environmental constraints could be better dealt with as there would be more scope to incorporate the appropriate design and layout. To facilitate the implementation of PRH development, amendments to the Sha Tin OZP is required.

3.3 As illustrated in the schematic drawings prepared by HD (**Drawings 1** and **2**, photomontage at **Drawing 3**), the proposed PRH site is to be developed for 6 housing blocks with building heights ranging from 140mPD to 160mPD. The housing blocks will be located on different platforms rising from southeast at about 32 mPD towards the northwest at about 75 mPD. It would create a height profile stepping up from both ends to the centre with reference to the hilly terrain to the north. Building separations of 18m to 30m are proposed to enhance the wind environment. Non-domestic uses and retail facilities (in a welfare and commercial centre) are proposed in the south-eastern part of the site along Kwei Tei Street such that the housing blocks will be separated from the nearest industrial building by 75m. Major development parameters of the PRH are summarized as follows:

Gross Site Area	4.09 ha (about)
Net Site Area	3.89 ha (about)
No. of Flats	4,200 (about)
Average Flat Size[1]	33 m^2 (ranging from 19 m^2 to 46 m^2)
No. of Blocks	6
Design Population	11,500 (about)
Maximum Total GFA	194,500 m^2 (about 181,000 m^2 domestic GFA and 13,500 m^2 non-domestic GFA)
Total Plot Ratio (based on the net site area)	5
Maximum Building Height	140mpD – 160mPD on platforms at 32mPD to 75mPD (26 to 36 domestic storeys) (3 storeys for welfare and commercial centre)
Local Open Space	11,500 m^2
Car parking Facilities (ancillary to domestic use)	Car Parking Spaces: 120 Car Parking Spaces (Light Goods Vehicle): 12

[1] Figures provided by Housing Department excluding the common areas and services areas of the buildings.

	Car Parking Spaces (Motor-cycle): 27 Loading/Unloading Space: 6
Other Supporting Facilities (subject to detailed design and confirmation with relevant government departments)	1 welfare and commercial centre to provide: about 900m^2 for wet market about 4,000m^2 for retail shops 9 classrooms for nursery & kindergarten 1 day care centre for the elderly 1 integrated children and youth service centre

3.4 The proposed PRH development will be guided by an administrative planning brief. There will be a list of welfare facilities provided within the PRH site including a day care centre for the elderly and an integrated children and youth service centre. The upper section of Wong Chuk Yeung Street will be widened to serve the PRH development. Footbridge connections within the Site will be provided to enhance pedestrian accessibility. The proposed development will be implemented in 2 phases with anticipated final completion year in 2020/2021.

Wo Sheung Tun Street New Home Ownership Scheme (HOS)

3.5 An adjacent site at Wo Sheung Tun Street (**Plans A1** to **A3**) was also recommended to be rezoned for residential purpose in the Area Assessments. Similar to the PRH site above, the subject site is located at the western fringe of the FTIA and is a piece of government land. It is zoned "I" on the OZP and is currently occupied by a bus depot (Photo on **Plan A-4b**). The site is proposed for the development of HOS.

3.6 The proposed HOS development comprises 2 building blocks with maximum building height of about 150mPD (**Drawings 4** and **5**, photomontage at **Drawing 6**). Although the site is primarily situated on a platform with site level of 52mPD, the building blocks will be straddling this building platform and the adjoining slope such that the lobby floor will be situated at grade along Man Hang Street. Open air carpark ancillary to the HOS development will be provided within the site. A landscape buffer will be provided at the north-eastern part of the site along Man Hang Street to enhance the visual quality of the area. A building setback of about 10m is proposed along Man Han Street to maximize the distance between the residential blocks and the adjacent industrial building. Major development parameters of the proposed HOS development are summarized as follows:

Gross Site Area	0.87 ha (about)
Net Site Area	0.87 ha (about)
No. of Flats	560 (about)
Average Flat Size[2]	42 m^2
No. of Blocks	2
Design Population	1,800 (about)
Maximum Total GFA	43,600 m^2

[2] Figures provided by Housing Department excluding the common areas and services areas of the buildings.

Total Plot Ratio (based on the net site area)	5
Maximum Building Height	150 mpD (33 domestic storeys)
Local Open Space	1,800 m^2
Car parking Facilities (ancillary to domestic use)	Car Parking Spaces: 32 Car Parking Spaces (Visitor): 4 Car Parking Spaces (Motor-cycle): 6 Loading/Unloading Space: 2

Technical Assessments

3.7 HD has undertaken technical assessments for the proposed PRH and HOS developments with respect to environmental, traffic, visual, air ventilation, and tree preservation. A summary of the assessments results is at **Appendix I**. The Environmental Assessment Studies (EASs) have demonstrated that there is no insurmountable environmental problem for the proposed PRH and HOS based on the current design (e.g. non-operable window facing industrial buildings), layout and environmental conditions. The Director of Environmental Protection has considered the EASs acceptable in principle. The problem of possible adverse air quality impact due to future emission from the adjacent industrial buildings could be controlled through such mechanism as the control by the Board on some of the Column 2 uses in the "I" zone via the planning applications; the control by EPD on new chimney applications and renewal of the Electricity Work Specified Process licence; and enforcement actions by relevant authorities on odour emissions from food processing factories. These measures are considered effective in controlling the air quality impact to within an acceptable level.

3.8 The traffic impact assessments (TIAs) show that with the implementation of traffic management and improvement works, including widening of a section of Wong Chuk Yuen Street and junction improvement at Sui Wo Road and Shan Mei Street, and enhancement of existing or provision of new franchised bus or mini-bus services, the proposed developments will not generate substantial negative impact on the surrounding road network. The Commissioner for Transport considered the TIA acceptable in principle.

3.9 The visual impact assessments (VIAs) conducted by HD (**Appendix II**) indicate that for the vantage points at Fo Tan Station and Shing Mun River where there are heavy pedestrian or visitor flow, the visual impact would be slight or negligible as the housing developments are mostly blocked by the industrial buildings in the front. For some vantage points at areas near Kwai Tei New Village, Man Hang Street and the road junction of Fo Tan Road and Kwai Tei Road, the proposed PRH and HOS development may have moderate visual effects. Although the proposed PRH development consists of several towers and is of a significant building mass and will inevitably block certain views, it will potentially add positive enhancement to most viewers at street level with quality landscape treatment and building design such as stepped building heights and building separation. Regarding the HOS development at Wo Sheung Tun Street, it does not contribute significant cumulative visual

impact. The building setback and landscape buffer along Man Hang Street introduced in the HOS development will also help improve the street level visual quality and pedestrian continuity.

3.10 For air ventilation, the Air Ventilation Assessments (AVAs) (**Appendix III**) show that winds from northeast and east are the dominant annual wind directions. While in summer, wind mainly comes from the southwest direction. The proposed PRH and HOS blocks are oriented to capture the prevailing winds without substantial impediment from and to the surrounding developments and terrain. There are separations between the housing blocks to optimize the wind environment. It is considered that the proposed PRH and HOS would have insignificant air ventilation impacts within the site and to the land uses in the vicinity. The results of the AVA would be further refined by a quantitative study in the detailed design of the PRH development. Such requirement would be incorporated in the Explanatory Statement of the OZP.

Consultation with Sha Tin District Council

3.11 The Sha Tin District Council (STDC) generally supported the proposed PRH and HOS development when Housing Department (HD) consulted the STDC on 1.9.2011 and 28.6.2012. The STDC passed motions to support the schemes but urged the government to improve the supporting facilities in the area including recreational facilities and transport services. The comments of the STDC members had been incorporated in the development schemes where appropriate and relevant technical assessments had been conducted to support the proposal.

Rezoning of sites in the vicinity of the proposed PRH and HOS developments

3.12 Opportunities are taken to rezone the sites in the vicinity of the proposed PRH and HOS developments to better reflect the as-built situation. Those include the existing GIC uses (an electricity substation, a public toilet and a garden) to the immediate east of the PRH site (**Plans A1** to **A3**). They are considered appropriate to be rezoned from "I" to "G/IC" to reflect the nature of their uses.

Government Land adjoining Chi Ha Yuen

3.13 On 12.2.2012, the Rural and New Town Planning Committee of the Board decided to partially agree to an application No. Y/ST/13 by rezoning the Government Land adjoining Chi Ha Yuen in Area 6, Sha Tin (**Plans B1** and **B2**) from "Village Type Development" ("V") to "Government, Institution or Community" ("G/IC") with columbarium included as Column 2 use. It is proposed to rezone the site to "G/IC" to take forward the decision of the Board on the application.

Zoning Boundary Adjustments for the Sha Tin Water Treatment Works

3.14 The Sha Tin Water Treatment Works is located to the southwest of Tai Wai (**Plans C1** and **C2**). The Water Supplies Department is about to carry out the "Reprovisioning of Sha Tin Water Treatment Works" project which includes the upgrading in phases of the existing water treatment facilities. To

facilitate the implementation of this project, opportunity is taken to adjust the zoning boundary of the relevant "OU" zone on the OZP to reflect the as-built situation and to tally with the land allocation boundary.

4. Proposed Amendments to the Approved Sha Tin OZP

4.1 The proposed amendments to the approved OZP are shown on the draft Amendment Plan No. S/ST/26A at **Annex B**. Details of the amendment items are as follows:

(Items A1 to A6 - Amendments arising from the proposed PRH and HOS sites)

Item A1 – Rezoning of a site from "I", "GB" and area shown as 'River Channel' to "R(A)2" (Site Area: about 4.09 ha.) (**Plans A-1** and **A-2**, Aerial Photo on **Plan A-3** and Site Photo on **Plan A-4a**)

4.2 To facilitate the proposed PRH development, a new sub-zone, "R(A)2", under the "R(A)" zone is proposed for the PRH site. A maximum total GFA of 194,500m^2 and a maximum building height of 160mPD are stipulated for the "R(A)2" zone taking account of the development scheme at **Drawings 1** and **2**. Despite the stipulation of a maximum building height restriction, a stepping height profile as mentioned in para. 3.3 above will be adopted with reference to the hilly terrain to the north. The stepped height concept will be stated in the ES of the OZP.

4.3 To provide flexibility, a minor relaxation clause will be incorporated in the Notes for the "R(A)2" zone to allow minor relaxation of the stipulated GFA and building height restrictions on individual merits through the planning application mechanism.

Item A2 – Rezoning of a site from "I" to "R(A)3" (Site Area: about 0.87 ha.) (**Plans A-1** and **A-2**, Aerial Photo on **Plan A-3** and Site Photo on **Plan A-4b**)

4.4 The site at Wo Sheung Tun Street is intended for HOS development. Based on the indicative development scheme at **Drawings 4** and **5**, it is proposed to rezone the site to "R(A)3" with stipulation of a maximum total GFA of 43,600m^2 and a maximum building height of 150mPD. To provide flexibility, a minor relaxation clause will be incorporated in the Notes for the "R(A)3" zone to allow minor relaxation of the stipulated GFA and building height restrictions on individual merits through the planning application mechanism.

Item A3 – Rezoning of a site from "I" to "G/IC" (Site Area: about 0.28 ha.) (**Plans A-1** and **A-2**, Aerial Photo on **Plan A-3** and Site Photo on **Plan A-4c**)

4.5 The site to the east of the PRH site has been developed as an electricity substation, a public toilet and a garden. It is considered appropriate to rezone the site to "G/IC" to reflect the as-built situation.

Item A4 – Rezoning of areas from "I" and area shown as 'River Channel' to "Green Belt" ("GB") (Site Area: about 0.79 ha.) (**Plans A-1** and **A-2** and Aerial Photo on **Plan A-3**)

4.6 For those areas that are mainly existing slopes covered with vegetation not intended for development, it is considered appropriate to rezone them to "GB".

Item A5 – Rezoning of areas from "I", "GB" and area shown as 'River Channel' to area shown as 'Road' (Site Area: about 1.21 ha.) (**Plans A-1** and **A-2** and Aerial Photo on **Plan A-3**)

4.7 This amendment is to reflect the as-built roads in the area and to cater for the road improvement works of Wong Chuk Yeung Street.

Item A6 – Rezoning of two strips of land from "GB" and area shown as 'River Channel' to "I" (Site Area: about 0.10 ha.) (**Plans A-1** and **A-2** and Aerial Photo on **Plan A-3**)

4.8 Opportunity is also taken to adjust the zoning boundary of two strips of land in the north and north-western part of the FTIA to tally with the land allocation boundary of the garden to the east of the PRH site and to tie in with the rezoning boundaries for amendment items A3, A4 and A5.

(Item B - Amendment for the Government Land adjoining Chi Ha Yuen)

Item B – Rezoning of a site from "Village Type Development" ("V") to "G/IC" (Site Area: about 0.05 ha.) (**Plans B-1** and **B-2**, Aerial Photo on **Plan B-3** and Site Photos on **Plans B-4a** and **B-4b**)

4.9 This amendment is to take forward the Board's decision on the rezoning application No. Y/ST/13. The site is located in Area 6 to the northwest of Pai Tau Village. On the site there are three existing columbaria (with a total of 3,338 urns) and one storage structure. Upon rezoning of the site to "G/IC", columbarium will be included as a Column 2 use and require planning permission from the Board.

(Items C1 and C2 - Amendments associated with the Sha Tin Water Treatment Works)

Item C1 – Rezoning of six strips of land from "Open Space" ("O") and "Other Specified Uses" ("OU") annotated "Kowloon-Canton Railway" to "OU" annotated "Water Treatment Works" (Site Area: about 1.54 ha.) (**Plans C-1** and **C-2** and Aerial Photo on **Plan C-3**)

4.10 The amendment is to tally with the proposed land allocation boundary of the Sha Tin Water Treatment Works at Areas 9 & 49 to cater for the reprovisioning works to be carried out by the Water Supplies Department.

Item C2 – Rezoning of a strip of land from "OU" annotated "Water Treatment Works" to "OU" annotated "Kowloon-Canton Railway" (Site Area: about 0.13 ha.) (**Plans C-1** and **C-2** and Aerial Photo on **Plan C-3**)

4.11 This is a technical amendment to revise the boundaries of the "OU" annotated "Water Treatment Works" and the "OU" annotated "Kowloon-Canton Railway" zones to tally with the land allocation boundary of the Sha Tin Water Treatment Works.

5. **Proposed Amendment to the Notes of the Approved Sha Tin OZP**

The Notes of the "R(A)" zone has been amended to cater for the proposed sub-areas of "R(A)2" and "R(A)3" zones with stipulation of GFA and building height restrictions. Provision has been made in the Notes of the "R(A)2" and "R(A)3" zones for minor relaxation of GFA and building height restrictions through the planning application mechanism. Opportunity is also taken to revise the exemption clause for gross floor area/plot ratio calculation in relation to caretaker's quarters in the Remarks of the Notes for the "Comprehensive Development Area", "Comprehensive Development Area(1)", "R(A)", "Residential (Group B)" and "Residential (Group C)" zones. A copy of the revised Notes is attached at **Annex C** with the proposed amendments highlighted for Member's consideration.

6. **Explanatory Statement of the OZP**

The ES of the OZP had been revised to take into account the proposed amendments as mentioned in paragraph 4 above and to reflect the latest status and planning circumstances of the OZP. A copy of the revised ES is attached at **Annex D** with the proposed amendments highlighted for Members' consideration.

7. **Plan Number**

Upon gazetting, the draft OZP will be renumbered as S/ST/27.

8. **Consultation**

8.1 The proposed amendments to the approved Sha Tin OZP have been circulated to the relevant departments and they have no objection to or no comment on the proposed amendments. The STDC generally supported the PRH and HOS developments when HD consulted STDC in September 2011 and June 2012 respectively. Major comments of STDC are summarized in para. 3.11 above.

8.2 The STDC (or its sub-committee) and Sha Tin Rural Committee (STRC) will be consulted after the Committee's agreement to the proposed amendments either before the gazetting of the proposed amendments to the OZP or during the exhibition period depending on the meeting schedules of STDC and STRC.

9. **Decision Sought**

Members are invited to:

a) agree to the proposed amendments to the approved Sha Tin OZP No. S/ST/26 as mentioned in paragraph 4 above;

b) agree that the amendment Plan No. S/ST/26A at Annex B (to be renumbered to S/ST/27 upon gazetting) and its Notes at Annex C are suitable for exhibition for public inspection under section 5 of the Ordinance;

c) adopt the revised ES at Annex D as an expression of the planning intentions and objectives of the Board for various land use zones on the draft Sha Tin OZP; and

d) agree that the revised ES at Annex D is suitable for exhibition for public inspection together with the draft OZP No. S/ST/26A (to be renumbered to S/ST/27 upon gazetting).

10. Attachments

Plan A-1	OZP Comparison for Amendment Items A1 to A7
Plan A-2	Site Plan of Amendment Items A1 to A7
Plan A-3	Aerial Photo of Amendment Items A to A7
Plan A-4a	Site Photo of Amendment Item A1
Plan A-4b	Site Photo of Amendment Item A2
Plan A-4c	Site Photo of Amendment Item A3
Plan B-1	OZP Comparison for Amendment Item B
Plan B-2	Site Plan of Amendment Item B
Plan B-3	Aerial Photo of Amendment Item B
Plans B-4a and B-4b	Site Photos of Amendment Item B
Plan C-1	OZP Comparison for Amendment Items C1 and C2
Plan C-2	Site Plan of Amendment Items C1 and C2
Plan C-3	Aerial Photo of Amendment Items C1 and C2
Drawings 1 and 2	Indicative Development Scheme of Fo Tan PRH
Drawing 3	Photomontage of Fo Tan PRH
Drawings 4 and 5	Indicative Development Scheme of Wo Sheung Tun Street New HOS
Drawing 6	Photomontage of Wo Sheung Tun Street New HOS
Annex A	Approved Sha Tin OZP No. S/ST/26 (A-3 size)
Annex B	Draft Sha Tin OZP No. S/ST/26A
Annex C	Notes of the draft Sha Tin OZP No. S/ST/26A
Annex D	Explanatory Statement of the draft Sha Tin OZP No. S/ST/26A
Appendix I	Summary of Assessments provided by HD
Appendix II	Visual Impact Assessments provided by HD
Appendix III	Air Ventilation Assessments provided by HD

PLANNING DEPARTMENT
OCTOBER 2012

分區計劃大綱圖編號S/ST/26
的現有用途地帶
EXISTING ZONINGS ON
PLAN No. S/ST/26

擬議修訂
PROPOSED AMENDMENTS

N

狗肚山
COVE HILL
(KAU TO SHAN)

馬尿
Ma Niu

橋頭坪
Yiu Dau Ping

桂地新村
Kwai Tei
New Village

蚊坑
Man Hang

A1 A2 A3 A4 A5 A6

KWEI TEI STREET

WONG CHUK YEUNG STREET

MAN HANG ST

AU PUI WAN STREET

SHAN MEI STREET

SUI WO ROAD

RIVER CHANNEL

TO TAN ROAD

KOWLOON – CANTON RAILWAY

RAILWAY DEPOT COMPREHENSIVE DEVELOPMENT AREA

大埔滘 "TO TAN" STATION

八仙嶺
Pat Tsz Wo
Village
Resite Area

禾寮坑
Wo Liu Hang

火炭
Fo Tan

何東樓
Ho Tung
Lau

下禾輋
Ha Wo Che

禾輋邨
Wo Che Estate

下禾輋水務
Ha Wo Che
Service
Reservoir

瑞禾苑
Sui Wo Court

大水坳
Tai Shui Hang
Reservoir

GB R(A) R(A)2 R(A)3 R(B) G/IC O OU CDA(1)

150 150m

16 21 41 42 43 44 58 62 63

本摘要圖於2012年10月4日擬備，
所根據的資料為分區計劃大綱圖編號
S/ST/26及S/ST/26A

EXTRACT PLAN PREPARED ON 4.10.2012
BASED ON OUTLINE ZONING PLANS No.
S/ST/26 & S/ST/26A

位置圖 - 修訂項目A1至A6
LOCATION PLAN - ITEMS A1 TO A6

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

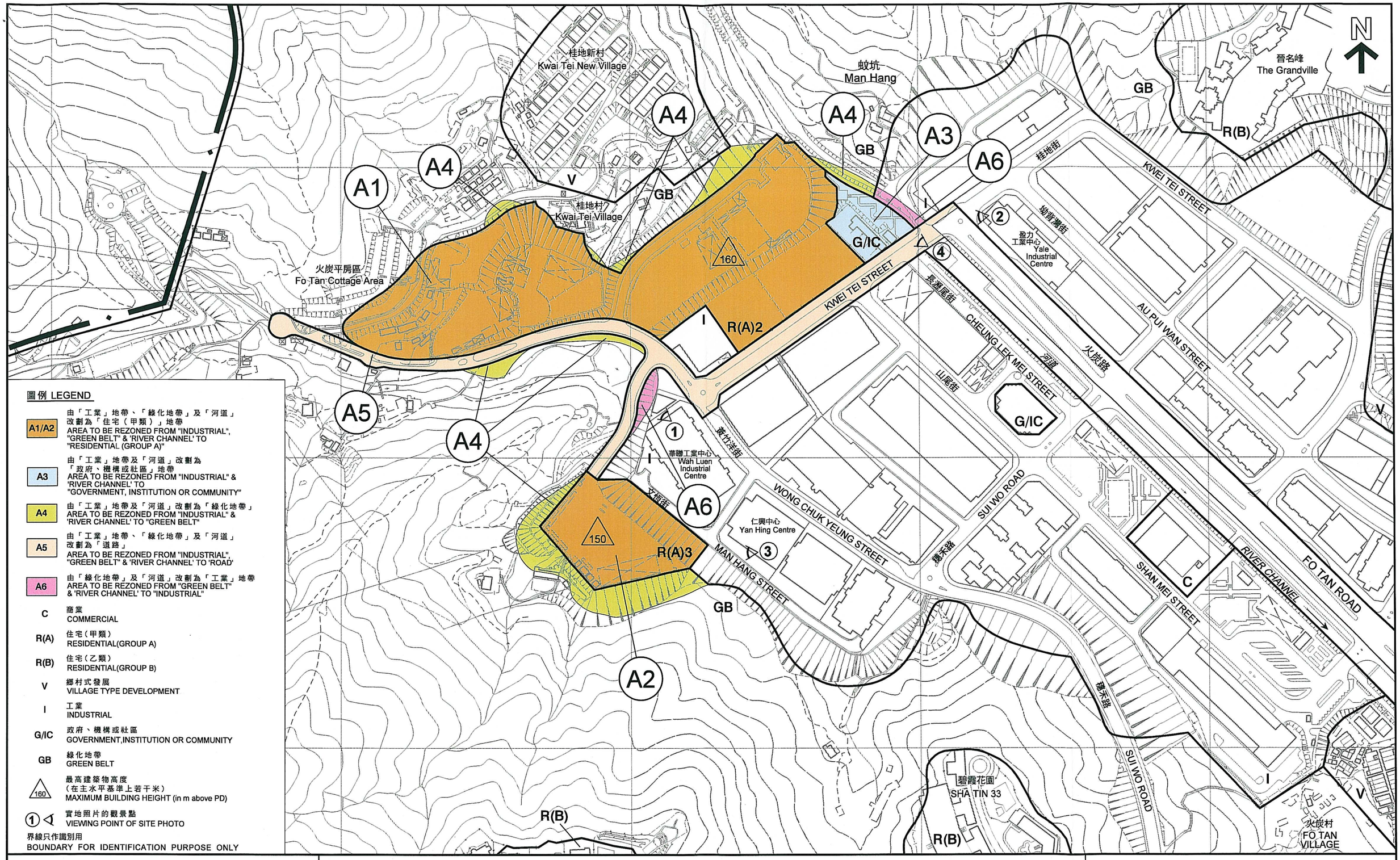
SCALE 1 : 10 000 比例尺

米 METRES 100 0 200 400 600 800 1 000 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
A-1



圖例 LEGEND

- **A1/A2** 由「工業」地帶、「綠化地帶」及「河道」改劃為「住宅（甲類）」地帶
  AREA TO BE REZONED FROM "INDUSTRIAL", "GREEN BELT" & 'RIVER CHANNEL' TO "RESIDENTIAL (GROUP A)"
- **A3** 由「工業」地帶及「河道」改劃為「政府、機構或社區」地帶
  AREA TO BE REZONED FROM "INDUSTRIAL" & 'RIVER CHANNEL' TO "GOVERNMENT, INSTITUTION OR COMMUNITY"
- **A4** 由「工業」地帶及「河道」改劃為「綠化地帶」
  AREA TO BE REZONED FROM "INDUSTRIAL" & 'RIVER CHANNEL' TO "GREEN BELT"
- **A5** 由「工業」地帶、「綠化地帶」及「河道」改劃為「道路」
  AREA TO BE REZONED FROM "INDUSTRIAL", "GREEN BELT" & 'RIVER CHANNEL' TO 'ROAD'
- **A6** 由「綠化地帶」及「河道」改劃為「工業」地帶
  AREA TO BE REZONED FROM "GREEN BELT" & 'RIVER CHANNEL' TO "INDUSTRIAL"
- **C** 商業 COMMERCIAL
- **R(A)** 住宅（甲類） RESIDENTIAL(GROUP A)
- **R(B)** 住宅（乙類） RESIDENTIAL(GROUP B)
- **V** 鄉村式發展 VILLAGE TYPE DEVELOPMENT
- **I** 工業 INDUSTRIAL
- **G/IC** 政府、機構或社區 GOVERNMENT,INSTITUTION OR COMMUNITY
- **GB** 綠化地帶 GREEN BELT
- **160** 最高建築物高度（在主水平基準上若干米） MAXIMUM BUILDING HEIGHT (in m above PD)
- **①** 實地照片的觀景點 VIEWING POINT OF SITE PHOTO

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2012年10月4日擬備，
所根據的資料為測量圖編號
7-SW-5D、10B、7-SE-1C及6A

EXTRACT PLAN PREPARED ON 4.10.2012
BASED ON SURVEY SHEETS No.
7-SW-5D, 10B, 7-SE-1C & 6A

平面圖 - 修訂項目A1至A6
SITE PLAN - ITEMS A1 TO A6

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂

PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

米 METRES 50 0 50 100 METRES SCALE 1 : 3 000 比例尺

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
A-2

圖例 LEGEND

160 最高建築物高度
（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (in m above PD)

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2012年10月4日擬備，
所根據的資料為地政總署
於2011年12月11日拍得的航攝照片
編號CW92215
EXTRACT PLAN PREPARED ON 4.10.2012
BASED ON AERIAL PHOTO No. CW92215
TAKEN ON 11.12.2011 BY
LANDS DEPARTMENT

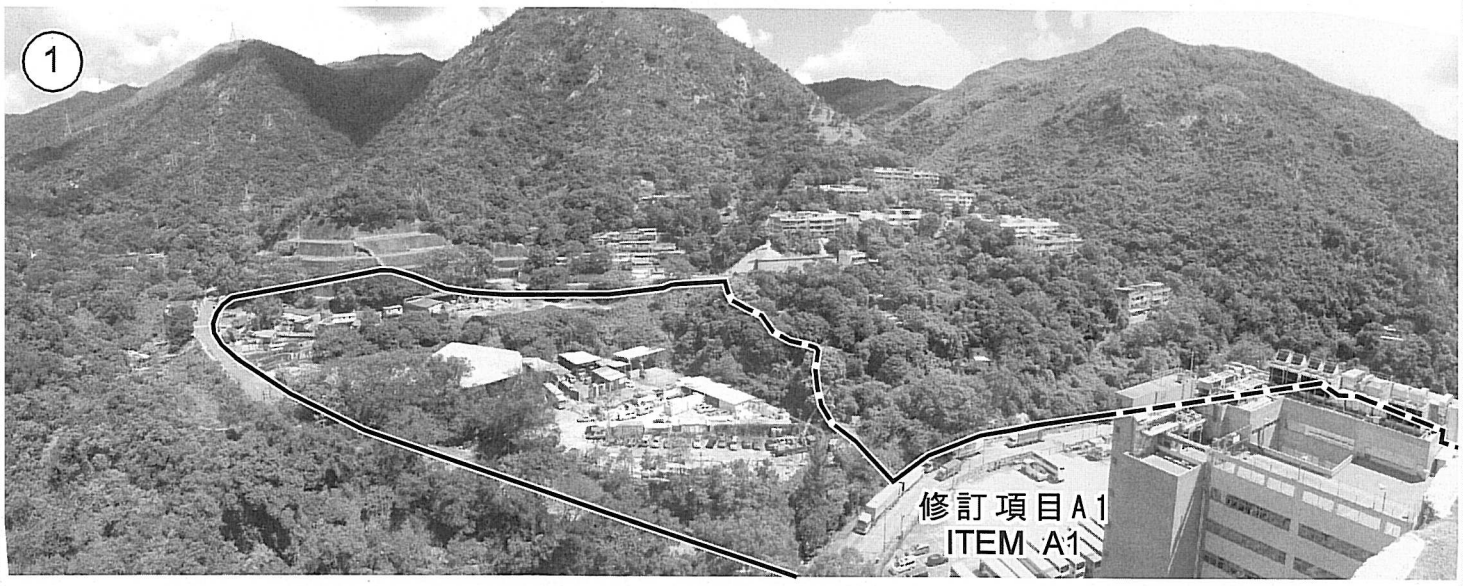
航攝照片－修訂項目A1至A6
AERIAL PHOTO- ITEMS A1 TO A6

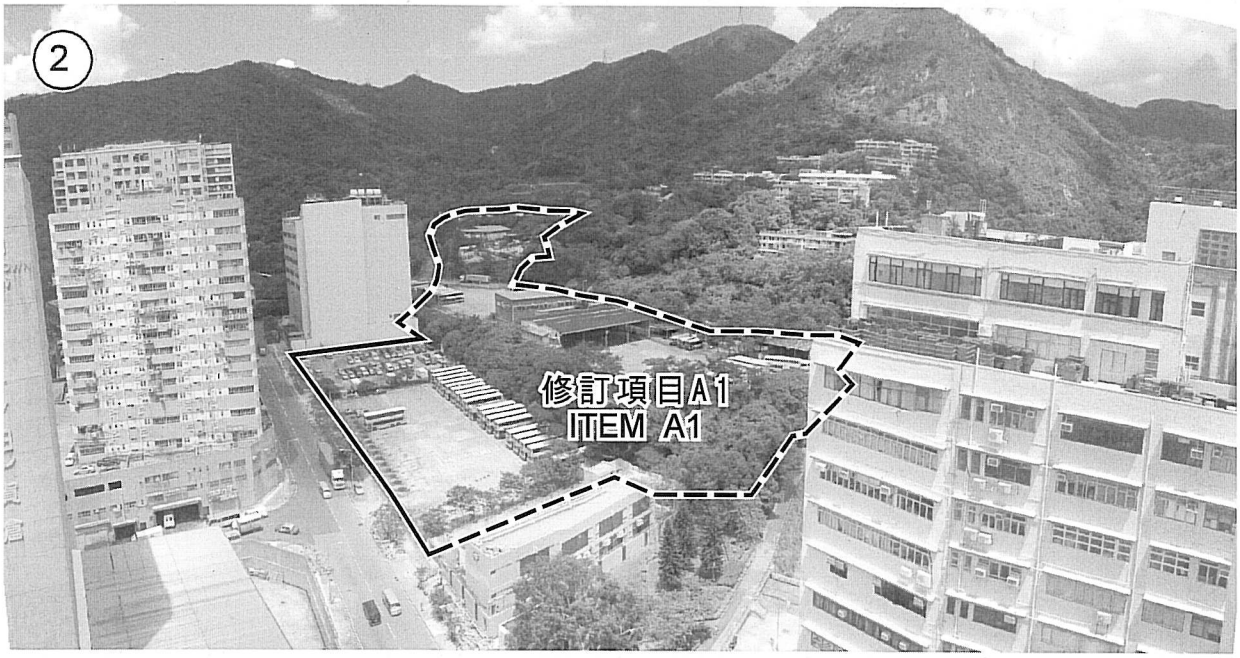
在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
A-3





界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2012年9月20日擬備，所根據的資料為攝於2012年7月3日的實地照片
PLAN PREPARED ON 20.9.2012
BASED ON SITE PHOTOS TAKEN ON 3.7.2012

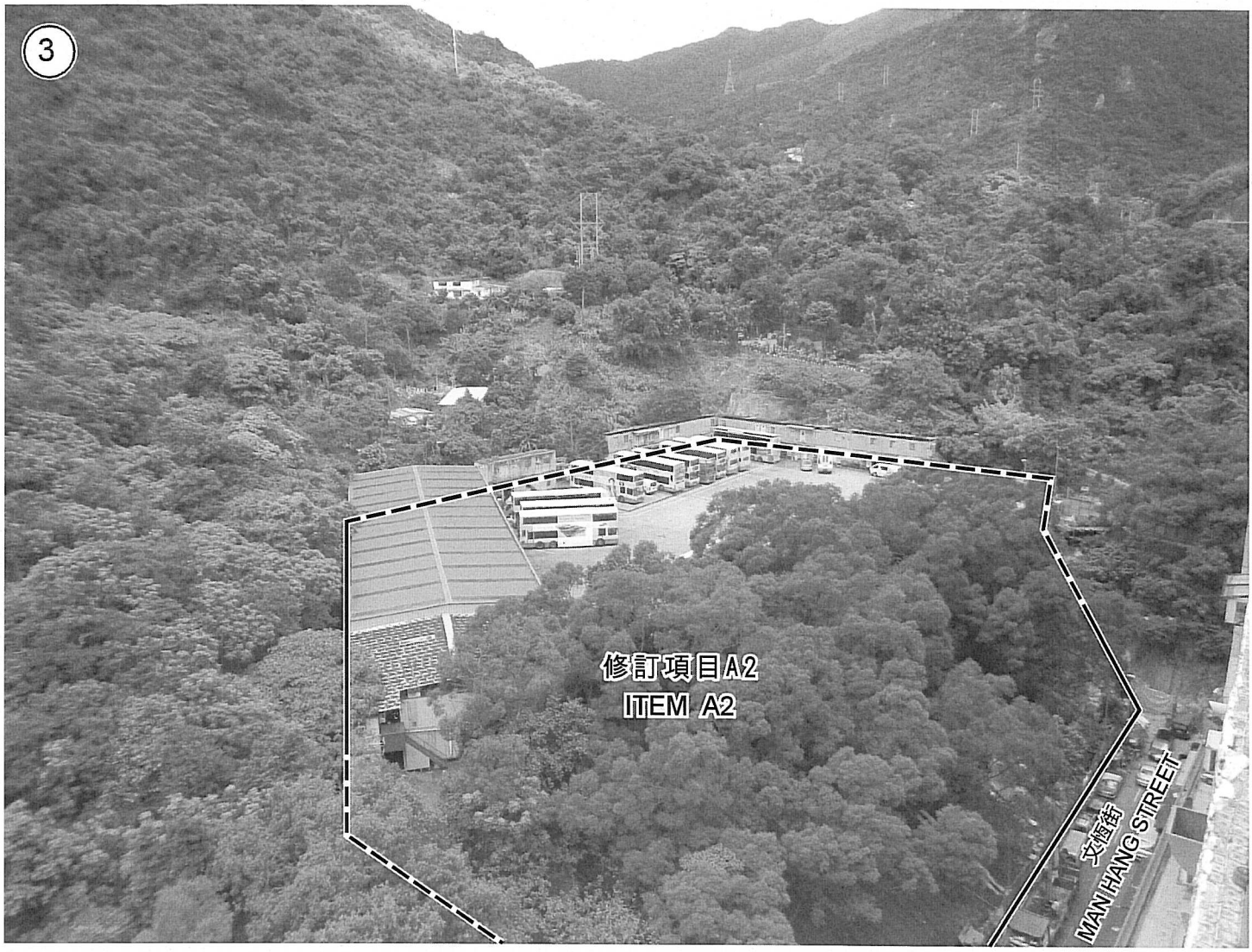
實地照片 - 修訂項目A1
SITE PHOTO - ITEM A1

在沙田分區計劃大綱核准圖編號S/ST/26
作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
A-4a



界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2012年7月16日擬備，所根據的資料為攝於2012年7月3日的實地照片
PLAN PREPARED ON 16.7.2012
BASED ON SITE PHOTO TAKEN ON 3.7.2012

實地照片 - 修訂項目A2
SITE PHOTO - ITEM A2

在沙田分區計劃大綱核准圖編號S/ST/26
作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
A-4b

本圖於2012年10月4日擬備，所根據的資料為攝於2012年7月3日的實地照片
PLAN PREPARED ON 4.10.2012
BASED ON SITE PHOTO TAKEN ON 3.7.2012

實地照片-修訂項目A3
SITE PHOTO - ITEM A3

在沙田分區計劃大綱核准圖編號S/ST/26
作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖PLAN
A-4c

分區計劃大綱圖編號S/ST/26
的現有用途地帶
EXISTING ZONINGS ON
PLAN No. S/ST/26

擬議修訂
PROPOSED AMENDMENT

N

GB
R(B)
G/IC
O
OU
V
C
C/R
R(A)
B
61
41
39
40
38
20
6
7
4
3
25
28
27
12
CDA(1)
SUI WO ROAD
排頭坑配水庫
Pai Tau Hang
Service Reservoir
下禾坪配水庫
Ha Wo Che
Service
Reservoir
萬佛寺
Ten Thousand
Buddhas Monastery
友愛村
Yau Oi Tsuen
美化市容地帶
AMENITY AREA
靈灰安置所
COLUMBARIUM
道風山基督教墳場
Tao Fong Shan
Christian Cemetery
墳場
CEMETERY
信義宗神學院
Lutheran
Theological Seminary
道風山基督教叢林
To Fung Shan
Christian Centre
道風山
To Fung Shan
排頭坑
Pai Tau Hang
寶福山
Po Fook Hill
康樂及文化事務署總部
Leisure and
Cultural Services
Headquarters
排頭
Pai Tau
沙田政府合署
Sha Tin
Government
Offices
上禾坪
Sheung Wo
沙田北配水庫
Sha Tin North
Service
Reservoir
曉翠山莊
Pristine Villa
田寮
Tin Liu
鐵路車站發展
RAILWAY
STATION
DEVELOPMENT
新城市廣場
New Town Plaza
荔枝園
Lai Chi Yuen
沙田
公共圖書館
Sha Tin
Public Library
沙田法院大樓
Shatin Law Courts
Building
銅鑼灣
Tung Lo Wan
美松苑
Mei Chung Court
美城苑
May Shing Court
美林邨
Mei Lam Estate
城門河道
SHA TIN RIVER CHANNEL
香港文化博物館
Hong Kong
Heritage
Museum
大圍
TAI WAI
大圍新村
Tai Wai
New
Village
金禧花園
Grandeur
Garden
車公廟站 CHE KUNG TEMPLE STATION
TSING SHA HIGHWAY
LION ROCK TUNNEL ROAD
TAI WAI ROAD
MEI TIN ROAD
EUNG FAN LIU STREET
SHA TIN RIVER
TUNNEL ROAD

本摘要圖於2012年8月23日擬備，
所根據的資料為分區計劃大綱圖編號
S/ST/26及S/ST/26A

EXTRACT PLAN PREPARED ON 23.8.2012
BASED ON OUTLINE ZONING PLANS No.
S/ST/26 & S/ST/26A

位置圖 - 修訂項目B
LOCATION PLAN - ITEM B

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂

PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

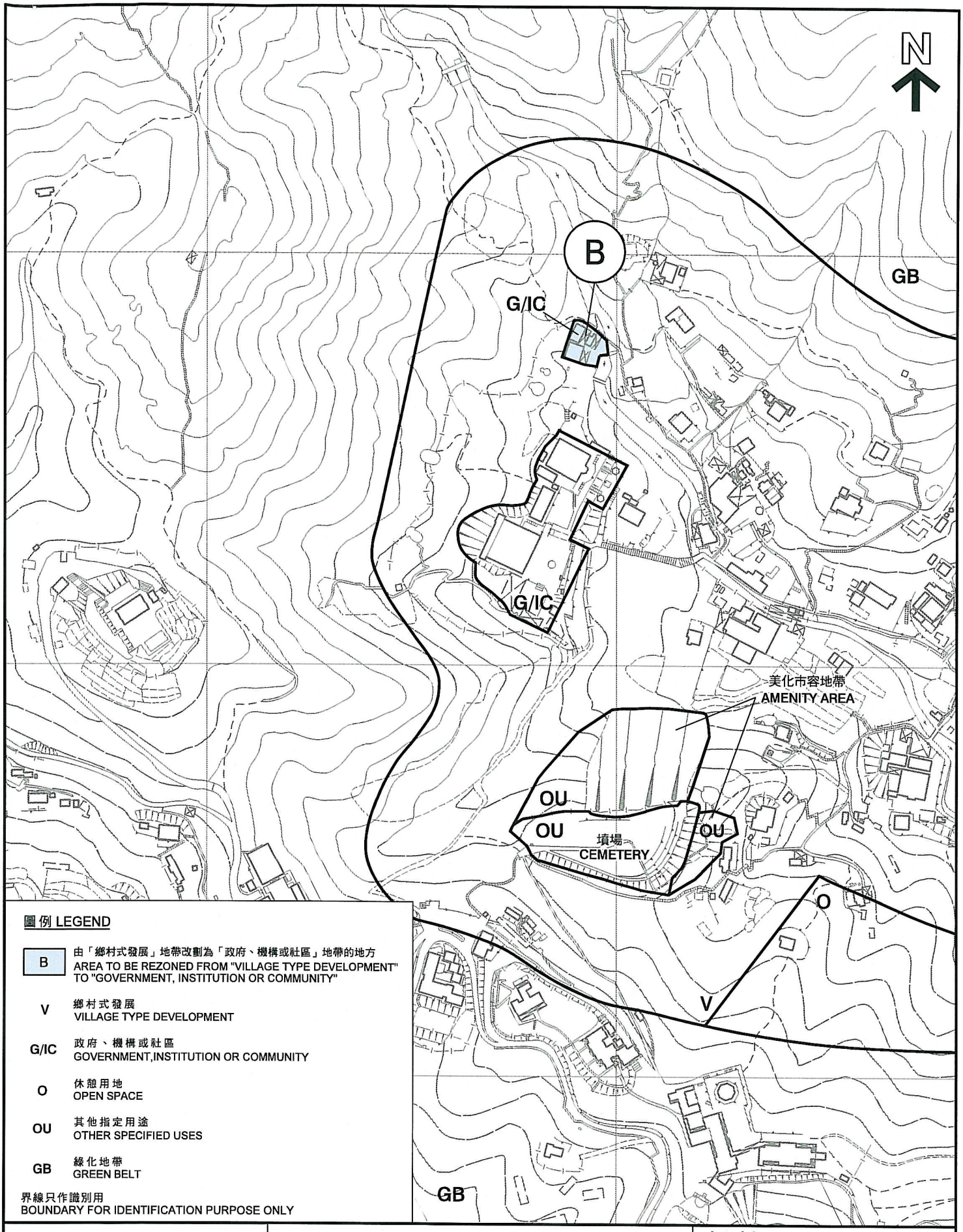
SCALE 1 : 10 000 比例尺

米 METRES 100 0 200 400 600 800 1 000 METRES 米

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
B-1



圖例 LEGEND

B	由「鄉村式發展」地帶改劃為「政府、機構或社區」地帶的地方 AREA TO BE REZONED FROM "VILLAGE TYPE DEVELOPMENT" TO "GOVERNMENT, INSTITUTION OR COMMUNITY"
V	鄉村式發展 VILLAGE TYPE DEVELOPMENT
G/IC	政府、機構或社區 GOVERNMENT,INSTITUTION OR COMMUNITY
O	休憩用地 OPEN SPACE
OU	其他指定用途 OTHER SPECIFIED USES
GB	綠化地帶 GREEN BELT

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2012年8月23日擬備，
所根據的資料為測量圖編號
7-SW-10C、10D、15A、15B、15C 及 15D
EXTRACT PLAN PREPARED ON 23.8.2012
BASED ON SURVEY SHEETS No.
7-SW-10C, 10D, 15A, 15B, 15C & 15D

平面圖 - 修訂項目B
SITE PLAN - ITEM B

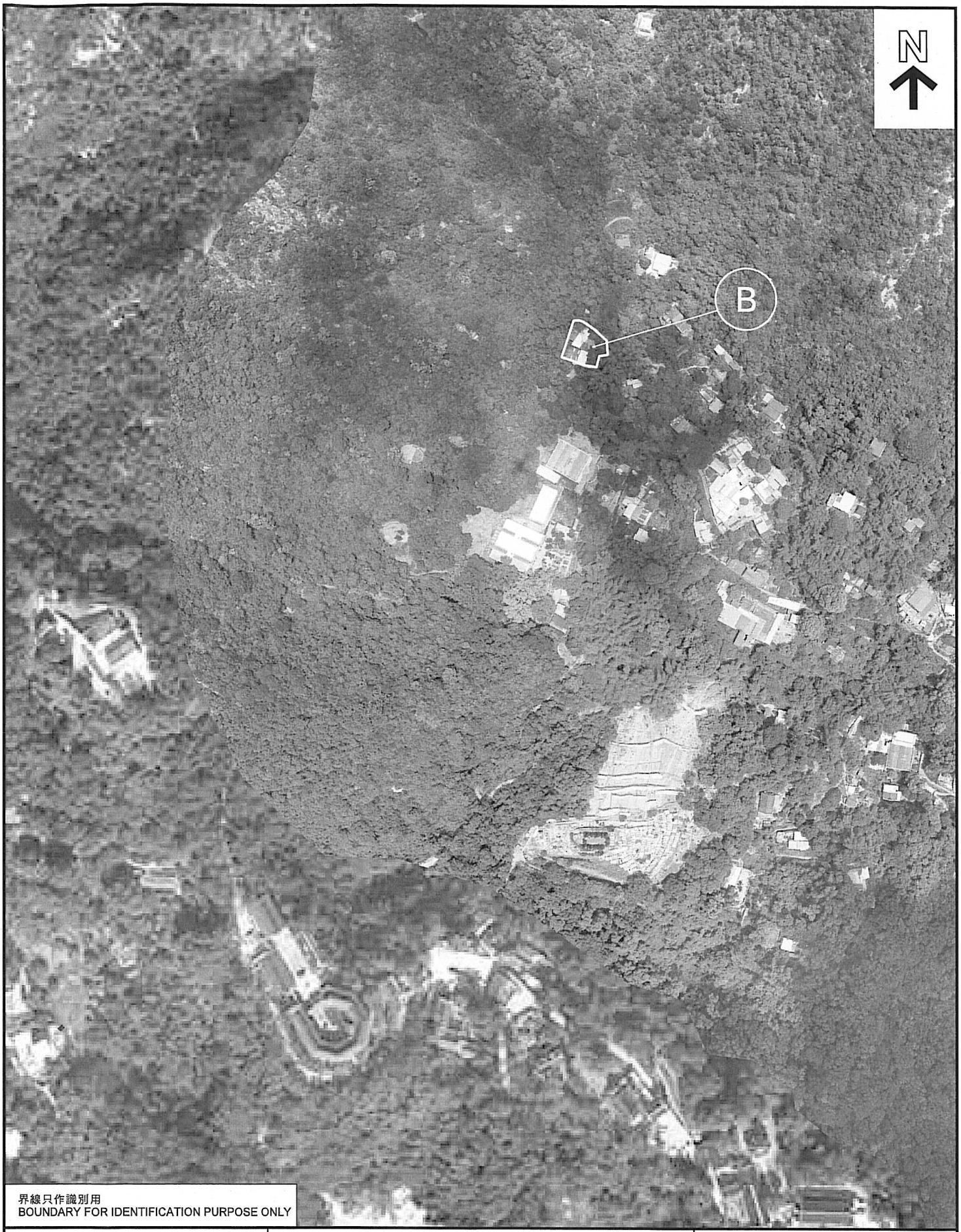
在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

米 METRES 50 0 50 米 100 METRES
SCALE 1 : 3 000 比例尺

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
B-2



界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2012年8月23日擬備，
所根據的資料為地政總署
於2011年8月5日拍得的航攝照片
編號CW90170
EXTRACT PLAN PREPARED ON 23.8.2012
BASED ON AERIAL PHOTO No.
CW90170 TAKEN ON 5.8.2011 BY
LANDS DEPARTMENT

航攝照片-修訂項目B
AERIAL PHOTO - ITEM B

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
B-3

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2012年8月22日擬備，所根據的資料為攝於2012年8月22日的實地照片
PLAN PREPARED ON 22.8.2012
BASED ON SITE PHOTOS TAKEN ON 22.8.2012

實地照片 - 修訂項目B
SITE PHOTO - ITEM B

在沙田分區計劃大綱核准圖編號S/ST/26
作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
B-4a

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2012年8月22日擬備，所根據的資料為攝於2012年8月22日的實地照片
PLAN PREPARED ON 22.8.2012
BASED ON SITE PHOTO TAKEN ON 22.8.2012

實地照片 - 修訂項目B
SITE PHOTO - ITEM B

在沙田分區計劃大綱核准圖編號S/ST/26
作出的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
B-4b

分區計劃大綱圖編號S/ST/26
的現有用途地帶
EXISTING ZONINGS ON
PLAN No. S/ST/26

擬議修訂
PROPOSED AMENDMENTS

N

沙田嶺
SHA TIN HEIGHTS

九廣鐵路
KOWLOON - CANTON RAILWAY

九廣鐵路(羅湖至金鐘)
KOWLOON - CANTON RAILWAY (LO WU TO ADMIRALTY)

九廣鐵路車廠綜合發展區
RAILWAY DEPOT COMPREHENSIVE DEVELOPMENT AREA

田下路
TIN PO ROAD

沙田坳道
SHA TIN HEIGHTS

顯徑邨
Hin Keng Estate

下徑口
Ha Keng Ha

顯田
Hin Tin

濾水廠
WATER TREATMENT WORKS

嘉田苑
Ka Tin Court

地龍口
TEI LUNG HAU

沙田南配水庫
Sha Tin South Service Reservoir

鷹巢山隧道
EAGLE'S NEST TUNNEL

獅子山隧道

筆架山
BEACON HILL

RK

C1

C2

C1

C1

R(B)
R(A)
R(C)2
R(C)1
R(B)1
G/IC
OU
OU (PFS)
GB
O
V

33
37
17
50
2
30
31
49
9
23

位置圖 - 修訂項目C1至C2
LOCATION PLAN - ITEMS C1 TO C2

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

SCALE 1 : 10 000 比例尺

米 METRES 100 0 200 400 600 800 1 000 METRES 米

本摘要圖於2012年8月23日擬備，
所根據的資料為分區計劃大綱圖編號
S/ST/26及S/ST/26A

EXTRACT PLAN PREPARED ON 23.8.2012
BASED ON OUTLINE ZONING PLANS No.
S/ST/26 & S/ST/26A

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
C-1

N

TAI PO ROAD - SHA TIN HEIGHTS

大埔公路 — 沙田嶺段

GB

原為青沙公路預留的「道路」土地
ORIGINAL 'ROAD' RESERVE
FOR TSING SHA HIGHWAY

沙田濾水廠
Sha Tin Treatment Works

濾水廠
WATER TREATMENT
WORKS

O

R(B)

GB

慶口路
KENG HAU ROAD

九廣鐵路 KOWLOON - CANTON RAILWAY

O

垂公廟路
CHE KUNG MIU ROAD

C1

C2

R(A)

OU

C1

C1

G/IC

沙田南配水庫
Shatin South
Service Reservoir

O

圖例 LEGEND

C1	由「休憩用地」地帶及「其他指定用途（九廣鐵路）」地帶改劃為「其他指定用途（濾水廠）」地帶 AREA TO BE REZONED FROM "OPEN SPACE" & "OTHER SPECIFIED USES(KOWLOON - CANTON RAILWAY)" TO "OTHER SPECIFIED USES(WATER TREATMENT WORKS)"
C2	由「其他指定用途（濾水廠）」地帶改劃為「其他指定用途（九廣鐵路）」地帶 AREA TO BE REZONED FROM "OTHER SPECIFIED USES(WATER TREATMENT WORKS)" TO "OTHER SPECIFIED USES(KOWLOON - CANTON RAILWAY)"
R(A)	住宅（甲類） RESIDENTIAL(GROUP A)
R(B)	住宅（乙類） RESIDENTIAL(GROUP B)
G/IC	政府、機構或社區 GOVERNMENT, INSTITUTION OR COMMUNITY
O	休憩用地 OPEN SPACE
OU	其他指定用途 OTHER SPECIFIED USES
GB	綠化地帶 GREEN BELT

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2012年8月23日擬備，
所根據的資料為測量圖編號
7-SW-24A、B、C及D
EXTRACT PLAN PREPARED ON 23.8.2012
BASED ON SURVEY SHEETS No.
7-SW-24A, B, C & D

平面圖 - 修訂項目C1至C2
SITE PLAN - ITEMS C1 TO C2

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

米 METRES 50 0 50 100 METRES 米
SCALE 1 : 3 000 比例尺

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
C-2

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2012年9月26日擬備，
所根據的資料為地政總署
於2011年8月5日拍得的航攝照片
編號CW90214
EXTRACT PLAN PREPARED ON 26.9.2012
BASED ON AERIAL PHOTO No. CW90214
TAKEN ON 5.8.2011 BY
LANDS DEPARTMENT

航攝照片 - 修訂項目C1至C2
AERIAL PHOTO - ITEMS C1 TO C2

在沙田分區計劃大綱核准圖編號S/ST/26作出的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED SHA TIN OUTLINE ZONING PLAN No. S/ST/26

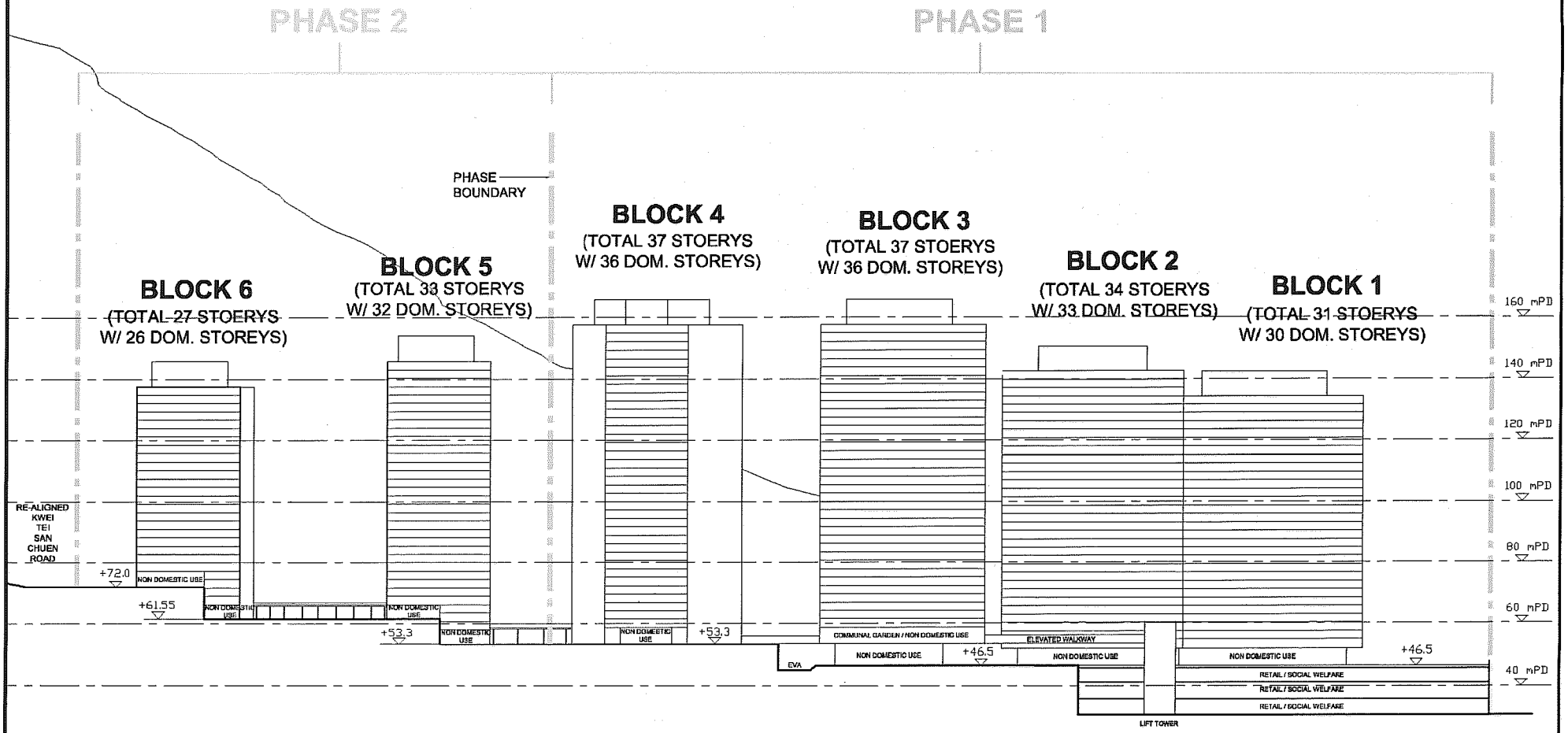
規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/ST/12/61

圖 PLAN
C-3

PUBLIC RENTAL HOUSING AT FO TAN (SHA TIN AREA16 & 58D) - SITE LAYOUT PLAN

參考編號 REFERENCE No.	M/ST/12/61	繪圖 DRAWING 1



NOTE NON DOMESTIC USE INCLUDES E&M PLANT ROOM, ESTATE MANAGEMENT OFFICE, KINDERGARTEN, AMENITY FACILITIES WHICH IS SUBJECT TO DETAIL DESIGN.

PUBLIC RENTAL HOUSING AT FO TAN (SHA TIN AREA 16 & 58D)

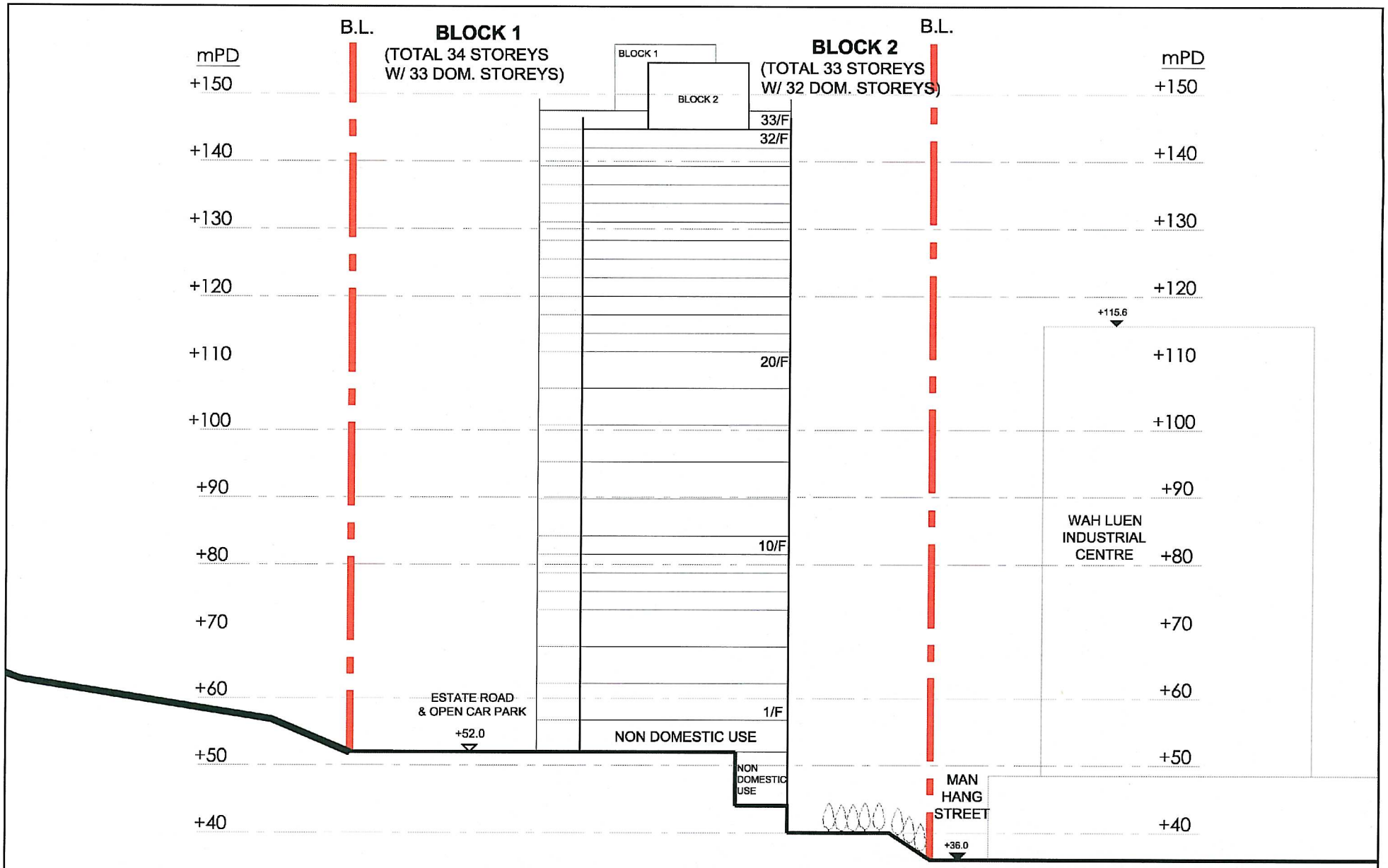
SCHEMATIC SECTION

參考編號 REFERENCE No.	M/ST/12/61	繪圖 DRAWING 2

參考編號 REFERENCE No.	M/ST/12/61	繪圖 DRAWING 3

NEW HOS DEVELOPMENT FO TAN (SHA TIN AREA 16) - SITE LAYOUT PLAN

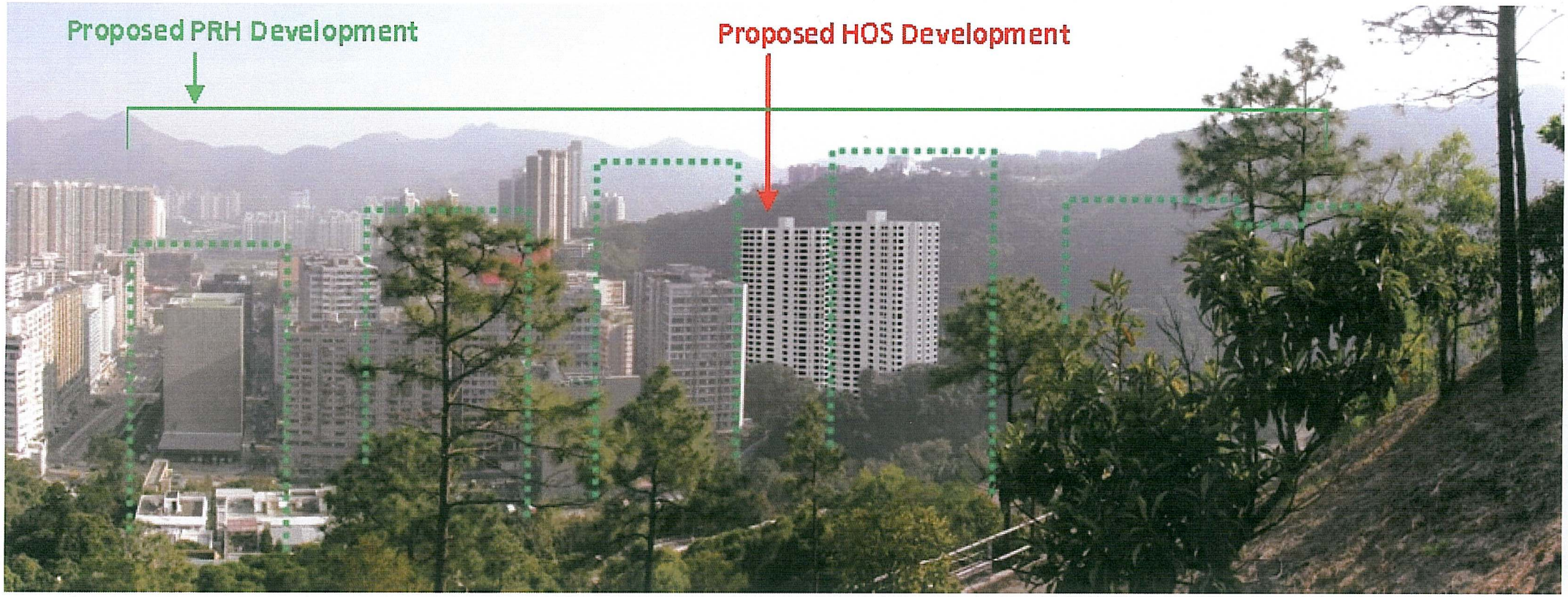
參考編號 REFERENCE No.	M/ST/12/61	繪圖 DRAWING 4



NOTE: NON DOMESTIC USE INCLUDES E&M PLANT ROOMS, OWNERS CORPORATION OFFICE, ESTATE MANAGEMENT OFFICE AND AMENITY FACILITIES, WHICH IS SUBJECT TO DETAIL DESIGN

HOS DEVELOPMENT OF WO SHEUNG TUN STREET SCHEMATIC SECTION

參考編號 REFERENCE No.	M/ST/12/61	繪圖 DRAWING 5



參考編號 REFERENCE No.	M/ST/12/61	繪圖 DRAWING 6

圖例
NOTATION

ZONES

		地帶
COMMERCIAL	C	商業
COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區
COMMERCIAL / RESIDENTIAL	C/R	商業 / 住宅
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
RESIDENTIAL (GROUP C)	R(C)	住宅（丙類）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
INDUSTRIAL	I	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休閒用地
OTHER SPECIFIED USES	OU	其他指定用途
GREEN BELT	GB	綠化地帶

COMMUNICATIONS 交通

RAILWAY AND STATION (ELEVATED)	鐵路及車站（高架）
MAJOR ROAD AND JUNCTION	主要道路及路口
ELEVATED ROAD	高架道路
RAILWAY RESERVE	鐵路專用範圍

MISCELLANEOUS 其他

BOUNDARY OF PLANNING SCHEME		規劃範圍界線
PLANNING AREA NUMBER	(18)	規劃區編號
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	280	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	8	最高建築物高度（層數數目）
PETROL FILLING STATION	P F S	加油站

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	0.69	0.24	商業
COMPREHENSIVE DEVELOPMENT AREA	17.21	0.62	綜合發展區
COMMERCIAL / RESIDENTIAL	14.55	0.52	商業 / 住宅
RESIDENTIAL (GROUP A)	242.47	8.73	住宅（甲類）
RESIDENTIAL (GROUP B)	193.39	6.96	住宅（乙類）
RESIDENTIAL (GROUP C)	0.95	0.03	住宅（丙類）
VILLAGE TYPE DEVELOPMENT	190.35	6.85	鄉村式發展
INDUSTRIAL	52.06	1.87	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	296.36	10.67	政府、機構或社區
OPEN SPACE	257.03	9.25	休閒用地
OTHER SPECIFIED USES	203.94	7.34	其他指定用途
GREEN BELT	985.29	35.48	綠化地帶
RIVER CHANNEL	97.69	3.53	河道
MAJOR ROAD ETC.	218.56	7.89	主要道路等
TOTAL PLANNING SCHEME AREA	2776.77	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN

行政長官會同行政會議於２０１２年３月１３日 根據城市規劃條例第９（１）（ａ）條核准的圖則
APPROVED BY THE CHIEF EXECUTIVE IN COUNCIL UNDER SECTION 9(1)(a) OF THE TOWN PLANNING ORDINANCE ON 13 MARCH 2012

Signed Ms Manda CHAN 陳詩曼女士 簽署
CLERK TO THE EXECUTIVE COUNCIL 行政會議秘書

香港城市規劃委員會依據城市規劃條例擬備的沙田分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
SHA TIN - OUTLINE ZONING PLAN

SCALE 1:10 000 比例尺

0 500 1 000 1 500 METRES 米
0 250 METRES

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號 PLAN No. S/ST/26

ANNEX A

ANNEX B

大埔滘自然護理區
TAI PO KAU NATURE RESERVE

城門郊野公園
SHING MUN COUNTRY PARK

沙田海
SHA TIN HOI
(TIDE COVE)

馬鞍山郊野公園
MA ON SHAN COUNTRY PARK

獅子山郊野公園
LION ROCK COUNTRY PARK

金山郊野公園
KAM SHAN COUNTRY PARK

九龍水塘
KOWLOON RESERVOIR

下城門水塘
LOWER SHING MUN RESERVOIR

沙田
SHA TIN

馬鞍山
MA ON SHAN

石門
SHEK MUN

大老山
TATE'S CAIRN
(TAI LO SHAN)

獅子山
LION ROCK

圖例
NOTATION

ZONES

COMMERCIAL	C
COMPREHENSIVE DEVELOPMENT AREA	CDA
COMMERCIAL / RESIDENTIAL	C/R
RESIDENTIAL (GROUP A)	R(A)
RESIDENTIAL (GROUP B)	R(B)
RESIDENTIAL (GROUP C)	R(C)
VILLAGE TYPE DEVELOPMENT	V
INDUSTRIAL	I
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC
OPEN SPACE	O
OTHER SPECIFIED USES	OU
GREEN BELT	GB

地帶

商業
綜合發展區
商業 / 住宅
住宅（甲類）
住宅（乙類）
住宅（丙類）
鄉村式發展
工業
政府、機構或社區
休憩用地
其他指定用途
綠化地帶

COMMUNICATIONS

RAILWAY AND STATION (ELEVATED)	車站 STATION
MAJOR ROAD AND JUNCTION	
ELEVATED ROAD	
RAILWAY RESERVE	RAILWAY RESERVE

交通

鐵路及車站（高架）
主要道路及路口
高架道路
鐵路專用範圍

MISCELLANEOUS

BOUNDARY OF PLANNING SCHEME	
PLANNING AREA NUMBER	(1)
BUILDING HEIGHT CONTROL ZONE BOUNDARY	
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	160
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	3
PETROL FILLING STATION	P F S

其他

規劃範圍界線
規劃區編號
建築物高度管制區界線
最高建築物高度（在主水平基準上若干米）
最高建築物高度（樓層數目）
加油站

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	6.60	0.24	商業
COMPREHENSIVE DEVELOPMENT AREA	17.21	0.62	綜合發展區
COMMERCIAL / RESIDENTIAL	14.55	0.52	商業 / 住宅
RESIDENTIAL (GROUP A)	247.44	8.91	住宅（甲類）
RESIDENTIAL (GROUP B)	193.39	6.96	住宅（乙類）
RESIDENTIAL (GROUP C)	0.95	0.03	住宅（丙類）
VILLAGE TYPE DEVELOPMENT	190.30	6.85	鄉村式發展
INDUSTRIAL	46.28	1.67	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	296.70	10.69	政府、機構或社區
OPEN SPACE	255.80	9.21	休憩用地
OTHER SPECIFIED USES	205.17	7.39	其他指定用途
GREEN BELT	984.93	35.47	綠化地帶
RIVER CHANNEL	97.57	3.51	河道
MAJOR ROAD ETC.	219.88	7.93	主要道路等
TOTAL PLANNING SCHEME AREA	2776.77	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分，
現經修訂並按照城市規劃條例第 5 條展示。
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN
AND HAVE BEEN AMENDED FOR EXHIBITION UNDER
SECTION 5 OF THE TOWN PLANNING ORDINANCE

核准圖編號 S/ST/26 的修訂
AMENDMENTS TO APPROVED PLAN No. S/ST/26

按照城市規劃條例第 5 條展示的修訂
AMENDMENTS EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

- 修訂項目 A 1 項 AMENDMENT ITEM A1
- 修訂項目 A 2 項 AMENDMENT ITEM A2
- 修訂項目 A 3 項 AMENDMENT ITEM A3
- 修訂項目 A 4 項 AMENDMENT ITEM A4
- 修訂項目 A 5 項 AMENDMENT ITEM A5
- 修訂項目 A 6 項 AMENDMENT ITEM A6
- 修訂項目 B 項 AMENDMENT ITEM B
- 修訂項目 C 1 項 AMENDMENT ITEM C1
- 修訂項目 C 2 項 AMENDMENT ITEM C2

（參看附表）
(SEE ATTACHED SCHEDULE)

香港城市規劃委員會依據城市規劃條例擬備的沙田分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
SHA TIN - OUTLINE ZONING PLAN

SCALE 1 : 10 000 比例尺

米 METRES 250 0 500 1 000 1 500 METRES 米

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER
THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號 PLAN No. S/ST/26A

Annex C

~~Approved~~ ***Draft*** Sha Tin Outline Zoning Plan No. S/ST/26*A*

Schedule of Uses

	Page
COMMERCIAL	1
COMPREHENSIVE DEVELOPMENT AREA	2
COMPREHENSIVE DEVELOPMENT AREA (1)	4
COMMERCIAL/RESIDENTIAL	7
RESIDENTIAL (GROUP A)	8
RESIDENTIAL (GROUP B)	11
RESIDENTIAL (GROUP C)	12
VILLAGE TYPE DEVELOPMENT	14
INDUSTRIAL	16
GOVERNMENT, INSTITUTION OR COMMUNITY	18
OPEN SPACE	20
OTHER SPECIFIED USES	21
GREEN BELT	32

COMMERCIAL

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Market Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project	Broadcasting, Television and/or Film Studio Flat Government Refuse Collection Point Hospital House Petrol Filling Station Residential Institution

Planning Intention

This zone is intended primarily for commercial developments, which may include shop, services, place of entertainment and eating place, functioning mainly as local shopping centre serving the immediate neighbourhood.

COMPREHENSIVE DEVELOPMENT AREA

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
	Flat Government Refuse Collection Point Government Use (not elsewhere specified) House Place of Recreation, Sports or Culture Private Club Public Utility Installation Social Welfare Facility Utility Installation for Private Project

Planning Intention

This zone is intended for comprehensive development/redevelopment of the area for residential use with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.

Remarks

(a) Pursuant to Section 4A(2) of the Town Planning Ordinance, and except as otherwise expressly provided that it is not required by the Town Planning Board, an applicant for permission for development on land designated "Comprehensive Development Area" shall prepare a Master Layout Plan for the approval of the Town Planning Board and include therein the following information:

(i) the area of the proposed land uses, the nature, position, dimension and heights of all buildings to be erected in the area;

(ii) the proposed total site area and gross floor area for various uses, total number of flats and flat size, where applicable;

(iii) the details and extent of Government, institution or community (GIC) and recreational facilities, public transport and parking facilities, and open space to be provided within the area;

(iv) the alignment, widths and levels of any roads proposed to be constructed within the area;

(v) the landscaping and urban design proposals within the area;

(vi) programmes of development in detail;

(vii) an environmental assessment report to examine any possible environmental problems that may be caused to or by the proposed development during and after construction and the proposed mitigation measures to tackle them;

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks (Cont'd)

(viii) a drainage and sewerage impact assessment report to examine any possible drainage and sewerage problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;

(ix) a traffic impact assessment report to examine any possible traffic problems that may be caused by the proposed development and the proposed mitigation measures to tackle them; and

(x) such other information as may be required by the Town Planning Board.

(b) The Master Layout Plan should be supported by an explanatory statement which contains an adequate explanation of the development proposal, including such information as land tenure, relevant lease conditions, existing conditions of the site, the character of the site in relation to the surrounding areas, principles of layout design, major development parameters, design population, types of GIC facilities, and recreational and open space facilities.

(c) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area of 52,156m^2.

(d) In determining the maximum gross floor area for the purposes of paragraph (c) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office, ***or*** ~~and~~ caretaker's quarters~~, or~~ ***and*** recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(e) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the gross floor area restriction stated in paragraph (c) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

COMPREHENSIVE DEVELOPMENT AREA (1)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
	Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Flat Government Refuse Collection Point Government Use (not elsewhere specified) Hotel House Library Market Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Railway Depot Railway Station Religious Institution Residential Institution School Shop and Services Social Welfare Facility Utility Installation for Private Project

Planning Intention

This zone is intended for comprehensive development/redevelopment of the area for residential and/or commercial uses with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (1) (Cont'd)

Remarks

(a) Pursuant to Section 4A(2) of the Town Planning Ordinance, and except as otherwise expressly provided that it is not required by the Town Planning Board, an applicant for permission for development on land designated "Comprehensive Development Area (1)" shall prepare a Master Layout Plan for the approval of the Town Planning Board and include therein the following information:

(i) the area of the proposed land uses, the nature, position, dimensions and heights of all buildings to be erected in the area;

(ii) the proposed total site area and gross floor area for various uses, total number of flats and flat size, where applicable;

(iii) the details and extent of Government, institution or community (GIC) and recreational facilities, public transport and parking facilities, and open space to be provided within the area;

(iv) the alignment, widths and levels of any roads proposed to be constructed within the area;

(v) the landscaping and urban design proposals within the area;

(vi) programmes of development in detail;

(vii) an environmental assessment report to examine any possible environmental problems that may be caused to or by the proposed development during and after construction and the proposed mitigation measures to tackle them;

(viii) a drainage and sewerage impact assessment report to examine any possible drainage and sewerage problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;

(ix) a traffic impact assessment report to examine any possible traffic problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;

(x) a visual impact assessment report to examine any possible visual impacts that may be caused by the proposed development and the proposed mitigation measures to tackle them; and

(xi) such other information as may be required by the Town Planning Board.

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (1) (Cont'd)

Remarks (Cont'd)

(b) The Master Layout Plan should be supported by an explanatory statement which contains an adequate explanation of the development proposal, including such information as land tenure, relevant lease conditions, existing conditions of the site, the character of the site in relation to the surrounding areas, principles of layout design, major development parameters, design population, types of GIC facilities, and recreational and open space facilities.

(c) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum gross floor area specified below:

Site	Maximum Gross Floor Area (GFA)
CDA(1) at East Rail Fo Tan Station and the Adjoining Area	208,600m² (the maximum domestic GFA shall not exceed 191,100m²)
CDA(1) at Ma On Shan Rail Tai Wai Station and the Adjoining Area	253,590m² (the maximum domestic GFA shall not exceed 219,090 m²)
CDA(1) at Ma On Shan Rail Che Kung Temple Station	90,655 m²

(d) In determining the maximum gross floor area for the purposes of paragraph (c) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office, ***or*** ~~and~~ caretaker's quarters~~, or~~ ***and*** recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded. Any floor space that is constructed or intended for use solely as public transport facilities, railway station, railway depot, schools or Government, institution, community or social welfare facilities, as required by the Government, may also be disregarded.

(e) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the gross floor area restriction stated in paragraph (c) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

COMMERCIAL/RESIDENTIAL

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Eating Place Educational Institution (in a commercial building or in the purpose-designed non-residential portion@ of an existing building only) Exhibition or Convention Hall Flat Government Use (not elsewhere specified) Hotel House Information Technology and Telecommunications Industries (in a commercial building or in the purpose-designed non-residential portion@ of an existing building only) Library Market Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Residential Institution School (in free-standing purpose-designed school building, in a commercial building or in the purpose-designed non-residential portion@ of an existing building only) Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project	Broadcasting, Television and/or Film Studio Commercial Bathhouse/ Massage Establishment Educational Institution (not elsewhere specified) Government Refuse Collection Point Hospital Institutional Use (not elsewhere specified) Petrol Filling Station Public Convenience Recyclable Collection Centre Religious Institution School (not elsewhere specified)

@ *Excluding floors containing wholly or mainly car parking, loading/unloading bay and/or plant room*

Planning Intention

This zone is intended primarily for commercial and/or residential development. Commercial, residential and mixed commercial/residential uses are always permitted.

RESIDENTIAL (GROUP A)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Flat Government Use (not elsewhere specified) House Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station (excluding open-air terminus or station) Residential Institution School (in free-standing purpose-designed building only) Social Welfare Facility Utility Installation for Private Project	Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point Hospital Hotel Institutional Use (not elsewhere specified) Office Petrol Filling Station Place of Entertainment Private Club Public Convenience Public Transport Terminus or Station (not elsewhere specified) Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution School (not elsewhere specified) Shop and Services Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room:	
Eating Place Educational Institution Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Private Club Public Convenience Recyclable Collection Centre School Shop and Services Training Centre	

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

Remarks

(a) On land designated "Residential (Group A)1" ("R(A)1"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 501,800m^2 and a maximum building height in terms of number of storeys or metres above Principal Datum as stipulated on the Plan, or the GFA and height of the existing building, whichever is the greater.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(b) ***On land designated "Residential (Group A)2" ("R(A)2"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 194,500m^2 and a maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the GFA and height of the existing building, whichever is the greater.***

(c) ***On land designated "Residential (Group A)3" ("R(A)3"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 43,600m^2 and a maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the GFA and height of the existing building, whichever is the greater.***

(d) In determining the maximum number of storeys for the purpose of paragraph (a) above, any basement floor(s) may be disregarded.

(e) In determining the maximum GFA for the purposes of paragraph*s* (a) ***to (c)*** above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office, ***or*** ~~and~~ caretaker's quarters~~, or~~ ***and*** recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(f) Where the permitted plot ratio/GFA as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio/GFA for the building on land to which paragraph*s* (a) ***to (c)*** above applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum GFA specified in paragraph*s* (a) ***to (c)*** above may thereby be exceeded.

(g) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height and/or GFA restrictions stated in paragraph*s* (a) ***to (c)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP B)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office Only) House Library Residential Institution School (in free-standing purpose-designed building only) Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) Market Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution School (not elsewhere specified) Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

Remarks

(a) On land designated "Residential (Group B) 1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 3.

(b) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office, ***or*** ~~and~~ caretaker's quarters~~, or~~ ***and*** recreational facilities for the use and benefit of all the owners and occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(c) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP C)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office Only) House Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) Library Petrol Filling Station Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Residential Institution School Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum plot ratio, site coverage and building height specified below, or the plot ratio, site coverage and height of the existing building, whichever is the greater: -

(Please see next page)

RESIDENTIAL (GROUP C) (Cont'd)

Remarks (Cont'd)

Sub-area	Maximum Plot Ratio	Maximum Site Coverage	Number of Storeys
R(C)1	0.6	25 %	--
R(C)2	1	50 %	2 storeys including carport
R(C)3	0.6	--	3 storeys over one-storey carport

(b) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office, ***or*** ~~and~~ caretaker's quarters~~, or~~ ***and*** recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(c) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/site coverage/building height restrictions stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

VILLAGE TYPE DEVELOPMENT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Government Use (Police Reporting Centre, Post Office only) House (New Territories Exempted House only) On-Farm Domestic Structure Religious Institution (Ancestral Hall only) Rural Committee/Village Office	Eating Place Flat Government Refuse Collection Point Government Use (not elsewhere specified) # House (not elsewhere specified) Institutional Use (not elsewhere specified) # Market Petrol Filling Station Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation # Public Vehicle Park (excluding container vehicle) Religious Institution (not elsewhere specified) # Residential Institution # School # Shop and Services Social Welfare Facility # Utility Installation for Private Project

In addition, the following uses are always permitted on the ground floor of a New Territories Exempted House :

Eating Place
Library
School
Shop and Services

Planning Intention

The planning intention of this zone is to designate both existing recognized villages and areas of land considered suitable for village expansion. Land within this zone is primarily intended for development of Small Houses by indigenous villagers. It is also intended to concentrate village type development within this zone for a more orderly development pattern, efficient use of land and provision of infrastructures and services. Selected commercial and community uses serving the needs of the villagers and in support of the village development are always permitted on the ground floor of a New Territories Exempted House. Other commercial, community and recreational uses may be permitted on application to the Town Planning Board.

(Please see next page)

VILLAGE TYPE DEVELOPMENT (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building (except development or redevelopment to those annotated with #) shall result in a total development and/or redevelopment in excess of a maximum building height of 3 storeys (8.23 m) or the height of the existing building, whichever is the greater.

(b) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

INDUSTRIAL

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Bus Depot Cargo Handling and Forwarding Facility (not elsewhere specified) Eating Place (Canteen, Cooked Food Centre only) Government Refuse Collection Point Government Use (not elsewhere specified) Industrial Use (not elsewhere specified) Information Technology and Telecommunications Industries Office (Audio-visual Recording Studio, Design and Media Production, Office Related to Industrial Use only) Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Recyclable Collection Centre Research, Design and Development Centre Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only) Utility Installation for Private Project Vehicle Repair Workshop Warehouse (excluding Dangerous Goods Godown)	Broadcasting, Television and/or Film Studio Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only) Concrete Batching Plant Dangerous Goods Godown Eating Place (not elsewhere specified) (in wholesale conversion of an existing building only) Educational Institution (in wholesale conversion of an existing building only) Exhibition or Convention Hall Hotel (on land designated "Industrial (1)" only) Industrial Use (Bleaching and Dyeing Factory, Electroplating/Printed Circuit Board Manufacture Factory, Metal Casting and Treatment Factory/Workshop only) Institutional Use (not elsewhere specified) (in wholesale conversion of an existing building only) Off-course Betting Centre Offensive Trades Office (not elsewhere specified) Petrol Filling Station Pier Place of Entertainment (in wholesale conversion of an existing building only) Place of Recreation, Sports or Culture Private Club Public Clinic (in wholesale conversion of an existing building only) Religious Institution (in wholesale conversion of an existing building only) Shop and Services (not elsewhere specified) (ground floor only, except in wholesale conversion of an existing building and Ancillary Showroom[#] which may be permitted on any floor) Training Centre (in wholesale conversion of an existing building only) Wholesale Trade

(Please see next page)

INDUSTRIAL (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application To the Town Planning Board
In addition, the following uses are always permitted in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:	In addition, the following use may be permitted with or without conditions on application to the Town Planning Board in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the use is separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:
Eating Place Educational Institution Exhibition or Convention Hall Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Religious Institution Shop and Services Training Centre	Social Welfare Facility (excluding those involving residential care)

Ancillary Showroom requiring planning permission refers to showroom use of greater than 20 % of the total usable floor area of an industrial firm in the same premises or building.

Planning Intention

This zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet demand from production-oriented industries. Information technology and telecommunications industries and office related to industrial use are also always permitted in this zone.

GOVERNMENT, INSTITUTION OR COMMUNITY

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot	Animal Boarding Establishment
Animal Quarantine Centre (in Government building only)	Animal Quarantine Centre (not elsewhere specified)
Broadcasting, Television and/or Film Studio	Columbarium
Cable Car Route and Terminal Building	Correctional Institution
Eating Place (Canteen, Cooked Food Centre only)	Crematorium
Educational Institution	Driving School
Exhibition or Convention Hall	Eating Place (not elsewhere specified)
Field Study/Education/Visitor Centre	Flat
Government Refuse Collection Point	Funeral Facility
Government Use (not elsewhere specified)	Helicopter Landing Pad
Hospital	Holiday Camp
Institutional Use (not elsewhere specified)	Hotel
Library	House
Market	Marine Fuelling Station
Pier	Off-course Betting Centre
Place of Recreation, Sports or Culture	Office
Public Clinic	Petrol Filling Station
Public Convenience	Place of Entertainment
Public Transport Terminus or Station	Private Club
Public Utility Installation	Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Public Vehicle Park (excluding container vehicle)	Refuse Disposal Installation (Refuse Transfer Station only)
Recyclable Collection Centre	Residential Institution
Religious Institution	Sewage Treatment/Screening Plant
Research, Design and Development Centre	Shop and Services
Rural Committee/Village Office	Utility Installation for Private Project
School	Zoo
Service Reservoir	
Social Welfare Facility	
Training Centre	
Wholesale Trade	

Planning Intention

This zone is intended primarily for the provision of Government, institution or community facilities serving the needs of local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments.

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(b) In determining the maximum number of storeys for the purposes of paragraph (a) above, any basement floor(s) may be disregarded.

(c) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

OPEN SPACE

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Aviary Barbecue Spot Field Study/Education/Visitor Centre Park and Garden Pavilion Pedestrian Area Picnic Area Playground/Playing Field Promenade Public Convenience Sitting Out Area Zoo	Cable Car Route and Terminal Building Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp Pier Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution Service Reservoir Shop and Services Tent Camping Ground Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

OTHER SPECIFIED USES

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Railway Station Development" Only

Ambulance Depot
Commercial Bathhouse/Massage Establishment
Eating Place
Exhibition or Convention Hall
Government Use (not elsewhere specified)
Hotel
Library
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Clinic
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Railway Station
Recyclable Collection Centre
School
Shop and Services (not elsewhere specified)
Utility Installation for Private Project

Broadcasting, Television and/or Film Studio
Flat
Government Refuse Collection Point
Petrol Filling Station
Place of Recreation, Sports or Culture
Religious Institution
Shop and Services (Motor-vehicle Showroom only)

Planning Intention

This zone is intended primarily to cater for the development of railway station with commercial facilities.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Railway Depot Comprehensive Development Area" Only

Ambulance Depot
Commercial Bathhouse/Massage Establishment
Eating Place (not elsewhere specified)
Exhibition or Convention Hall
Flat
Government Use (not elsewhere specified)
Library
Market (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Place of Recreation, Sports or Culture
Private Club
Public Clinic
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park
(excluding container vehicle)
Railway Depot
Religious Institution
Residential Institution
School
Shop and Services (not elsewhere specified)
Social Welfare Facility
Utility Installation for Private Project

Broadcasting, Television and/or Film Studio
Eating Place (Cooked Food Centre only)
Educational Institution
Government Refuse Collection Point
Industrial Use (Printing, Publishing and Allied Industries only)
Market (Hawker Centre only)
Petrol Filling Station
Recyclable Collection Centre
Shop and Services (Motor-vehicle Showroom only)

Planning Intention

This zone is intended primarily to cater for the development of the railway depot with commercial/residential uses above.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Refuse Transfer Station" Only

Government Use Refuse Disposal Installation (Refuse Transfer Station only)	Industrial Use

Planning Intention

This zone is intended primarily to provide land for the development of a refuse transfer station.

For "Kowloon-Canton Railway" Only

Railway Track Railway Station	Eating Place Government Use Private Club Public Utility Installation Shop and Services (excluding Motor-vehicle Showroom) Utility Installation for Private Project

Planning Intention

This zone is intended primarily to cater for the Kowloon-Canton Railway and the associated facilities.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Business" Only

Schedule I: for open-air development or for building other than industrial or industrial-office building[@]

Ambulance Depot
Commercial Bathhouse/Massage Establishment
Eating Place
Educational Institution
Exhibition or Convention Hall
Government Use (Police Reporting Centre, Post Office only)
Information Technology and Telecommunications Industries
Institutional Use (not elsewhere specified)
Library
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[Δ])
Off-course Betting Centre
Office
Place of Entertainment
Place of Recreation, Sports or Culture
Private Club
Public Clinic
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Religious Institution
Research, Design and Development Centre
School (excluding free-standing purpose-designed building and kindergarten)
Shop and Services
Training Centre
Utility Installation for Private Project

Broadcasting, Television and/or Film Studio
Cargo Handling and Forwarding Facility
Government Refuse Collection Point
Government Use (not elsewhere specified)
Hotel
Non-polluting Industrial Use (not elsewhere specified)
Petrol Filling Station
School (not elsewhere specified)
Social Welfare Facility (excluding those involving residential care)
Warehouse (excluding Dangerous Goods Godown)
Wholesale Trade

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Business" Only (Cont'd)

Schedule II: for industrial or industrial-office building [@]

Ambulance Depot
Cargo Handling and Forwarding Facility (not elsewhere specified)
Eating Place (Canteen only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[Δ])
Office (excluding those involving direct provision of customer services or goods)
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Research, Design and Development Centre
Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only)
Utility Installation for Private Project
Warehouse (excluding Dangerous Goods Godown)

Broadcasting, Television and/or Film Studio
Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only)
Industrial Use (not elsewhere specified)
Off-course Betting Centre
Office (not elsewhere specified)
Petrol Filling Station
Place of Recreation, Sports or Culture
Private Club
Shop and Services (not elsewhere specified) (ground floor only except Ancillary Showroom[#] which may be permitted on any floor)
Vehicle Repair Workshop
Wholesale Trade

In addition, for building without industrial undertakings involving offensive trades or the use/storage of Dangerous Goods[Δ], the following use is always permitted :

Office

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Business" Only (Cont'd)	
In addition, the following uses are always permitted in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:	In addition, the following use may be permitted with or without conditions on application to the Town Planning Board in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the use is separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:
Commercial Bathhouse/Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Religious Institution School (excluding kindergarten) Shop and Services Training Centre	Social Welfare Facility (excluding those involving residential care)

@ *An industrial or industrial-office building means a building which is constructed for or intended to be used by industrial or industrial-office purpose as approved by the Building Authority.*

Δ *Dangerous Goods refer to substances classified as Dangerous Goods and requiring a licence for their use/storage under the Dangerous Goods Ordinance (Cap. 295).*

\# *Ancillary Showroom requiring planning permission refers to showroom use of greater than 20% of the total usable floor area of an industrial firm in the same premises or building.*

Planning Intention

This zone is intended primarily for general business uses. A mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new "business" buildings. Less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public is always permitted in existing industrial or industrial-office buildings.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Business (1)" Only

Schedule I: for open-air development or for building other than industrial or industrial-office building[@]

Ambulance Depot
Commercial Bathhouse/Massage Establishment
Eating Place
Government Use (Police Reporting Centre, Post Office only)
Information Technology and Telecommunications Industries
Institutional Use (not elsewhere specified)
Library
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[Δ])
Off-course Betting Centre
Office
Place of Entertainment
Place of Recreation, Sports or Culture
Private Club
Public Clinic
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Religious Institution
Research, Design and Development Centre
Shop and Services (not elsewhere specified)
Training Centre
Utility Installation for Private Project

Broadcasting, Television and/or Film Studio
Cargo Handling and Forwarding Facility
Educational Institution
Exhibition or Convention Hall
Government Refuse Collection Point
Government Use (not elsewhere specified)
Hotel
Non-polluting Industrial Use (not elsewhere specified)
Petrol Filling Station
School
Shop and Services (Retail Shop only)
Social Welfare Facility (excluding those involving residential care)
Warehouse (excluding Dangerous Goods Godown)
Wholesale Trade

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Business (1)" Only (Cont'd)

Schedule II: for industrial or industrial-office building [@]

Ambulance Depot
Cargo Handling and Forwarding Facility (not elsewhere specified)
Eating Place (Canteen only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[Δ])
Office (excluding those involving direct provision of customer services or goods)
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Research, Design and Development Centre
Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only)
Utility Installation for Private Project
Warehouse (excluding Dangerous Goods Godown)

In addition, for building without industrial undertakings involving offensive trades or the use/storage of Dangerous Goods[Δ], the following use is always permitted :

Office

Broadcasting, Television and/or Film Studio
Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only)
Industrial Use (not elsewhere specified)
Off-course Betting Centre
Office (not elsewhere specified)
Petrol Filling Station
Place of Recreation, Sports or Culture
Private Club
Shop and Services (not elsewhere specified) (ground floor only except Ancillary Showroom[#] which may be permitted on any floor)
Vehicle Repair Workshop
Wholesale Trade

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Business (1)" Only (Cont'd)	
In addition, the following uses are always permitted in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:	In addition, the following uses may be permitted with or without conditions on application to the Town Planning Board in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:
Commercial Bathhouse/Massage Establishment Eating Place Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Private Club Public Clinic Religious Institution Shop and Services (not elsewhere specified) Training Centre	Educational Institution Exhibition or Convention Hall Place of Recreation, Sports or Culture School (excluding kindergarten) Shop and Services (Retail Shop only) Social Welfare Facility (excluding those involving residential care)

@ *An industrial or industrial-office building means a building which is constructed for or intended to be used by industrial or industrial-office purpose as approved by the Building Authority.*

Δ *Dangerous Goods refer to substances classified as Dangerous Goods and requiring a licence for their use/storage under the Dangerous Goods Ordinance (Cap. 295).*

\# *Ancillary Showroom requiring planning permission refers to showroom use of greater than 20% of the total usable floor area of an industrial firm in the same premises or building.*

Planning Intention

This zone is intended primarily for general business uses. A mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new "business" buildings. Less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public is always permitted in existing industrial or industrial-office buildings. However, uses such as educational institution, exhibition or convention hall, place of recreation, sports or culture, retail shop and school which will likely attract high concentration of population require planning permission from the Town Planning Board.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Cemetery" Only

Columbarium (Garden of Remembrance only) Government Use Grave (not elsewhere specified) Public Convenience	Columbarium (not elsewhere specified) Grave (Ossuarium only) Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily for land intended for cemetery use.

For "Amenity Area" Only

Amenity Area	Government Use (not elsewhere specified) Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of amenity area.

For "Waterfront Amenity Area" Only

Public Convenience Waterfront Amenity Area	Government Use (not elsewhere specified) Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of waterfront amenity area.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Columbarium" Only

Columbarium	Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily for land intended for columbarium use.

Remarks

(a) On land designated "Other Specified Uses" annotated "Columbarium",

(i) no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area of 4,149m^2 and a maximum site coverage of 37.5%; and

(ii) no new development or addition, alteration and/or modification to an existing building, other than redevelopment of an existing building, shall exceed a maximum building height of 14.5m. An existing building is allowed to be redeveloped to the same height of the building provided the existing gross floor area of the building is not exceeded.

(b) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the gross floor area/site coverage/building height restrictions stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

For All Other Sites (Not Listed Above)

As Specified on the Plan	Government Use (not elsewhere specified) Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily to provide/reserve land for specific purposes and uses.

GREEN BELT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Barbecue Spot Government Use (Police Reporting Centre only) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Public Convenience Tent Camping Ground Wild Animals Protection Area	Animal Boarding Establishment Broadcasting, Television and/or Film Studio Burial Ground Cable Car Route and Terminal Building Columbarium (within a Religious Institution or extension of existing Columbarium only) Crematorium (within a Religious Institution or extension of existing Crematorium only) Field Study/Education/Visitor Centre Flat Government Refuse Collection Point Government Use (not elsewhere specified) Grave Helicopter Landing Pad Holiday Camp House Marine Fuelling Station Petrol Filling Station Pier Place of Recreation, Sports or Culture Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Religious Institution Residential Institution School Service Reservoir Social Welfare Facility Utility Installation for Private Project Zoo

Planning Intention

The planning intention of this zone is primarily for defining the limits of urban and sub-urban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlets. There is a general presumption against development within this zone.

Annex D

~~APPROVED~~ ***DRAFT*** SHA TIN OUTLINE ZONING PLAN NO. S/ST/26***A***

EXPLANATORY STATEMENT

~~Approved~~ *Draft* Sha Tin Outline Zoning Plan No. S/ST/26*A*

Explanatory Statement

CONTENTS

		Page
1.	INTRODUCTION	1
2.	AUTHORITY FOR THE PLAN AND PROCEDURE	1
3.	OBJECT OF THE PLAN	~~2~~*3*
4.	NOTES OF THE PLAN	3
5.	THE PLANNING SCHEME AREA	3
6.	POPULATION	4
7.	LAND-USE ZONINGS	
	7.1 Commercial	4
	7.2 Comprehensive Development Area	4
	7.3 Commercial/Residential	~~5~~*6*
	7.4 Residential (Group A)	6
	7.5 Residential (Group B)	~~7~~*8*
	7.6 Residential (Group C)	~~7~~*8*
	7.7 Village Type Development	8
	7.8 Industrial	~~8~~*9*
	7.9 Government, Institution or Community	~~8~~*9*
	7.10 Open Space	~~9~~*10*
	7.11 Other Specified Uses	~~10~~*11*
	7.12 Green Belt	~~11~~*12*
8.	COMMUNICATIONS	~~11~~*12*
9.	UTILITY SERVICES	13
10.	CULTURAL HERITAGE	~~13~~*14*
11.	IMPLEMENTATION	~~14~~*15*

~~APPROVED~~ *DRAFT* SHA TIN OUTLINE ZONING PLAN NO. S/ST/26*A*

(Being ~~an Approved~~ ***a Draft*** Plan for the Purposes of the Town Planning Ordinance)

EXPLANATORY STATEMENT

Note : For the purposes of the Town Planning Ordinance, this statement shall not be deemed to constitute a part of the Plan.

1. INTRODUCTION

This Explanatory Statement is intended to assist an understanding of the ~~approved~~ ***draft*** Sha Tin Outline Zoning Plan (OZP) No. S/ST/26*A*. It reflects the planning intention and objectives of the Town Planning Board (the Board) for various land-use zonings of the plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURE

2.1 On 15 April 1966, the draft Sha Tin OZP No. LST/47 was exhibited for public inspection under section 5 of the Town Planning Ordinance (the Ordinance). On 13 June 1967, the then Governor-in-Council (G in C), under section 8(1) of the Ordinance, approved the draft Sha Tin OZP No. LST/47. On 10 July 1973, the then G in C referred the approved OZP No. LST/47 to the Board for replacement under section 12 of the Ordinance. The OZP was subsequently amended seven times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.2 On 5 July 1988, the then G in C, under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently renumbered as S/ST/4. On 25 June 1991, the then G in C referred the approved OZP No. S/ST/4 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. It was then amended five times and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.

2.3 On 9 December 1997, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently renumbered as S/ST/10. On 21 July 1998, the CE in C referred the approved Sha Tin OZP No. S/ST/10 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The OZP was subsequently amended and exhibited for public inspection under section 5 of the Ordinance.

2.4 On 11 May 1999, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently renumbered as S/ST/12. On 20 July 1999, the CE in C referred the approved OZP No. S/ST/12 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. It was amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance to incorporate the adjustment of planning scheme boundary and to reflect the changing circumstances.

2.5 On 25 September 2001, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently renumbered as S/ST/15. On 27 November 2001, the CE in C referred the approved Sha Tin OZP No. S/ST/15 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. It was then amended four times, including the extension of planning scheme boundary to include an area to be reclaimed on the western side of Sha Tin Hoi (Tide Cove), and was exhibited under section 5 or 7 of the Ordinance.

2.6 On 8 June 2004, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently renumbered as S/ST/20. On 13 September 2005, the CE in C referred the approved Sha Tin OZP No. S/ST/20 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. It was then amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.

2.7 On 5 June 2007, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently renumbered as S/ST/23. On 6 July 2010, the CE in C referred the approved Sha Tin OZP No. S/ST/23 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. ~~The reference back of the OZP was notified in the Gazette on 17 September 2010 under section 12(2) of the Ordinance.~~ ***It was then amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.***

~~2.8 On 11 February 2011, the draft Sha Tin OZP No. S/ST/24, incorporating amendments to rezone the areas at Shui Chuen O in Area 52 to facilitate a public housing development and to reflect as-built public roads was exhibited for public inspection under section 5 of the Ordinance. A total of 36 valid representations were received during the two-month exhibition period and no comment was received during the three-week representation publication period. On 30 September 2011, the Board decided not to uphold the representations.~~

~~2.9 On 30 June 2011, the draft Sha Tin OZP No. S/ST/25, incorporating amendments to the Notes of the "Industrial" zone, was exhibited for public inspection under section 7 of the Ordinance. No valid representation was received during the two-month exhibition period.~~

~~2.10~~***2.8*** On 13 March 2012, the CE in C under section 9(1)(a) of the Ordinance, approved the draft Sha Tin OZP, which was subsequently re-numbered as S/ST/26. ~~On 23 March 2012, the approved Sha Tin OZP No. S/ST/26 (the Plan) was exhibited for public inspection under section 9(5) of the Ordinance.~~ ***On 5 June 2012, the CE in C referred the approved Sha Tin OZP No. S/ST/26 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 15 June 2012 under section 12(2) of the Ordinance.***

2.9 On __ October 2012, the draft Sha Tin OZP No. S/TP/26A (the Plan) (to be re-numbered as S/ST/27 upon gazetting), incorporating amendments to rezone two sites in Areas 16 and 58D to "Residential (Group A)2" and "Residential (Group A)3" to facilitate public rental housing and home

ownership scheme developments, and amendments to reflect the as-built situation and minor boundary adjustments, was exhibited for public inspection under section 5 of the Ordinance.

3. OBJECT OF THE PLAN

3.1 The object of the Plan is to indicate the broad land-use zones and major road networks for Sha Tin so that development and redevelopment within Sha Tin can be put under statutory planning control. It also provides the planning framework for preparing more detailed non-statutory plans which form the basis for public works planning and site reservation for various uses.

3.2 The Plan is to illustrate the broad principles of development and planning control only. It is a small-scale plan and the road alignments and boundaries between the land-use zones may be subject to minor alterations as detailed planning proceeds.

3.3 Since the Plan is to show broad land use zonings, there would be situations in which small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted as non-building area or for garden, slope maintenance and access road purposes, are included in the residential zones. The general principle is that such areas should not be taken into account in plot ratio and site coverage calculation. Development within residential zones should be restricted to building lots carrying development right in order to maintain the character and amenity of the Sha Tin area and not to overload the road network in this area.

3.4 Also, there would be cases that areas occupied by free-standing purpose-designed buildings that are solely accommodating schools or other Government, institution or community facilities, including those located on ground and on podium level, are included in the residential zones. Such areas should not be included into the plot ratio and site coverage calculations.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Area and in particular zones and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land-use planning and control of development to meet changing needs.

4.2 For the guidance of the general public, a set of definitions that explains some of the terms used in the Notes may be obtained from the Technical Services Division of the Planning Department and can be downloaded from the Board's website at http://www.info.gov.hk/tpb.

5. THE PLANNING SCHEME AREA

5.1 The Planning Scheme Area (the Area) covered by the Plan is about 2,777 hectares. Its inner core lies at the bottom of the Sha Tin Valley which is separated from Kowloon by a range of hills, dominated by Lion Rock (495m

above sea level) and Sugar Loaf Peak (372m above sea level). These hills form a natural barrier to the expansion of the Sha Tin New Town towards the south and south-east. Ma On Shan, the extension to Sha Tin New Town, lies to the north-east of the Area.

5.2 Sha Tin Hoi (Tide Cove) used to be a wide and relatively shallow estuary. It has been extensively reclaimed and the reclamation has formed the southern extremity of Tolo Harbour. Lek Yuen and Wo Che Estates and the race course are situated on reclaimed land. Large pieces of land near Siu Lek Yuen, Ngau Pei Sha and Ma Liu Shui have also been reclaimed from the Tide Cove.

5.3 The boundary of the Area is shown by a heavy broken line on the Plan. For planning and reference purposes, the Area is sub-divided into a number of smaller planning areas as shown on the Plan.

6. POPULATION

According to the 2006 By-census, the population of the Area was about 424,600 persons, comprising 238,900 in public housing (including Home Ownership Schemes (HOS) and Private Sector Participation Schemes (PSPS)) and 185,700 in private housing including village type developments. It is estimated that the total planned population would be about 507,500 persons.

7. LAND-USE ZONINGS

7.1 Commercial ("C") : Total Area 6.60 ha

7.1.1 This zone is intended for commercial developments, which may include shop, services, place of entertainment and eating place, functioning mainly as local shopping centre serving the immediate neighbourhood.

7.1.2 This zone covers the major part of Planning Area 20 and parts of Planning Areas 5, 11, 14 and 16. Planning Area 20 is in close proximity to the East Rail Sha Tin Station and forms an extension to the town centre. The site abutting Tai Chung Kiu Road in Planning Area 5 has been developed into a hotel. The site in Planning Area 11 was disposed of in April 1997 to provide commercial and office accommodation to serve the industrial area in Shek Mun. The site in the northern corner of Planning Area 14 has been developed into a permanent concrete 'boat-like' restaurant. The site in the Yuen Chau Kok Industrial Area in Planning Area 14 has been developed into a commercial/office building to serve the adjacent industrial and residential developments. It also serves as a buffer between industrial developments in the Yuen Chau Kok Industrial Area and the adjoining residential developments. The site in Planning Area 16 has also been developed to a commercial/office building to serve the Fo Tan Industrial Area.

7.2 Comprehensive Development Area ("CDA") : Total Area 17.21 ha

7.2.1 This zone is intended for comprehensive development/redevelopment

of the "CDA" area for residential use, and the "CDA(1)" area for commercial and/or residential uses, both with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.

7.2.2 This zoning comprises the following four sites :

(i) "CDA" site at Heung Fan Liu : Total Area 4.55 ha

Development within this "CDA" site is restricted to a maximum gross floor area (GFA) of 52,156m^2. Residential development with landscape areas is restricted to the southern part of the site. The northern part of the site, which is covered by rich vegetation, should be preserved. Upon completion, about 820 flats will be provided.

(ii) "CDA(1)" site at East Rail Fo Tan Station and its Adjoining Area : Total Area 5.13 ha

Development within this "CDA(1)" site is restricted to a maximum GFA of 208,600m^2. The domestic GFA shall not exceed 191,100m^2. One primary school ~~and one secondary school~~ will be provided in the development. Upon completion, about 2,800 flats will be provided.

(iii) "CDA(1)" site at the Ma On Shan Line Tai Wai Station and its Adjoining Area : Total Area 5.48 ha

Development within this "CDA(1)" site is restricted to a maximum GFA of 253,590 m^2. The domestic GFA shall not exceed 219,090 m^2. A post-secondary college will be provided in the development. Upon completion, about 2,900 flats will be provided. The proposed developments at this "CDA(1)" site and the Tai Wai Maintenance Centre site should be planned comprehensively to ensure a coherent and integrated development at both sites, which would be compatible with the existing and planned developments in the area.

(iv) "CDA(1)" site at the Ma On Shan Line Che Kung Temple Station : Total Area 2.05 ha

Development within this "CDA(1)" site is restricted to a maximum GFA of 90,655m^2. Upon completion, about 981 flats will be provided.

7.2.3 Pursuant to section 4A(2) of the Ordinance, and except as otherwise expressly provided that it is not required by the Board, an applicant for permission for development on land designated "CDA" shall prepare a Master Layout Plan for the approval of the Board. The Master Layout Plan should be supported by an explanatory statement which contains

an adequate explanation of the development proposal, including such information as land tenure, relevant lease conditions, existing conditions of the site, the character of the site in relation to the surrounding areas, principles of layout design, major development parameters, design population, types of Government, institution or community (GIC) facilities, and recreational and open space facilities.

7.3 Commercial/Residential ("C/R") : Total Area 14.55 ha

7.3.1 This zone is intended primarily for commercial and/or residential development. Commercial, residential and mixed commercial/ residential uses are always permitted.

7.3.2 There is only one site zoned for this purpose. It is the existing town centre in Planning Area 7 which provides the main commercial, cultural, social, civic and Government facilities for the Area. The town centre is centrally located between the existing East Rail Sha Tin Station and Shing Mun River. It is at the heart of the road and pedestrian networks of the Area. New Town Plaza, a major development at the site, provides residential accommodation together with retail space, a hotel and an office block.

7.4 Residential (Group A) ("R(A)") : Total Area ~~242.47 ha~~ ***247.44 ha***

7.4.1 This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

7.4.2 There are fourteen existing public rental housing estates, eleven HOS, three PSPS and one Sandwich Class Housing in the Area. A planned public housing development in the Area is at Planning Area 52 (Shui Chuen O). Within public housing estates, there are a wide range of low-rise free-standing GIC facilities including schools, community halls, children and youth centres, elderly centres, social and welfare centres as well as ancillary facility buildings such as car parks, shopping centres and markets serving the residents of the concerned estates. Such low-rise free-standing GIC and ancillary facility buildings should be kept as breathing spaces and visual relief for the building mass. No new addition, alteration and/or modification to or redevelopment of these existing individual free-standing GIC and ancillary facility buildings shall result in a height exceeding that of the existing building. All public housing estates are governed by planning brief. Upon the future redevelopment of the estates, the layout and design of these GIC and ancillary facility buildings should be comprehensively reviewed with the support of relevant impact assessments on air ventilation and visual aspects.

7.4.3 This zoning includes ~~one~~ ***three*** sub-area***s*** which ~~is~~ ***are*** subject to the following development restrictions:

"Residential (Group A)1" ("R(A)1"): Total Area 12.45 ha

(a) The planned public housing development at Planning Area 52 (Shui Chuen O) is under this zoning. Development/redevelopment within this zoning is subject to restrictions on the maximum total gross floor area of 501,800m^2 and building height restriction as shown on the Plan, or the GFA and height of existing building, whichever is the greater. ~~The restrictions are necessary for the purposes of preserving the general amenity of the area as well as to ensure that the development intensity will be compatible with the adjacent developments and will not overtax the infrastructural provision in the area.~~ The building height restrictions stipulated on the Plan are the maximum permitted height. Staggered building heights with a maximum of 30 domestic storeys and general building heights ranging from 25 to 28 domestic storeys should be adopted to create a stepped height profile against the hilly terrain. Maximum building heights of 2 to 4 storeys are stipulated along two view corridors where only low-rise structures are permitted.

(b) The building height restrictions in terms of number of storeys are applicable to buildings above the ground level. Any basement floors may be disregarded. ~~Minor relaxation of the GFA and building height restrictions may be considered by the Board on application under section 16 of the Town Planning Ordinance. Each application for minor relaxation of GFA/building height restrictions will be considered on its own merits.~~

"Residential (Group A)2" ("R(A)2"): Total Area 4.09 ha

(c) The planned public housing development at Planning Areas 16 and 58D is under this zoning. Development/redevelopment within this zoning is subject to restrictions on the maximum total gross floor area of 194,500m^2 and building height restriction as shown on the Plan, or the GFA and height of existing building, whichever is the greater. The building height restriction stipulated on the Plan is the maximum permitted height. Building heights ranging from 26 to 36 domestic storeys should be adopted to create a height profile stepping up from both ends to the centre with reference to the hilly terrain to the north.

~~(d) At the detailed design stage of the proposed development, a quantitative Air Ventilation Assessment (AVA) study will need to be conducted to further refine the development layout of the public housing development and the relevant mitigation measures from the air ventilation perspectives.~~

"Residential (Group A)3" ("R(A)3"): Total Area 0.87 ha

(d) The planned home ownership development at Planning Area 16 is under this zoning. Development/redevelopment within this zoning is subject to restrictions on the maximum total gross floor area of 43,600m^2 and building height restriction as shown on the Plan, or the GFA and height of existing building, whichever is the greater.

7.4.4 At detailed design stage, quantitative Air Ventilation Assessment (AVA) studies will need to be conducted for the public housing developments within the "R(A)1" and "R(A)2" sites to further refine the development layout and the relevant mitigation measures from the air ventilation perspectives.

7.4.5 Minor relaxation of the GFA and building height restrictions for the "R(A)1", "R(A)2" and "R(A)3" zones may be considered by the Board on application under section 16 of the Town Planning Ordinance. Each application for minor relaxation of GFA/building height restrictions will be considered on its own merits.

7.5 Residential (Group B) ("R(B)") : Total Area 193.39 ha

7.5.1 This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board.

7.5.2 One site at Fu Kin Street is zoned "R(B)1" which is subject to plot ratio restriction. The restriction is necessary for the purposes of preserving the general amenity of the area as well as to ensure that the development intensity will be compatible with the adjacent developments and will not overtax the infrastructural provision in the area.

7.5.3 All sites within this zone, except those in Planning Area 51 and located on the waterfront adjacent to Shing Mun River, are located largely on the hill slopes overlooking the Sha Tin Valley.

7.6 Residential (Group C) ("R(C)") : Total Area 0.95 ha

7.6.1 This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board.

7.6.2 Two sites at Tai Po Road in Planning Area 33 and one site at Tai Po Road near the Chinese University of Hong Kong are under this zoning. Developments within this zone are subject to plot ratio, site coverage and/or building height restrictions. These restrictions are necessary for the purposes of preserving the general amenity of the area as well as to ensure that the development intensities will be within the limits of the road capacity. Minor relaxation of the stated restrictions may be considered by the Board on application under section 16 of the Ordinance. Each proposal will be considered on its own merits.

7.7 Village Type Development ("V") : Total Area ~~190.35 ha~~ ***190.3 ha***

7.7.1 The planning intention of this zone is to designate both existing recognized villages and areas of land considered suitable for village expansion. Land within this zone is primarily intended for development of Small Houses by indigenous villagers. It is also intended to

concentrate village type development within this zone for a more orderly development pattern, efficient use of land and provision of infrastructures and services. Selected commercial and community uses serving the needs of the villagers and in support of the village development are always permitted on the ground floor of a New Territories Exempted House. Other commercial, community and recreational uses may be permitted on application to the Board.

7.7.2 In order to ensure that any future development or redevelopment within this zone would retain the village character, a maximum building height of 3 storeys (8.23m) or the height of the existing building(s), whichever is the greater, is imposed under this zone.

7.7.3 Existing villages such as Tai Wai, Tsang Tai Uk, Siu Lek Yuen, Hin Tin and Kak Tin will be retained. For those villages which have been displaced by public projects, village resite areas have been provided for. Tsok Pok Hang New Village is one of the examples.

7.8 Industrial ("I") : Total Area ~~52.06 ha~~ ***46.28 ha***

7.8.1 This zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet demand from production-oriented industries. Information technology and telecommunications industries and office related to industrial use are always permitted in this zone.

7.8.2 Industrial land is distributed in three locations, Planning Area 3 (Tai Wai), Planning Area 14 (Siu Lek Yuen) and Planning Area 16 (Fo Tan). They are separated as far apart as possible from the residential areas by open spaces or other physical features.

7.8.3 All industrial land in Planning Area 14 (Siu Lek Yuen) is zoned to "I(1)" with 'Hotel' use under Column 2 in the Notes to allow flexibility for hotel development through planning application.

7.9 Government, Institution or Community ("G/IC") : Total Area ~~296.36 ha~~ ***296.7 ha***

~~7.9.1~~ This zone is intended primarily for the provision of Government, institution or community (GIC) facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments. Such developments, particular for those which are low-rise, serve to provide visual and spatial relief to the built-up environment of the Area.

~~7.9.2~~ Major GIC facilities provided in the Area include :

(a) the Sha Tin Town Hall, the Sha Tin ~~Central~~ ***Public*** Library and the Sha Tin Magistracy in Planning Area 7;
(b) the Sha Tin Government Offices building in Planning Area 20;
(c) the Chinese University of Hong Kong in Planning Area 68;

(d) the Hong Kong Institute of Vocational Education (Sha Tin) in Planning Area 21;
(e) the Hang Seng School of Commerce in Planning Area 54;
(f) the Hong Kong Sports Institute in Planning Area 47;
(g) the Prince of Wales Hospital in Planning Area 14 and the Sha Tin Hospital in Planning Area 65;
(h) ~~a swimming pool/indoor recreation centre complex~~ ***Yuen Wo Road Sports Centre and Sha Tin Jockey Club Swimming Pool*** in Planning Area 26;
(i) service reservoirs, including those in Planning Areas 56 and 62;
(j) the Hong Kong Heritage Museum in Planning Area 25; ~~and~~
(k) the Ten Thousand Buddhas Monastery in Planning Area 6~~.~~; ***and***
(l) Hin Tin Swimming Pool in Planning Area 17.

~~7.9.3~~ Local GIC facilities are/will be provided in the commercial/residential, residential and industrial developments when detailed planning for the Area proceeds.

~~7.9.4~~ Two sites to the south of Sha Tin Road at Planning Area 52 (Shui Chuen O) are planned for a covered public transport terminus and a primary school. They are subject to building height restrictions as stipulated on the Plan or the height of the existing building, whichever is the greater. Minor relaxation of the building height restriction may be considered by the Board on application under section 16 of the Town Planning Ordinance. Each application for minor relaxation of building height restriction will be considered on its own merits.

7.10 Open Space ("O") : Total Area ~~257.03 ha~~ ***255.8 ha***

7.10.1 This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

7.10.2 A prominent feature is the provision of large landscaped open spaces in Planning Area 12 (the Sha Tin Park) and Planning Area 28 in the vicinity of the town centre. They form a major node of recreational activities and extend along both sides of Shing Mun River providing a spine for pedestrian and cycle movements. A major recreational ground with soccer pitches and tennis courts etc. is provided in Planning Area 26 (Yuen Wo Road). ~~A swimming pool and a playground with a baseball cum soccer pitch and tennis courts are provided in Planning Area 17 (Hin Tin). There is also a large open space for active recreational uses in Planning Area 5 (Tsang Tai Uk).~~ ***Playgrounds with different active and passive recreational facilities are also provided in Planning Areas 2 (Che Kung Miu Road Playground), 5 (Tsang Tai Uk Playground) and 17 (Hin Tin Playground).***

7.10.3 Other major open space zones, including those ~~existed~~ in Planning Area*s* 2 and ~~planned in Planning Area~~ 33, are suitable for passive recreational purposes. In addition, ~~existing~~ open spaces in Planning

Areas 13 and 24 are zoned for this purpose because of their 'fung shui' significance or landscape quality.

7.10.4 In addition to the major open spaces as indicated on the Plan, local open spaces will also be provided within the public housing estates and the large private residential developments for the enjoyment of local residents.

7.11 Other Specified Uses ("OU") : Total Area ~~203.94 ha~~ ***205.17 ha***

7.11.1 This zone is intended for specific development(s) and/or uses, which is/are specified in the annotation of the zone. They include the following specific uses :

(a) the Sha Tin Race Course in Planning Area 47;
(b) the sewage treatment plant in Planning Area 47;
(c) the refuse transfer station in Planning Area 65;
(d) the Fu Shan Crematorium and Columbarium and its extension, a public mortuary and a funeral parlour in Planning Area 18;
(e) the East Rail Sha Tin Station, with commercial development and bus terminus, in Planning Area 20;
(f) the East Rail Ho Tung Lau Maintenance Centre, with commercial/ residential developments above, in Planning Area 15;
(g) the Tai Wai Maintenance Centre, with residential development above, in Planning Area 17;
(h) the land for railway development;
(i) the Sha Tin Water Treatment Works in Planning Areas 9 and 49;
(j) the existing petrol filling stations at On Sum Street in Planning Area 11, Yuen On Street in Planning Area 14 and Tai Po Road in Planning Area 33, and a proposed one in Planning Area 68;
(k) the sites proposed for business use in Planning Area 11;
(l) Po Fook Hill in Planning Area 6;
(m) Tao Fong Shan Christian Cemetery in Planning Area 6;
(n) the amenity areas adjoining Po Fook Hill and Tao Fong Shan Christian Cemetery; and
(o) the proposed waterfront amenity area in the area on the western side of Sha Tin Hoi (Tide Cove).

7.11.2 Land zoned for "OU" annotated "Business" ("OU(Business)") and "OU(Business(1))" is intended for general business uses. Under this zoning, a mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new "business" buildings. However, in order to ensure that the concerns on fire safety and environmental impacts are properly addressed, only less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public are permitted as of right in existing industrial buildings or industrial-office buildings within this zone. As it is not possible to phase out existing polluting and hazardous industrial uses all at once, it is necessary to ensure compatibility of the uses within the same industrial building until the whole area is transformed to cater for the new non-polluting business uses. Development within this zone

should make reference to the relevant Town Planning Board Guidelines.

7.11.3 The "OU(Business)" zone in Shek Mun comprises twelve existing buildings with mixed industrial and office uses as well as some vacant sites in the south-eastern part of the zone.

7.11.4 On land designated "OU(Business(1))", uses such as educational institution, exhibition or convention hall, place of recreation, sports or culture, retail shop and school, which will likely attract high concentration of population, require planning permission from the Board.

7.11.5 The site designated "OU" annotated "Columbarium" in Planning Area 6 (i.e. Po Fook Hill) is subject to GFA, site coverage and building height restrictions. The restrictions are necessary for the purposes of minimizing adverse visual, landscape, traffic and environmental impacts caused by columbarium development at the site. Minor relaxation of the stated restrictions may be considered by the Board on application under section 16 of the Ordinance. Each proposal will be considered on its own merits.

7.12 Green Belt ("GB") : Total Area ~~985.29 ha~~ ***984.93 ha***

The planning intention of this zone is primarily for defining the limits of urban and sub-urban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlets. There is a general presumption against development within this zone.

8. COMMUNICATIONS

8.1 Roads

8.1.1 Only major road network which comprises trunk roads, primary distributors and district distributors is shown on the Plan. As the Plan is drawn at a small-scale, design details of major road junctions and local access roads are not indicated.

8.1.2 The Area is linked to the northern and western Kowloon via the Lion Rock Tunnel Road and Tai Po Road respectively. The Tate's Cairn Tunnel provides an additional strategic highway linking north-east Kowloon, the Area and further onto Ma On Shan. In the west, Route 5, including the Shing Mun Tunnel, provides a direct access to Tsuen Wan. ~~A proposed trunk road in Planning Areas 33 and 37 will connect the Area~~ ***The Tsing Sha Highway connects the Area*** with Cheung Sha Wan. In the north, a highway system, which comprises Sha Tin Road, Tai Po Road and Tolo Highway, connects the Area with Tai Po and beyond.

8.2 Railway

8.2.1 Mass Transit Railway (MTR) East Rail Line

The Area is served by the electrified East Rail which provides a major transport link between Kowloon and the New Territories. There are altogether five railway stations serving various parts of the Area viz. Tai Wai, Sha Tin, Fo Tan, Racecourse and University Stations.

8.2.2 MTR Ma On Shan Line – Tai Wai to Wu Kai Sha

The Ma On Shan Line (MOS Line) provides a convenient passenger link connecting Ma On Shan with Tai Wai via the Sha Tin hinterland. There are interchange facilities with the existing East Rail in Planning Area 3 (Tai Wai), five stations in Sha Tin (Tai Wai, Che Kung Temple, Sha Tin Wai, City One and Shek Mun) and a Maintenance Centre at Tai Wai. There is potential for property development along the railway at the Tai Wai Station and Maintenance Centre, and Che Kung Temple Station. Pursuant to section 13A of the Ordinance, the railway scheme authorized by the CE in C under the Railways Ordinance, Chapter 519, shall be deemed to be approved under the Ordinance. As such, the alignment of the MOS Line traversing the Planning Scheme Area and its stations are shown on the Plan for information only.

8.3 Public Transport

In addition to railway, buses, taxis and green mini-buses are the main modes of public transport in the Area. Public transport interchange facilities are provided at convenient locations such as near the railway stations.

8.4 Ferry Services

The use of waterborne transport for external communication is limited at present. There is a ferry pier in Planning Area 68 which provides services to the outlying islands. The adjoining ferry pier has been demolished to make way for the construction of an access road from Ma Liu Shui to Pak Shek Kok. Landing steps ~~will be~~ *is* provided in the adjacent area.

8.5 Pedestrian and Cycle Networks

A special feature of the Area is a comprehensive system of walkways and cycle tracks, which links all major developments in the Area and provides direct links with most of the open spaces. The system is segregated from the vehicular transport network by means of separate right-of-ways or grade-separated crossings.

9. UTILITY SERVICES

9.1 Water Supply

There are adequate water supplies to serve the Area. The Sha Tin Water Treatment Works located in Planning Areas 9 and 49 at the head of the valley is a major water treatment facility in Hong Kong. It receives water from the

Plover Cove Reservoir and High Island Reservoir. The Area is also served by a salt water pumping station in Planning Area 47 (Ma Liu Shui), major fresh water and salt water service reservoirs in Planning Areas 18 (Sha Tin West), 22 (To Shek), 23 (Sha Tin South), 40 (Sha Tin North), 56 (Kau To) and 64 (A Kung Kok), and high-level service reservoirs in Planning Areas 22 (Siu Lek Yuen), 37 (Lower Shing Mun), 61 (Pai Tau Hang) and 62 (Ha Wo Che). Additional service reservoirs are also planned in Planning Areas 52 (Shui Chuen O) and 56 (Kau To North).

9.2 Sewage Treatment

Sewage generated in the Area is treated in the Sha Tin Sewage Treatment Works in Planning Area 47. The treated effluent is discharged to the Kai Tak Nullah through the Tolo Harbour Effluent Export Scheme. The construction work of the Sha Tin Sewage Treatment Works Stage III Extension has started in February 2001 and ~~scheduled for completion in August 2011~~ ***was completed in April 2012.***

9.3 Electricity

There are a number of primary substations provided in the Area including a 400 kV substation in Planning Area 4 (Heung Fan Liu).

9.4 Town Gas

Town gas is supplied to the Area via trunk main from the gas production plant in Tai Po across Tolo Harbour with a gas off-take pigging station in Planning Area 11.

9.5 Telephone

Two telephone exchanges, one in Planning Area 14 and the other in Planning Area 25, are provided to serve the Area and to cater for the projected increase in demand.

10. CULTURAL HERITAGE

~~Old House at Wong Uk Village, a declared monument,~~ ***A Declared Monument and graded historic buildings, i.e. Old House at Wong Uk Village (Declared Monument), Tsang Tai Uk (Grade 1), Entrance Gate, Chik Chuen Wai, Tai Wai Tsuen (Grade 2), Nos. 5A, 5B, 5C and 6 Pai Tau (Grade 2), Tao Fong Shan Christian Centre (Grade 2), High Rock Christian Camp (Grade 2), Che Kung Temple (Grade 2), Lam Ancestral Hall, Nos. 8, 10-14 Pai Tau (Grade 3), Ng Yuen (Grade 3), Nos. 1 and 3 First Street, Tai Wai (Grade 3), Nos. 33, 34, 36, 37, 38 and 39 Ha Wo Che (Grade 3), Yeung Ancestral Hall, Law Ancestral Hall and So Ancestral Hall in Hin Tin (Grade 3), Sha Tin Tau (Grade 3), Man Fat Din and Pagoda in Man Fat Tsz (Grade 3), Nos. 7-10 Sheung Wo Che (Grade 3) and No. 11 Kak Tin Village Third Street (Grade 3)*** ~~is~~ ***are*** located within the Area. ~~Besides, there are seven graded historic buildings within the Area, including Tsang Tai Uk (Grade 1); Tao Fong Shan Christian Centre, High Rock Christian Camp and Che Kung Temple (Grade 2); and Lam Ancestral Hall, Man Fat Din and the Pagoda in Man Fat Tsz (Grade 3). All the above graded historical buildings are worthy of preservation.~~ ***Besides, there are proposed graded***

historic buildings within the Area. Brief information of the historic buildings is available on the official website of the Antiquities and Monuments Office (AMO) of the Leisure and Cultural Services Department at http://www.amo.gov.hk. Prior consultation with the ~~Antiquities and Monuments Office (AMO) of the Leisure and Cultural Services Department (LCSD)~~ and Commissioner for Heritage's Office of Development Bureau should be made, if any development, redevelopment or rezoning proposal might affect the above ***monument and historic buildings*** ~~sites of historical buildings~~ and their immediate environs. ~~If disturbance of the sites of archaeological interest or other areas of archaeological potential is unavoidable, a detailed Archaeological Impact Assessment (AIA) conducted by a qualified archaeologist is required. The archaeologist shall apply for a licence to conduct the AIA under the Antiquities and Monuments Ordinance (Cap. 53). A proposal of the AIA shall be submitted to the AMO for agreement prior to applying for a licence.~~

11. IMPLEMENTATION

11.1 Although existing uses non-conforming to the statutory zonings are tolerated, any material change of use and any other development/redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Board. The Board has published a set of guidelines for the interpretation of existing use in the urban and new town areas. Any person who intends to claim an "existing use right" should refer to the guidelines and will need to provide sufficient evidence to support his claim. The enforcement of the zonings mainly rests with the Buildings Department, the Lands Department and the various licensing authorities.

11.2 This Plan provides a broad land-use framework within which more detailed non-statutory plans for the Area are prepared by the Planning Department. These detailed plans are used within the Government as the basis for public works planning and site reservation. Disposal of sites is undertaken by the Lands Department. Public works projects are co-ordinated by the Civil Engineering and Development Department in conjunction with the client departments and the works departments, such as the Architectural Services Department and the Highways Department. In the implementation of the Plan, the Sha Tin District Council would be consulted as appropriate.

11.3 Planning applications to the Board will be assessed on individual merits. In general, the Board, in considering the planning applications, will take into account all relevant planning considerations which may include the departmental outline development plans/layout plans, and guidelines published by the Board. The outline development plans and layout plans are available for public inspection at the Planning Department. Guidelines published by the Board are available from the Board's website, the Secretariat of the Board and the Technical Services Division of the Planning Department. Application forms and guidance notes for planning application can be downloaded from the Board's website and are available from the Secretariat of the Board, and the Technical Services Division and the relevant District Planning Office of the Planning Department. Applications should be supported by such materials as the Board thinks appropriate to enable it to consider the applications.

TOWN PLANNING BOARD
~~MARCH 2012~~ ***OCTOBER 2012***

Brief Summary of Assessments for Sha Tin Areas 16 and 58D Public Rental Housing Development

Background

The proposed PRH development is located at Sha Tin Areas 16 and 58D in Fo Tan. The site is currently zoned as "Industrial" and "Green Belt" on the Approved Sha Tin OZP No. S/ST/26. The Hong Kong Housing Authority (HA) has carried out assessments including visual impact, air ventilation, environmental and traffic aspects to support the proposed Public Rental Housing (PRH) development in Fo Tan. The findings are summarized as follows:

Visual Impact Assessment

A Visual Impact Assessment (VIA) was undertaken to evaluate the anticipated visual impact of the proposed PRH development as well as the cumulative visual impact of both proposed PRH and HOS developments to the Visual Sensitive Receivers (VSRs) at each of the 8 selected viewpoints (VPs).

The existing neighbourhood is dominated by industrial buildings without any focal landmark. Some natural landscape can be seen in part of the existing views. The visual quality is considered as low to medium. Given the site configuration, the six tower blocks of the proposed PRH development are strategically located and oriented to provide adequate separations between tower blocks to avoid massive walled effect and obstruction to views as far as possible. With quality building design, the towers will improve the existing visual quality of the monotonous industrial area. In addition, the landscaped open space within the proposed PRH development with landscape and greening, together with the retail uses along Kwei Tei Street will substantially improve the visual quality, pedestrian continuity and vibrancy at street level.

The visual impact resulting from the proposed PRH development on the VSRs ranges from moderate to significant at most VPs and negligible at certain VPs. Although the proposed PRH development consists of several towers and is of a significant building mass and will inevitably block certain views, it will potentially add positive enhancement to most viewers at street level with quality building design and landscape treatment. The proposed PRH development can become a prominent development, recognizable at street level and from a distance within the surrounding area in Fo Tan. As the scale of the proposed HOS development is of much small scale than the proposed PRH development, it does not contribute significant cumulative visual impact. Hence, the visual impact of the proposed PRH development is considered to be acceptable from the selected VPs.

Air Ventilation Assessment

An Air Ventilation Assessment – Expert Evaluation (AVA-EE) was conducted to provide a qualitative assessment to the proposed development. It aims to identify the potential problems / issues that may affect the design and impacts to the surrounding environment.

Based on the wind data from the Hong Kong Observatory (HKO) and mesoscale model (MM5) published by Planning Department, it is found that winds from northeast and east are dominant annual wind directions. While in summer period, wind mainly comes from southwest direction.

The proposed domestic blocks are oriented to capture the prevailing east and south-westerly winds without substantial impediment from and to the surrounding developments and the terrain. The building disposition is primarily aligned along the prevailing wind direction routes to preserve and funnel the air flows. Separation between domestic blocks is optimized to enhance the wind environment.

A computational simulation is recommended to quantitatively assess the potential ventilation impacts from the proposed development on the surrounding environments.

Environmental Assessment Study

(i) Traffic Noise

After exhaustive evaluation of all practicable mitigation measures, including building line setback, building orientation, adoption of noise tolerant building, extended structural wall, and fixed window design, the predicted noise level for all flats will comply with the 70dB(A) maximum allowable traffic noise criteria as set out in the Hong Kong Planning Standards and Guidelines (HKPSG). A 100% noise compliance rate can hence be achieved on traffic noise aspects.

(ii) Potential Fixed Noise

Potential fixed noise sources are identified at the adjacent industrial buildings, CLP sub-station and Bank of China Data Centre (BOCDC) with two chillers and three cooling towers on the rooftop.

With optimised building design, mitigation measures (structural wall and fixed windows) and future enhancement of the acoustic treatment for the chiller plants at the roof of BOCDC, no adverse fixed noise impact on the proposed development is anticipated.

(iii) Air Quality

Potential air quality impacts, including vehicular and chimney emissions, on the developments have been reviewed and evaluated, and no adverse impact is envisaged.

(iv) Industrial/Residential Interface

To avoid adverse air quality impact and potential complaints due to future emission sources in the industrial area, the existing mechanism/measures through OZP control; control on new chimney applications and renewal of the Specified Process (SP) licence;

and enforcement actions on odour emissions are considered effective in controlling the air quality impact to within an acceptable level.

It is concluded that there is no insurmountable environmental problem for the proposed development.

Traffic Impact Assessment

The assessment results indicate that, with the proposed developments and under the existing traffic circulation, all the critical junctions will operate with acceptable reserve capacities, except J/O Sui Wo Road / Shan Mei Street which would be overloaded even without the proposed development.

With the proposed improvement measures, including widening of Wong Chuk Yeung Street into two-way and junction improvement of J/O Sui Wo Road / Shan Mei Street, the TIA results indicate that all the critical junctions will operate with acceptable capacities. To cater for the needs of future residents, enhancement of existing or provision of new franchised bus or mini-bus services are proposed.

Car parking and loading/unloading facilities have been proposed in accordance with the HKPSG and in consultation with Transport Department.

In conclusion, the study has shown that the proposed development is acceptable from the traffic point of view.

Housing Department
September 2012

Brief Summary of Assessments for Sha Tin Area 16
Wo Sheung Tun Street New Home Ownership Scheme Development

Background

The proposed HOS development is located at Wo Sheung Tun Street in Fo Tan. The site is currently zoned as "Industrial" on the Approved Sha Tin OZP No. S/ST/26 and is located adjacent to a vegetated slope zoned "Green Belt". The Hong Kong Housing Authority (HA) has carried out assessments including visual impact, air ventilation, environmental and traffic aspects to support the proposed Home Ownership Scheme (HOS) development at Wo Sheung Tun Street, Fo Tan. The findings are summarized as follows:

Visual Impact Assessment

A Visual Impact Assessment (VIA) was undertaken to evaluate the anticipated visual impact of the proposed HOS development as well as the cumulative visual impact of both proposed PRH and HOS developments to the Visual Sensitive Receivers (VSRs) at each of the 8 selected viewpoints (VPs).

As the existing neighbourhood is dominated by industrial buildings, the visual quality is considered as low. The building height, scale and form of the proposed HOS development in two building blocks will not be out of context with the existing development. The incorporation of appropriate mitigation measures such as building layout, orientation, treatment to building façades of the noise tolerant buildings, setback from pollution sources and extensive at-grade and vertical landscaping greening, will minimize the visual impact of the proposed HOS development.

It is concluded that the visual impact resulting from the proposed HOS development on the VSRs ranges from slight to moderate and will not be worsening the existing visual quality while the overall cumulative visual impact of the proposed HOS and PRH developments is considered as moderate to significant as the proposed PRH development is of larger scale. With appropriate consideration to building design and landscape treatment of the slope along Man Hang Street, the proposed HOS development will improve the street level visual quality and pedestrian continuity. It is inevitable that certain views will be blocked as a result of the proposed HOS development. However, the proposed HOS development will be compatible with the existing development context. Hence, the visual impact of the proposed HOS development is considered to be acceptable as demonstrated from the selected VPs.

Air Ventilation Assessment

Air Ventilation Assessment (AVA) was conducted to provide both qualitative and quantitative wind performance evaluation of the proposed development and its impacts to the surrounding pedestrian accessible locations.

Based on the wind data from the Hong Kong Observatory (HKO) and mesoscale model (MM5) published by Planning Department, it is found that northeast and east winds dominate the annual wind frequency. While in summer period, wind mainly comes from southwest direction. To enhance the air ventilation performance, the proposed development with one building block has been modified into two to provide a building gap to reduce the blockage of air movement while maintaining ventilation paths to enhance the wind environment at pedestrian level at the open area. The domestic blocks have also been oriented to capture the prevailing winds without substantial impediment to the surrounding developments.

The quantitative AVA (by Computational Fluid Dynamics) concluded that, with the setting back from the surrounding industrial buildings as much as possible to enhance the air ventilations and movements, no adverse impact is anticipated from the proposed development on the overall air ventilation performance within and around the site. The performance can still be maintained at an acceptable level without becoming stagnant area. Moreover, the proposed development enhances a better wind environment within the development and Man Hang Street, particularly at pedestrian level.

Environmental Assessment Study

(i) Traffic Noise

With the introduction of noise conscientious design, the maximum predicted façade noise levels of the proposed development is found to be 63dB(A). As all flats comply with the 70 dB(A) noise criterion as set out in the Hong Kong Planning Standards and Guidelines (HKPSG), a 100% noise compliance rate can be achieved on traffic noise aspects.

(ii) Potential Fixed Noise

Potential fixed noise sources are identified at industrial buildings along Man Hang Street and chillers/transformer at the Bank of China Data Centre. Incorporation of the noise tolerant design with noise sensitive flats facing inside, results indicated that the predicted noise level at the nearest sensitive receivers would comply with the noise criterion.

(iii) Air Quality

In terms of vehicular emission, no adverse impact is anticipated due to low traffic flow and adequate setback distance from the nearby local roads. Besides, in terms of chimney impacts, no adverse impact is anticipated to be generated on the subject site based on the air modeling sensitive test results.

(iv) Odour Impact

Odour patrol surveys have been conducted by the qualified panelists. The general odour environ at the site area would be slight to moderate. Such odour was mainly originated

from bakery and siu mei (food factories) which would unlikely post health concerns. As a precautionary consideration, it is suggested that no openable windows will be provided at the external wall along the corridor of the HOS buildings facing the industrial buildings unless justified by more detailed odour tests.

(v) Industrial/Residential Interface

To avoid adverse air quality impact and potential complaints due to future emission sources in the industrial area, the existing mechanism/measures through OZP control; control on new chimney applications and renewal of the Specified Process (SP) licence; and enforcement actions on odour emissions are considered effective in controlling the air quality impact to within an acceptable level.

It is concluded that there is no insurmountable environmental problem for the proposed development.

Traffic Impact Assessment

The major ingress & egress route of both PRH and HOS development traffic will be via Fo Tan Road and Kwei Tei Street. The assessment results indicate that, with the proposed developments and under the existing traffic circulation, all the critical junctions will operate with acceptable reserve capacities, except J/O Sui Wo Road / Shan Mei Street which would be overloaded, even without the proposed PRH nor HOS development.

With the proposed improvement measures, including widening of Wong Chuk Yeung Street into two-way and junction improvement of J/O Sui Wo Road / Shan Mei Street, the TIA results indicate that all the critical junctions will operate with acceptable capacities. To cater for the needs of future residents, enhancement of existing or provision of new franchised bus or mini-bus services are proposed.

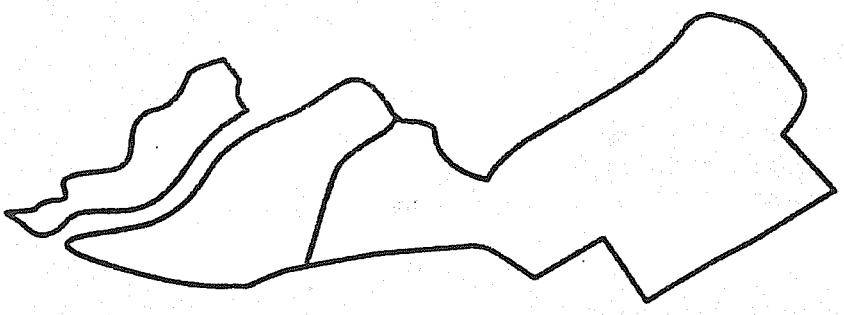
Car parking and loading/unloading facilities have been proposed in accordance with the HKPSG and in consultation with Transport Department.

In conclusion, the study has shown that the proposed development is acceptable from the traffic point of view.

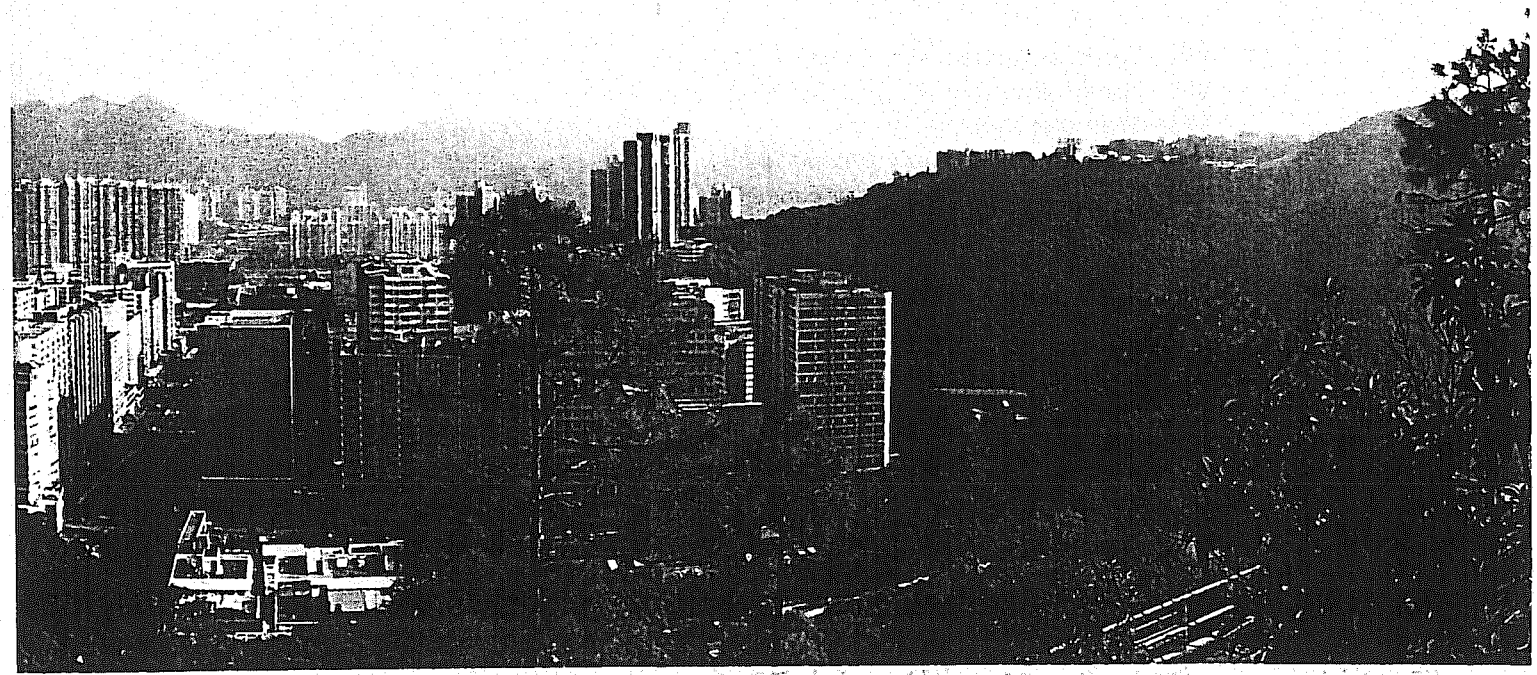
Housing Department
September 2012

香港房屋委員會
Hong Kong Housing Authority

Consultancy for Visual Impact Assessment for Public Rental Housing Development at Sha Tin Area 16 & 58D, Fo Tan



Agreement No. CB 20110065



KTA
Kenneth To & Associates Ltd
社立善規劃顧問有限公司
TOWN PLANNING AND DEVELOPMENT CONSULTANTS

UP INT'L

Table of Contents

1. **Introduction**

Background

2. **Methodology**

Visual Assessment Approach

3. **Baseline Review**

Site Location and Surrounding Development Context
Site Particulars and Existing Visual Condition
The Proposed Public Rental Housing Development

4. **Determination of Visual Context**

Identification of Visual Elements
Identification of Visual Envelope
Selection of Viewpoints

5. **Assessment of Visual Impacts**

VP1 – Top of slope from Kwai Tei New Village
VP2 – Top of slope from Wong Chuk Yeung Tsuen Path
VP3 – Shan Mei Street Playground
VP4 – Lok Lin Path, adjacent to Pine Villa
VP5 – Shing Mun River No.2 Promenade Rest Garden
VP6 – Road Junction of Fo Tan Road and Kwai Tei Road
VP7 – Fo Tan MTR Station (South Concourse)
VP8 – Footpath along Kwai Tei New Village

6. **Recommendations and Conclusion**

Overall Visual Impact
Mitigation Measures
Conclusion

List of Figures

Figure 1.1	The Location of Application Site
Figure 1.2	Land-use zoning of the Application Site and its surrounding areas
Figure 3.1	Existing visual condition
Figure 3.2	Development scale of the proposed PRH development
Figure 3.3	Cross-section of the proposed PRH development
Figure 4.1	The viewpoint locations and visual envelope
Figure 5.1	VP1 – existing condition
Figure 5.2	VP1 – with proposed development
Figure 5.3	VP2 – existing condition
Figure 5.4	VP2 – with proposed development
Figure 5.5	VP3 – existing condition
Figure 5.6	VP3 – with proposed development
Figure 5.7	VP4 – existing condition
Figure 5.8	VP4 – with proposed development
Figure 5.9	VP5 – existing condition
Figure 5.10	VP5 – with proposed development
Figure 5.11	VP6 – existing condition
Figure 5.12	VP6 – with proposed development
Figure 5.13	VP7 – existing condition
Figure 5.14	VP7 – with proposed development
Figure 5.15	VP8 – existing condition
Figure 5.16	VP8 – with proposed development

List of Tables

Table 3.1	Broad development parameters
Table 3.2	Breakdown of broad development parameters
Table 4.1	Selected viewpoints of visually sensitive receivers
Table 4.2	Details of the selected visually sensitive viewpoints
Table 6.1	Summary of assessment of visual impact at the viewpoints

1 Introduction

Background

1.1 This Visual Impact Assessment (VIA) report is prepared on behalf of the Hong Kong Housing Authority (HKHA), the Project Proponent, in support of a rezoning application to the Town Planning Board (TPB) for the proposed Public Rental Housing (PRH) development at the ex-Fo Tan Cottage Area and the adjacent land at Sha Tin Area 16 and 58D (the Application Site) in Fo Tan, Sha Tin District.

1.2 The location of the Application Site is indicated in Figure 1.1. It is currently zoned as "Green Belt" ("GB") and "Industrial" ("I") under the Approved Sha Tin Outline Zoning Plan No. S/ST/26 (the OZP) as shown in Figure 1.2. According to the latest HKHA development scheme, the proposed PRH development is divided into 2 phases with 6 residential blocks of 31-38 storeys including ground floor lobby (about 134.4-157.7mPD) and an elevated communal garden with a considerable building mass. A distinct stepped building height profile is formed, having regard to the site topography and the natural profile of the mountain backdrop with a view to reducing the visual bulk of the development and complying with the urban design principles.

1.3 The purpose of this VIA is mainly to determine the visual impact of the proposed PRH development as part of the rezoning application to the TPB. The VIA evaluates the existing visual conditions, visual resources and visual quality of the Application Site and its surroundings. The visual assessment includes the compatibility and the degree of anticipated visual impacts of the proposed PRH development on the Visually Sensitive Receivers (VSRs) at the selected viewpoints (VPs) relevant to the Application Site. Visual assessment of the proposed PRH development is conducted and detailed in this VIA report.

1.4 As the HKHA is proposing a Home Ownership Scheme (HOS) development at the nearby site at Wo Sheung Tun Street to the south of the proposed PRH development with a similar development programme, a cumulative visual impact assessment of both developments is also addressed in this report to reflect a more realistic visual condition when the developments are completed. Based on the cumulative assessments, the VIA details the overall visual impact with mitigation measures and concludes on the visual acceptability of the proposed PRH development.

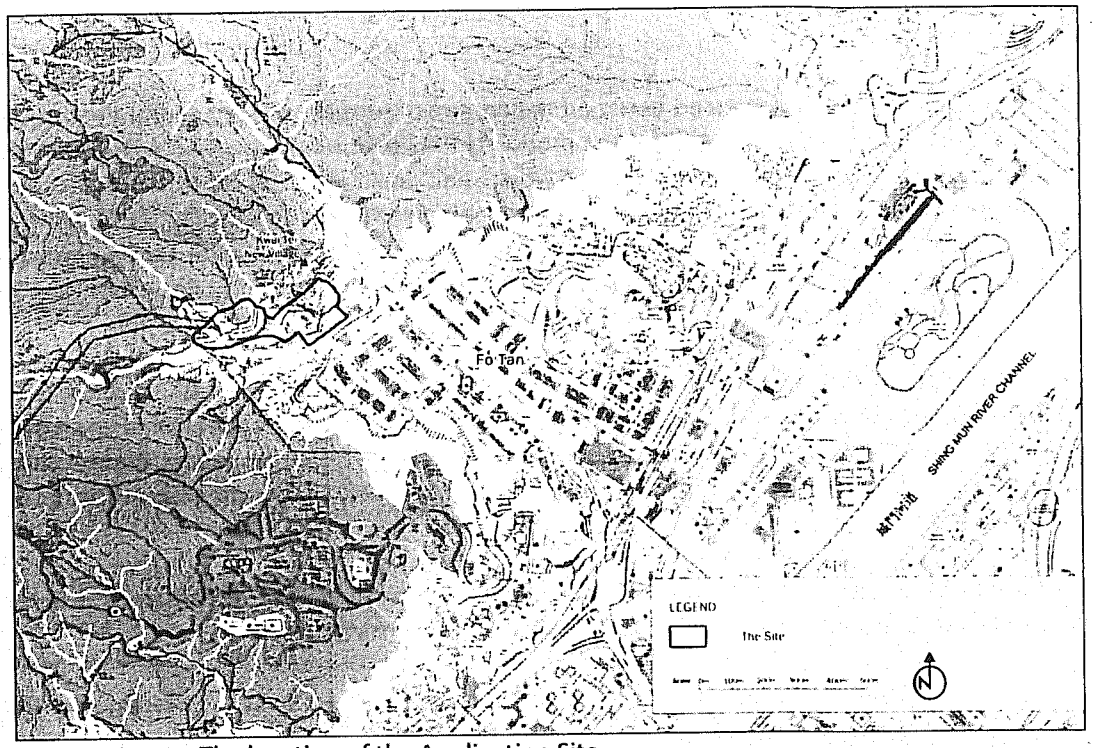


Figure 1.1 The location of the Application Site

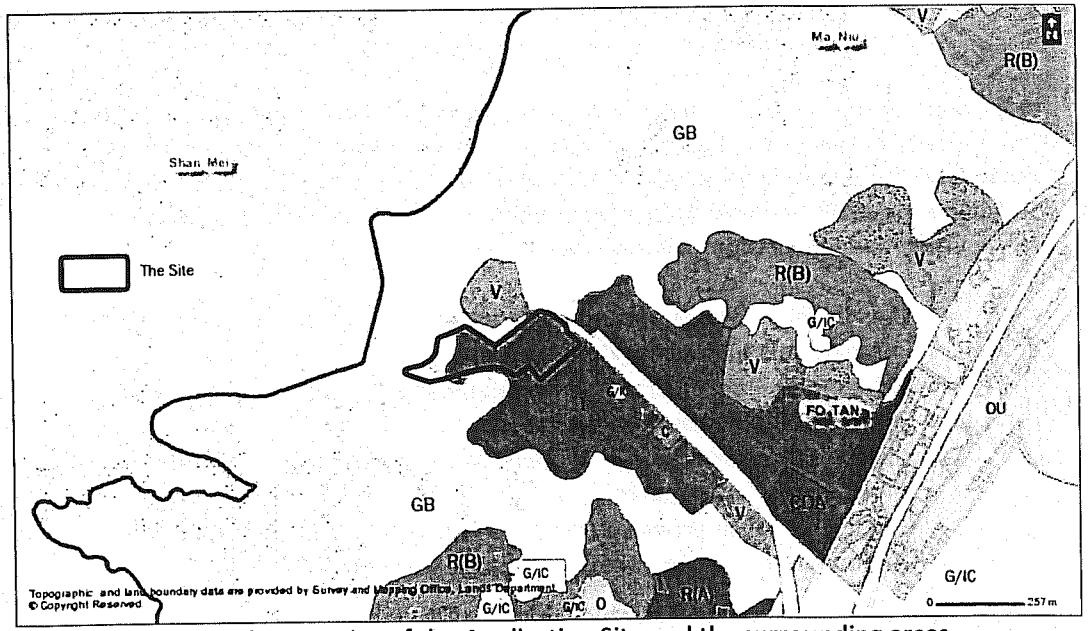


Figure 1.2 Land use zoning of the Application Site and the surrounding areas
[Source: Survey and Mapping Office (2011), Lands Department, available (online): http://www.ozp.tpb.gov.hk]

2 Methodology

Visual Assessment Approach

2.1 The visual impacts are assessed based on the degree of sensitive to change from the existing visual condition to key VSRs as a result of the proposed PRH development on the Application Site. Visual impacts could either be beneficial or adverse and their levels of significance are based on i) development compatibility of the proposed development with the existing development context and integration with the adjacent area; ii) quality of visual amenity and existing views from the VSRs at the selected VPs; iii) visual obstruction and/or enhancement; iv) distance of the VSRs from the proposed development; and v) level of sensitivity based on the receiver group.

2.2 The existing visual quality of the surrounding area can be classified as high, medium, low or poor based on the existing land use, development context, activities, open space, landscape, streetscape, linkages, pedestrian and visual access as well as quality of visual resources. Determination of the existing visual quality of the surrounding area and the quality of existing views for the VSRs from the identified VPs is key to the VIA.

2.3 Assessment of visual impact of proposed development on the VSRs is determined by the sensitivity to change. The sensitivity of the VSRs typically ranges from high to low:

- High – the VSR is highly sensitive to any change in their viewing experience (e.g. residents or villagers);
- Medium – the VSR is moderately sensitive to any change in their viewing experience (e.g. travelling and recreational VSRs);
- Low – the VSR is only slightly sensitive to any change in their viewing experience (e.g. occupational VSRs)

2.4 Assessment of the potential "visual impact" is determined by considering the following factors – 1) Compatibility of the proposed development with the surrounding development context; 2) Scale of impact and the distance of the source of impact from the viewer; 3) Quality of the existing views currently enjoyed by the VSR; 4) Degree to which, the source of impact dominates the field of vision of the viewer; and 5) Duration and reversibility of the impact:

- Significant – the proposed development would have a substantial deterioration or improvement in existing visual resource;
- Moderate – the proposed development would have a moderate deterioration or improvement in existing visual resource;
- Slight – the proposed development would have a slight deterioration or improvement in existing visual resource;
- Negligible – the proposed development would have no discernible deterioration or improvement in quality of existing visual resource.

2.5 The VIA will be undertaken in the following steps:

- A baseline review will be conducted to capture the existing visual elements, the development character and visual quality surrounding the Application Site;
- The proposed PRH development and the surrounding development context will be briefly described including the mitigation measures already included as part of the design;

- Working closely with the Planning Department, to determine the Visual Envelope (VE) and to identify appropriate public VPs including Local Viewpoints (LVPs) and District Viewpoints (DVPs);
- Potential visual impacts of the proposed PRH development and the potential cumulative visual impacts with the proposed HOS development at the nearby site at Wo Sheung Tun Street on the VSRs will be assessed at the selected VPs as illustrated in the photomontages;
- The overall visual impact will be included with the mitigation measures discussed earlier, highlighting the visual acceptability of the proposed PRH development based on the cumulative visual impact of both PRH and HOS developments.

3 Baseline Review

3.1 This VIA is to provide the HKHA with all the necessary information, presentation and visualization materials to facilitate the proposed rezoning of the Application Site to residential use for the proposed PRH development.

Site Location and Surrounding Development Context

3.2 The Application Site is located on a formed slope in the north periphery of Fo Tan Industrial Area. The area is dominated by industrial buildings that accommodate manufacturing industries, studios, workshops, ancillary offices, warehouses and logistics centres. The building heights of the industrial buildings range from 8 to 19 storeys (about 50 - 90mPD) and are in fair condition, but under multiple ownerships.

3.3 To the north of the Application Site is a low-rise, low density village-type development of Kwai Tei New Village and a vegetated slope zoned as GB is at the back of the village.

3.4 To the south and southeast of the Application Site is Fo Tan Industrial Area. The HKHA has proposed a HOS development of 2 residential blocks with 33-34 storeys including ground floor lobby (about 146-149mPD) at the bus depot at Wo Sheung Tun Street to the south of the Application Site and is scheduled to be completed in 2019. A separate VIA will be conducted as part of the technical assessment of the proposed HOS development.

3.5 Immediate to the east is a knoll of Man Hang that joins to the ridgeline of Kau To Shan. Further to the east is a cluster of mid-rise "Residential (Group B)" ["R(B)"] developments such as The Grandville, Shatin Lodge and The Morning Glory that can be found on the slope of Kau To Shan.

3.6 To the immediate west is a steep slope zoned as "GB" with temporary uses of open storage, warehouse and metal recycling workshop. A narrow vehicular access is found leading to Wong Chuk Yeung Tsuen up the slope.

3.7 The nearest MTR station is Fo Tan Station which is about 1km away from the Application Site. Buses and minibuses are the major public transportation serving the area.

Site Particulars and Existing Visual Condition

3.8 The Application Site is about 4.1 hectares and comprises of two parts, land with a gradient rising from the east to the west. The Shatin Temporary Vehicle Depot and a temporary carpark occupy the lower platform with elevations of about 32.7-51.6mPD. The Shatin Abandoned Vehicle Surrender Centre (a Transport Department facility) and open storage use are within the upper platform with elevations of about 50-70mPD. Part of the land at the upper level was occupied by the ex-Fo Tan Cottage Area and has been vacated.

3.9 Most of the land in the Application Site is zoned as "I" while a portion at the upper platform is zoned as "GB" in the OZP. The "I" zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet the demand from production-oriented industries. Information technology and telecommunication industries as well as office related to industrial use are always permitted in this zone. The "GB" zone is intended primarily for defining the limits of urban and suburban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlets. There is a general presumption against development within this zone.

3.10 As shown in Figure 3.1, in the surrounding area of the Application Site, there is a mountain backdrop with views of Ma On Shan at a distance forming a backdrop to the existing development. However, the existing skyline is not distinctive, consisting of several industrial buildings scattered around and some taller residential building clusters. There is a cluster of industrial buildings forming part of the built-environment, which is of poor quality with multi-storey factory buildings in the surrounding area. These industrial buildings have been developed for 20-30 years without proper building design and some are found to be dilapidated. No focal landmark or prominent development with a distinctive design can be found within the area. There is some natural landscape providing a tranquil setting in some parts of the area. Therefore the existing visual quality can be regarded as low to medium.

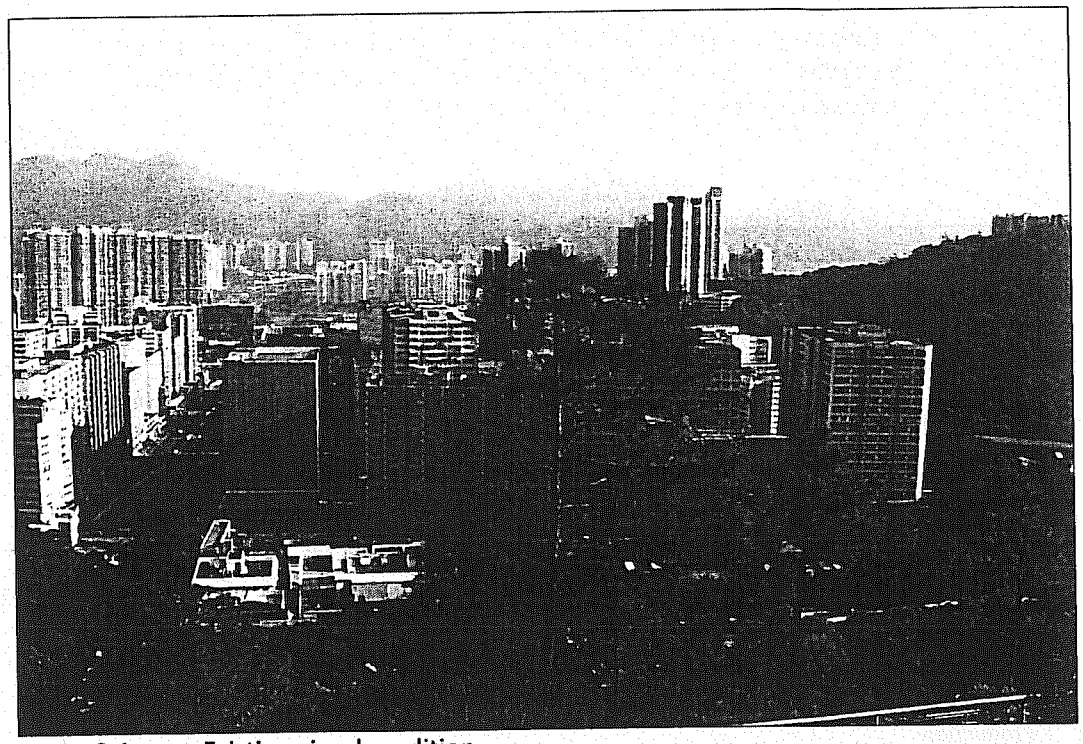


Figure 3.1 Existing visual condition

The Proposed Public Rental Housing Development

3.11 The Application Site area is about 4.1ha with a proposed plot ratio not more than 5. The proposed PRH development has 6 PRH blocks creating a considerable building mass that will potentially change the existing landscape. The proposed building height is about 27-38 storeys including ground floor lobby with an approximate 4,200 units. A 3-storey podium structure with retail shops, wet market and social welfare facilities is proposed at Kwai Tei Street with landscaped area at roof level (about 46.5mPD) as shown in Figure 3.2.

3.12 The proposed PRH development is divided into two phases. To the east of the Application Site is Phase 1, which includes Site 1 and Site 2A with 4 PRH blocks and the 3-storey podium structure. The buildings are about 31-38 storeys (about 134.4-157.7mPD) and are scheduled for completion in early 2018. To the west of the Application Site is Phase 2, which only involves Site 2B with 2 PRH blocks of about 27 to 33 storeys (about 137.7-145.95mPD) and is scheduled to completion in early 2021.

3.13 Given the site configuration, the proposed PRH blocks are strategically located and oriented with adequate separations between the tower blocks to avoid a massive walled development.

3.14 Taking into account the development parameters and planning requirements, the following considerations have been made in the design of the proposed PRH development:

- The buildings are oriented to provide separations to avoid walled effect and enhance air ventilation as well as preserve the view corridors and to reduce the visual impact due to the building bulk;
- The building façades are of higher design quality to mitigate potential nuisance caused by the industrial/residential interface, and to improve the visual quality in the monotonous industrial area;
- The podium structure will fill the gap of street frontage along Kwai Tei Street and helps to add vibrancy and maintain street level continuity; and
- Landscape treatment will be provided at-grade, at roof level including vertical greening in order to ensure that the proposed PRH development relates well to the adjacent natural environment.

Parameters	
Site Area	4.1 hectares
Plot Ratio	not more than 5
No. of domestic blocks	6
Building Height	about 27-38 storeys (total no. of storeys)
Flat Production	about 4,200 flats
Other facilities	A 3-storey podium consisted of retailing shops, wet market, social welfare facilities and landscaped area at roof level; open car parking spaces

Table 3.1 Broad Development Parameters

	Phase I (Site 1 & 2A)	**Phase 2 (Site 2B)**	**Total**
Gross Site Area	28,124 m^2	12,723 m^2	40,847 m^2
Zoning	I (mainly), GB		
Estimated Flat Production	3,213 units	988 units	4,200 units
No. of Storeys	Block 1: 30 domestic storeys Block 2: 33 domestic storeys Block 3: 36 domestic storeys Block 4: 36 domestic storeys	Block 5: 32 domestic storeys Block 6: 26 domestic storeys	
Proposed Building Height (including G/F)	134.4mPD to 157.7mPD	137.7mPD to 145.95mPD	
Platform Level	34.1mPD to 46.5mPD	53.3 to 70mPD	
Actual Building Height (including G/F)	Block 1: 82.5m Block 2: 90.8m Block 3: 110.9m Block 4: 104.4m	Block 5: 92.7m Block 6: 76.2m	

Table 3.2 Breakdown of Broad Development Parameters

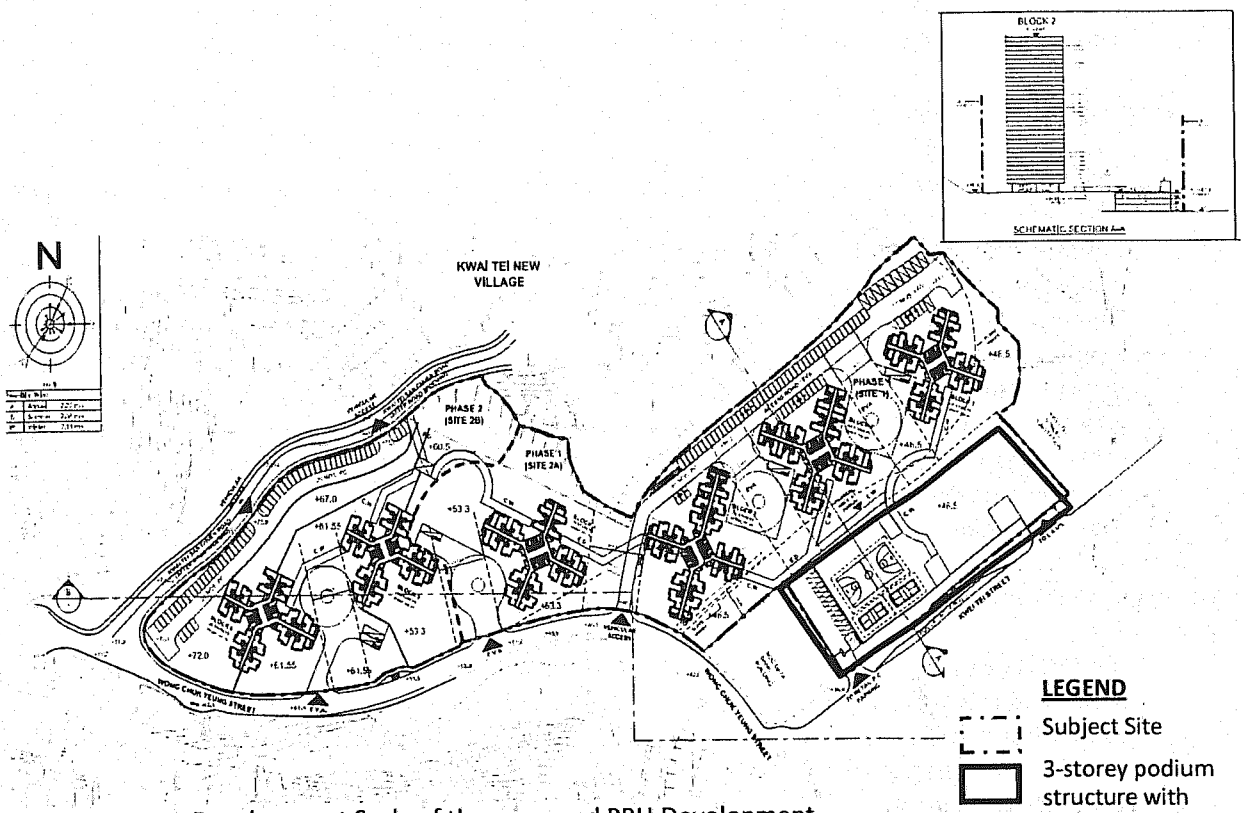


Figure 3.2 Development Scale of the proposed PRH Development

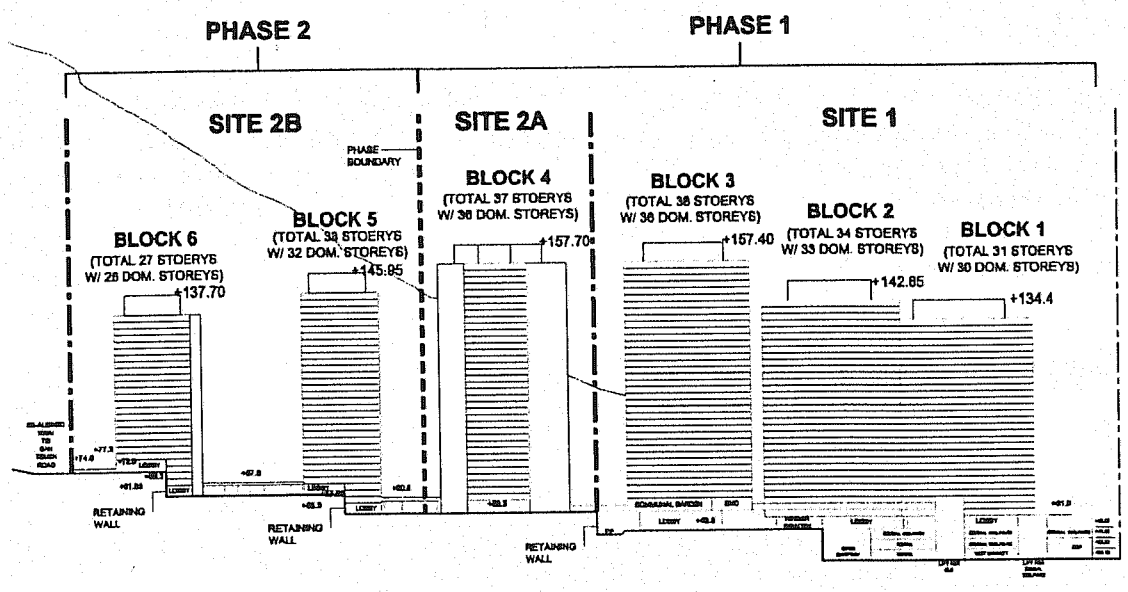


Figure 3.3 Cross-section of the Proposed PRH Development

4 Identification of Existing Visual Elements, Visual Envelope and View Points

Identification of Visual Elements

4.1 The visual outlook is shaped by the combined composition of all the visual elements, which come into sight of the viewers from the selected VPs. Major visual elements of the Application Site include: 1) to the south and southwest, a cluster of industrial buildings along Kwai Tei Street and Wong Chuk Yeung Street such as Wah Sang Industrial Building, Wah Luen Industrial Centre, Worldwide Industrial Centre, Wah Lai Industrial Centre, Kerry Godown (Sha Tin), Wale Industrial Centre; 2) to the northeast, village-type development in Kwai Tei New Village; and 3) to the north, the mountain backdrop (Kau To Shan). The existing visual quality of the site and its surrounding area can be regarded as medium to high on average as there are some open views of the surrounding environment are available. Major visual elements include the mountain backdrop, the ridgeline and the stepped height profile of the buildings in the area, which can be enjoyed by villagers, workers, visitors and hikers along the existing trails.

Identification of Visual Envelope

4.2 The TPB Guidelines No. 41 stated that the Visual Envelope (VE) should have a radius of three times of the height of the building (3H). Since the building height of the tallest block is about 160m, the Zone of Visual Impact (ZVI) or Initial Assessment Area Boundary (IAAB) covers a radial area of 480m (i.e. 3H) from the centre of the proposed PRH development as shown in Figure 4.1. The VE is expected to cover the fields of views from the site to all potential VSRs in direct sight of the proposed PRH development. The ZVI of the proposed development is determined as an initial reference in approximating the extent of assessment area for the identification of VSRs. The type and quality of the existing views enjoyed by the VSRs from the selected VPs is assessed by visual analysis.

Selection of Viewpoints

4.3 As shown in Figure 4.1, the VE of the proposed PRH development covers mainly to the ridgeline of Kau To Shan, Fo Tan industrial areas and the ridgeline of Ma On Shan at a distance across Shing Mun River. Based on the preliminary analysis, 8 VPs are selected for the visual impact assessment of the proposed PRH development (in Table 4.1 and Figure 4.1). These VPs represent areas in the vicinity of the Application Site where residents, visitors and people from the community frequent the area to use these spaces.

Viewpoint	***Description***
VP1	Top of slope from Kwai Tei New Village
VP2	Top of slope from Wong Chuk Yeung Tsuen Path
VP3	Shan Mei Street Playground
VP4	Lok Lin Path, adjacent to Pine Villa
VP5	Shing Mun River No. 2 Promenade Rest Garden
VP6	Road Junction of Fo Tan Road and Kwai Tei Road
VP7	Fo Tan MTR Station (South Concourse)
VP8	Footpath along Kwai Tei New Village

Table 4.1 Selected viewpoints of visually sensitive receivers

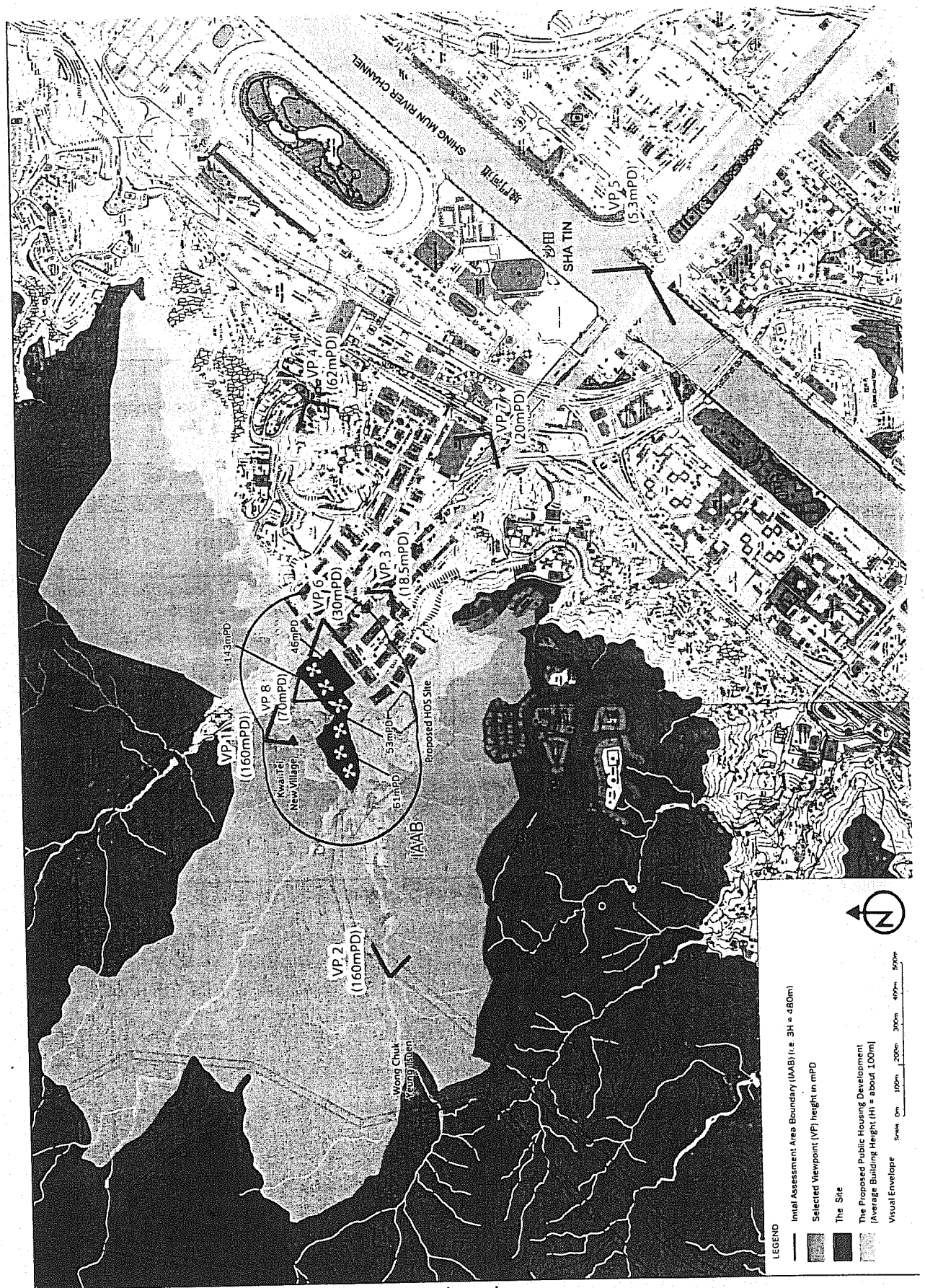


Figure 4.1 The viewpoint locations and visual envelope

Viewpoints	*Distance / Direction*	*Height in mPD*	*Type of VPs*	*Popularity by public*	*Visually Sensitive Receivers*	*Nature of Public VPs*	*Visual Sensitivity*
VP1 Top of slope from Kwai Tei New Village	Approx. 300m / North	160	LVP	Occasional	Hikers on Kau To Shan	Passive Recreation	Medium to high
VP2 Wong Chuk Yeung Tsuen Path	Approx. 650m / Northwest	160	LVP	Frequent	Villagers from Wong Chuk Yeung Tsuen and hikers	Pedestrian / Traffic	Medium to high
VP3 Shan Mei Street Playground	Approx. 450m / Southeast	18.5	LVP	Frequent	Workers from Fo Tan industrial area	Active / Passive Recreation	Low to medium
VP4 Lok Lin Path, adjacent to Pine Villa	Appox. 1,000m / East	62	DVP	Transient	Residents from Pine Villa, The Morning Glory, Valley Villa and Jumper Villa	Pedestrian / Passive Recreation	Low to medium
VP5 Shing Mun River No. 2 Promenade Rest Garden	Approx. 1,700m / Southeast	5.3	DVP	Frequent	Residents living in Sha Tin District, cyclists and visitors	Passive Recreation	Medium to high
VP6 Road Junction of Fo Tan Road and Kwai Tei Road	Approx. 130m / East	30	LVP	Transient	Workers from Fo Tan industrial area	Pedestrian / Traffic	Medium to high
VP7 Fo Tan MTR Station (South Concourse)	Approx. 980m / Southeast	20	DVP	Very Frequent	Workers from Fo Tan industrial area and residents living in Fo Tan District	Pedestrian	Low
VP8 Footpath along Kwai Tei New Village	Approx. 60m / North	70	LVP	Frequent	Villagers from Kwai Tei New Village	Pedestrian / Traffic	High

Table 4.2 Details of the selected visually sensitive viewpoints

5 Detailed Assessments of Visual Impacts

5.1 The VIA evaluates the degree of visual impact of the proposed PRH development that will be created to the VSRs, especially at the VPs identified within the surrounding area of the Application Site. Table 4.2 outlines the details of the VPs and provides a preliminary analysis indicating the nature and sensitivity of the VSRs at each VP. The sensitivity of the selected VPs is dependent upon the distance, nature and frequency of use and popularity of the spot. Since the proposed HOS development is in the vicinity within the bus depot site will be completed before Phase 2 of the PRH development, the cumulative visual impact caused to the VSRs as a result of the proposed PRH and HOS developments will also be discussed for each VP.

VP1 – Top of slope from Kwai Tei New Village

5.2 This VP represents the view of hikers on Kau To Shan, where it is near Kwai Tei New Village with medium to high visual sensitivity as shown in Figure 5.1 as people may only travel to this VP occasionally. It is located at the fringe of the village with steep topography with a distance of 300m and can be regarded as a LVP. Since it is situated at about 160mPD in height and facing directly to the north of the Application Site, there is an open view of the industrial area and mountain backdrop. Some tall vegetation is visible in front of the view from this VP. The existing view has a cluster of industrial buildings with height ranging from 8 to 19 storeys located behind the Application Site and the ridgeline of Ma On Shan at a distance is clearly visible from this VP forms the backdrop of the proposed PRH development. The existing visual quality at this VP is considered to be medium to high.

5.3 As shown in Figure 5.2, the proposed PRH development creates a considerable building mass and obstructs the openness of this VP to quite an extent, but the ridgeline of Ma On Shan is preserved. Some of the industrial buildings are blocked by the proposed PRH development at this VP. The proposed PRH development (ranging from 134.4mPD to 157.7mPD) is generally higher than the industrial buildings (about 90mPD) in the immediate surroundings. However, this VP is not a popular spot and is not frequented by hikers or residents. Hence, the proposed PRH development will have a moderate to significant visual impact to the VSRs at this VP.

5.4 When considering the cumulative visual impact of both HKHA's projects, the proposed HOS development (ranging from 146-149mPD) is also visible in between the proposed PRH blocks at this VP. The existing residential developments to the south of the site such as Sui Wo Court (ranging from 152mPD to 179mPD) and The Palazzo (about 220mPD) have a similar building height to the proposed PRH and HOS developments. The building height, development scale and the building form of the proposed PRH and HOS developments will not be out of context with the existing development context in the surrounding area.

5.5 Although, the proposed PRH and HOS developments will transform the existing landscape of the built environment, to a certain extent they will together generally help enhance the visual quality due to better quality building design than the existing industrial buildings. The proposed PRH development with the variation of its building mass to have better visual quality and the provision of building gaps to allow visual permeability, the proposed development(s) will bring about a moderate to significant visual impact to the VSRs at this VP.

VP2 – Top of slope from Wong Chuk Yeung Tsuen Path

5.6 This VP represents the view of villagers from Wong Chuk Yeung Tsuen and hikers at Kau To Shan with medium to high visual sensitivity as shown in Figure 5.3. It is located on the main access leading to Wong Chuk Yeung Tsuen with a distance of 900m from the Application Site. It is regarded as a LVP and situated at around 160mPD on Wong Chuk Yeung Tsuen Path. The view from this VP is

blocked to a large extent by the existing tall vegetation and the existing visual quality can be regarded as medium to high.

5.7 As shown in Figure 5.4, only part of the proposed PRH development will be visible at this VP but the lower portion of the buildings are screened off by the vegetation. Though the view is partially blocked by the proposed PRH development, the residential development at Racecourse MTR Station and the ridgeline of Ma On Shan as the backdrop can still be visible. The building mass and bulk is considered not incompatible with the surrounding built environment. The proposed PRH development is considered to have slight visual impact to the VSRs at this VP.

5.8 When considering the cumulative visual impact of the proposed PRH and HOS developments, only a small portion of the proposed HOS development can be seen from this VP. The residential development Racecourse MTR Station and the ridgeline of Ma On Shan is visible with the proposed developments in place. It can be observed that the building height and scale of the proposed PRH and HOS developments will have a slight visual impact to the VSRs at this VP.

VP3 – Shan Mei Street Playground

5.9 This VP represents the view of workers from Fo Tan Industrial Area, people using the playground and the adjacent cooked food market with low to medium visual sensitivity. The proposed PRH development is about 450m away from this VP. Shan Mei Street is one of the main roads in the area with frequent passenger and freight traffic and is regarded as LVP as shown in Figure 5.5. Industrial buildings such as Kerry Godown and Wah Lok Industrial Centre(about 90mPD) can be found on both sides of the road. This forms a visual corridor between this VP and the Application Site. The existing visual quality is regarded as low to medium.

5.10 As shown in Figure 5.6, the proposed PRH development appears to be a little taller than the industrial buildings in the front. Two of the PRH blocks are mostly visible from this VP and the others blocks are screened off by the industrial buildings and together create a stepped building height profile. However a small section of the ridgeline is blocked by the proposed PRH development, thus reducing the visual openness. Design measures such as provision of building gaps has been incorporated to reduce adverse visual impact. The building height, mass and form is considered compatible with the existing context. The visual impact is regarded as slight to moderate to VSRs at this VP.

5.11 When considering the cumulative impact of the proposed PRH ad HOS developments, the proposed HOS development is not visible from this VP, hence the cumulative visual impact remains slight to moderate to VSRs at this VP.

VP4 – Lok Lin Path, adjacent to Pine Villa

5.12 This VP represents the view of residents from Pine Villa, Valley Villa and Jumper Villa frequently pass by with low to medium visual sensitivity. It is a main pedestrian route leading to Fo Tan MTR Station as shown in Figure 5.7. This VP is about 1km away from the Application Site at a elevation of about 60mPD and is regarded as DVP. The view from this VP is partially obstructed by the Steward Pooi Kee Primary School and the open space at the rooftop of The Morning Glory with some industrial buildings still visible from this VP. Hence the visual quality is regarded as low to medium.

5.13 As shown in Figure 5.8, only the upper portion of a few blocks of the proposed PRH development is visible from this VP. Majority of the PRH blocks are screened off by the primary school. The proposed PRH development will form a stepped profile with the existing development context and the building form and scale are compatible with the surrounding developments. The existing view will be maintained as the proposed PRH development does not obstruct the view in any major way, hence, the visual impact is regarded as slight to moderate to the VSRs at this VP.

5.14 When considering the cumulative visual impact the proposed PRH and HOS developments, the proposed HOS development is visible behind the primary schools and industrial buildings. Only the upper of the proposed PRH and HOS developments are visible. They form a stepped building height profile with the existing development context and are easily recognised by the public in Fo Tan. In addition, the proposed HOS development does not interrupt the ridgeline and the mountain backdrop is still visible. The proposed PRH and HOS developments add variation to the existing built environment and avoid monotonous development. Hence, the proposed PRH and HOS development to VSRs at this VP is considered to be slight to moderate.

VP5 – Shing Mun River No. 2 Promenade Rest Garden

5.15 This VP represents the view of residents from Sha Tin District and visitors using the promenade and cyclists pass by with medium to high visual sensitivity as shown in Figure 5.9. It is about 1.7km away from the Application Site and is regarded as DVP. The existing buildings in the Fo Tan Industrial Area are partially screened off by vegetation and the Sha Tin Rowing Centre at the Shing Mun River waterfront at this VP. Sui Wo Court (about 152-179mPD), one of the earliest HOS developments, can be seen on the hill to the west of view from this VP. A private residential development, The Palazzo (about 220mPD), at Fo Tan MTR Station is visible to the east of the view from this VP. The ridgeline of Kau To Shan is still visible and the existing visual quality is regarded as medium to high.

5.16 As shown in Figure 5.10, most of the blocks of the proposed PRH development are obstructed by the industrial buildings in the front. Only a part of the upper portion of the proposed PRH blocks is visible from this VP. Moreover, the ridgeline of Kau To Shan is well preserved with the addition of the proposed PRH development and the stepped height profile in the area is created within the skyline and avoids monotonous development. Hence, the visual impact of the proposed PRH development is regarded as slight to VSRs at this VP.

5.17 When considering the cumulative visual impact of the proposed PRH and HOS developments to the VSRs, the proposed HOS development is hardly visible from this VP. The proposed PRH and HOS developments are compatible with the existing built environment in terms of building height, mass and development scale. The cumulative visual impact of the proposed PRH and HOS developments is regarded as slight to VSRs at this VP.

VP6 – Road Junction of Fo Tan Road and Kwai Tei Road

5.18 This VP represents the view of workers from Fo Tan Industrial Area passing along Kwai Tei Street and Tat Yip Lane with medium to high visual sensitivity as shown in Figure 5.11. It is situated close to the Application Site with a distance of 130m and is considered to be LVP. The existing visual quality is medium to high and open with vegetation and some low-rise buildings scattered in the vicinity.

5.19 As shown in Figure 5.12, Blocks 1-3 of the proposed PRH development including the podium development along Kwai Tei Street are clearly visible and partially screened by some existing trees at the junction. According to the proposed PRH development scheme, the podium structure with retailing shops, wet market and social welfare facilities in front of Blocks 1-3 will be less than 15m with a landscaped roof at about 46.5mPD for the residents of the proposed PRH development which reduce the visual bulkiness of the podium structure. The podium structure is prominent at street level, and will add vibrancy and ensure street level continuity. Although the proposed PRH development is so close to this VP, it can potentially serve as prominent development at street level within the surrounding development context and help orient people better, and provide visual enhancement due to its building design, facade and landscape treatment.

5.20 The proposed PRH development with its podium structure relates well with the surrounding

buildings with lower building height to form a stepped height profile and enhance the compatibility of the existing development by avoiding monotonous development in this area. Though the proposed PRH development obstructs the open view from this VP, it will not bring about negative effect to the surrounding environment. Hence the visual impact of the proposed PRH development is regarded as moderate to significant to VSRs at this VP.

5.21 When considering the cumulative visual impact, since the proposed HOS development is not visible from this VP, there will be no additional visual impact to the VSRs at this VP. Therefore, the cumulative visual impact of the proposed PRH and HOS development remains moderate to significant for VSRs at this VP and would not bring about a negative impact.

VP7 – Fo Tan MTR Station (South Concourse)

5.20 This VP represents the view of pedestrians, mainly the residents and workers in Fo Tan area, frequently using the South Concourse of Fo Tan MTR Station with low visual sensitivity as shown in Figure 5.13. Fo Tan MTR Station is about 980m away from the Application Site and the Fo Tan Industrial Area and Kau To Shan can be clearly seen from this VP. It is regarded as a DVP as the MTR is the primary mode of public transport serving the area and most VSRs will take MTR to and from Fo Tan. The existing open view is considered to have medium to high visual quality.

5.21 As shown in Figure 5.14, the proposed PRH development is hardly visible from this VP as the view is obstructed to a large extent by a cluster of existing industrial buildings. The proposed PRH development blends well with the surrounding environment. The addition of the proposed PRH development will form an interesting stepped height profile and avoids monotonous development. Hence, the proposed PRH development brings negligible visual impact to the VSRs at this VP.

5.22 When considering the cumulative visual impact of the proposed PRH and HOS developments, the proposed HOS development is almost entirely obstructed by the existing industrial buildings. The ridgeline at the backdrop is still preserved. Thus the cumulative visual impact of the proposed PRH and HOS developments remains negligible to VSRs at this VP.

VP8 – Footpath along Kwai Tei New Village

5.23 This VP represents the view of villagers from Kwai Tei New Village as shown in Figure 5.15 and the visual sensitivity is considered to be high. It is situated at about 70mPD in height and facing directly to the north of the Site and can be regarded as a LVP due to its close proximity of about 60m to the Application Site. The view is directly facing the existing monotonous buildings of the Fo Tan Industrial Area with some vegetation on either side of the view from this VP and the existing visual quality is considered to be low to medium.

5.24 As shown in in Figure 5.16, 3 PRH blocks of the proposed development will obstruct the openness of this VP and will create a significant visual impact to villagers. Some of the existing industrial buildings are blocked by the proposed PRH development at this VP. The proposed PRH development (ranging from 134.4mPD to 157.7mPD) is much higher than the existing industrial buildings (about 90mPD) in the immediate surroundings. With its building design, orientation and façade treatment the proposed PRH development would have a moderate to significant impact to VSRs at this VP.

5.25 When considering the cumulative visual impact of the proposed PRH and HOS developments, the proposed HOS development is not visible from this VP. Thus the cumulative visual impact of the proposed developments remains as remains moderate to significant visual impact to the VSRs at this VP.

6 Recommendations and Conclusion

Overall Visual Impact

6.1 Based on the visual impact assessment of the proposed PRH development and the cumulative visual impact of the proposed PRH and HOS developments from the above representative VPs, to the VSRs at each VP is summarised in Table 6.1 below.

Viewpoint ID	***Location***	***Assessment***	***Visual Quality***	***Type of VPs***	***Visual Impact***	***Cumulative Visual Impact***
VP1	Top of slope from Kwai Tei New Village	District view of Fo Tan area is obstructed with the proposed development in place	Medium to high	LVP	Moderate to significant	Moderate to significant
VP2	Top of slope from Wong Chuk Yeung Tsuen Path	Proposed development is partially visible and screened by the vegetation	Medium to high	LVP	Slight	Slight
VP3	Shan Mei Street Playground	Proposed development is partially visible and blocked by Kerry Godown and Wah Lok Industrial Centre	Low to medium	LVP	Slight to moderate	Slight to moderate
VP4	Lok Lin Path, adjacent to Pine Villa	Proposed development is partially visible and blocked by Stewards Pooi Kee Primary School	Low to medium	DVP	Slight to Moderate	Slight to Moderate
VP5	Shing Mun River No. 2 Promenade Rest Garden	Proposed development is partially visible and screened by Fo Tan industrial area	Medium to high	DVP	Slight	Slight
VP6	Road Junction of Fo Tan Road and Kwai Tei Road	Open view towards the site	High	LVP	Moderate to significant	Moderate to significant
VP7	Fo Tan MTR Station (South Concourse)	Proposed development is partially visible and screened by Fo Tan industrial area	Medium to high	DVP	Negligible	Negligible
VP8	Footpath along Kwai Tei New Village	Proposed development is partially visible and screened by the industrial buildings of Fo Tan Industrial area	Low to medium	LVP	Moderate to significant	Moderate to significant

6.2 The overall visual impact assessment is summarised below:

- The proposed PRH development creates a considerable building mass, and will transform the existing landscape, however, it does not create a walled development and is compatible with the surrounding built environment;
- Although the proposed PRH development will inevitably obstruct open views and bring about moderate to significant visual impacts to certain VPs, the proposed development will not worsen the existing visual quality.
- Due to the site configuration the proposed PRH development forms a stepped height profile in the area and BH, development scale and building form of the proposed PRH

development will not be out-of-context with the existing residential development within the area.

- The proposed PRH development can potentially be a prominent building at street level and contribute to make the area more legible and help pedestrians in orienting themselves better adding to street vibrancy and continuity.
- The proposed HOS building is significantly less in scale than the proposed PRH development and is only visible at some of the VPs and therefore will not further add to the cumulative visual impact.

Mitigation Measures

6.3 In order to better enhance the visual compatibility of the proposed PRH development with the surrounding area, the following mitigation measures have already been incorporated in the current building design as indicated earlier as highlighted below:

- Given the development parameters and the site configuration the buildings are oriented and designed to avoid massive walled development and minimize the obstruction of the mountain ridgeline;
- Building separation and gaps between the blocks are maintained to improve air ventilation and enhance the environmental quality within the surrounding environment while avoiding the walled building effect of tall buildings;
- The proposed PRH development is of higher building design and quality, a contrast to the surrounding existing industrial buildings. Façade, roof garden and vertical landscape treatment of the buildings will further reduce the building mass and improve the existing visual quality and help to minimize the visual impact;
- Enhanced landscaped open space such as entrance plaza, sitting-out and planting areas at ground level will further enhance the visual quality, streetscape and create a pleasant environment for the pedestrians, residents and future residents of the proposed PRH development;
- The topography of the site helps to break up the mass of the podium structure and with fenestration of the podium development it will be unlike the massive podium structures of some newer developments and will add vibrancy and street level continuity; and
- Through appropriate building and landscape design the proposed PRH development will potentially become a notable building for the Fo Tan area neighbourhood and create a sense of place.

Conclusion

6.4 Given the development parameters and planning requirements, the visual impact resulting from the proposed PRH development on the VSRs ranges from moderate to significant at most VPs and negligible at certain VPs. The scale of the proposed HOS development is considerably less than the proposed PRH development, so it does not add further to the cumulative visual impact.

6.5 Although, it is inevitable that certain views are blocked as a result of the proposed PRH development, it can potentially be a positive enhancement to most viewers at street level with its appropriate building design and landscape enhancement. The proposed PRH development can become a prominent development, recognizable from a distance within the surrounding area in Fo Tan. In conclusion, as demonstrated above, the visual impact of the proposed PRH development is considered to be acceptable from the selected VPs.

VP1 – Top of slope from Kwai Tei New Village

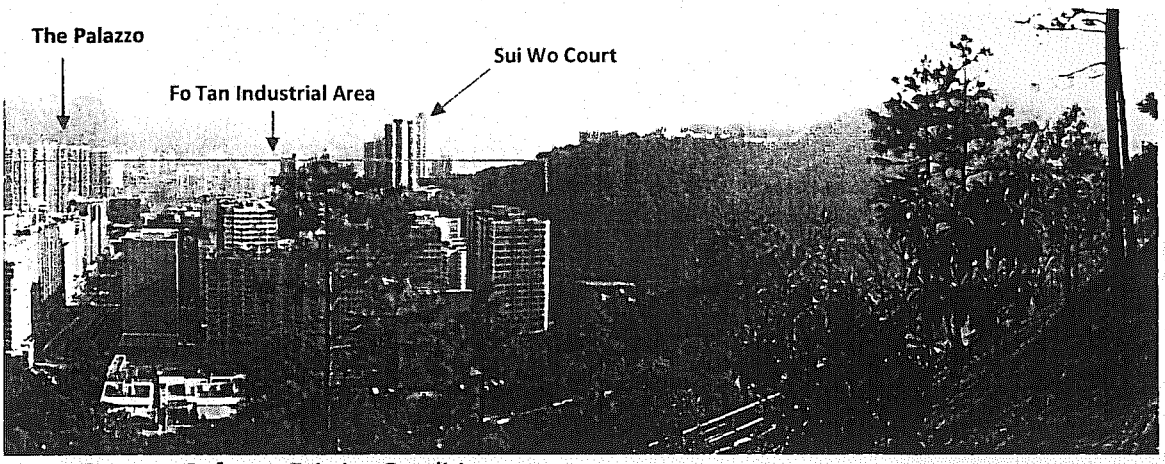


Figure 5.1 Before – Existing Condition

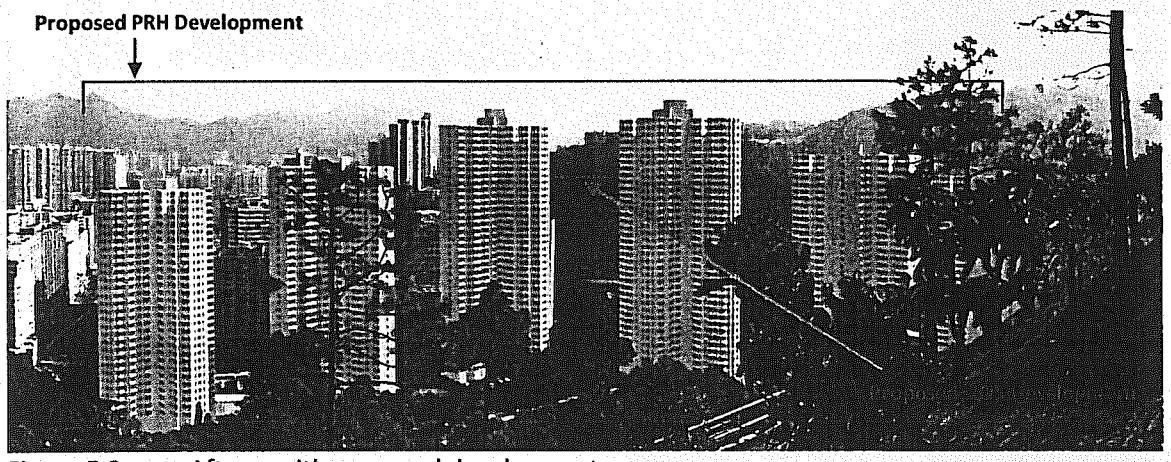


Figure 5.2 After – with proposed development

VP2 – Top of slope from Wong Chuk Yeung Tsuen Path

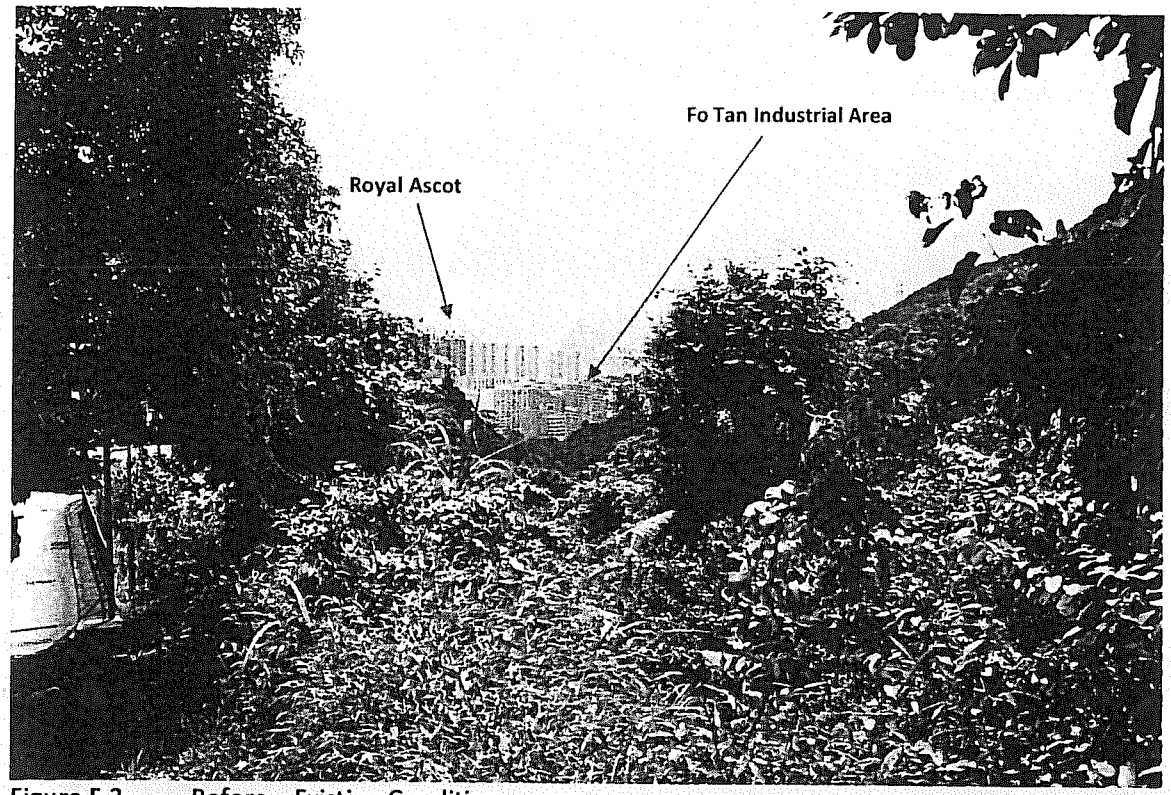


Figure 5.3 Before – Existing Condition

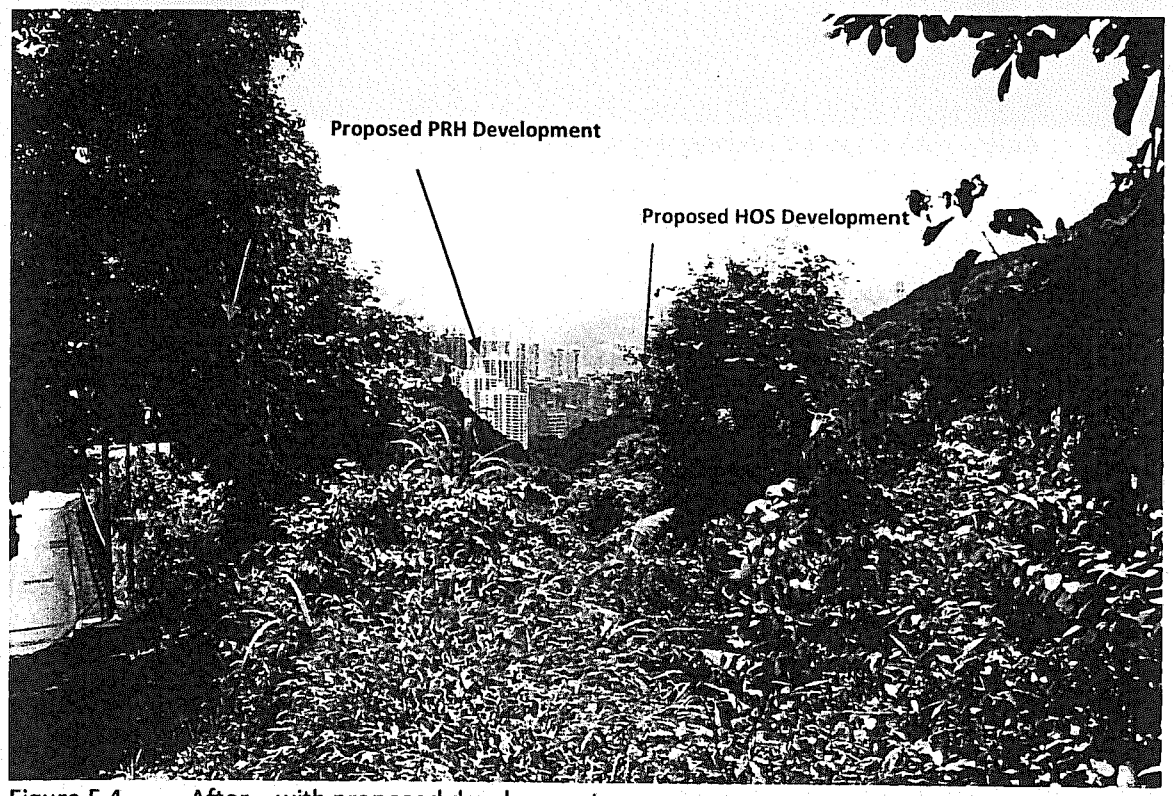


Figure 5.4 After – with proposed development

VP3 – Shan Mei Street Playground

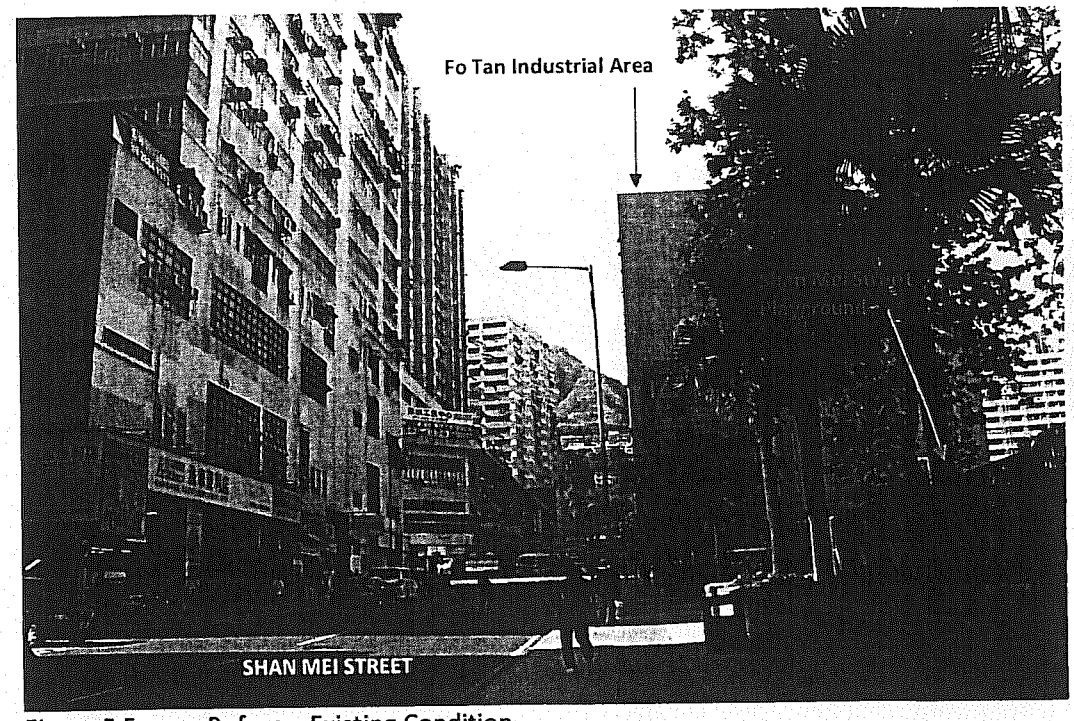


Figure 5.5 Before – Existing Condition

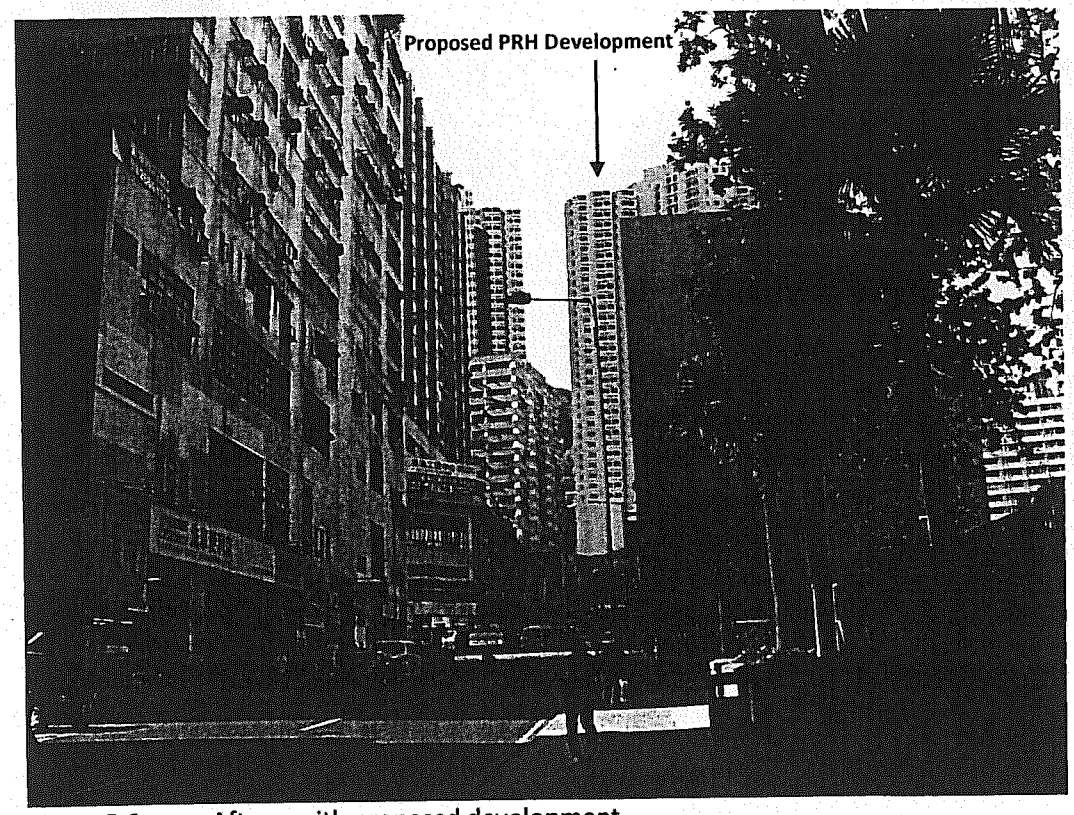


Figure 5.6 After – with proposed development

VP4 – Lok Lin Path, adjacent to Pine Villa

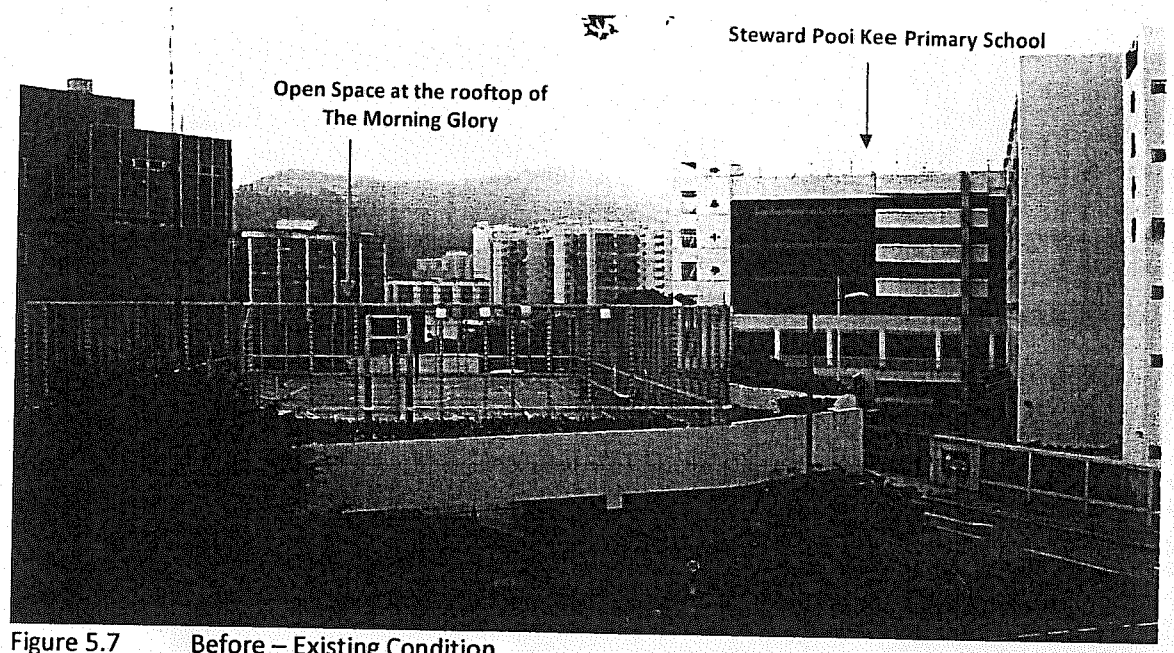


Figure 5.7 Before – Existing Condition

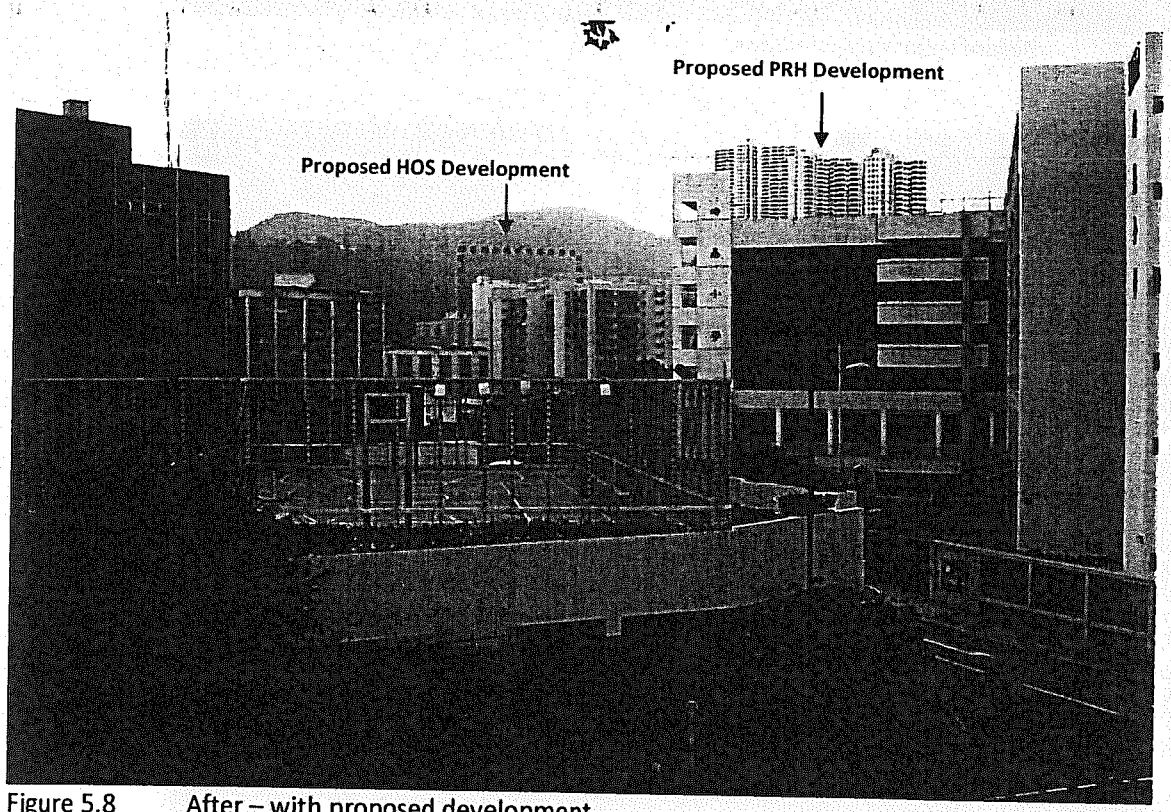


Figure 5.8 After – with proposed development

VP5 – Shing Mun River No. 2 Promenade Rest Garden

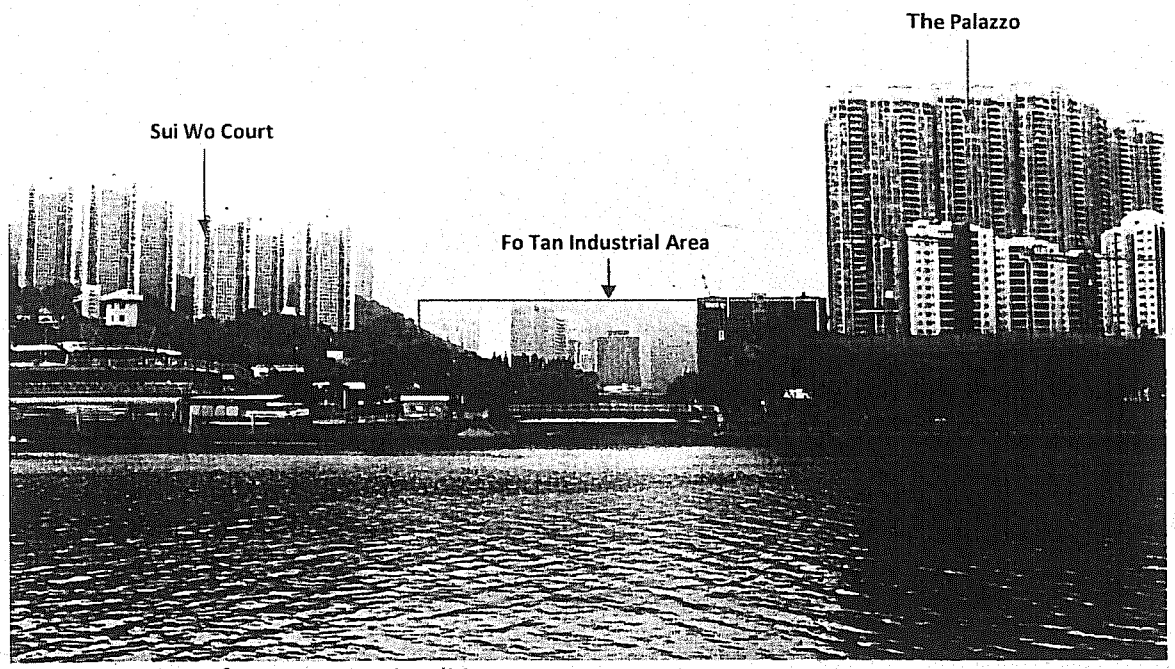


Figure 5.9 Before – Existing Condition

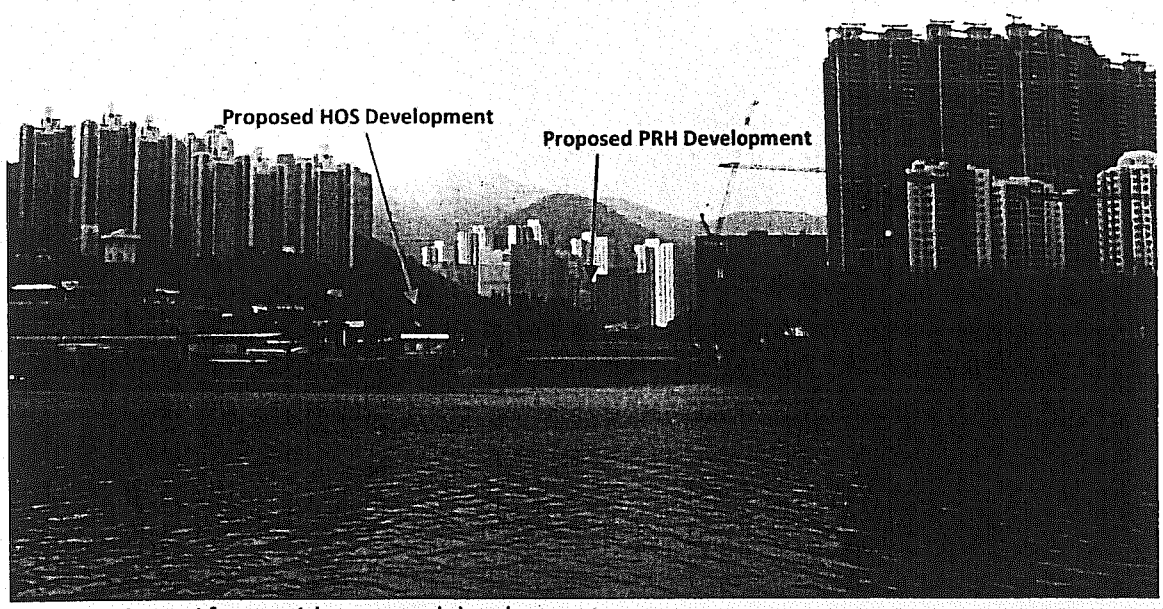


Figure 5.10 After – with proposed development

VP6 – Road Junction of Fo Tan Road and Kwai Tei Road

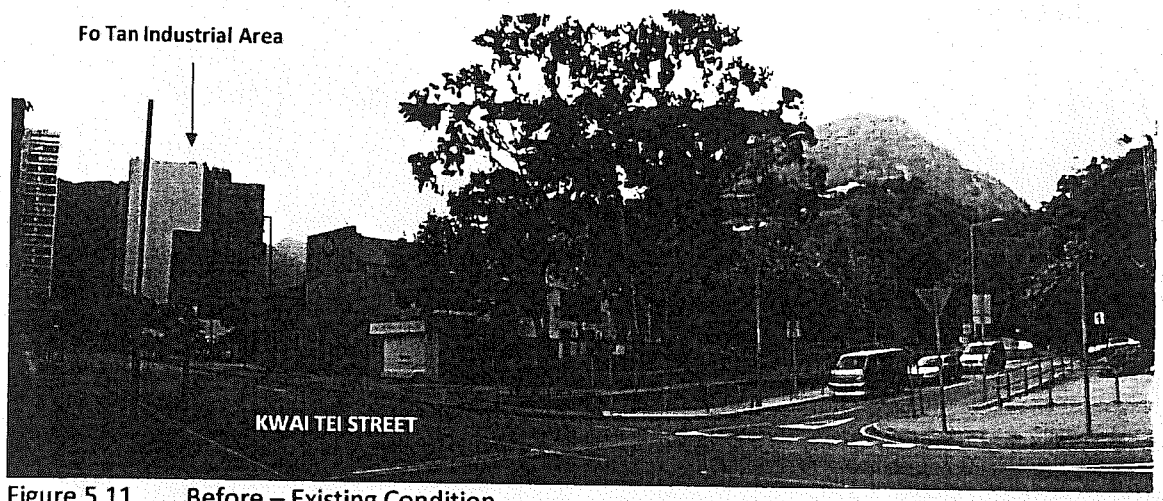


Figure 5.11 Before – Existing Condition

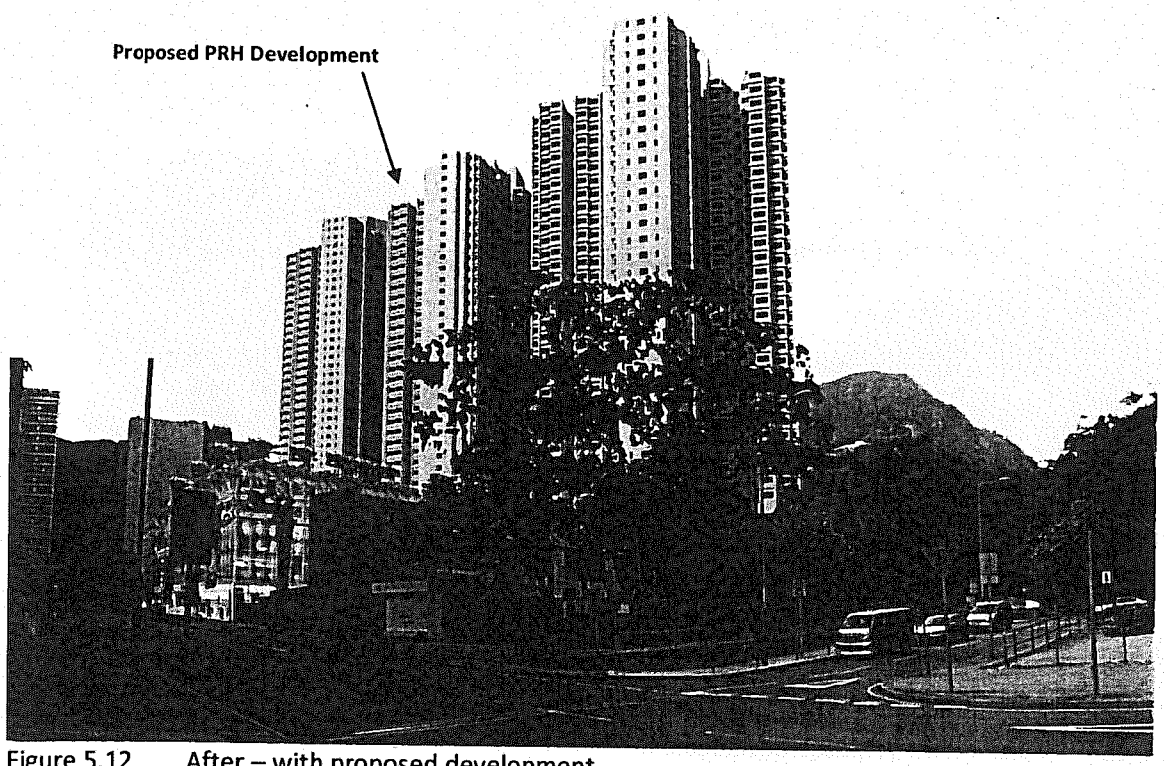


Figure 5.12 After – with proposed development

VP7 – Fo Tan MTR Station (South Concourse)

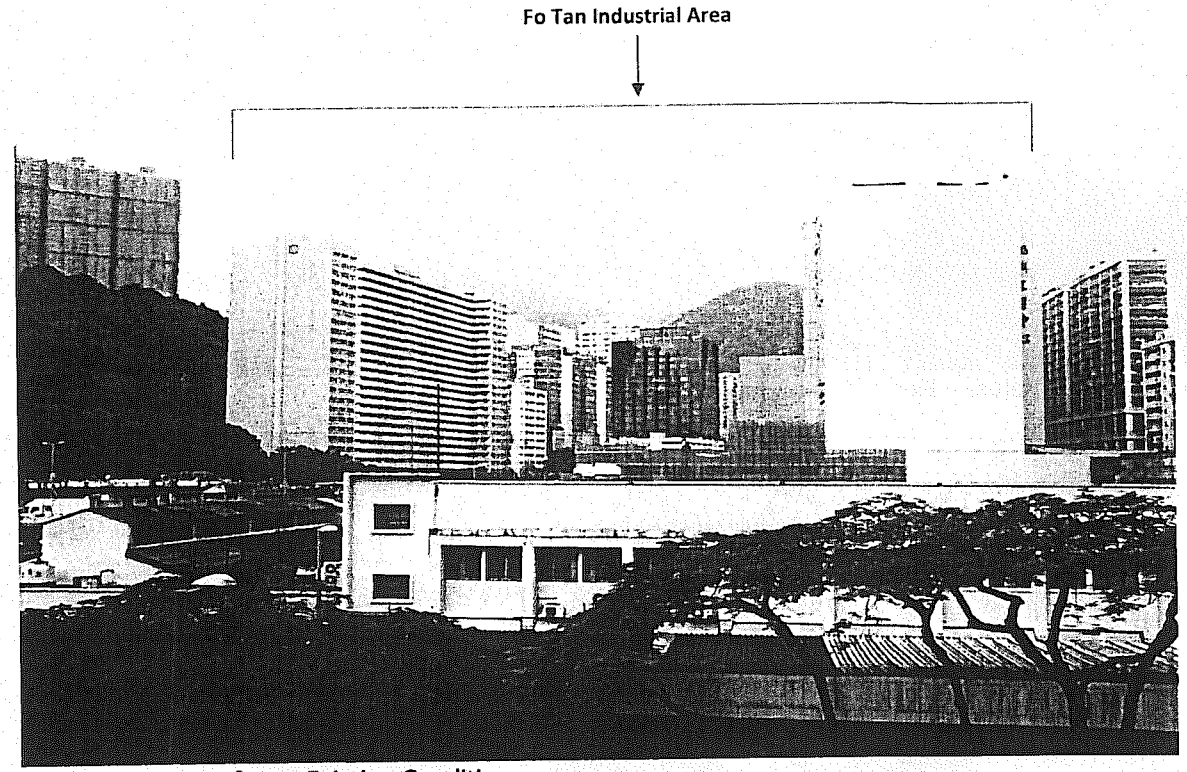


Figure 5.13 Before – Existing Condition

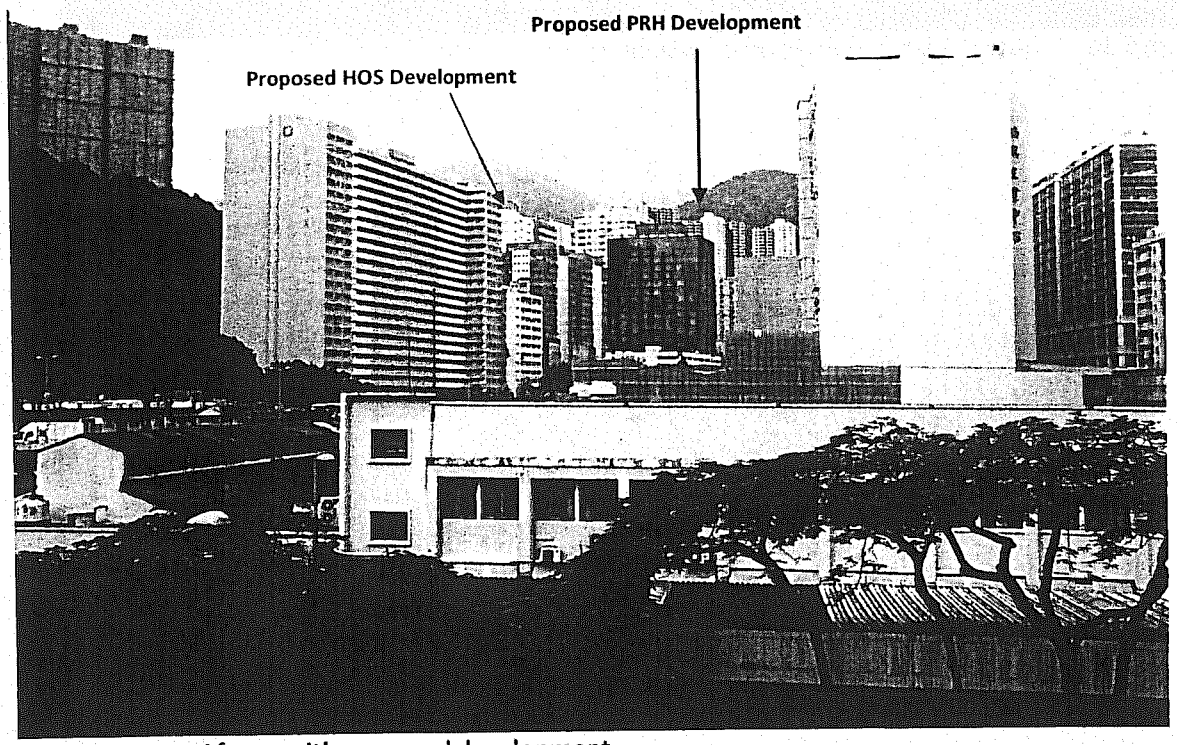


Figure 5.14 After – with proposed development

VP8 – Footpath Along Kwai Tei New Village

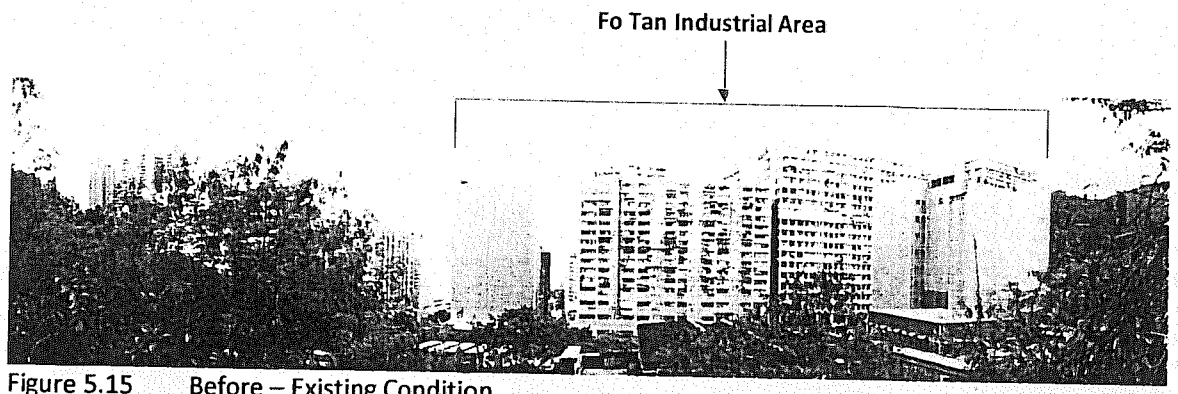
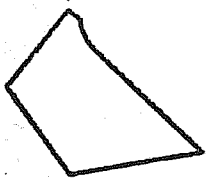


Figure 5.15 Before – Existing Condition

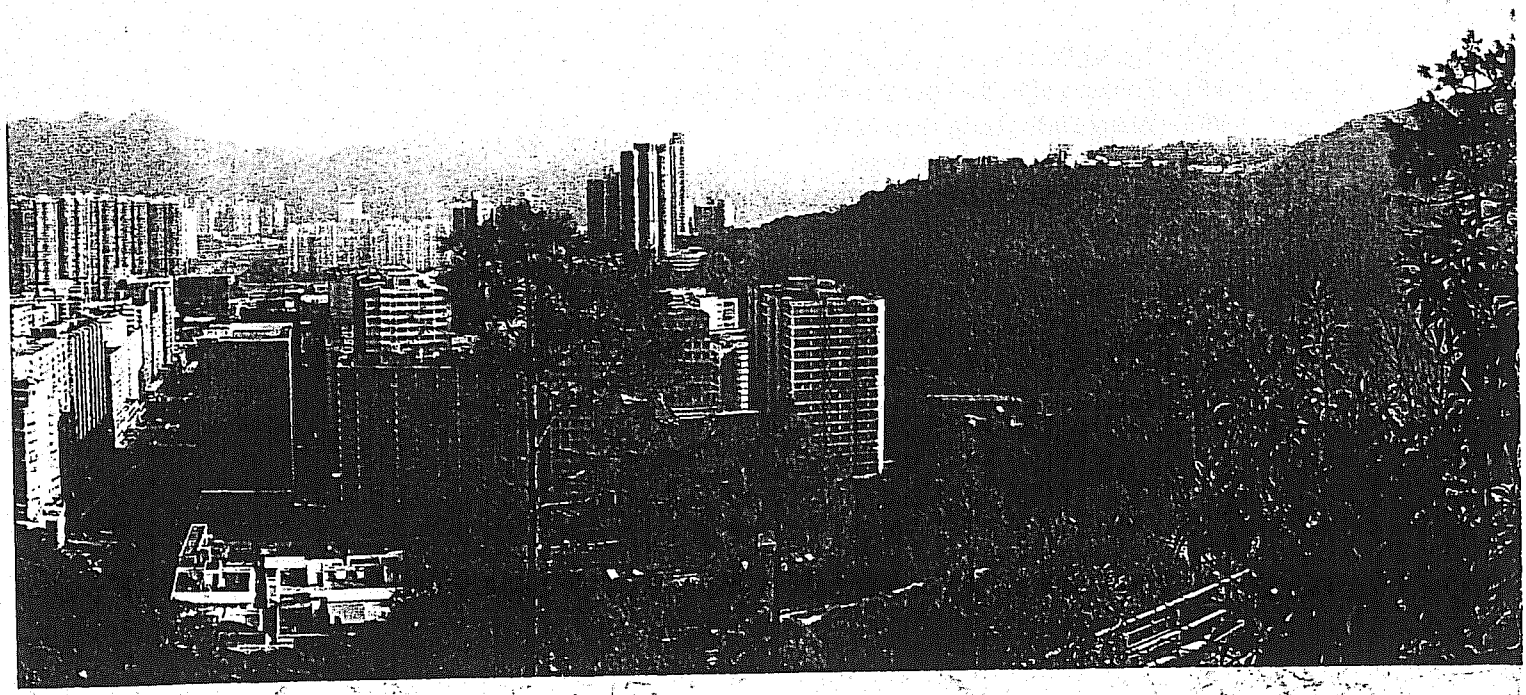
Figure 5.16 After – with proposed development

香港房屋委員會
Hong Kong Housing Authority

Consultancy for Visual Impact Assessment for Home Ownership Scheme Development at Wo Sheung Tun Street, Fo Tan



Agreement No. CB 20110065



KTA
Kenneth To & Associates Ltd
杜立基建築師事務有限公司

UP INT'L

Table of Contents

1. **Introduction**

Background

2. **Methodology**

Visual Assessment Approach

3. **Baseline Review**

Site Location and Surrounding Development Context
Site Particulars and Existing Visual Condition
The Proposed Home Ownership Scheme Development

4. **Determination of Visual Context**

Identification of Visual Elements
Identification of Visual Envelope
Selection of Viewpoints

5. **Assessment of Visual Impacts**

VP1 – Top of slope from Kwai Tei New Village
VP2 – Junction of Fo Tan Road and Kwai Tei Street
VP3 – Wong Chuk Yeung Tseun Path
VP4 – Hillslope near Sui Wo Road
VP5 – Fo Tan MTR Station (South Concourse)
VP6 – Shing Mun River No. 2 Promenade Rest Garden
VP7 – Mini-bus stop near Kwai Tei New Village
VP8 – Man Hang Street

6. **Recommendations and Conclusion**

Overall Visual Impact
Mitigation Measures
Conclusion

List of Figures

Figure 1.1	The Location of Application Site
Figure 1.2	Land-use zoning of the Application Site and its surrounding areas
Figure 3.1	Development scale of the proposed HOS development
Figure 3.2	Cross-section of the proposed HOS development
Figure 4.1	The viewpoint locations and visual envelope
Figure 5.1	VP1 – existing condition
Figure 5.2	VP1 – with proposed development
Figure 5.3	VP2 – existing condition
Figure 5.4	VP2 – with proposed development
Figure 5.5	VP3 – existing condition
Figure 5.6	VP3 – with proposed development
Figure 5.7	VP4 – existing condition
Figure 5.8	VP4 – with proposed development
Figure 5.9	VP5 – existing condition
Figure 5.10	VP5 – with proposed development
Figure 5.11	VP6 – existing condition
Figure 5.12	VP6 – with proposed development
Figure 5.13	VP7 – existing condition
Figure 5.14	VP7 – with proposed development
Figure 5.15	VP8 – existing condition
Figure 5.16	VP8 – with proposed development

List of Tables

Table 3.1	Broad development parameters
Table 4.1	Selected viewpoints of visually sensitive receivers
Table 4.2	Details of the selected visually sensitive viewpoints
Table 6.1	Summary of assessment of visual impact at the viewpoints

1 Introduction

Background

1.1 This Visual Impact Assessment ("VIA") report is prepared on behalf of the Hong Kong Housing Authority ("HKHA"), the Project Proponent, in support of a rezoning application to the Town Planning Board (TPB) for the Home Ownership Scheme (HOS) development at the Wo Sheung Tun Street Bus Depot (the Application Site) in Fo Tan, Sha Tin District.

1.2 The location of the Application Site is indicated in Figure 1.1. It is currently zoned as "Industrial" ("I") under the Approved Sha Tin Outline Zoning Plan No. S/ST/26 (the OZP), as shown in Figure 1.2. According to the scheme suggested by HKHA, the proposed HOS development consists of 2 residential blocks of 33-34 storeys including ground floor lobby (about 146-149mPD) with slight variations in building height.

1.3 The purpose of this VIA is mainly to determine the visual impact of the proposed HOS development as part of the rezoning application to the TPB. The VIA evaluates the existing visual conditions, visual resources and visual quality of the site and the surroundings. The visual assessment includes the compatibility and the degree of anticipated visual impacts of the proposed HOS development on the Visually Sensitive Receivers ("VSRs") at the selected viewpoints (VPs) relevant to the Application Site. Visual assessment of the proposed HOS development is conducted and detailed in the VIA report.

1.4 As the HKHA is proposing a Public Rental Housing (PRH) development at the nearby ex-Fo Tan Cottage Area site (Sha Tin Area 16 and 58D) which is located to the north of the HOS development with a similar development programme, a cumulative visual impact assessment of both developments is addressed in this report to reflect a more realistic visual condition when the developments are completed. Based on the cumulative assessments, the VIA details the overall visual impact with mitigation measures and concludes on the visual acceptability of the proposed HOS development.

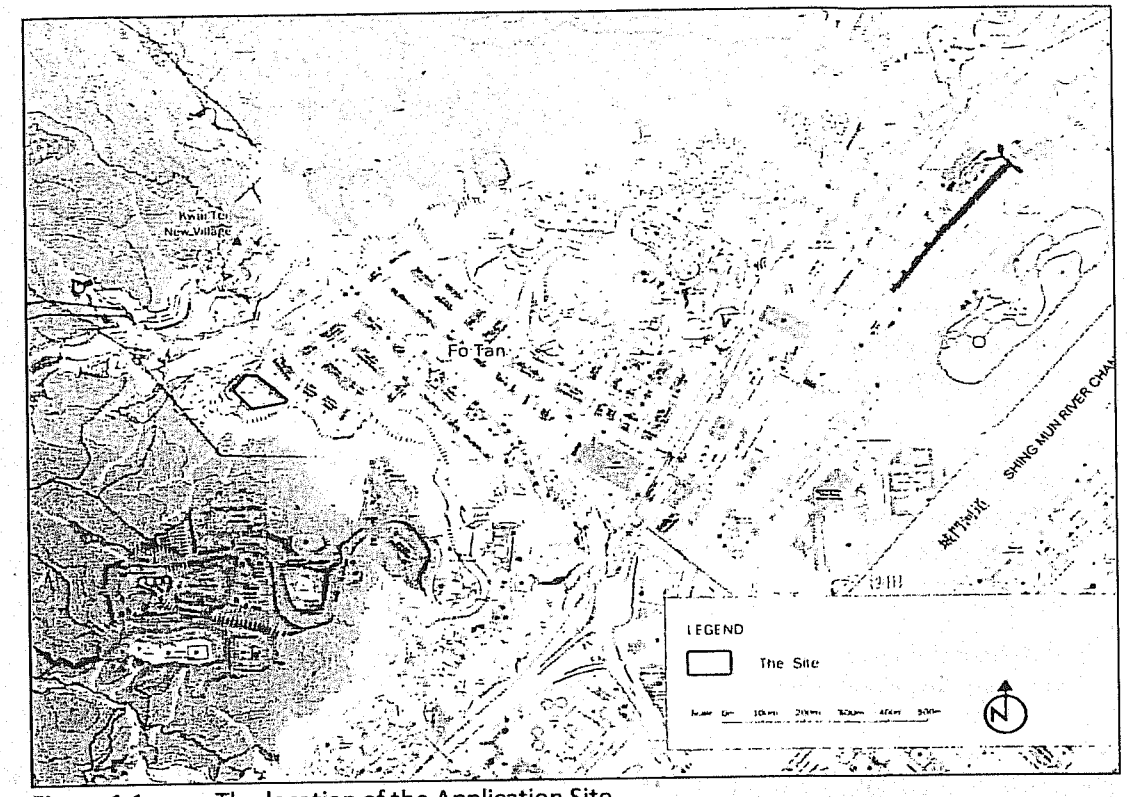


Figure 1.1 The location of the Application Site

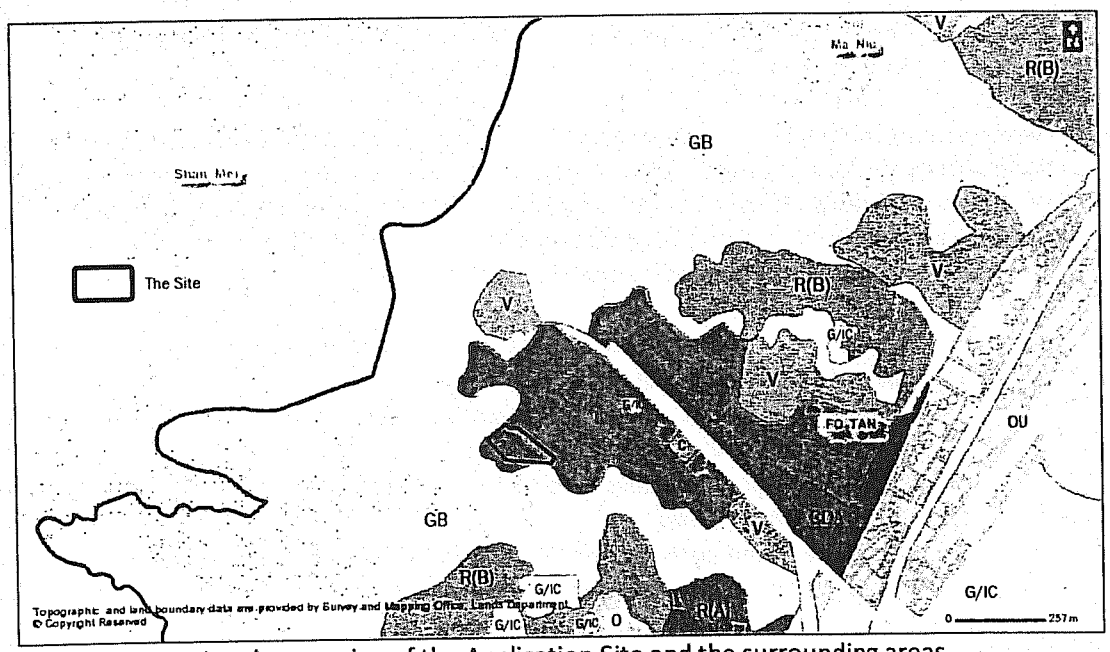


Figure 1.2 Land use zoning of the Application Site and the surrounding areas
[Source: Survey and Mapping Office (2011), Lands Department, available (online): http://www.ozp.tpb.gov.hk]

2 Methodology

Visual Assessment Approach

2.1 The visual impacts are assessed based on the degree of sensitivity to change from the existing visual condition to key VSRs as a result of the proposed HOS development on the Application Site. Visual impacts could either be beneficial or adverse and their levels of significance are based on i) development compatibility of the proposed development with the existing development context and integration with the adjacent area; ii) quality of visual amenity and existing views from the VSRs at the selected VPs; iii) visual obstruction and/or enhancement; iv) the distance of the VSRs from the proposed development; and v) level of sensitivity based on the receiver group.

2.2 The existing visual quality of the surrounding area can be classified as high, medium, low or poor based on the existing land use, development context, activities, open space, landscape, streetscape, linkages, pedestrian and visual access as well as quality of visual resources. Determination of the existing visual quality of the surrounding area and the quality of existing views for the VSRs from the identified VPs is key to the VIA.

2.3 Assessment of visual impact of proposed development on the VSRs is determined by the sensitivity to change. The sensitivity of the VSRs typically ranges from high to low:

- High – the VSR is highly sensitive to any change in their viewing experience (e.g. residents or villagers);
- Medium – the VSR is moderately sensitive to any change in their viewing experience (travelling and recreational VSRs, e.g. pedestrians, hikers and visitors);
- Low – the VSR is only slightly sensitive to any change in their viewing experience (occupational VSRs, e.g. office and factory workers)

2.4 Assessment of the potential "visual impact" is determined by considering the following factors – 1) Compatibility of the proposed development with the surrounding development context; 2) Scale of impact and the distance of the source of impact from the viewer; 3) Quality of the existing views currently enjoyed by the VSR; 4) Degree to which, the source of impact dominates the field of vision of the viewer; and 5) Duration and reversibility of the impact:

- Significant – the proposed development would have a substantial deterioration or improvement in existing visual resource;
- Moderate – the proposed development would have a moderate deterioration or improvement in existing visual resource;
- Slight – the proposed development would have a slight deterioration or improvement in existing visual resource;
- Negligible – the proposed development would have no discernible deterioration or improvement in quality of existing visual resource.

2.5 The VIA will be undertaken in the following steps:

- A baseline review will be conducted to capture the existing visual elements, the development character and visual quality surrounding the Application Site;
- The proposed HOS development and the surrounding development context will be briefly described including the mitigation measures already included as part of the design;
- Working closely with the Planning Department, to determine the Visual Envelope (VE) and to identify appropriate public VPs including Local Viewpoints (LVPs) and District Viewpoints (DVPs);

- Potential visual impacts of the proposed HOS development and the potential cumulative visual impacts with the proposed PRH development at the nearby ex-Fo Tan Cottage Area on the VSRs at the selected VPs will be assessed as illustrated in the photomontages;
- The overall visual impact will be included with the mitigation measures indicated earlier, highlighting the visual acceptability of the proposed HOS development based on the cumulative visual impact of both PRH and HOS developments.

3 Baseline Review

3.1 This VIA is to provide the HKHA with all the necessary, information, presentation and visualization materials to facilitate the amendments to the "OZP" to residential use by Planning Department, for the proposed HOS development at the Site.

Site Location and Surrounding Development Context

3.2 The Application Site is located at a terraced slope at the end of the inclined Wo Sheung Tun Street in the northwest periphery of Fo Tan Industrial Area. It is currently used as an open-air bus depot. The area is dominated by industrial buildings that accommodate manufacturing industries, studios, workshops, ancillary offices, warehouses and logistics centers. The building heights of the industrial buildings range from 8 to 19 storeys (about 50 - 90mPD) and are in fair condition but under multiple ownerships.

3.3 Residential developments could be found in the vicinity of the Application Site. Further to the east across the Fo Tan Industrial Area on the slope of Kau To is a cluster of mid-rise "Residential (Group B)" ["R(B)"] developments such as The Grandville, Shatin Lodge and The Morning Glory. There are also several village-type developments on the periphery of Fo Tan Industrial Area, for example, to the north is Kwai Tei New Village, to the south is Fo Tan Tsuen while to the further west is Wong Chuk Yeung Tsuen. The HKHA has proposed a PRH development of 6 residential blocks with 27-38 storeys (about 137.7-157.7mPD) at the ex-Fo Tan Cottage Area to the north of the Application Site to be developed in two phases and is scheduled to be completed in 2018 and 2021 respectively.

3.4 An area zoned "Green Belt" ("GB") on the periphery of the Fo Tan Industrial Area serves as a buffer to the adjacent natural environment.

3.5 The nearest MTR station is Fo Tan Station which is about 1km away from the Application Site. Buses and minibuses are the major public transportation serving the area.

Site Particulars and Existing Visual Condition

3.6 The Application Site is about 0.87 hectare located on a terraced lot at 52mPD with direct vehicular access from Wo Sheung Tun Street and has a slope fronting Man Hang Street at 36mPD (in Figure 1.1). It is currently zoned as "I" under the OZP. The "I" zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet the demand from production-oriented industries. Information technology and telecommunication industries as well as office related to industrial use are always permitted in this zone.

3.7 The Application Site comprises land currently used for bus depot and the adjacent slope. Though the Application Site is located within the industrial area, it is surrounded by vegetation on three sides on a raised platform.

3.8 Due to site location and topography, the existing visual quality of the Application Site looking over the Fo Tan Industrial Area can be regarded as low to medium. However, the Application Site enjoys a more scenic view towards to hillslope zoned as "GB" with tall vegetation to the west.

The Proposed Home Ownership Scheme Development

3.9 The proposed HOS development has an area of about 0.87ha with a proposed plot ratio not more than 5. Two residential blocks are proposed on the site. The buildings are about 33-34 storeys including ground floor lobby (about 146-149mPD) with about 560 units. Ancillary facilities include an open car park and landscaped area. Thus the proposed HOS development fully utilizes the plot

ratio and optimizes the development potential of valuable land resources. A master plan and a cross section of the proposed HOS development are shown in Figures 3.1 and 3.2.

3.10 The proposed HOS development has a setback away from the industrial buildings to minimize the potential issues of industrial/residential interface.

3.11 Taking into account the development parameters and planning requirements, the following considerations have been made in the design of the proposed HOS development:

- Given the site configuration the proposed HOS development with residential blocks designed as standalone structures and oriented in a sensitive manner with no podium to avoid massive podium development and the towers blocks are oriented to minimize the obstruction of the ridgeline;
- The residential blocks are of single-aspect design and are oriented away from the pollution source, the nearby industrial buildings; the proposed HOS development endeavours to provide a set back away from the industrial buildings to mitigate the industrial/residential interface issues;
- The layout of residential blocks is designed as T-shaped and the dynamic alignment of the tower blocks to break the monotonous elevation and avoid walled development along Man Hang Street;
- The residential blocks sit on a platform of about 16m above Man Hang Street and are setback of not less than half the width of the existing slope to maximize the distance from the adjacent industrial buildings and also minimize the visual impact of the proposed development.
- The setback area and huge level difference between the street and site levels offers an opportunity for the provision of extensive landscape slope treatment to help mitigate the industrial/residential interface issue and thereby improve the visual quality as well as enhance the walking environment along Man Hang Street;
- As Man Hang Street is a dead-end street, it does not have heavy traffic and the area is relatively quiet and does not attract high pedestrian movement and has no adverse pollution at street level.
- With proper landscape treatment and pavement along Man Hang Street, it offers an opportunity for a pleasant pedestrian environment at street level for enhanced pedestrian movement.
- Landscaped open space such as at-grade planting, roof and vertical greening is targeted at 30% in order to create a pleasant environment for the future residents of the proposed HOS development as well as pedestrians and users within the area; and
- A tree compensatory proposal is included to ensure sufficient trees are planted within the site. Landscaping will be compatible with the natural environment and offer a pleasant visual experience for the residents and pedestrians passing by. Design of the landscaped open space within the Application Site is subject to detail design at a later stage.

Parameters	
Site Area	0.87 hectares
Plot Ratio	not more than 5
No. of domestic blocks	2
Building Height	146 to 149 mPD (32-33 domestic storeys)
Flat Production	about 560 flats
Other facilities	Open car park and landscape area

Table 3.1 Broad Development Parameters

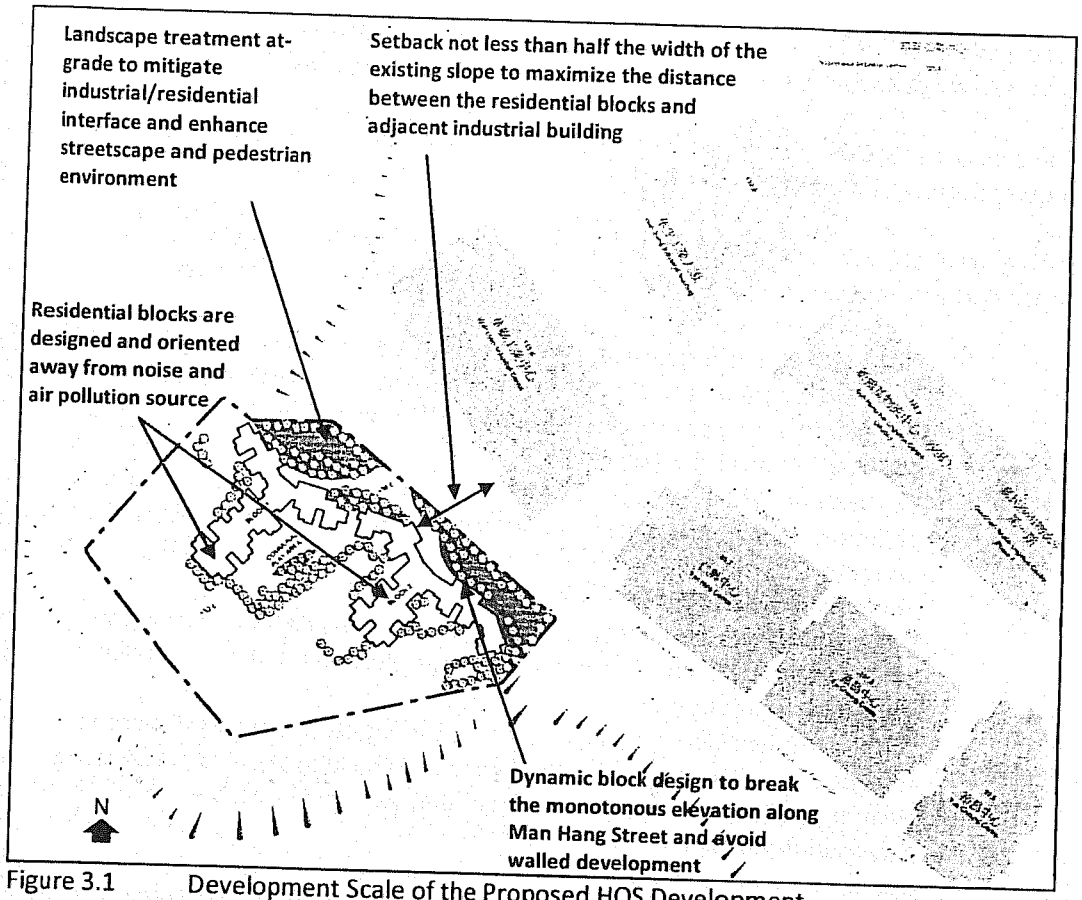


Figure 3.1 Development Scale of the Proposed HOS Development

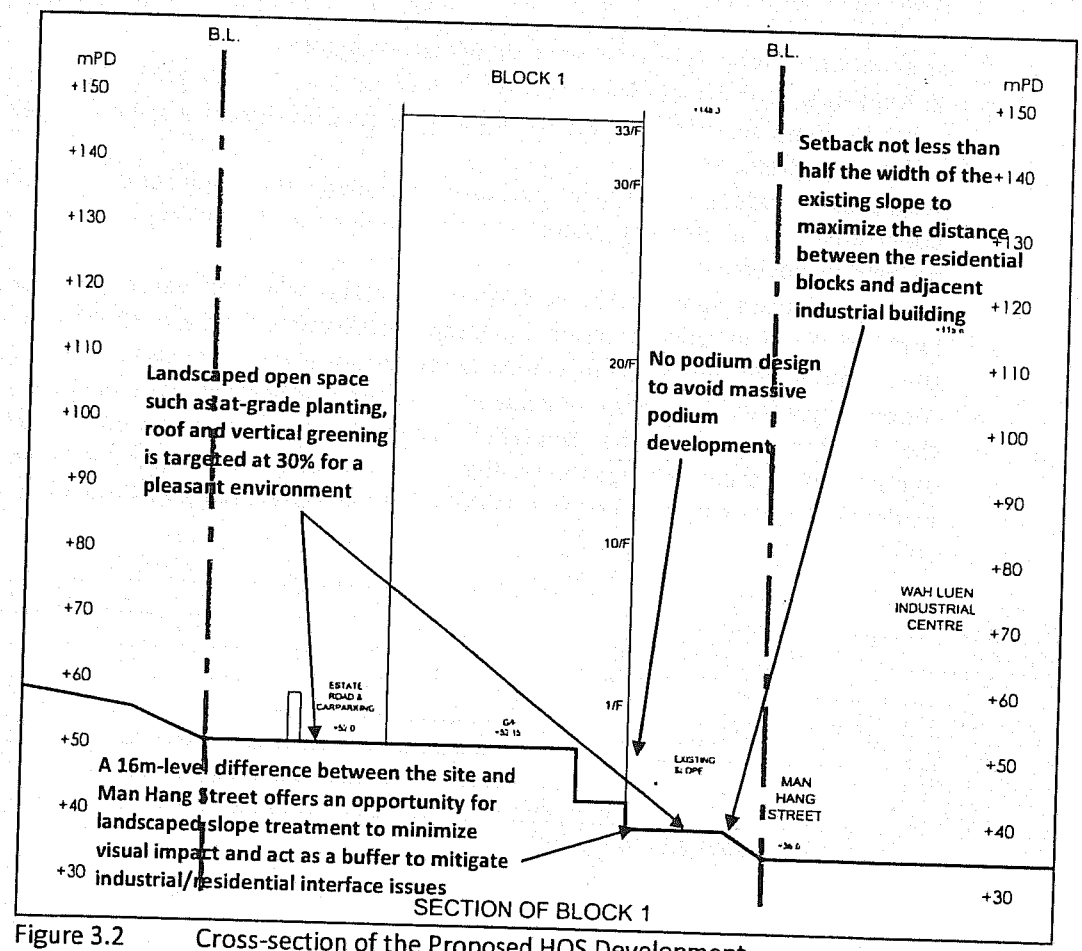


Figure 3.2 Cross-section of the Proposed HOS Development

4 Identification of Existing Visual Elements, Visual Envelope and View Points

Visual Elements

4.1 The visual outlook of the site and its surrounding area is shaped by the combined composition of all the visual elements, which come into sight of the viewers from various VPs. Major visual elements include 1) a cluster of industrial buildings with low visual quality along Man Hang Street, Wong Chuk Yeung Street and Shan Mei Street such as Wah Luen Industrial Centre, Yan Hing Centre, Fu Cheung Centre, Yue Cheong Centre, Wah Sang Industrial Building, Sun Hung Kai Logistics Centre (Shatin), Goodman Shatin Logistics Centre Phase 1 and 2 to the east; 2)village-type development in Kwai Tei New Village and the proposed PRH development at ex-Fo Tan Cottage Area to the north; and 3) Kau To Shan as the backdrop to the west and northwest. The proposed PRH development will form a major composition of the visual element in the area. Hence the existing visual quality of the Application Site and its surrounding area can be regarded as medium.

Identification of Visual Envelope

4.2 The TPB Guidelines No. 41 stated that the VE should have a radius of three times of the height of the building (3H). Since the building height of the tallest block is about 150m, the Zone of Visual Influence (ZVI) or Initial Assessment Area Boundary ("IAAB") covers a radial area of 450m (i.e. 3H) from the centre of the proposed HOS development is shown in Figure 4.1. The VE is expected to cover the fields of views from the site to all potential VSRs in direct sight of the proposed development. It is based on the ZVI of the proposed development is determined to identify the VSRs. The type and quality of the existing views enjoyed by the VSRs from the selected VPs is assessed by visual analysis.

Selection of Viewpoints

4.3 As shown in Figure 4.1, the VE of the proposed HOS development covers mainly Fo Tan industrial Area, the ridgeline of Kau To Shan and Ma On Shan at a distance opposite to Shing Mun River. Based on the preliminary analysis, eight VPs are selected to assess the visual impact of the proposed HOS development (Table 4.1 and Figure 4.1). These VPs represent the views of residents, workers and the public in the vicinity of the Application Site to evaluate the visual impact of the proposed HOS development to the existing visual context.

Viewpoint	Description
VP1	Top of slope from Kwai Tei New Village
VP2	Road Junction of Fo Tan Road and Kwai Tei Street
VP3	Wong Chuk Yeung Tsuen Path
VP4	Hillslope near Sui Wo Road
VP5	Fo Tan MTR Station (South Concourse)
VP6	Shing Mun River No. 2 Promenade Rest Garden
VP7	Mini-bus Stop near Kwai Tei New Village
VP8	Man Hang Street

Table 4.1 Selected viewpoints of visually sensitive receivers

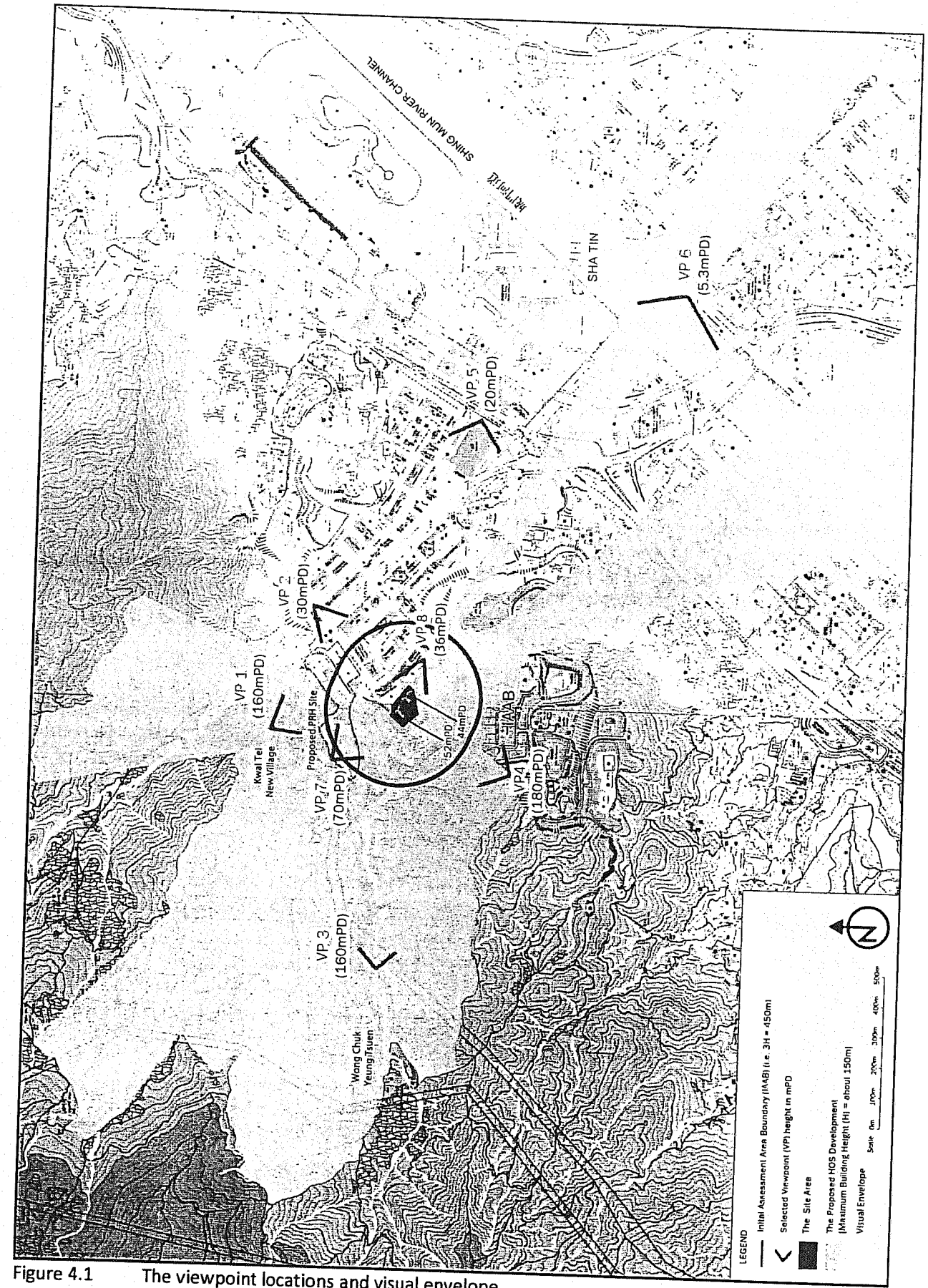


Figure 4.1 The viewpoint locations and visual envelope

Viewpoints	*Distance/ Direction*	*Height in mPD*	*Type of VPs*	*Popularity by public*	*Visually Sensitive Receivers*	*Nature of Public VPs*	*Visual Sensitivity*
VP1 Top of slope from Kwai Tei New Village	Approx. 450m / North	160	LVP	Occasional	Hikers on Kau To Shan	Passive Recreation	Medium to high
VP2 Road Junction of Fo Tan Road and Kwai Tei Street	Approx. 500m / Northeast	30	LVP	Occasional	Workers from Fo Tan Industrial Area	Pedestrian / Traffic	Low
VP3 Wong Chuk Yeung Tsuen Path	Approx. 900m/ Northwest	160	LVP	Frequent	Villagers from Wong Chuk Yeung Tsuen and hikers	Pedestrian / Traffic	Medium to high
VP4 Hillslope near Sui Wo Road	Approx. 450m / Southwest	180	LVP	Occasional	Hikers on Kau To Shan	Passive Recreation	Medium to high
VP5 Fo Tan MTR Station (South Concourse)	Approx. 950m / East	20	DVP	Very Frequent	Workers from Fo Tan Industrial Area and residents living in Fo Tan District	Pedestrian	Low
VP6 Shing Mun River No. 2 Promenade Rest Garden	Approx. 1,600m / Southeast	5.3	DVP	Frequent	Residents living in Sha Tin District, cyclists and visitors	Passive Recreation	Medium to high
VP7 Mini-bus Stop near Kwai Tei New Village	Approx. 250m / North	70	LVP	Frequent	Villagers from Kwai Tei New Village	Pedestrian / Traffic	Medium to high
VP8 Man Hang Street	Approx. 100m / Southeast	36	LVP	Frequent	Workers from Fo Tan Industrial Area	Pedestrian / Traffic	Low to medium

Table 4.2 Details of the selected visually sensitive viewpoints

5 Detailed Assessments of Visual Impacts

5.1 The VIA evaluates the degree of visual impact of the proposed HOS development that will be created to the VSRs, especially at the VPs identified within the surrounding area of the Site. Table 4.2 outlines the details of the VPs and provides a preliminary analysis indicating nature and sensitivity of VSRs at each VP. The sensitivity of the selected VPs is dependent upon the nature and sensitivity of the VSRs and the frequency of use and popularity of the spot. As the proposed PRH and HOS developments will be duly carried out by HKHA in a similar development programme, the cumulative visual impacts caused to the VSRs as a result of the proposed HOS and PRH developments will also be discussed for each VP.

VP1 – Top of slope from Kwai Tei New Village

5.2 This VP represents the view of hikers at Kau To Shan near Kwai Tei New Village with medium to high visual sensitivity as shown in Figure 5.1. People will travel to this VP occasionally for recreational purpose. It is located at the fringe of the village with steep topography at a distance of 450m from the proposed HOS development and is regarded as a LVP. An open view of Fo Tan area and the ridgeline of Ma On Shan can be seen at a distance from this VP. The existing visual quality is medium to high.

5.3 As shown in Figure 5.2, the proposed HOS development will not exceed the ridgeline of the mountain backdrop. The building height, building mass and form are considered compatible with the existing buildings in the surrounding and will not be out of existing development context. The proposed HOS development will not block the open views and VSRs from this VP can still enjoy an open view of the Fo Tan Industrial Area and the ridgeline of Ma On Shan is not obstructed. Thus, given the existing development context the proposed HOS development will have a moderate visual impact to the VSRs at this VP.

5.4 When considering the cumulative visual impact of both HKHA's projects, the proposed PRH development will dominate the view and obstruct most of the open views from this VP. The proposed HOS development has only 2 blocks and therefore it is less massive than the proposed PRH development. The proposed HOS development will partially block the view corridor through the gap between Blocks 3 and 4 of the proposed PRH development and will partially block the vegetated slope behind the Application Site. Thus the proposed HOS development will only bring about slight additional visual impact in addition to the proposed PRH development with its massive building mass consisting of six tower blocks is in place. The proposed HOS development will have moderate cumulative visual impact with the proposed PRH development in place, as it will not significantly worsen the existing visual quality. Hence, the cumulative impact of the proposed HOS and PRH developments will remain moderate to significant to VSRs at this VP.

VP2 – Junction of Fo Tan Road and Kwai Tei Street

5.5 This VP represents the view of workers and truck drivers passing by Fo Tan Industrial Area with low visual sensitivity as shown in Figure 5.3. It is situated 500m away from the Application Site on a relatively flat topography and is regarded as a LVP. The existing view from this VP is mostly blocked by some industrial buildings, of about 80-90mPD, such as Wah Seng Industrial Building, Sun Hung Kei Logistics Centre and Wah Luen Centre. The existing visual quality of this monotonous industrial setting in the area is considered to be low.

5.6 As shown in Figure 5.4, the proposed HOS development is hardly visible from this VP, as it is blocked by the industrial buildings on Kwai Tei Street. The proposed HOS development blends in well with the surrounding development context as the building height and development scale, are compatible with the existing developments. The addition of the proposed HOS development will

not worsen the existing low visual quality. Hence, the visual impact of the proposed HOS development to the VSRs can be considered as negligible to VSRs at this VP.

5.7 While considering the cumulative visual impact of the proposed HOS and PRH developments, the proposed PRH development is not visible at this VP. While the HOS development imposed negligible visual impact to the VSRs, thus the cumulative visual impact is considered to remain negligible to VSRs at this VP.

VP3 – Wong Chuk Yeung Tsuen Path

5.8 This VP represents the view of villagers from Wong Chuk Yeung Tsuen and hikers at Kau To Shan with medium to high visual sensitivity as shown in Figure 5.5. It is located on the main access leading to Wong Chuk Yeung Tsuen at a distance of 900m from the Application Site. It is regarded as a LVP and at around 160mPD on Wong Chuk Yeung Tseun Path. The view from this VP is mostly blocked by the existing tall vegetation. The industrial buildings in Fo Tan, the residential buildings at Racecourse MTR Station and the ridgeline of Ma On Shan backdrop can be seen from this VP. The existing visual quality can be regarded as medium to high.

5.9 As shown in Figure 5.6, the HOS development is hardly visible as most of the building mass is blocked by the tall vegetation on the slope and only a small portion of the proposed development can been seen. The proposed HOS development blends in well with the surrounding development context as the building height and building mass and bulk of the proposed development will not be out of context with the existing residential and industrial buildings and is generally compatible with the surrounding built environment. Hence, the visual impact is considered to be slight to VSRs at this VP.

5.10 When considering the cumulative visual impact of the proposed PRH and HOS developments, part of the view from this VP is blocked by the PRH development and is more dominant than the proposed HOS development. Yet the ridgeline at the distance and part of the built-up areas in Fo Tan can still be visible. Thus the cumulative visual impact from the proposed PRH and HOS developments is considered remain slight to VSRs at this VP.

VP4 – Hillslope near Sui Wo Road

5.11 This VP represents the view of hikers at Kau To Shan. It is located near Sui Wo Road, the main access road to the surrounding residential clusters as shown in Figure 5.7. The visual sensitivity is medium to high as hikers may frequent this path occasionally. It is situated at about 180mPD 450m to the southwest of the Application Site and is regarded as a LVP. The view is open and the ridgeline of Kau To Shan can be clearly seen. The existing visual quality is considered as medium to high.

5.12 As shown in Figure 5.8, the proposed HOS development will appear directly in front of the view. The lower floors of the proposed HOS development will be screened off by the surrounding vegetation, and only the upper floors are visible at this VP. The building height, building mass and form of the proposed HOS development are compatible with the industrial buildings. Hence, it will impose slight impact to the VSRs.

5.13 When considering the cumulative visual impact of the proposed PRH and HOS developments, part of the slope of Kau To Shan is blocked by the proposed PRH development and will be more dominant than the proposed HOS development. The proposed HOS development will not impose a higher visual impact than the proposed PRH development. However, since the ridgeline is still preserved, the cumulative visual impact of the proposed PRH and HOS developments to the VSRs will be considered as moderate to significant to VSRs at this VP.

VP5 – Fo Tan MTR Station (South Concourse)

5.14 This VP represents the view of passengers, mainly the residents and workers in Fo Tan area, frequently using the South Concourse of Fo Tan MTR Station with low visual sensitivity as shown in Figure 5.9. Fo Tan MTR Station is about 950m away from the Application Site and the Fo Tan industrial Area and Kau To Shan can be clearly seen from this VP. It is regarded as a DVP as the MTR is the primary mode of public transport serving the area and most VSRs will take MTR to and from Fo Tan. Given the open view enjoyed by the VSRs, the existing visual quality is considered to be medium.

5.15 As shown in Figure 5.10, the proposed HOS development is almost entirely obstructed by a cluster of existing industrial buildings and is hardly visible at this VP. The proposed HOS development blends in well with the surrounding environment. The building height and development scale of the proposed HOS development will not be out of context and will be compatible with the surrounding built environment. Hence, it brings negligible visual impact to the VSRs at this VP.

5.16 When considering the cumulative visual impact of the proposed PRH and HOS developments, only part of the proposed PRH development could be visible but is not dominant. It is similar to the situation of the proposed HOS development as the proposed PRH blends in well with the industrial buildings in the front. The visual impact of the proposed HOS development is similar to that of the proposed PRH development. The Kau To Shan ridgeline at the backdrop is still preserved. Thus the cumulative visual impact of the proposed PRH and HOS developments is considered to remain negligible to VSRs at this VP.

VP6 – Shing Mun River No. 2 Promenade Rest Garden

5.17 This VP represents the view of residents of Sha Tin and visitors using the promenade and cyclists that pass by with medium to high visual sensitivity as shown in Figure 5.11. It is about 1.6km from the proposed HOS development to this VP and is regarded as a DVP. It has a wide, open view of Fo Tan across Shing Mun River. Some of the buildings in the Fo Tan Industrial Area are screened off by vegetation, and the Sha Tin Rowing Centre at the Shing Mun River waterfront. Sui Wo Court (about 152-179mPD), one of the earliest HOS developments, can be seen on the hill to the west of this VP and the ridgeline of Kau To Shan is visible. Hence, the existing visual quality is regarded as medium to high.

5.18 As shown in Figure 5.12, since the building height of the proposed HOS development is taller than the surrounding industrial buildings (about 70-90mPD), a part of upper portion of the development is visible from this VP. It forms a stepped height profile with the surrounding built environment and the ridgeline of Kau To Shan is preserved. The building height and form of the proposed HOS development is compatible with the existing development context. Hence, the visual impact of the proposed HOS development to the VSRs is considered as slight to VSRs at this VP.

5.19 When considering the cumulative visual impact of the proposed PRH and HOS developments, only the upper part of proposed PRH development is visible. The ridgeline of Kau To Shan is still preserved and the building heights and building mass and bulk will not be out of the existing development context of the surrounding built environment. Thus the cumulative visual impact to the VSRs will be considered as slight to moderate to VSRs at this VP.

VP7 – Mini-bus Stop near Kwai Tei New Village

5.20 This VP is a public place in the vicinity of Kwai Tei New Village adopted to represent VP of the villagers as shown in Figure 5.13. This VP is frequented by villagers, and the visual sensitivity is medium to high. It is situated at about 70mPD facing south to the Application Site. It can be regarded as a LVP as it is about 250m from the Application Site. The view is blocked by the

vegetation in front at a lower level, and only some upper floors of industrial buildings and residential developments can be seen at a distance. Hence the existing visual quality is considered as low to medium.

5.21 As shown in Figure 5.14, the building height and development scale of the proposed HOS development is compatible with the surrounding development context. Though the proposed HOS development would obstruct the view to the natural hillslope behind the site, this VP still enjoys an open sky view. The visual impact of the proposed HOS development is considered to be moderate at this VP.

5.22 When considering the cumulative visual impact of the proposed PRH and HOS developments, the proposed PRH development with most of its six towers are visible appearing dominant in front and obstruct most of the view. The proposed HOS development will further fill the gap between the proposed PRH tower blocks and create a moderate visual impact in comparison. Thus the cumulative visual impact of the proposed HOS and PRH developments is considered to be significant to VSRs at this VP.

VP8 – Man Hang Street

5.23 This VP represents the view of workers and truck drivers passing by Man Hang Street to visit the industrial buildings opposite to the proposed HOS development with low to medium visual sensitivity as shown in Figure 5.15. It is located 100m away from the Application Site and it is regarded as a LVP, as Man Hang Street is a dead-end street, very few vehicles will pass through. The view consists mainly of a retaining slope with trees sparsely separated and the backside of the industrial buildings. The existing visual quality is considered as low to medium.

5.24 As shown in Figure 5.16, the existing slope is cut and a landscaped terrace is formed between the site and Man Hang Street. The lower floors of proposed HOS development will be hidden by the existing vegetation and the landscaped slope treatment and the upper portion of the buildings is hardly visible at this view from this VP. As this VP is close to the Application Site, the building mass of the proposed HOS development will inevitably be substantial. However, with façade treatment and the slope landscape treatment in place, it will further enhance and provide visual relief to the proposed HOS development. Hence, the visual impact of the proposed HOS development is considered to be moderate to VSRs at this VP.

5.25 When considering the cumulative visual impact of the proposed PRH and HOS developments, only one block of the PRH development is visible to the end of Man Hang Street. However, it will not completely block the view corridor of Man Hang Street and a "visual gap" towards the sky is maintained. The proposed HOS development will be more dominant in this view and the proposed PRH development will not further worsen the visual impact. Thus the cumulative visual impact of the proposed PRH and HOS developments is considered to remain moderate to VSRs at this VP.

6 Recommendations and Conclusion

Overall Visual Impact

6.1 Based on the visual impact assessment from the above representative VPs, the anticipated visual impact of the proposed HOS development and the cumulative visual impact of the proposed PRH and HOS developments to the VSRs at each VP is summarised in Table 6.1 below.

Viewpoint ID	***Location***	***Assessment***	***Visual Quality***	***Type of VPs***	***Visual Impact***	***Cumulative Visual Impact***
VP1	Top of slope from Kwai Tei New Village	Most of the view for the proposed HOS development is obstructed by the proposed PRH development	Medium to high	LVP	Moderate	Moderate to Significant
VP2	Road Junction of Fo Tan Road and Kwai Tei Street	Most of the view obstructed by the monotonous industrial buildings and the proposed HOS development can hardly be seen	Low	LVP	Negligible	Negligible
VP3	Wong Chuk Yeung Tsuen Path	Proposed HOS development is partially visible and screened by the vegetation while the part of the proposed PRH development is visible	Medium to high	LVP	Slight	Slight
VP4	Hillslope near Sui Wo Road	Proposed HOS development is partially visible and screened by surrounding vegetation	Medium to high	LVP	Slight	Moderate to Significant
VP5	Fo Tan MTR Station (South Concourse)	Both proposed PRH and HOS development is partially visible and obstructed by Fo Tan industrial area	Medium	DVP	Negligible	Negligible
VP6	Shing Mun River No. 2 Promenade Rest Garden	Open view towards the site and only the upper portion of the proposed PRH and HOS development can be seen	Medium to high	DVP	Slight	Slight to Moderate
VP7	Mini-bus Stop near Kwai Tei New Village	Proposed HOS development is partially visible and obstructed by the massive proposed PRH development	Low to medium	LVP	Moderate	Significant
VP8	Man Hang Street	Proposed HOS development is visible but is relief by the landscaped open space	Low to medium	LVP	Moderate	Moderate

Table 6.1 Summary of assessment of visual impact at the viewpoints

6.2 The overall visual impact assessment is summarised below:

- The building height, scale and form of the proposed HOS development will not be out-of-context with the existing development and is compatible with the surrounding built environment.
- The proposed HOS development itself will bring slight to moderate visual impact to most of the VPs and will not worsen the visual quality at certain VPs as the surrounding neighbourhood, is dominated by industrial buildings with low visual quality
- The proposed HOS development will create a less visual impact as it consists of considerably less number of towers and has less building mass and bulk in comparison to the proposed PRH development.

- It is inevitably that considerable visual change is resulted due to larger building mass of the proposed PRH development at ex-Fo Tan Cottage Area and has significant cumulative visual impact at several VPs. Hence the overall cumulative visual impact of the proposed PRH and HOS developments is moderate to significant.

Mitigation Measures

6.3 In order to better enhance the visual compatibility of the proposed HOS development with the surrounding area, the following mitigation measures have already been incorporated in the current building design as indicated earlier and highlighted below:

- Given the site configuration the proposed HOS development with residential blocks designed as stand alone structures and oriented in a sensitive manner with no podium to avoid massive podium development and the towers blocks are oriented to minimize the obstruction of the ridgeline;
- The residential blocks are of single-aspect design and are oriented away from the pollution source, the nearby industrial buildings; the proposed HOS development endeavours to provide a set back away from the industrial buildings to mitigate the industrial/residential interface issues;
- The layout of residential blocks is designed as T-shaped and the dynamic alignment of the tower blocks to break the monotonous elevation and avoid walled development along Man Hang Street;
- The residential blocks sit on a platform of about 16m above Man Hang Street and are setback of not less than half the width of the existing slope to maximize the distance from the adjacent industrial buildings and also minimize the visual impact of the proposed development.
- The setback area and huge level difference between the street and site level offers an opportunity for the provision of extensive landscape slope treatment to help mitigate the industrial/residential interface issue and thereby improve the visual quality as well as enhance the walking environment along Man Hang Street;
- As Man Hang Street is a dead-end street, it does not have heavy traffic and the area is relatively quiet and does not attract high pedestrian movement and has no adverse pollution at street level.
- With proper landscape treatment and pavement along Man Hang Street, it offers an opportunity for a pleasant pedestrian environment at street level for enhanced pedestrian movement.
- Landscaped open space such as at-grade planting, roof and vertical greening is targeted at 30% in order to create a pleasant environment for the future residents of the proposed HOS development as well as pedestrians and users within the area; and
- A tree compensatory proposal is included to ensure sufficient trees are planted within the site. Landscaping will be compatible with the natural environment and offer a pleasant visual experience for the residents and pedestrians passing by. Design of the landscaped open space within the Application Site is subject to detail design at a later stage.

Conclusion

6.4 It is concluded that the visual impact resulting from the proposed HOS development on the VSRs ranges from slight to moderate and will not be worsening the existing visual quality. The cumulative impact of the proposed HOS and the PRH development which has considerably more massive building mass is moderate to significant. As demonstrated, with the appropriate and thoughtful consideration to design and landscape treatment of the slope along Man Hang Street, the proposed HOS development will blend in well with the natural setting.

6.5 It is inevitable that certain views will be blocked as a result of the proposed HOS development. However, the proposed HOS development will be compatible with the existing development context and considerably less dominant than the proposed PRH development. Hence, the visual impact of the proposed HOS development is considered to be acceptable as demonstrated from the selected VPs.

VP1 – Top of slope from Kwai Tei New Village

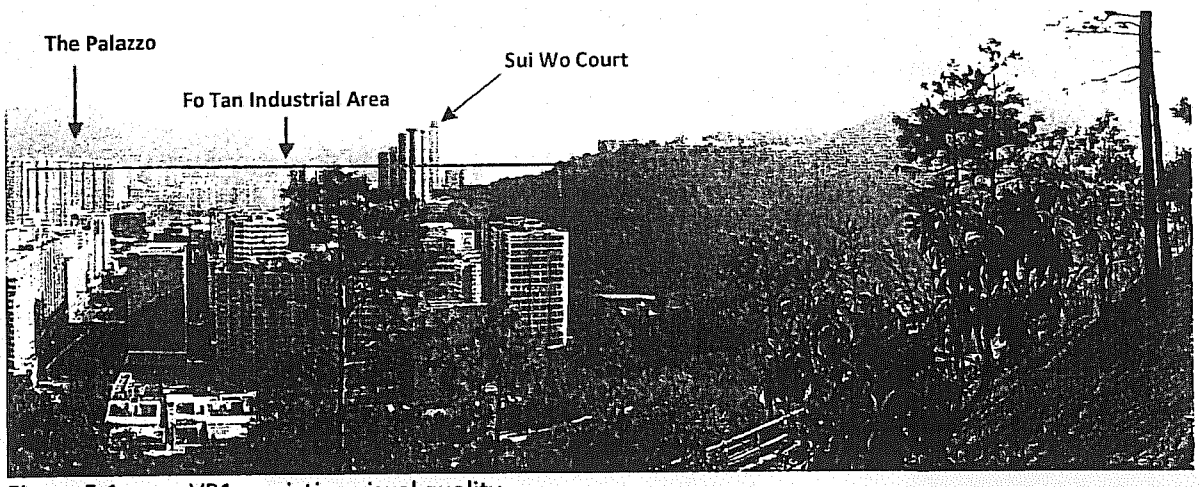


Figure 5.1 VP1 – existing visual quality

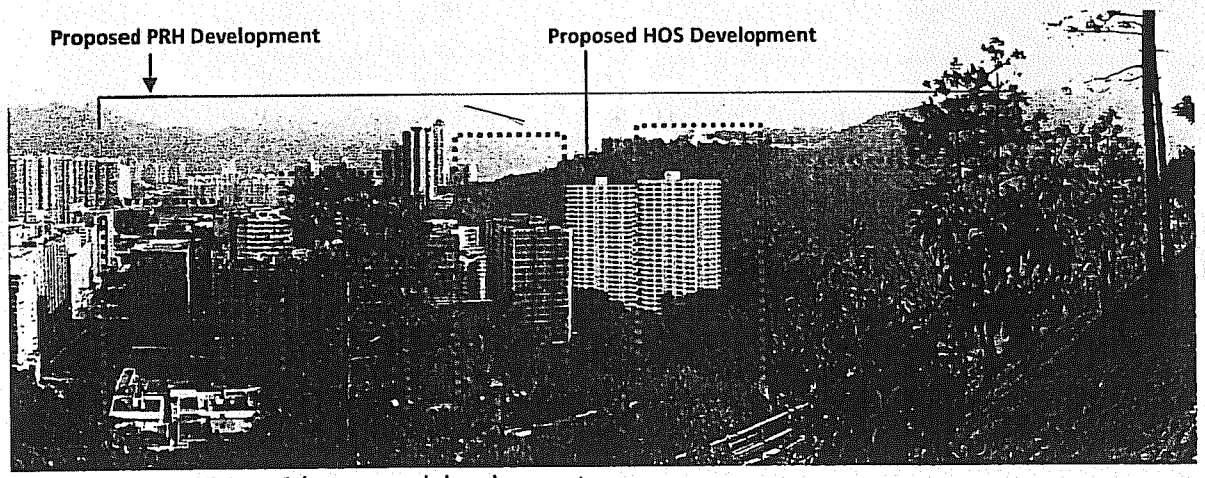


Figure 5.2 VP1 – with proposed development

VP2 – Road Junction of Fo Tan Road and Kwai Tei Street

Figure 5.3 VP2 – existing condition

Figure 5.4 VP2 – with proposed development

VP3 – Wong Chuk Yeung Tseun Path

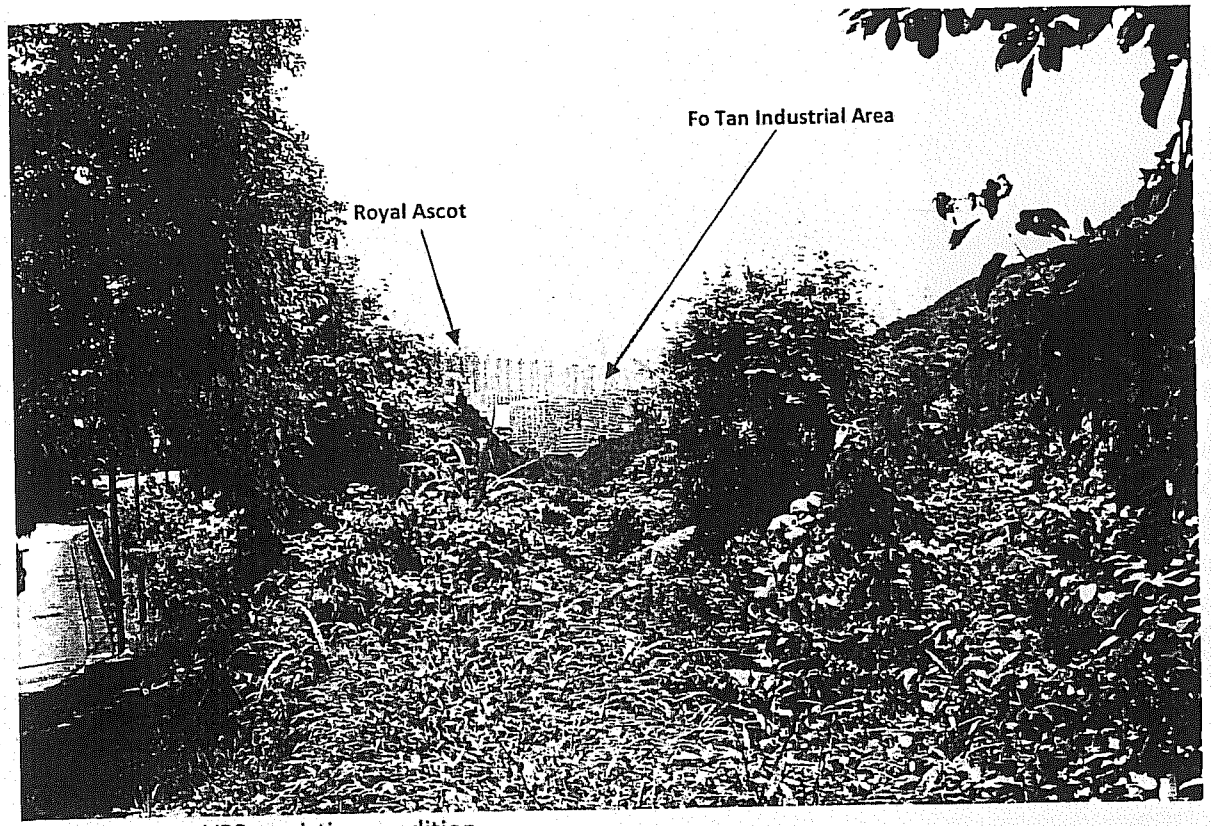


Figure 5.5 VP3 – existing condition

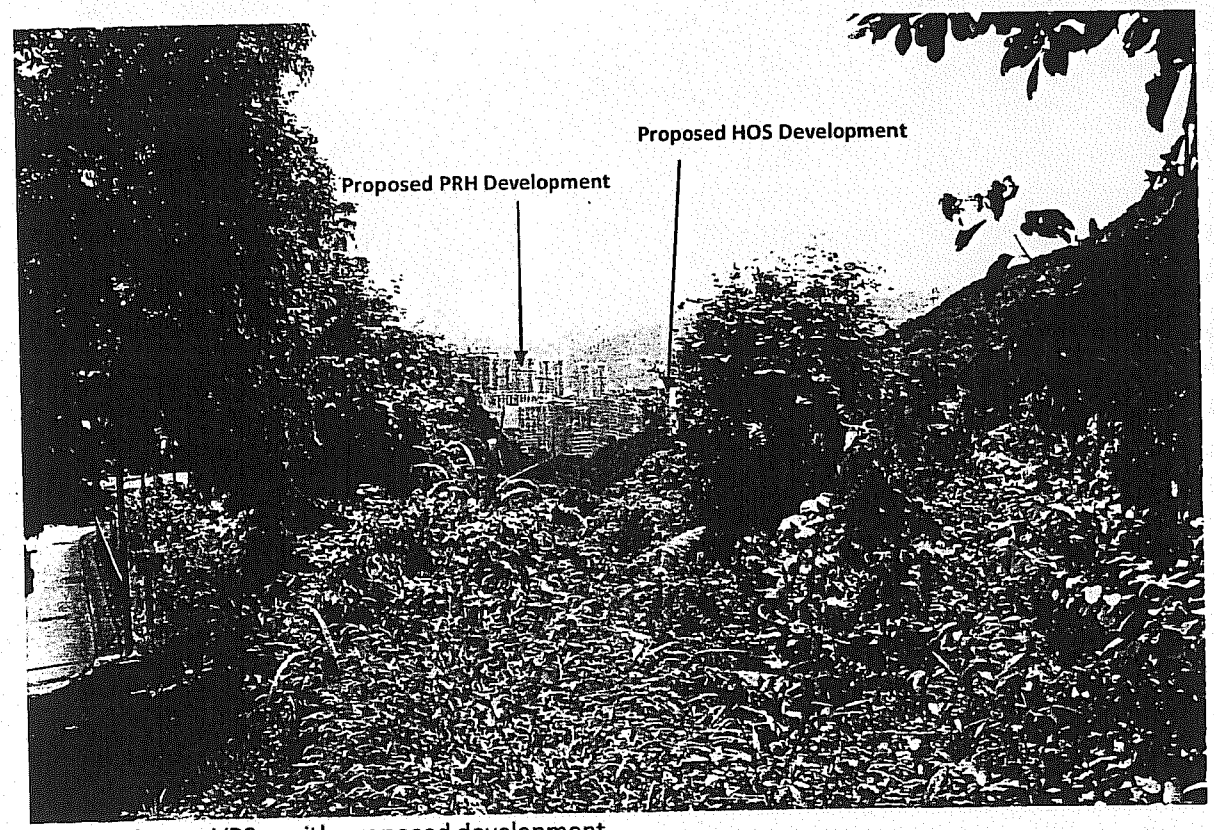


Figure 5.6 VP3 – with proposed development

VP4 – Hillslope near Sui Wo Road

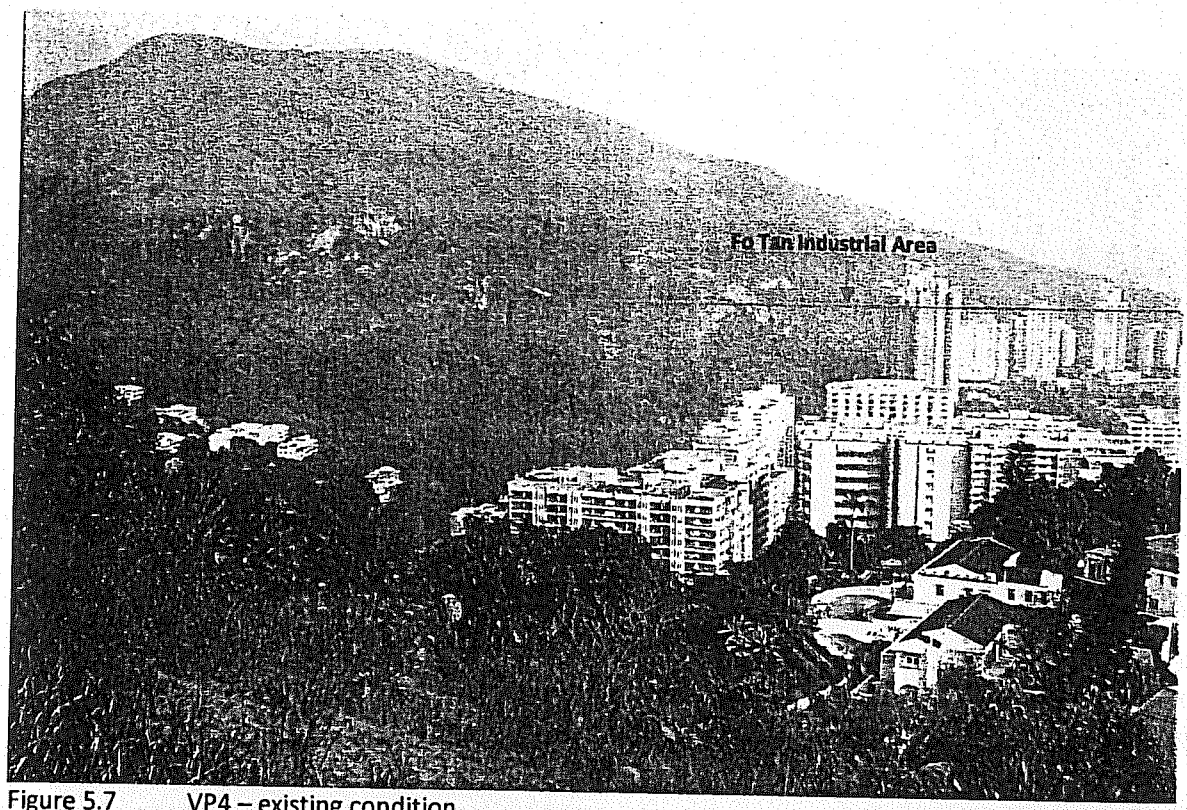


Figure 5.7 VP4 – existing condition

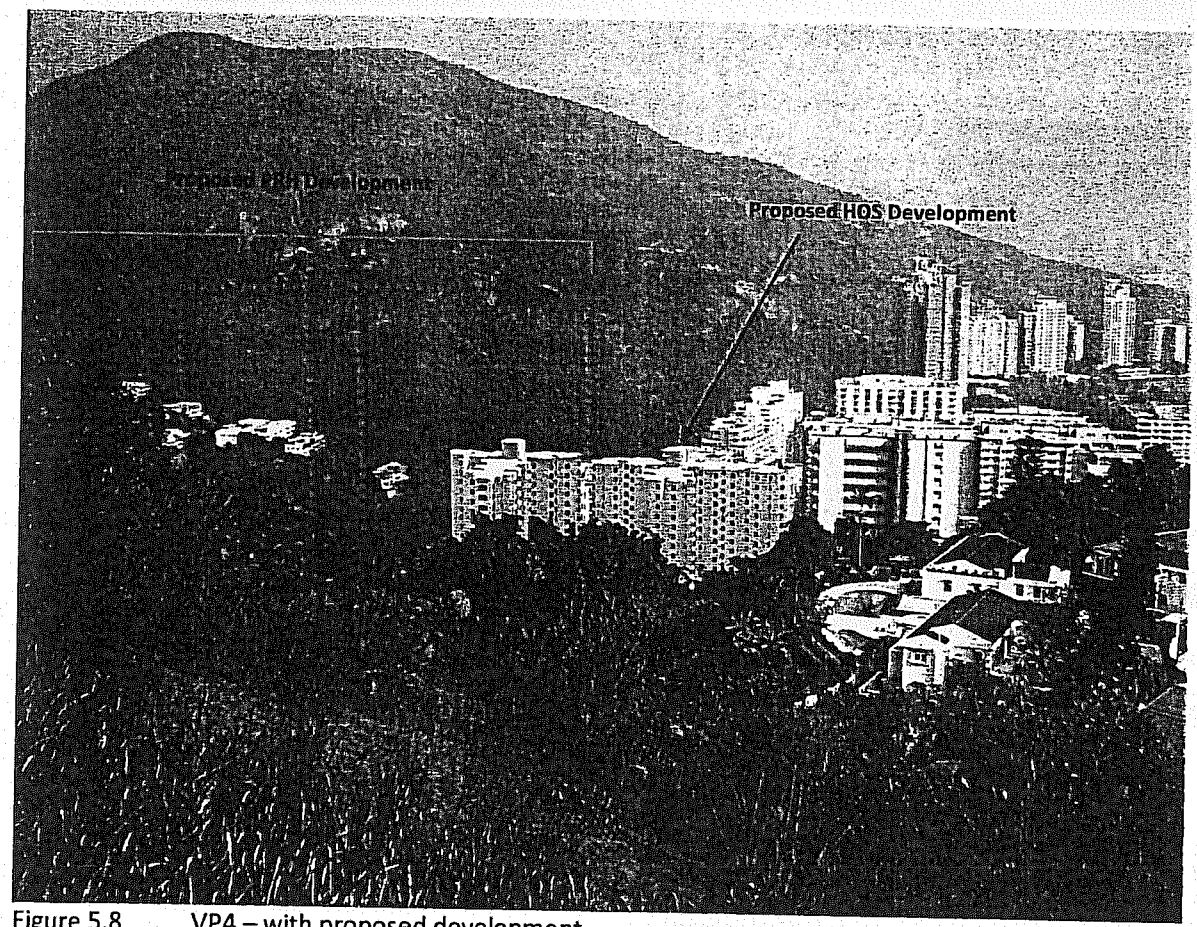


Figure 5.8 VP4 – with proposed development

VP5 – Fo Tan MTR Station (South Concourse)

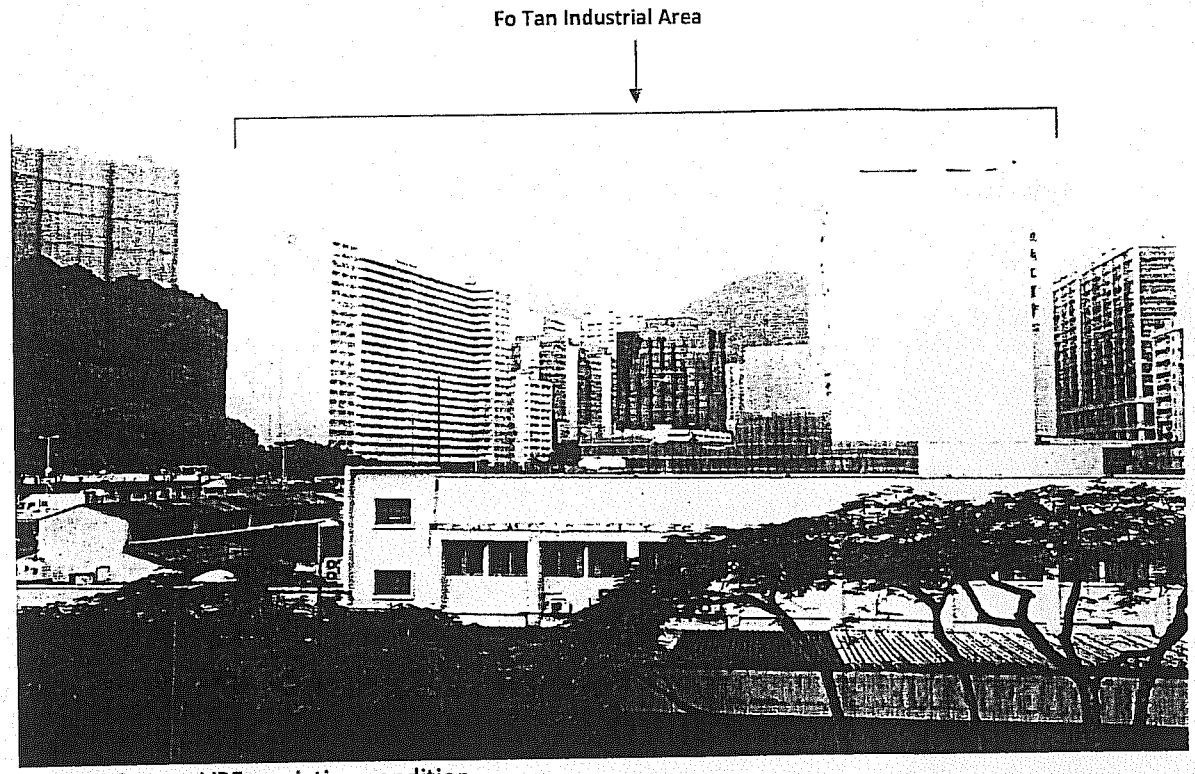


Figure 5.9 VP5 – existing condition

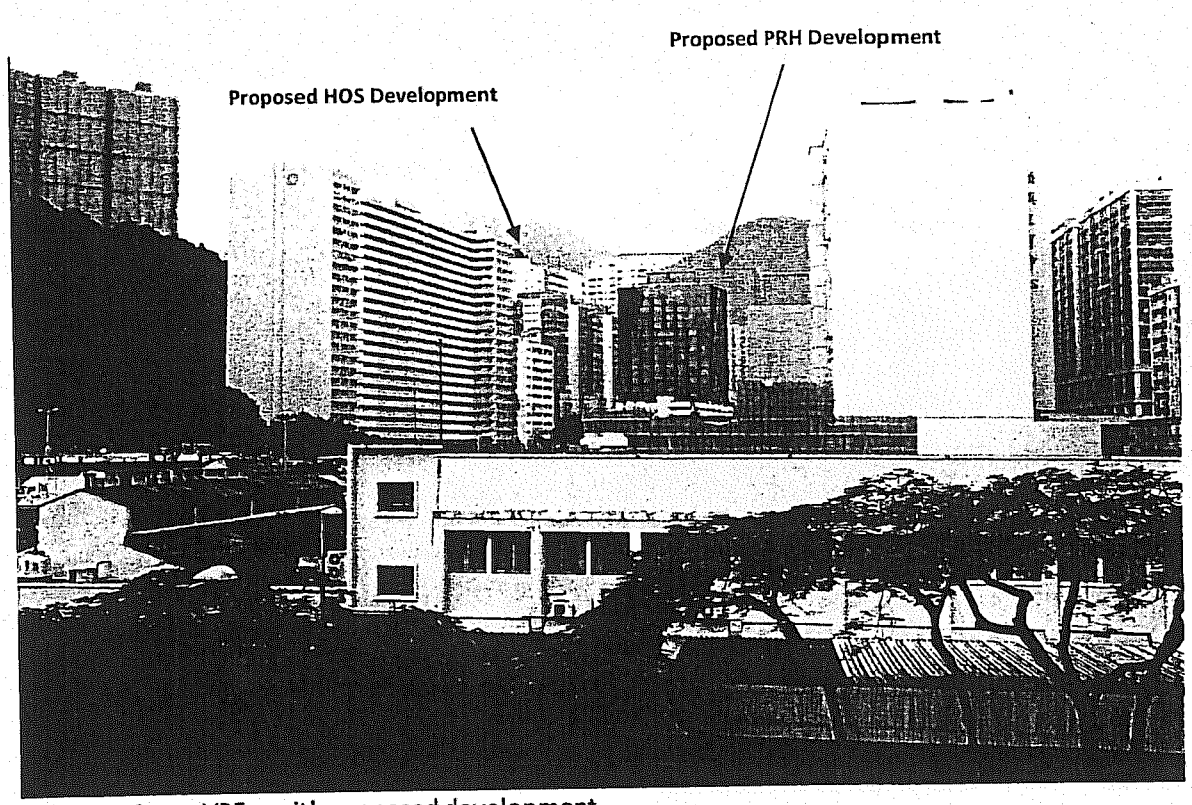


Figure 5.10 VP5 – with proposed development

VP6 – Shing Mun River No. 2 Promenade Rest Garden

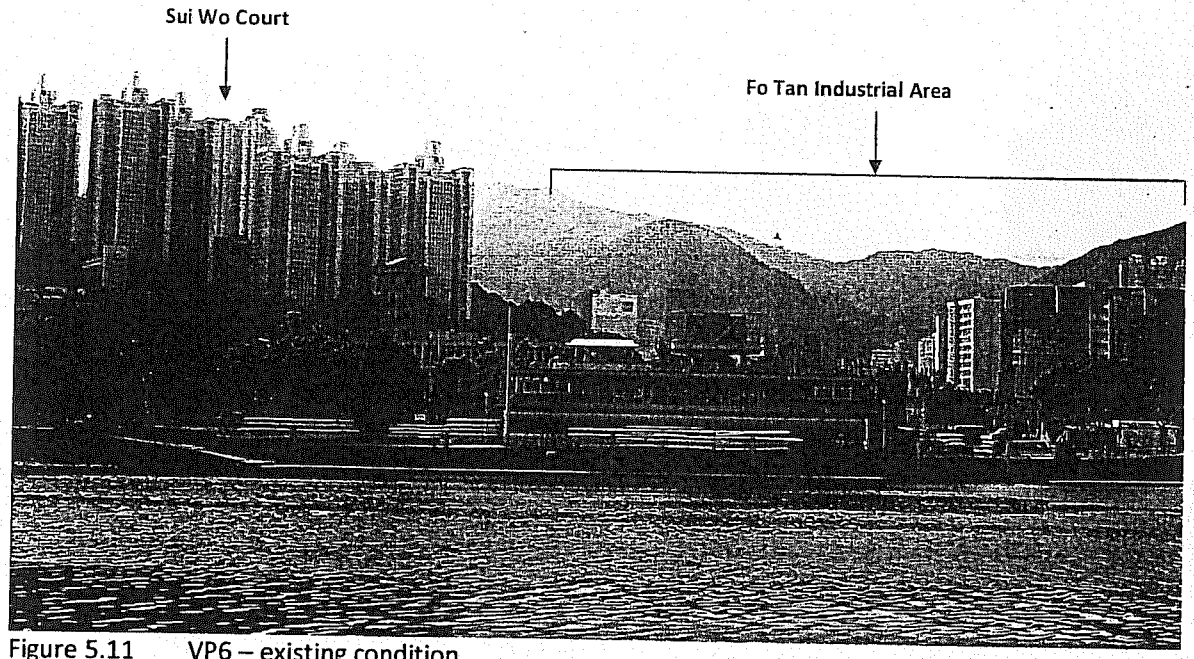


Figure 5.11 VP6 – existing condition

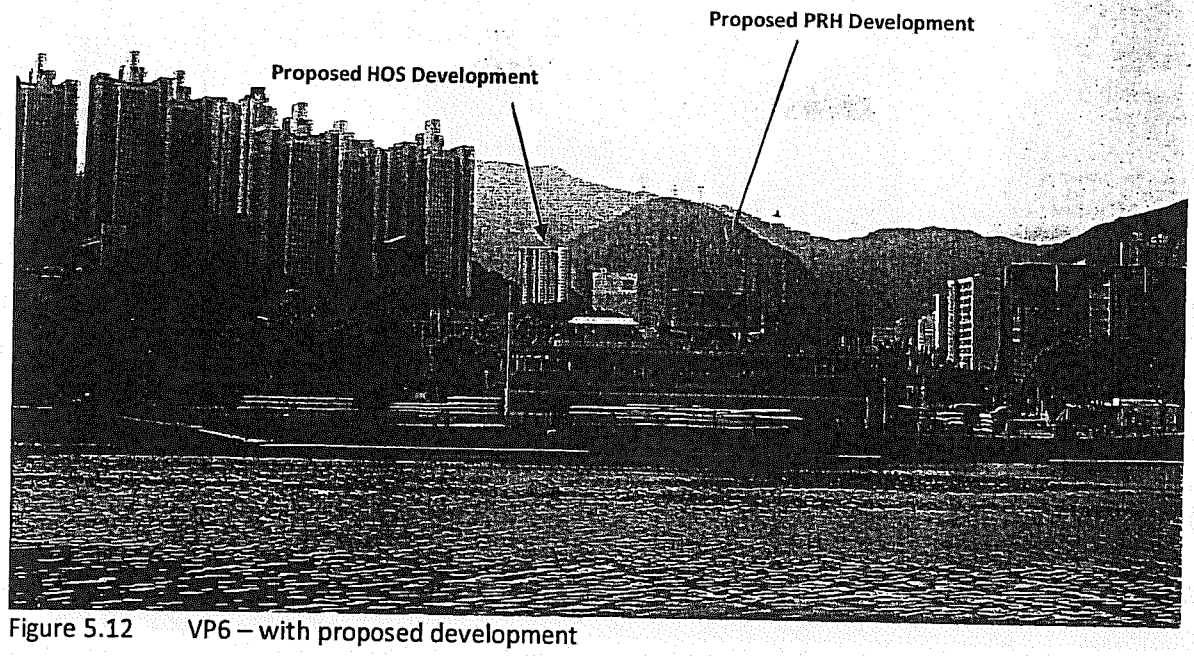


Figure 5.12 VP6 – with proposed development

VP7 – Mini-bus stop near Kwai Tei New Village

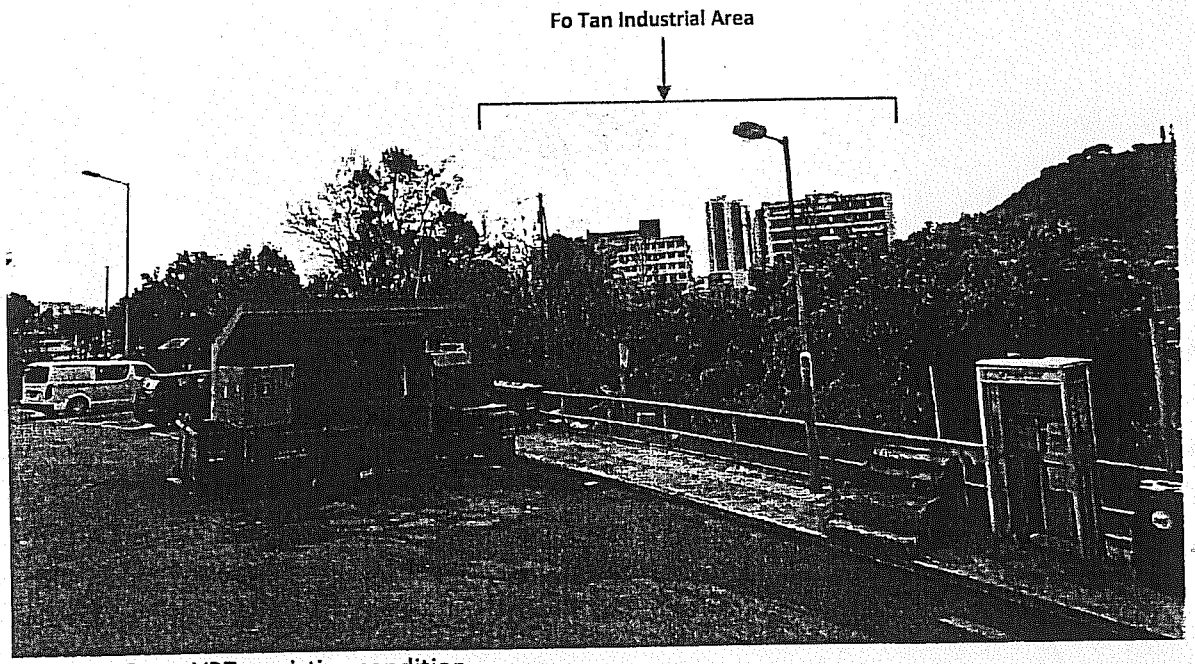


Figure 5.13 VP7 – existing condition

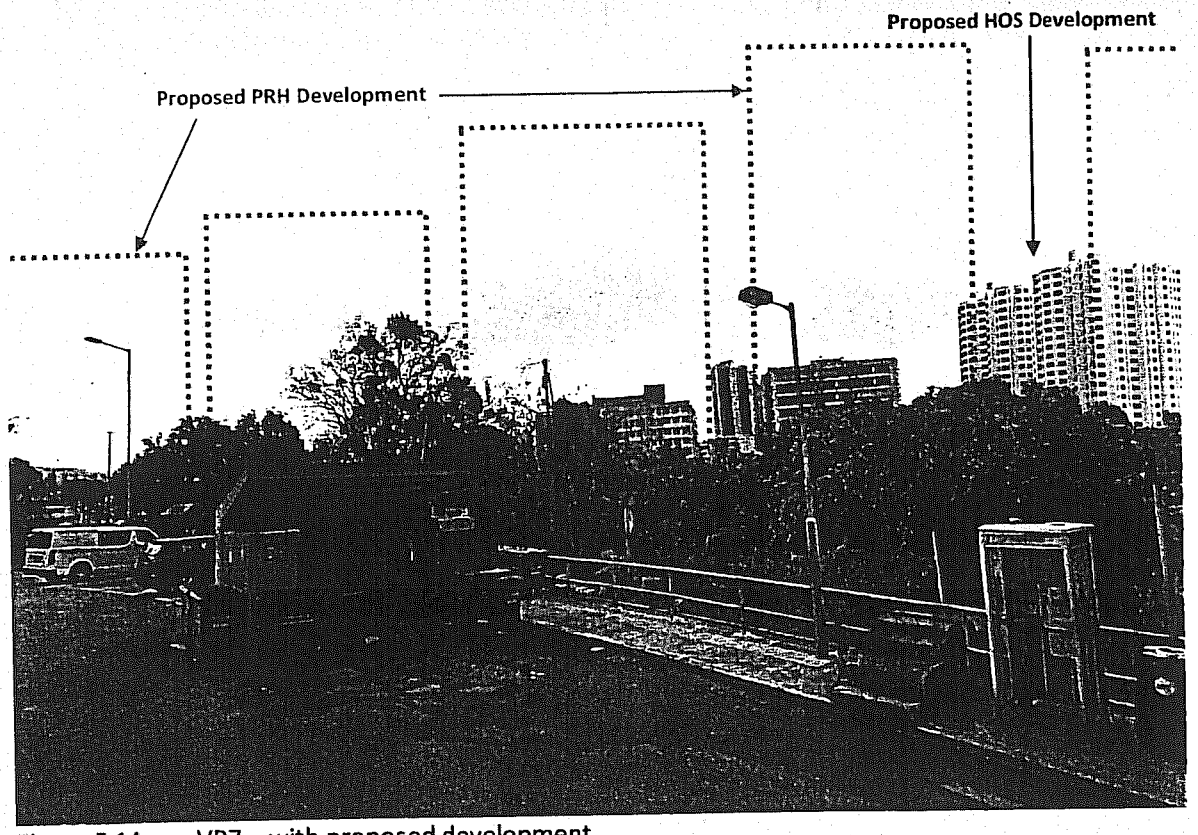


Figure 5.14 VP7 – with proposed development

VP8 – Junction at Man Hang Street and Yuen Kong Au Street

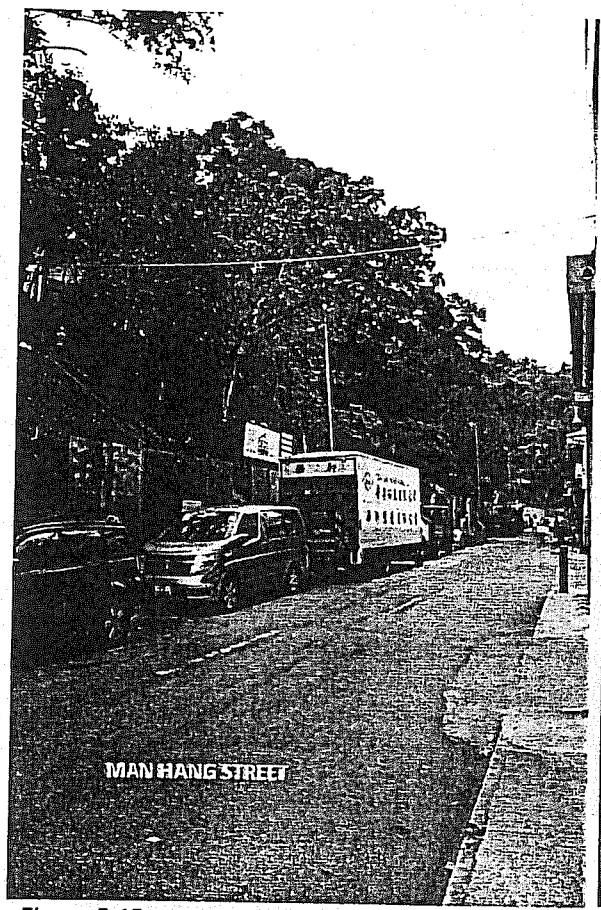


Figure 5.15 VP8 – existing condition

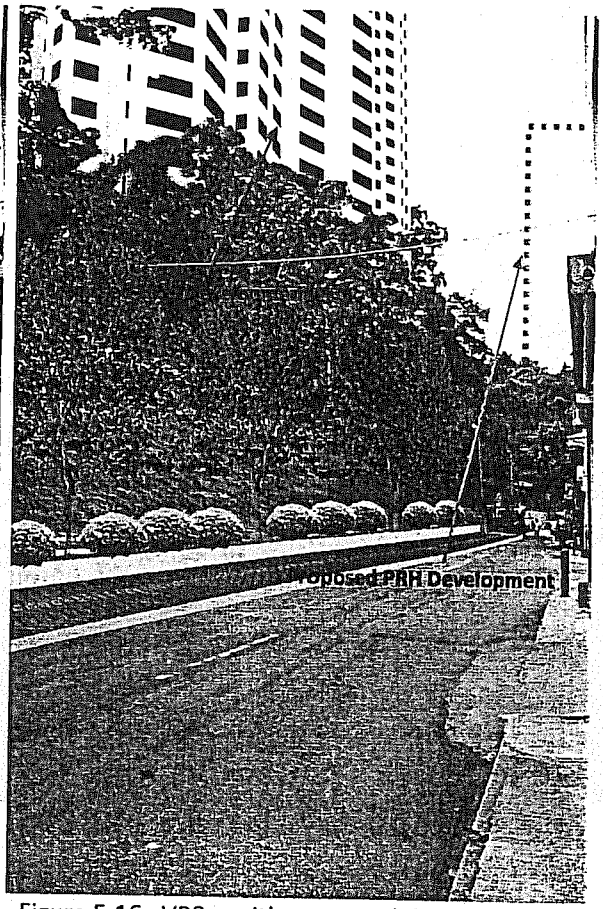


Figure 5.16 VP8 – with proposed development

Issue No : 3(Rev.3)
Issue Date : September 2012
Project No. : 1018

AIR VENTILATION ASSESSMENT FOR THE PROPOSED PUBLIC RENTAL HOUSING DEVELOPMENT AT FO TAN (AREA 16 & 58D), SHA TIN

EXPERT EVALUATION

Report Prepared by :
Allied Environmental Consultants Ltd.

COMMERCIAL-IN-CONFIDENCE

Issue No : 3(Rev.3)
Issue Date : September 2012
Project No. : 1018

AIR VENTILATION ASSESSMENT FOR THE PROPOSED PUBLIC RENTAL HOUSING DEVELOPMENT AT FO TAN (AREA 16 & 58D), SHA TIN

EXPERT EVALUATION

Report Prepared by :
Allied Environmental Consultants Ltd.

COMMERCIAL-IN-CONFIDENCE

Author:

Timothy Sze
BEng(Hons), MEng

Checked & Approved:

Grace M.H. Kwok
BEng(Hons) MHKIEIA MHKIOA
MIAIA MRAPA MISWA LEEDAP

This report has been prepared by Allied Environmental Consultants Limited with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1. INTRODUCTION 3

2. OBJECTIVE 3

3. SCOPE OF STUDY 3

4. SITE CHARACTERISTICS 4

4.0. SITE LOCATION AND SURROUNDING ENVIRONMENT 4

5. WIND AVAILABILITY 5

5.1. WIND DATA FROM HONG KONG OBSERVATORY 6

5.1.1. Sha Tin Weather Station 6

5.1.2. Wind Data from MM5 7

5.1.3. Findings of Wind Availability 8

6. EXPERT EVALUATION 8

6.1. EXISTING CONDITION 9

6.1.1. Annual Prevailing Condition 10

6.1.2. Summer Condition 12

6.2. PROPOSED DEVELOPMENT 13

6.2.1. Good Design Features 15

6.2.2. Problem and Focus Areas 17

6.3. RECOMMENDATION 18

7. FUTURE STUDY 23

7.1. METHODOLOGY FOR INITIAL STUDY 23

8. CONCLUSION 23

LISTS OF FIGURES

FIGURE 1 EXISTING LANDUSE OF THE PROJECT 5
FIGURE 2 LOCATIONS OF THE NEAREST HKO WEATHER STATIONS 6
FIGURE 3 SHA TIN WIND ROSE (2010) 7
FIGURE 4 WIND ROSE OF GRID (28,32), MM5 8
FIGURE 5 SITE ENVIRONMENT AND WIND CORRIDOR 10
FIGURE 6 EXISTING ANNUAL WIND ENVIRONMENT AT SUBJECT SITE (NE WIND) 11
FIGURE 7 EXISTING ANNUAL WIND ENVIRONMENT AT SUBJECT SITE (E WIND) 12
FIGURE 8 EXISTING SUMMER WIND ENVIRONMENT AT SUBJECT SITE (SW WIND) 13
FIGURE 9 INITIAL SCHEME LAYOUT PLAN 14
FIGURE 10 PREVAILING ANNUAL E WIND PASSING THROUGH THE SUBJECT SITE IN THE INITIAL SCHEME 15
FIGURE 11 PREVAILING SUMMER SW WIND PASSING THROUGH THE SUBJECT SITE IN THE INITIAL SCHEME 16
FIGURE 12 BUILDING SEPARATION IN THE INITIAL SCHEME 16
FIGURE 13 POTENTIAL WIND SHELTERING BY PROJECT OF ANNUAL E WIND PENETRATION 17
FIGURE 14 POTENTIAL WIND SHELTERING BY PROJECT OF SUMMER SW WIND PENETRATION 18
FIGURE 15 REFINED DESIGN SCHEME 19
FIGURE 16 RELOCATION OF BLOCK 6 IN THE REFINED DESIGN SCHEME 20
FIGURE 17 SUMMER PREVAILING WIND CONDITION IN THE REFINED DESIGN SCHEME 20
FIGURE 18 BUILDING SEPARATION IN THE REFINED DESIGN SCHEME 21
FIGURE 19 PREVAILING ANNUAL WIND IN THE REFINED DESIGN SCHEME 22
FIGURE 20 PREVAILING SUMMER WIND IN THE REFINED DESIGN SCHEME 22

LISTS OF TABLES

TABLE 1 WIND AVAILABILITY DATA OF SHA TIN, HKO 2010 7

EXECUTIVE SUMMARY

An AVA report is prepared on behalf of The Hong Kong Housing Authority (HKHA) to facilitate the amendment to the Outline Zoning Plan for residential use by The Planning Department. This Expert Evaluation on Air Ventilation Assessment (AVA-EE) was conducted for the Project according to the *Technical Circular No. 1/06* and its *Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong* issued jointly by Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Work Bureau (ETWB) in July 2008 (referred to as the Technical Guide hereafter).

The Project is located adjacent to Fo Tan Industrial Area, Sha Tin. The subject site is currently used as open carpark and bus depots (under short term tenancy) where is surrounded by low-rise residential buildings and high-rise industrial buildings. The subject site is positioned at an elevation of different level. The immediate topographies to the north, north-east, east, south, south-west, west and north-west of the subject site are relatively sloped, except the south-east, where is relatively flat.

Due to the location and elevation of the project site, a good air movement could be facilitated at this large plain on the elevation. The existing high-rise industrial buildings might cause impediment to the oncoming land breezes and annual prevailing wind especially the E and NE winds to penetrate into the street level. Also, since the existing low-rise residential buildings are located on the hillside and the north of the subject site, no prevailing wind is obstructed by the adjacent buildings because of the highest level of the site. Roads such as Wong Chuk Yeung Road, Shan Mei Street and Fo Tan Road are considered as wind corridors within the study area for both summer and annual prevailing winds.

The Public Rental Housing project with about 41000 square meters gross site area will divide into two phases, Phase 1 and Phase 2. Phase 1 will consist of 4 domestic buildings, while Phase 2 will consist of 2 domestic buildings. An initial scheme of the Project which is composed of six public housing blocks ranged from 26 to 36 domestic storeys, providing a total of 4200 residential units approximately, was evaluated in this AVA-EE.

Good design features were incorporated into the initial scheme, which includes the proper building's orientation to capture the prevailing winds, the sufficient building gap to allow wind penetration through the subject site and maintenance of ventilation path at the landscape deck above the 3-storey podium to enhance the wind environment at pedestrian level.

However, some drawbacks for the initial scheme of the Project are also identified including the potential impact on the ventilation effect and the wind permeability into the site, the potential wind shielding effect on the existing low-rise residential area as well as the potential wind screening effect, particular the open areas.

To ameliorate the potential effects, additional design measures are recommended to be adopted in the detailed design of the Project in order to minimize any potential adverse ventilation impact on the surrounding environment. They include:

- **Building Separation**: modifying the shape and the orientation of building blocks to optimize the separation of the buildings in order to reduce the blockage to the prevailing winds and improves wind permeability into the site;
- **Free Flow Area**: relocating Block 6 to allow a free flow area to the existing village and avoid the wind screening effects during the summer;
- **Building Disposition**: modifying the building's shape as "cross-shaped" and providing more building separation to allow the better penetration of both annual and summer prevailing winds.

The abovementioned recommended design measures shall be incorporated into the refined design scheme for the Project. An AVA Initial Study using Computational Fluid Dynamic (CFD) Simulation is recommended to quantitatively assess the potential ventilation impacts on the surrounding environments due to the Project based on the latest design scheme.

1. INTRODUCTION

Hong Kong Housing Authority (HKHA) proposes to develop the Public Rental Housing at Fo Tan (Area 16 & 58D) (the Project). The development will be divided into two phases. Phase 1 comprises a 3-storeys podium structure and 4 numbers of domestic blocks. The remaining 2 numbers of domestic blocks will be included into Phase 2. The construction of the Project for Phase 1 and Phase 2 are tentatively to commence in 2014 and 2017 for Phase 1 and Phase 2 respectively, and for completion in around 2018 and 2021 for Phase 1 and Phase 2 respectively.

Allied Environmental Consultants Limited (AEC) was commissioned by HKHA to carry out an Expert Evaluation on Air Ventilation Assessment (AVA-EE) to qualitatively evaluate the potential air ventilation impacts due to the Project. The AVA-EE was carried out according to the air ventilation assessment framework as set out in *Technical Circular No. 1/06* and its *Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong* issued jointly by Housing, Planning and Lands Bureau and Environment, Transport and Work Bureau (Technical Guide).

2. OBJECTIVE

The objective of the AVA-EE is to qualitatively review and evaluate the potential air ventilation impact on the pedestrian wind environment within and in the vicinity of the subject site due to the Project by comparing that to the existing conditions, i.e. without the Project.

3. SCOPE OF STUDY

The scope of study includes as follows:

- 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 advise whether any further detailed study is required for concerned areas and the scope of the detailed study required.

4. SITE CHARACTERISTICS

4.0. SITE LOCATION AND SURROUNDING ENVIRONMENT

The Project is adjacent to Fo Tan Industrial Area, Sha Tin Area (16 & 58D) as shown in ***Figure 1***. The subject site is currently used as open carpark and bus depots (under short term tenancy). The subject site is positioned at an elevation of different levels, approximately 31.8mPD, 46.5mPD, 53.3mPD, 67mPD, and 72mPD. The immediate topographies to the north, north-east, east, south, south-west, west and north-west of the subject site are relatively sloped, except the southern-east, where is relatively flat. The immediate surrounding environments as shown on ***Figure 1*** are analysed as follows:

- To the immediate north, the subject site is bounded by low-rise residential buildings, called Kwei Tei New Village, where are located on the slope next to Kwei Tei San Chuen Road. The building heights ranged from 80mPD to 100mPD.

- At approximately 200m to east of the subject site, there are high-rise residential buildings, such as The Grandville, Shatin Lodge, Eden Garden, of which the building heights range from 80 to 160 mPD.

- To the immediate south-east, the subject site is bounded by mid-rise industrial buildings on Kwei Tei Street, such as Wah Lai Industrial Centre, Yale Industrial Centre, Wah Sang Industrial Building, World-wide Industrial Centre and Kerry Warehouse, of which the building heights range from 60 to 120 mPD.

- At approximately 420m to south-east of the subject site, there are high-rise residential buildings, such as Sha Tin 33, Scenery Garden and Sui Wo Court, of which the building heights range from 110 to 190 mPD.

- At approximately 450m to south of the subject site, there are low-rise residential buildings, such as Garden Villa and Ville De Cascade of which the building heights range from 175 to 185 mPD.

- At approximately 130m south of the subject site there is a proposed HOS development situating on the site area of about 8700m^2 and comprising 2 residential block of about 32 -33 domestic storey with proposed maximum building height of 150mPD.

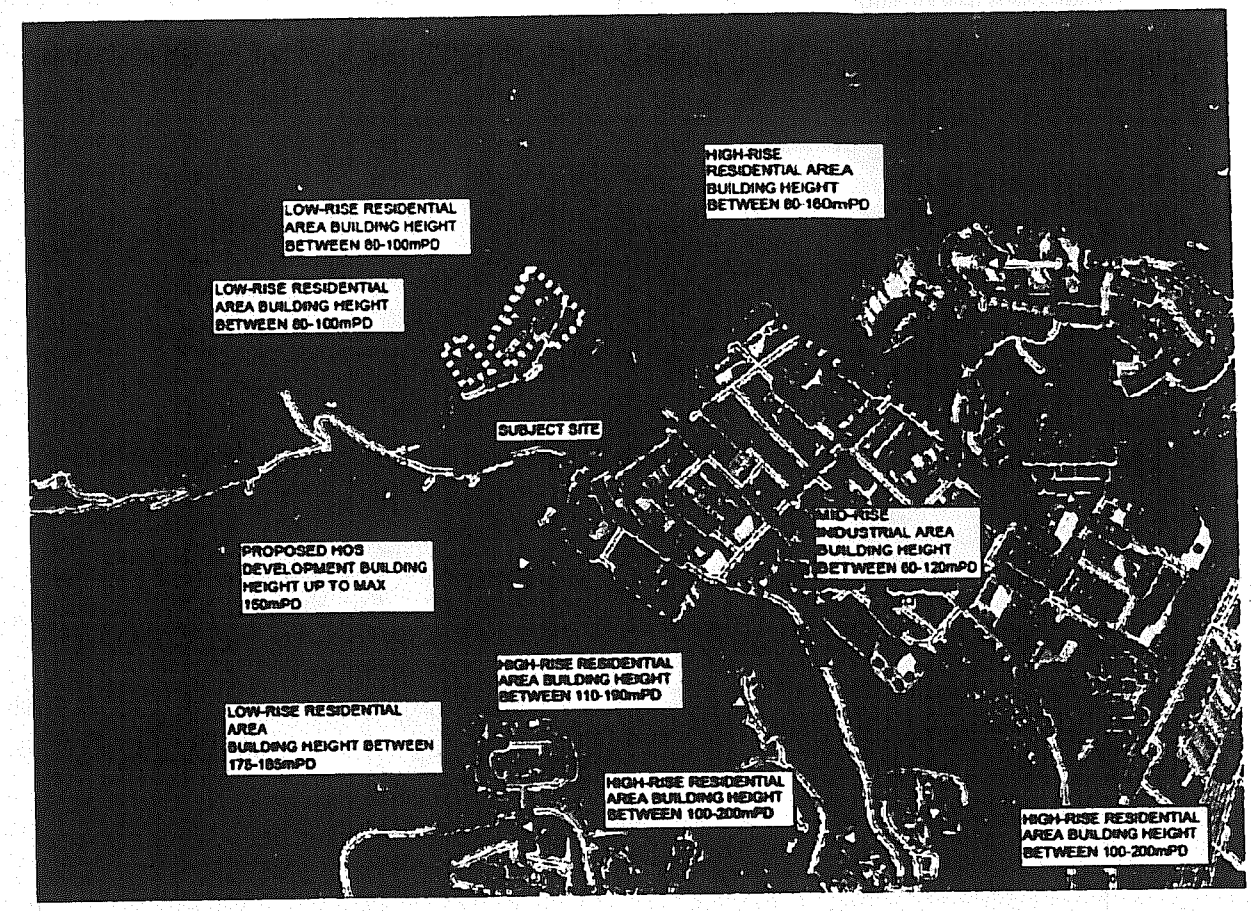


Figure 1 Existing Landuse of the Project

5. WIND AVAILABILITY

The wind data from Hong Kong Observatory (HKO) and Mesoscale Model (MM5) published by PlanD were adopted in this AVA-EE. The HKO wind data represents the lower level wind availability where the wind direction is influenced by local topography in the surrounding environment while the MM5 wind data represents the wind availability at boundary layer (i.e. 596mPD).

The occurrences of winds from different direction are referred to MM5 wind data while local wind conditions for different seasons (annual and summer periods) are referred to HKO wind data.

5.1. WIND DATA FROM HONG KONG OBSERVATORY

There is a HKO automatic weather station located in the vicinity of the subject site, Sha Tin (ST) which is approximately 1.2km on the east away from the subject site as shown in ***Figure 2***. The wind data obtained from these automatic weather stations is to identify wind availabilities during annual and summer periods as this seasonal information are not available in MM5 data.

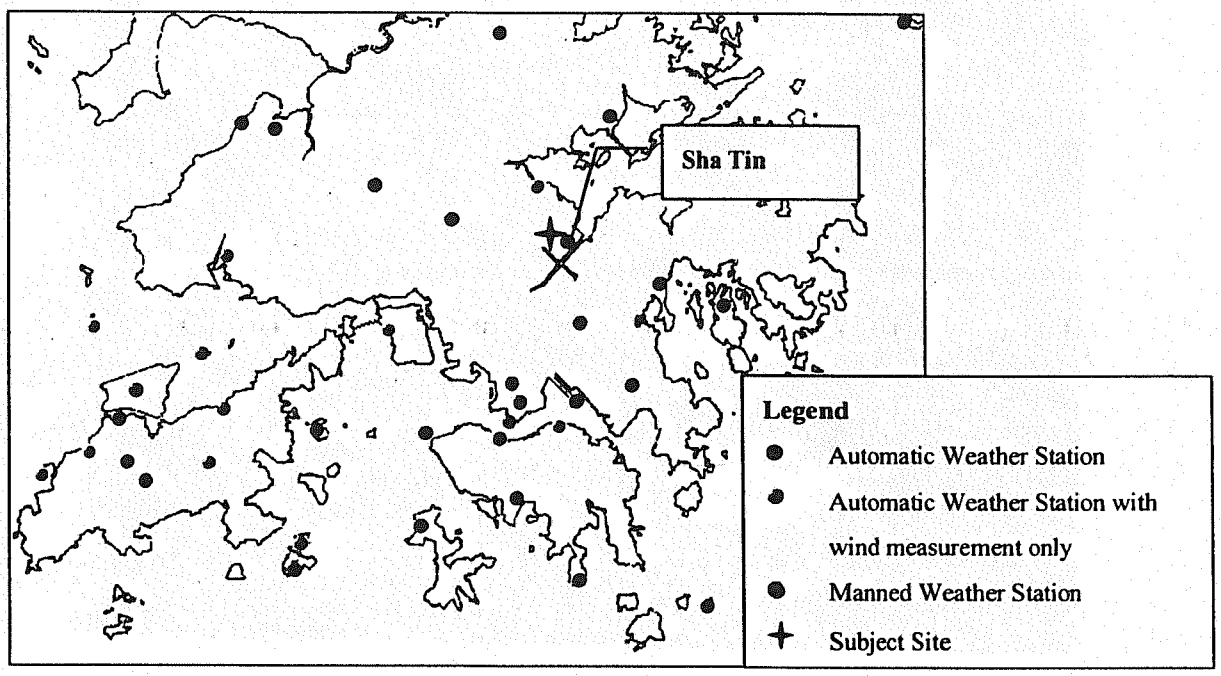


Figure 2 Locations of the Nearest HKO Weather Stations

5.1.1. Sha Tin Weather Station

The recorded annual mean wind speed measured at anemometer of ST automatic weather station was 2.22 m/s (8km/hr) in 2010. Based on the Sha Tin wind rose as shown in ***Figure 3***, it is found that east wind direction dominates the annual wind frequency. The monthly prevailing wind direction and wind speed of year 2010 are listed in ***Table 1***. It is found that wind mainly comes from southwest (SW) direction in summer period, while wind from east (E) dominates annually.

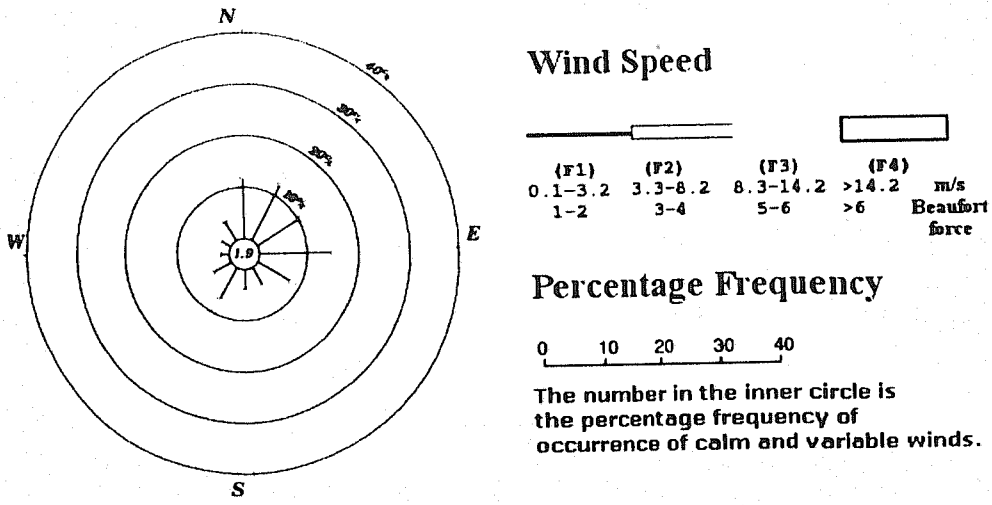


Figure 3 Sha Tin Wind Rose (2010)

Month	Monthly Prevailing Direction (Degrees)	Wind Speed (m/s)
January	30	2.11
February	90	2.22
March	80	2.28
April	90	2.25
May	90	2.17
June	220	2.50
July	220	2.53
August	220	2.14
September	90	2.06
October	90	2.22
November	30	2.17
December	30	2.08

Table 1 Wind Availability Data of Sha Tin, HKO 2010

5.1.2. Wind Data from MM5

The wind availability to the subject site is evaluated with reference to the "Site Wind Availability Data" simulated by the Fifth-Generation NCAR/Penn State MM5 at the height of 596m above ground. The subject site is located within grid (28, 32) and its wind rose is shown in ***Figure 4***. The wind velocity ranges from 0 to 14.2m/s from 16 wind directions and the mean wind velocity is 5.81m/s. It is found that northeast (NE) and east (E) winds dominate the annual wind frequency.

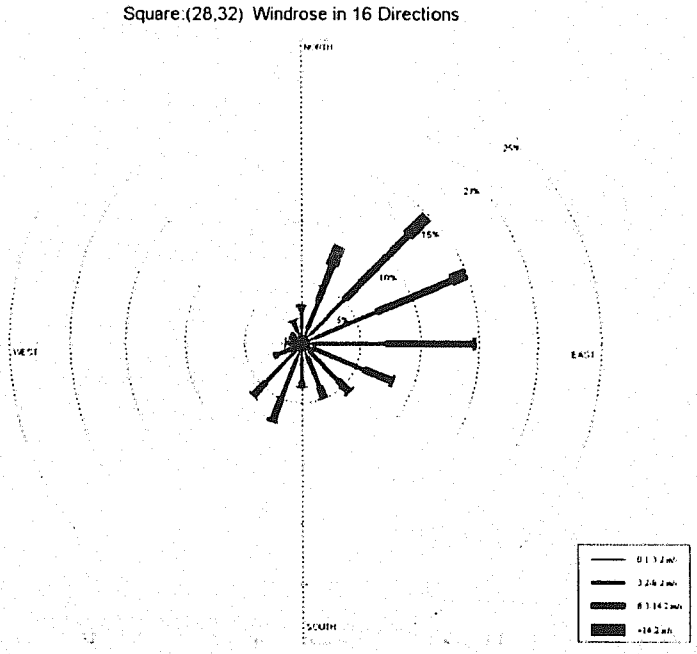


Figure 4 Wind Rose of Grid (28,32), MM5

Power law is used to convert the MM5 data at 596m above ground level to pedestrian level at 2m above ground level by taking consideration of the effect of topography/built-up area in the vicinity of the subject site on site wind availability.

5.1.3. Findings of Wind Availability

Based on the wind data from HKO and MM5, it is concluded that winds come from E and NE are dominant annual wind directions. While in summer period, wind mainly comes from SW directions.

6. EXPERT EVALUATION

This AVA-EE qualitatively evaluates the ventilation performance in the site environs with and without the Project. The study area of air ventilation assessment is approximately 200m from the boundary of the subject site. The coverage is approximately 900m diameter from the centre of the subject site. The conditions of prevailing wind under annual and summer time are considered. Building heights, street/road orientation and patterns, and open spaces have also been taken into account for evaluating the characteristics of wind environment.

6.1. EXISTING CONDITION

The subject site is currently used as an open carpark and bus depots (under short term tenancy) as shown in ***Figure 5***. The existing conditions of subject site (i.e. without the Project) are summarized as the follows.

- Building Heights

The subject site is located in the north-western end of Fo Tan Industrial Area, a large plain on the elevation. The existing land uses in the vicinity of the subject site is mainly residential and industrial uses. The building heights of the existing buildings in the vicinity of the subject site are shown in ***Figure 5.***

The heights of majority of the existing industrial buildings located to the east, southeast and south of the subject site are ranged from 90mPD to 120mPD. These mid-rise industrial buildings might cause impediment to the oncoming land breezes and annual prevailing wind especially the E and NE winds to penetrate into the street level.

Low-rise residential buildings are located on the hillside and the north of the subject site. The average building heights of these residential buildings range from 80 to 100mPD. Due to the highest level of the site, no prevailing wind is obstructed by the adjacent buildings.

A proposed high-rise residential HOS development is planned to be located south of the project site. The proposed maximum building height is 150mPD.

- Road/Street Pattern

Roads such as Wong Chuk Yeung Road, Shan Mei Street and Fo Tan Road are considered as wind corridors within the study area for both summer and annual prevailing winds.

- Open Spaces

Open spaces and areas located within 500m from the subject site as shown in ***Figure 5***, including a bus depot, an open car park and public garden. These open spaces promote air circulation at pedestrian level and increase pedestrian comfort.

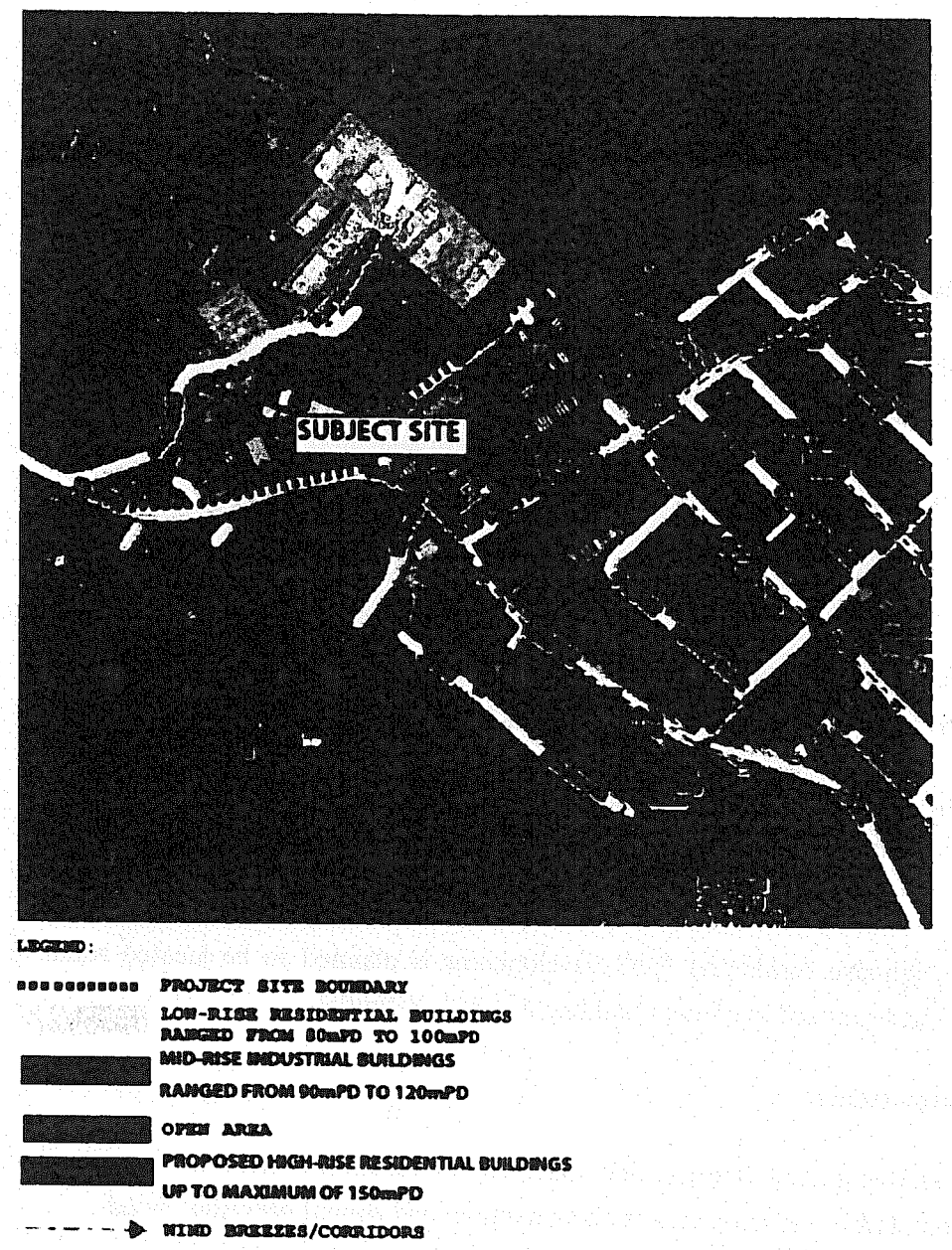


Figure 5 Site Environment and Wind Corridor

6.1.1. Annual Prevailing Condition

Under annual typical condition, it is expected that the prevailing winds from E and NE directions flow pass the subject site.

Although some high-rise industrial buildings are located to the east of the subject site as

shown in ***Figure 6*** and ***Figure 7,*** the road in between these buildings acts as a ventilation corridor to allow the prevailing winds reaching to the subject site and the ventilation at pedestrian level is generally maintained.

As there are no development located at the downstream area. Therefore it is anticipated that no significant impact would cause to the surrounding area with the presence of proposed development.

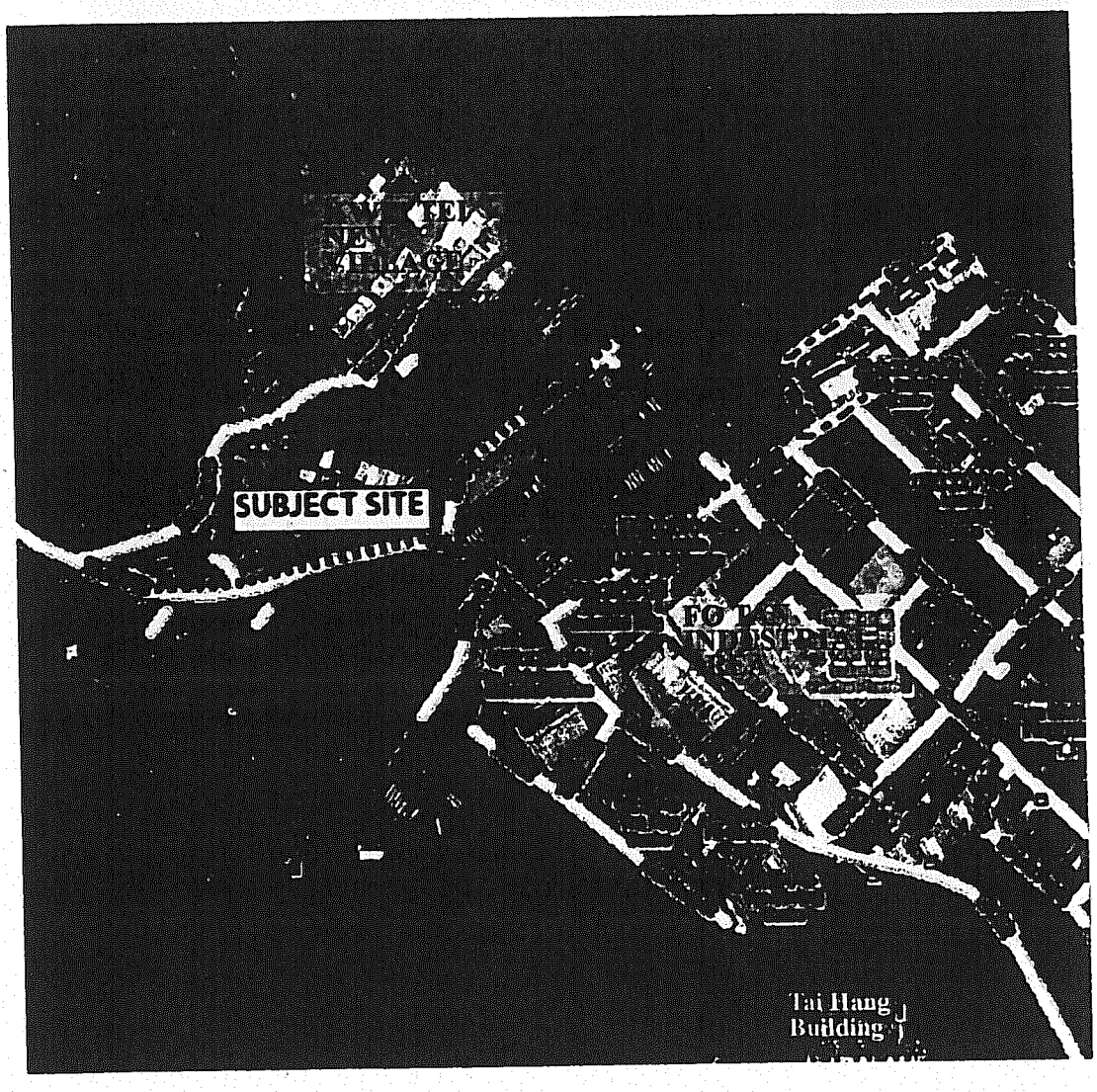


Figure 6 Existing Annual Wind Environment at Subject Site (NE Wind)

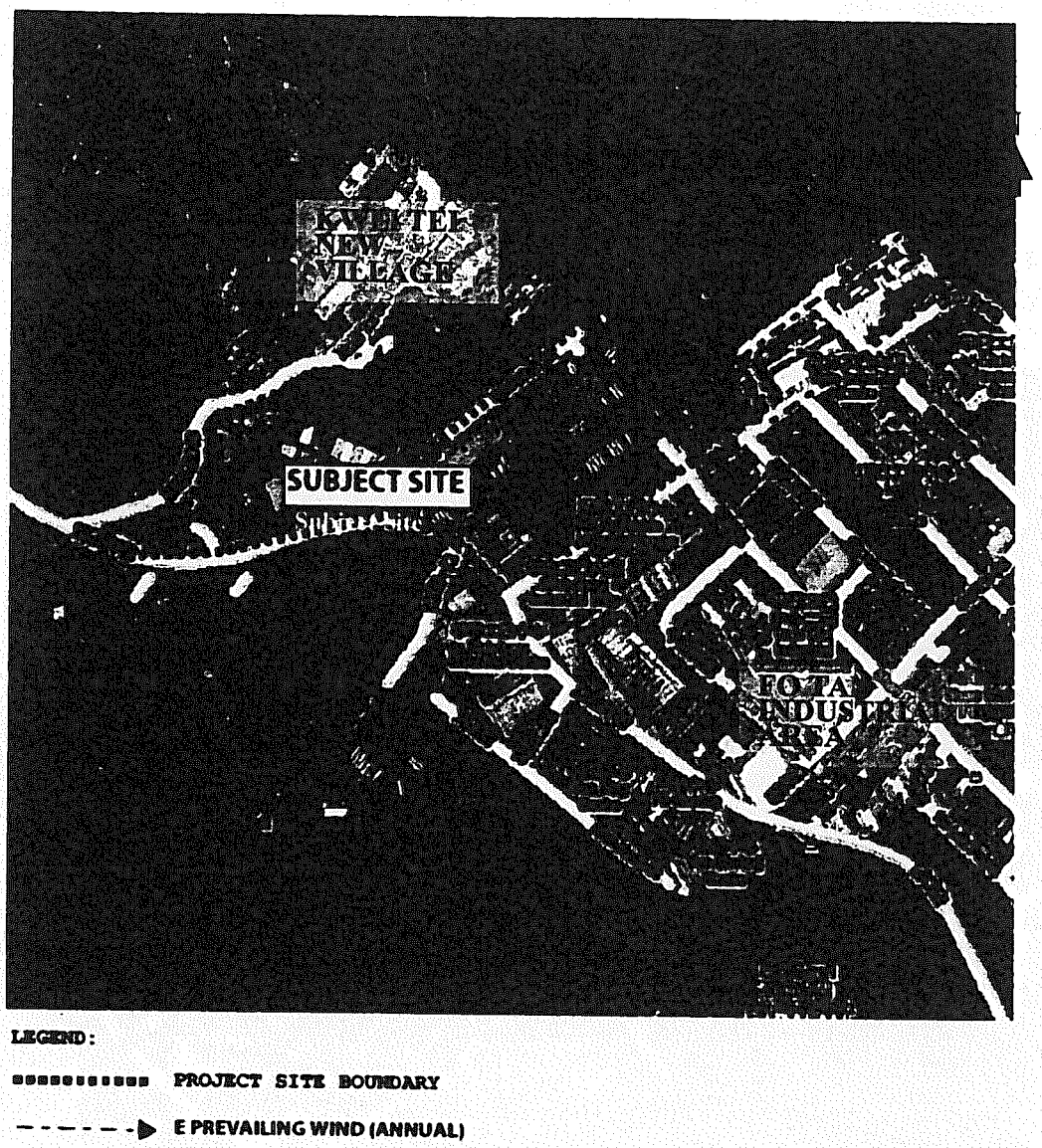


Figure 7 Existing annual Wind Environment at Subject Site (E Wind)

6.1.2. Summer Condition

During the summer period, it is expected that the prevailing winds from SW directions flow pass the subject site.

As shown on ***Figure 8***, since there is no obstruction at the south-west of the subject site, no prevailing wind is blocked. The prevailing wind from SW direction can reach to the subject site directly. However, Kwei Tei New Village may be affected by the presence of building

blocks but the industrial area should be unaffected as the Kwei Tei Street is acting as a wind corridor to facilitate air movements.

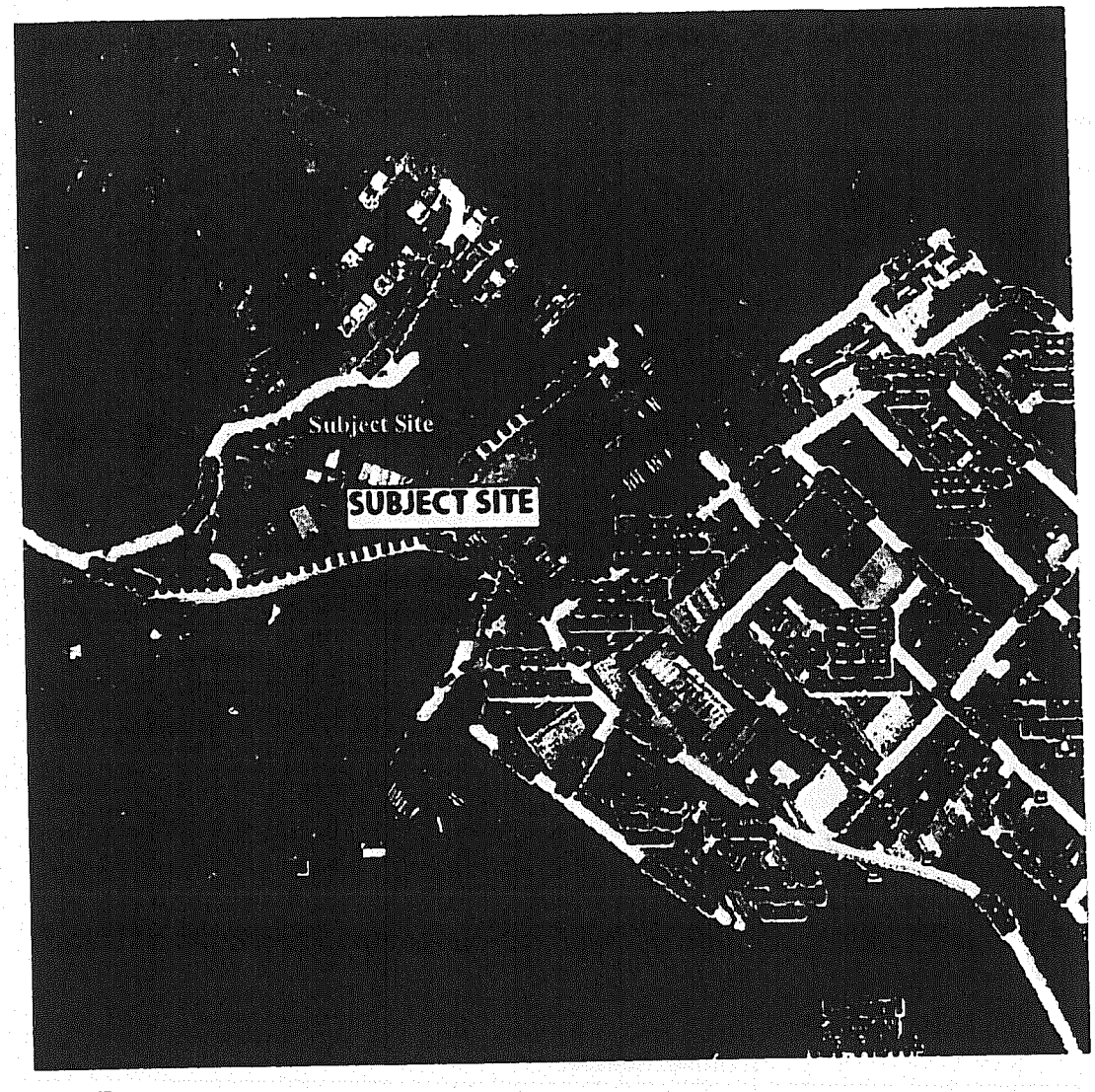


Figure 8 **Existing Summer Wind Environment at Subject Site (SW Wind)**

6.2. PROPOSED DEVELOPMENT

The Public Rental Housing project will divide into two phases, Phase 1 and Phase 2. As shown on ***Figure 9***, Phase 1 will consist of 4 domestic buildings, 3 numbers at Site 1 and 1 number at Site 2A, while, Phase 2 will consist of 2 domestic buildings at Site 2B. The gross

site area is approximately 41000 square meters. The composition of the initial scheme of the Project is summarized in the following table.

Since the project site is located near the existing industrial area, as recommended by EPD, all the domestic blocks should be placed as far as possible from that area. Therefore, this limitation directly affects the spaces for allocating each block although the project area is very large.

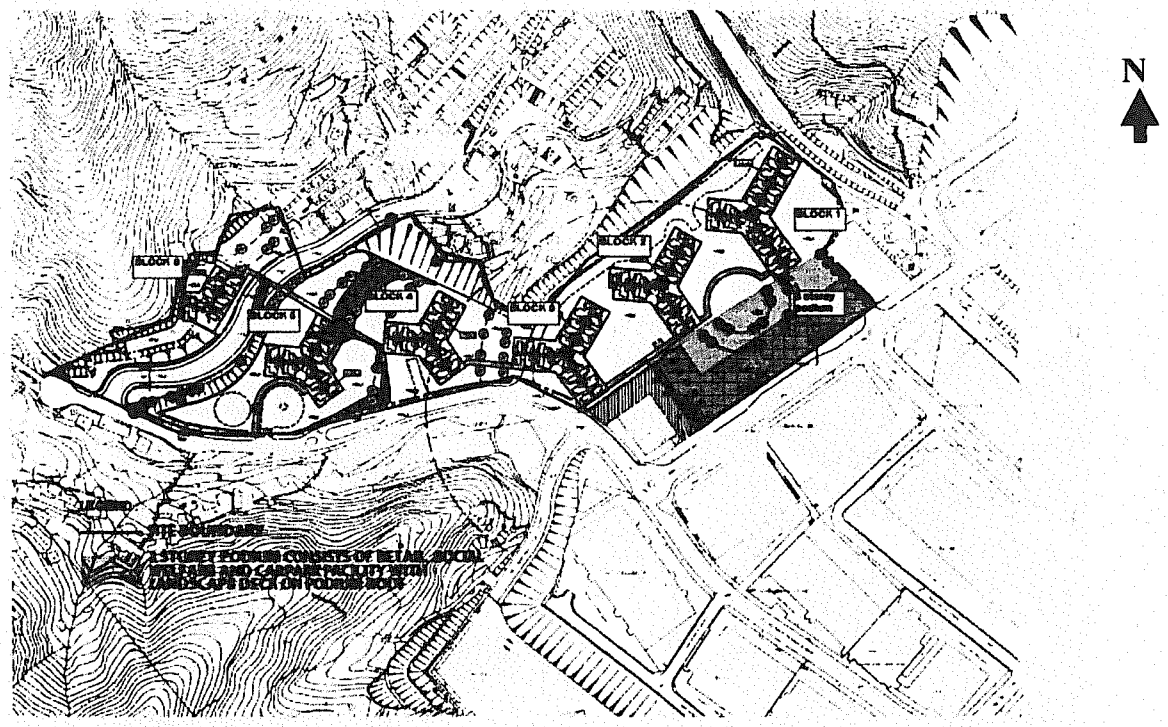


Figure 9 Initial Scheme Layout Plan

	Initial Scheme
Site Area	Around 41000 square meters
No of Residential Blocks	6
No of Domestic Storeys	Ranged from 26-36
No of flats	Around 4200 units
Podium	A 3-storey podium consist of retail, social welfare and carpark facility and podium roof as landsacpe deck area as shown in ***Figure 9***
Building Height	Maximum 160mPD

6.2.1. Good Design Features

Design features of the initial scheme for improving air ventilation performance of the Project include:

- The domestic blocks as shown in ***Figure 10*** and ***Figure 11*** are oriented to capture the prevailing east and south-westerly winds without substantial impediment from and to the surrounding developments and the terrain. This arrangement would reduce the potential wind screen effects due to the building blocks and allows wind penetration through the subject site.
- As described the site constraint in Section 6.2, the space for allocating the 3 domestic blocks at Site 1 is limited, building gaps between each building block are optimized to allow wind penetration for E wind and SW wind through the subject site to the leeward areas. The detail of building separation is shown on ***Figure 12***.
- The podium deck area located at the south-east of Site 1 provided an open area for air ventilation which would maintain ventilation path to enhance the wind environment at pedestrian level during annual and summer periods

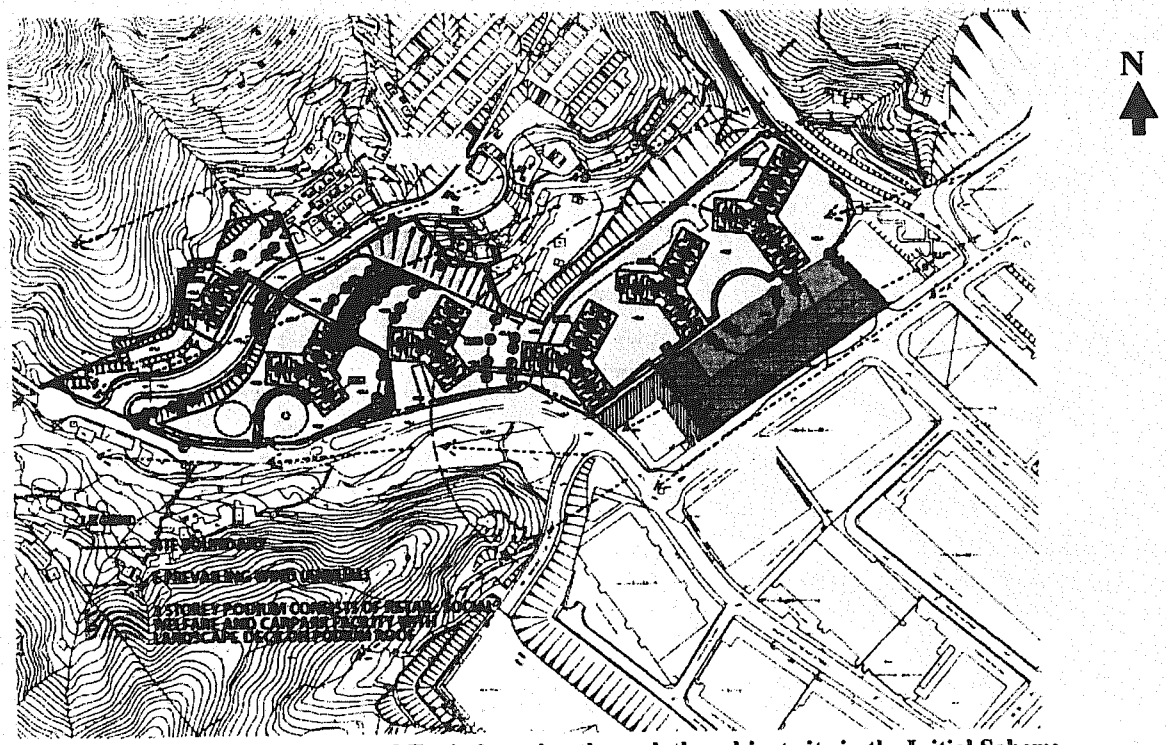


Figure 10 Prevailing Annual E wind passing through the subject site in the Initial Scheme

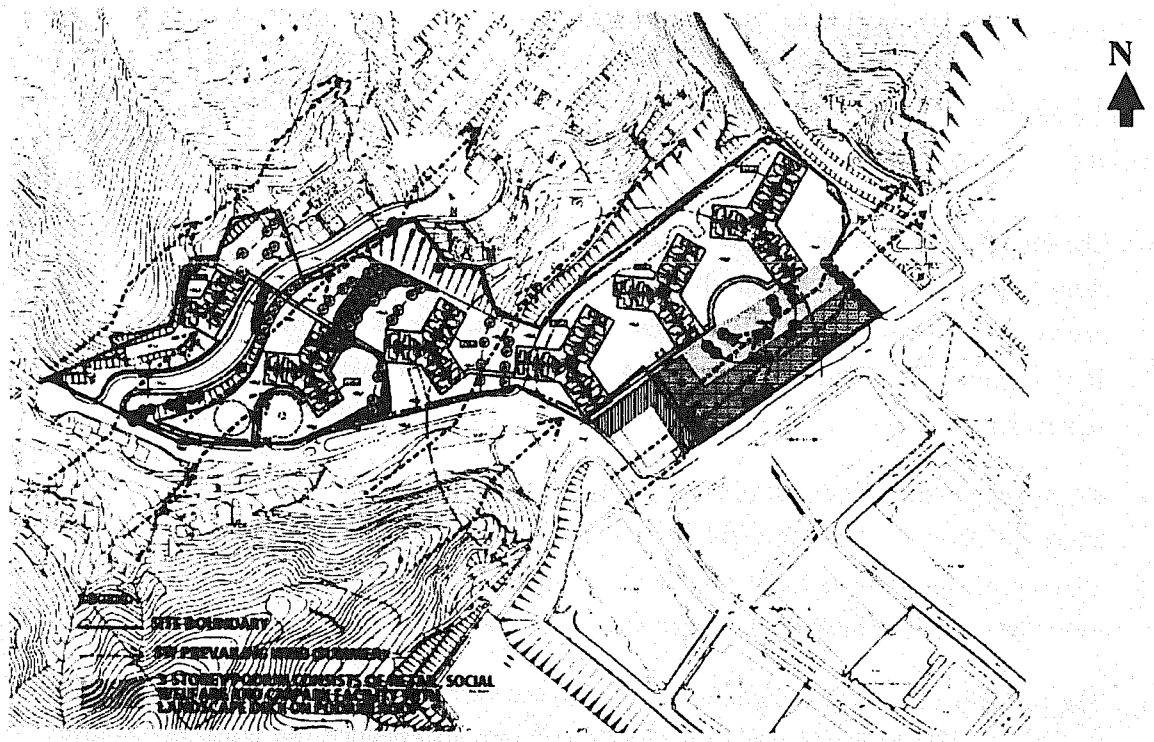


Figure 11 Prevailing summer SW wind passing through the subject site in the Initial Scheme

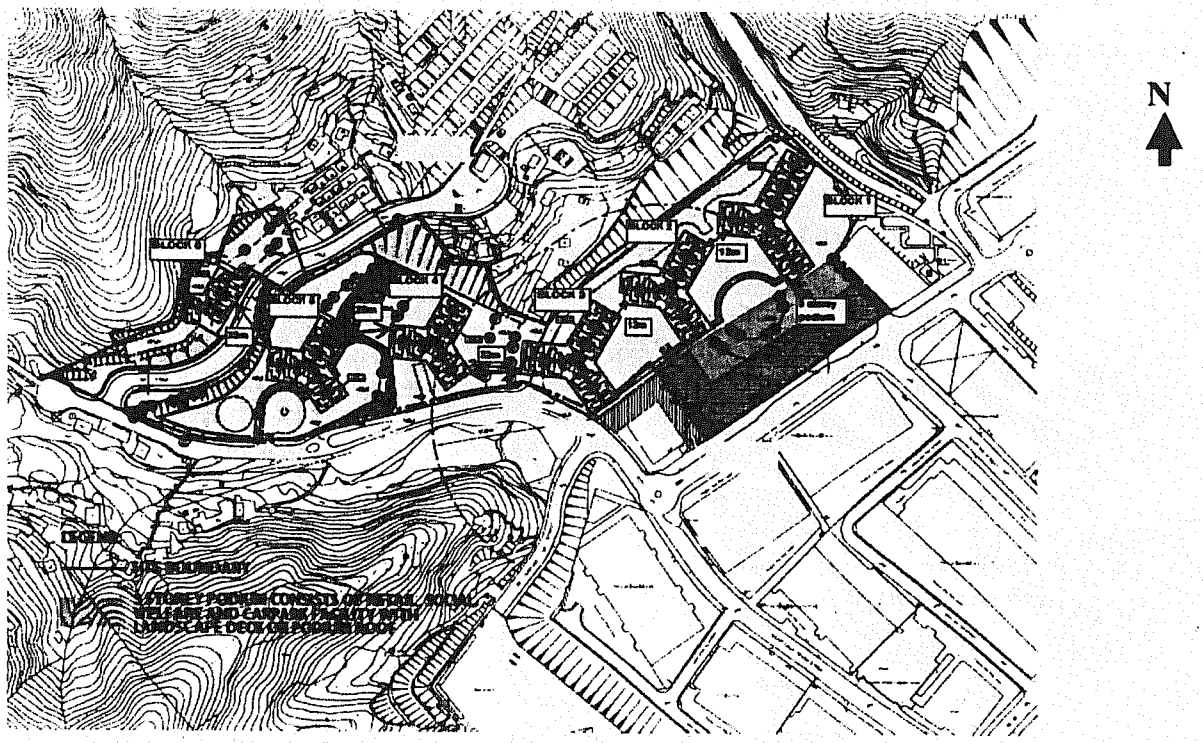


Figure 12 Building Separation in the Initial Scheme

6.2.2. Problem and Focus Areas

Nevertheless, some drawbacks are identified in the initial scheme during the AVA EE study.

- Based on the proposed orientation and the shape of the buildings, the designated corridor in between building blocks at Site 1 is around 13 metres. The narrow corridor would possibly impact on the ventilation effect and the wind permeability into the site.
- Based on the proposed orientation and the shape of the buildings, the part of the building blocks would block the prevailing wind and impact on the ventilation effect at the subject site and the adjacent area.
- As shown in ***Figure 13*** and ***Figure 14***, the building blocks would possibly contribute wind screening effect, particular the open areas and also the existing low-rise residential area.

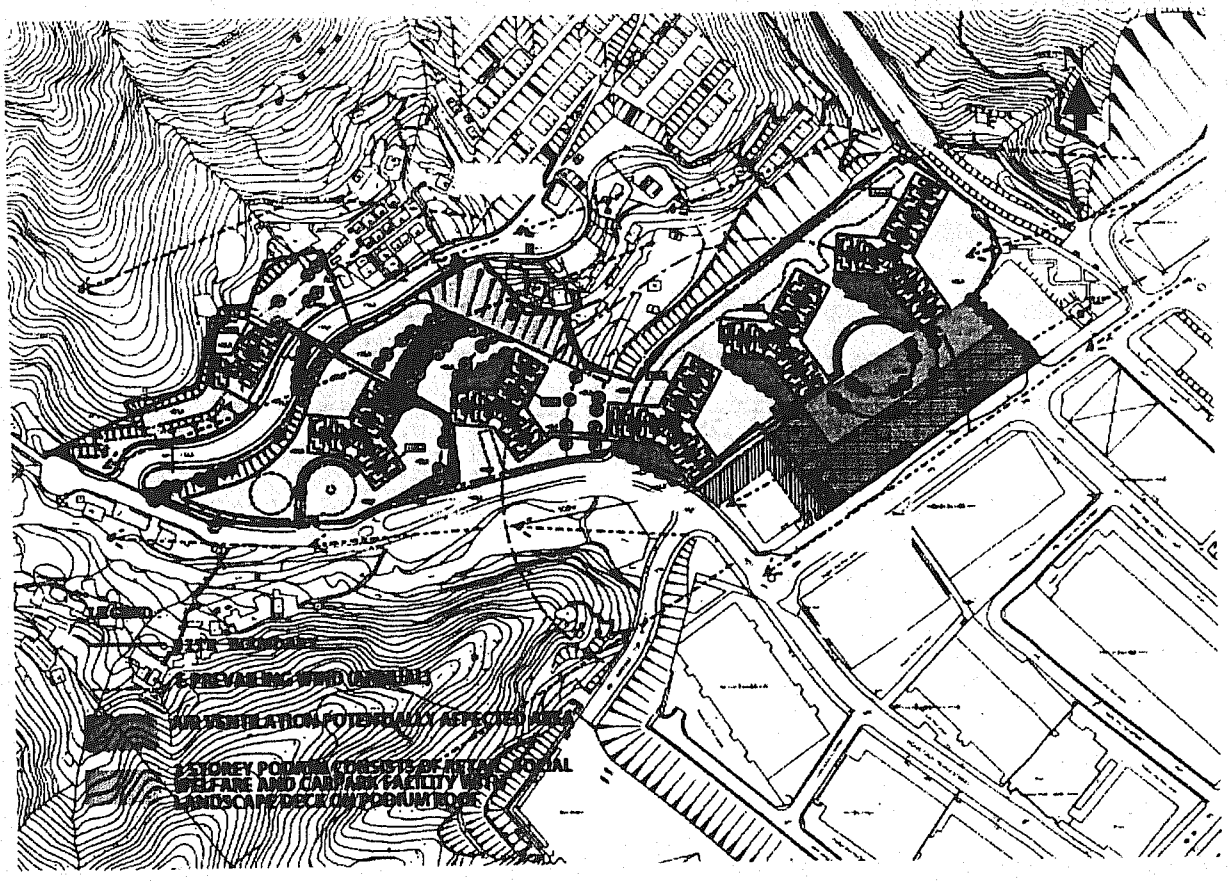


Figure 13 Potential Wind Sheltering by Project of Annual E Wind Penetration

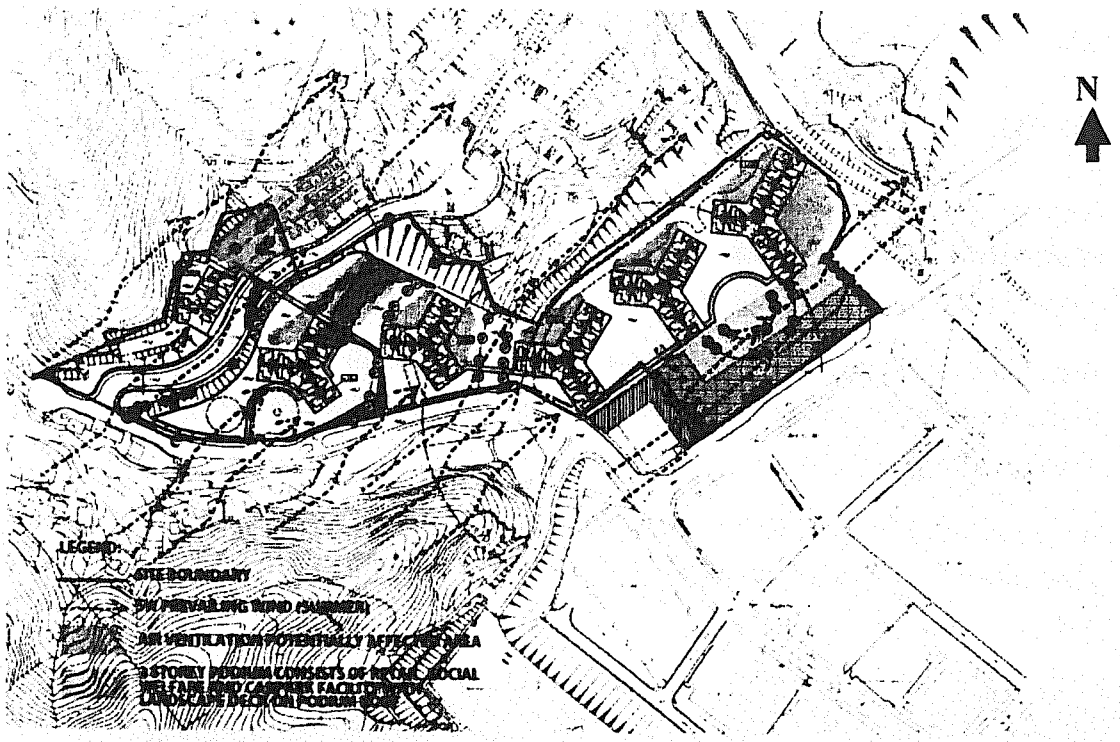


Figure 14 Potential Wind Sheltering by Project of Summer SW Wind Penetration

6.3. RECOMMENDATION

To enhance the air ventilation performance of the Project, the following improvement measures are recommended to be incorporated into the Refined Design Scheme as shown in *Figure 15*.

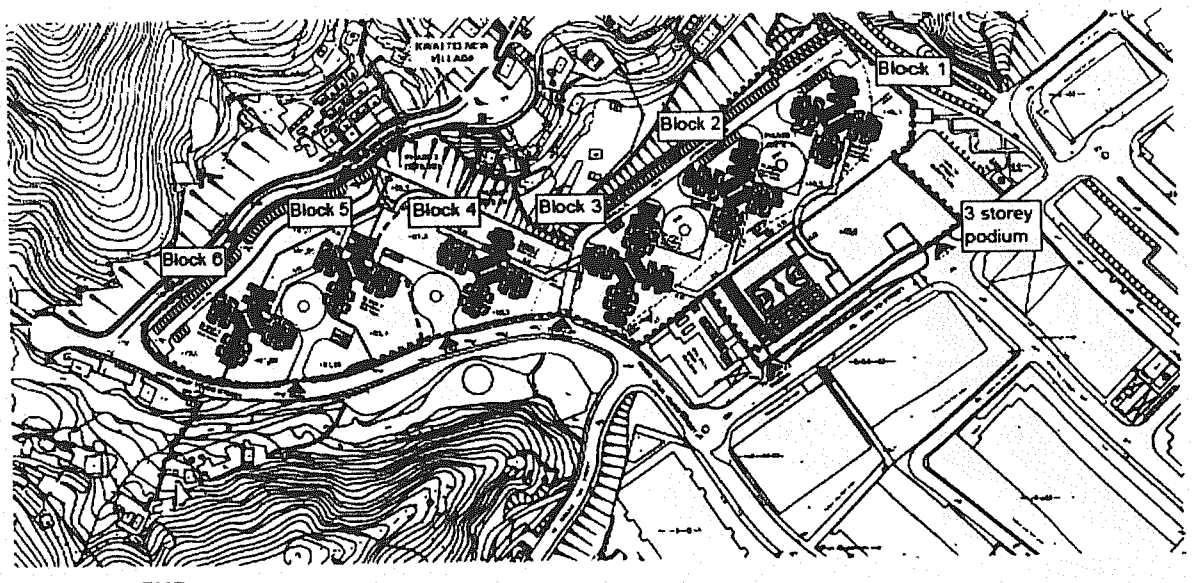


Figure 15 Refined Design Scheme

- Free Flow Area

To reduce the impact of summer prevailing wind on Kwei Tei New Village, it is recommended that Block 6 should be relocated from Site 3 (to the west of Kwei Tei New Village) to Site 2B (at the western end of the subject site). The relocation of the building block would allow a free flow area to the existing village and avoid the wind screening effects during the summer SW prevailing wind (***Figure 16 & Figure 17***).

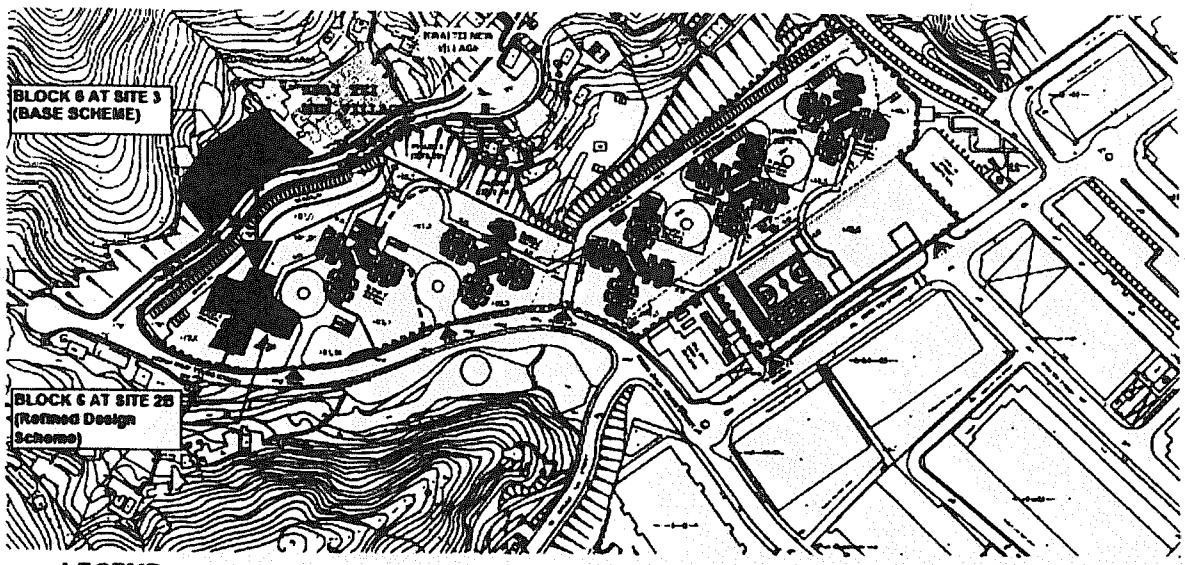


Figure 16 Relocation of Block 6 in the Refined Design Scheme

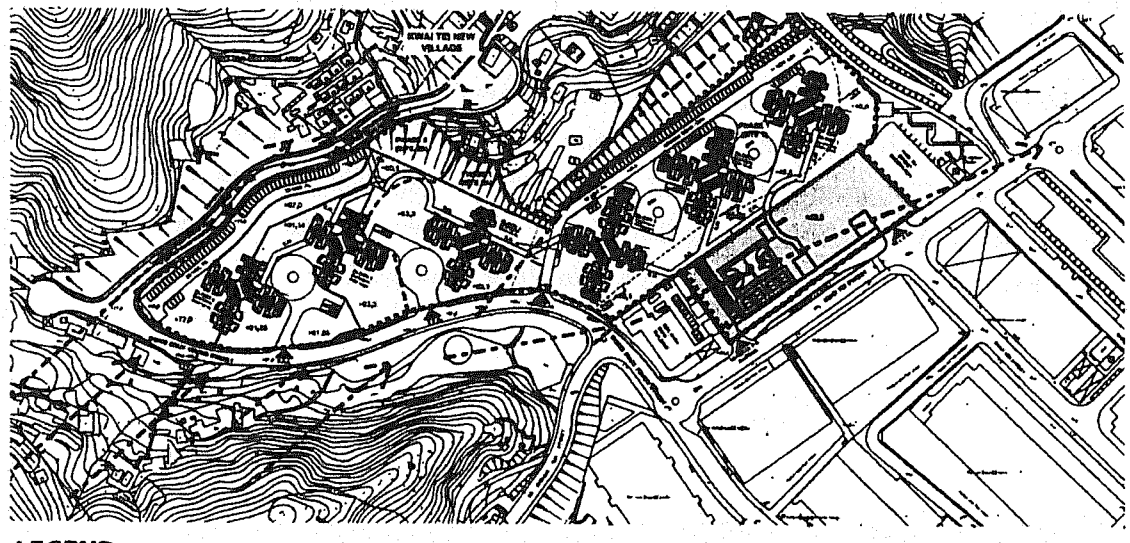


Figure 17 Summer prevailing wind condition in the Refined Design Scheme

- Building Separation

Upon the relocation of Block 6, there are 6 numbers domestic blocked located in the Site 1 and 2 in the Refined Design Scheme. In the improved layout as shown in ***Figure 18***, the shape and the orientation of building blocks has been changed in order to optimize the separation of each building block. However due to the site constraint not all blocks could be aligned with the prevailing wind directions. Moreover an approximately 30-metre separation and a path angle within 30 degrees from the prevailing SW and NE wind between block 3 and block 4 is designed for wind corridor to enhance wind penetration from NE to SW under NE wind and vice versa.

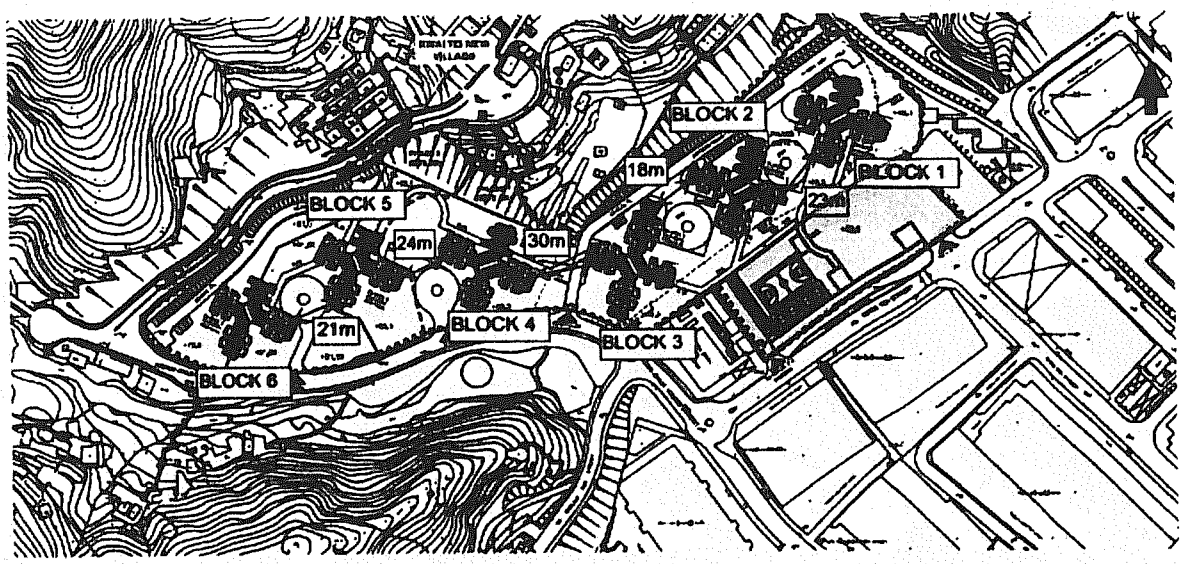


Figure 18 Building Separation in the Refined Design Scheme

- Building Disposition

The shape and orientation of residential blocks are revised to "cross-shaped", instead of "Y-shaped". This disposition allows better penetration of both annual and summer prevailing winds from E and SW directions as shown in ***Figure 19*** and ***Figure 20***.

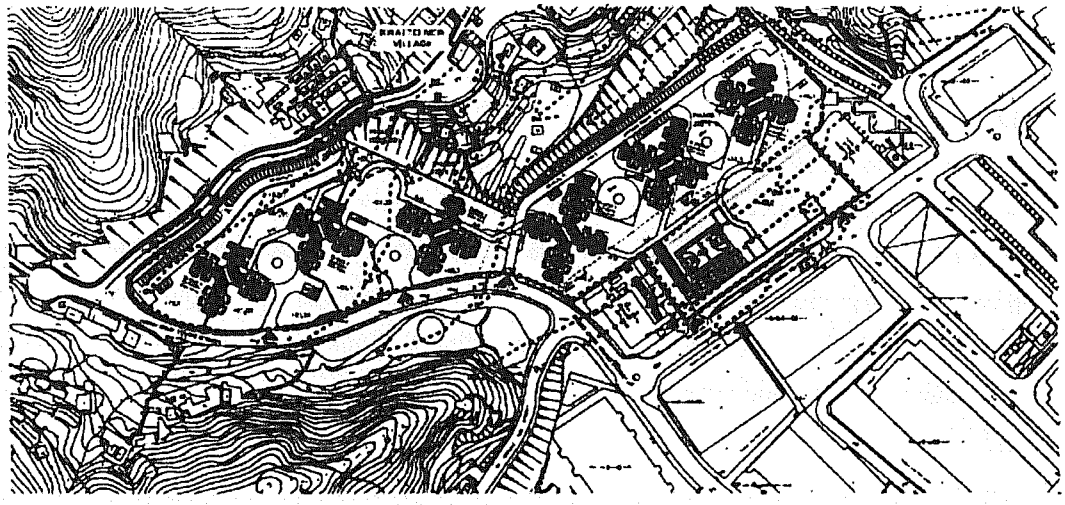


Figure 19 Prevailing annual wind in the Refined Design Scheme

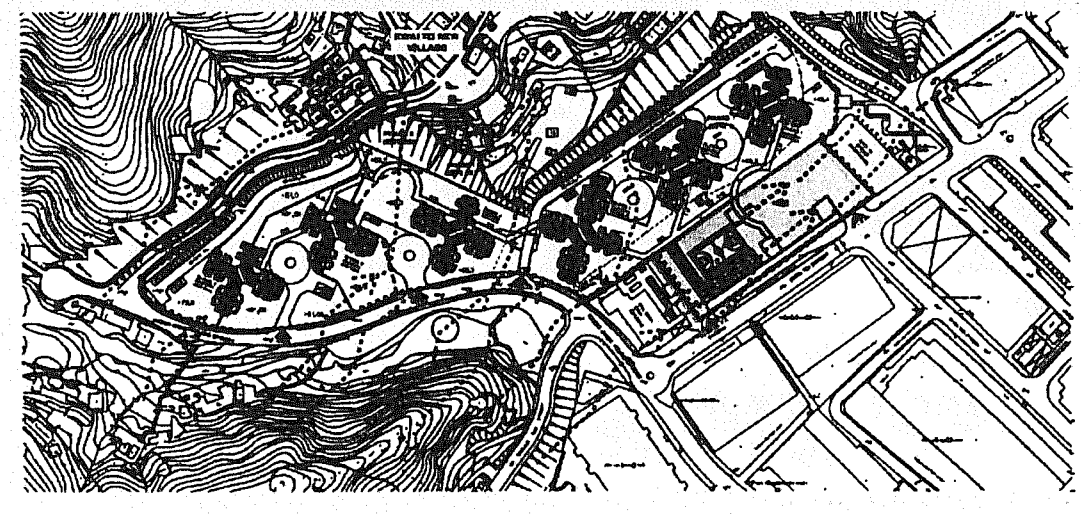


Figure 20 Prevailing summer wind in the Refined Design Scheme

HKHA has incorporated the above mentioned recommendations into the latest design scheme to improve the air ventilation performance of the Project. It is recommended an AVA Initial Study to be conducted for the design scheme to quantitatively evaluate the air ventilation performance at the pedestrian level to evaluate the effectiveness of the recommended design measures.

7. FUTURE STUDY

As the Project would likely impose changes on the existing wind environment in the surrounding area, an AVA Initial Study will be conducted to quantitatively assess the potential air ventilation impacts due to the Project, identify any potential problematic areas and the assess the effectiveness of the proposed mitigation measures to minimize the adverse impact caused to the surrounding environment

7.1. METHODOLOGY FOR INITIAL STUDY

According to the Technical Guide, both Computational Fluid Dynamics (CFD) and wind tunnel could be considered as the appropriate tools for AVA Initial Study. CFD is recommended as a cost-effective means for AVA Initial Study to evaluate the changes of the wind environment due to the Project.

The AVA Initial Study is to quantitatively evaluate potential air ventilation impacts of the proposed development based on wind data obtained from MM5 by determining the Velocity Ratios (VR) at various concerned locations. The airflow distribution within the flow domain, being affected by the subject site-specific design and the nearby topography will be visualized under the prevailing wind conditions round the year.

8. CONCLUSION

This AVA-EE Study aims at providing qualitative evaluation of wind performance of the subject site under existing condition and proposed design option. The subject site is currently used as an open carpark and bus depots where is surrounded by low-rise residential buildings and high-rise industrial buildings. Building heights of these surrounding buildings have different degree of implications on air ventilation at pedestrian level within neighbourhood during summer and annual conditions.

The air ventilation performance of the initial scheme of the Project, which consists of six proposed public housing blocks, has been evaluated by comparing to the latest design scheme.

Besides, the following good design features in the Initial Scheme has been considered:

- Capturing the prevailing east and south-westerly winds without substantial impediment from and to the surrounding developments and the terrain;
- Reducing the potential wind screen effects due to the building blocks and allowing wind penetration through the subject site;
- Allow some wind penetration for E wind through the subject site to the leeward areas via building gaps between each building block;
- Maintaining ventilation paths to enhance the wind environment at pedestrian level during annual and summer periods in the landscape deck area located at the south-east of Site.

The following enhancement measures are recommended in the Expert Evaluation in order to improve the air ventilation performance of the Refined Design Scheme:

- **Building Separation**: modifying the orientation of building blocks to increase the separation of the buildings in order to reduce the blockage to the prevailing winds and improve wind permeability into the site;
- **Free Flow Area**: relocating Block 6 to allow a free flow area to the existing village and avoid the wind screening effects during the summer;
- **Building Disposition**: modifying the building's shape as "cross-shaped" and providing more building separation to allow the better penetration of both annual and summer prevailing winds.

Lastly, an AVA Initial Study is recommended to quantitatively assess the potential air ventilation impacts on existing environment due to the Project based on the latest design scheme using Computational Fluid Dynamic (CFD) Simulation.

Issue No : 2 (Rev.3)
Issue Date : September 2012
Project No. : 1059

AIR VENTILATION ASSESSMENT FOR THE PROPOSED HOS DEVELOPMENT AT WO SHEUNG TUN STREET, FO TAN, SHA TIN (AREA 16)

EXPERT EVALUATION

Report Prepared by :
Allied Environmental Consultants Ltd.

COMMERCIAL-IN-CONFIDENCE

Issue No : 2 (Rev.3)
Issue Date : September 2012
Project No. : 1059

AIR VENTILATION ASSESSMENT FOR THE PROPOSED HOS DEVELOPMENT AT WO SHEUNG TUN STREET, FO TAN, SHA TIN (AREA 16)

EXPERT EVALUATION

Report Prepared by :
Allied Environmental Consultants Ltd.

COMMERCIAL-IN-CONFIDENCE

Author: _____

Andy Lai
Bsc(Hons), AMHKIOA

Checked & Approved: _____

Timothy Sze
BEng(Hons), MEng

This report has been prepared by Allied Environmental Consultants Limited with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1. INTRODUCTION 3

2. OBJECTIVE 3

3. SCOPE OF STUDY 3

4. SITE CHARACTERISTICS 4

4.0. SITE LOCATION AND SURROUNDING ENVIRONMENT 4

5. WIND AVAILABILITY 5

5.1. WIND DATA FROM HONG KONG OBSERVATORY 6

5.1.1. Sha Tin Weather Station 6

5.1.2. Wind Data from MM5 7

5.1.3. Findings of Wind Availability 8

6. EXPERT EVALUATION 8

6.1. EXISTING CONDITION 9

6.1.1. Annual Condition 10

6.1.2. Summer Condition 12

6.2. PROPOSED DEVELOPMENT 13

6.2.1. Design Features 14

6.2.2. Problem and Focus Areas 19

6.3. RECOMMENDATION 22

7. FUTURE STUDY 23

7.1. METHODOLOGY FOR INITIAL STUDY 23

8. CONCLUSION 24

LISTS OF FIGURES

FIGURE 1 EXISTING LANDUSE OF THE PROJECT 5
FIGURE 2 LOCATIONS OF THE NEAREST HKO WEATHER STATIONS 6
FIGURE 3 SHA TIN WIND ROSE (2010) 7
FIGURE 4 WIND ROSE OF GRID (28,32), MM5 8
FIGURE 5 SITE ENVIRONMENT AND WIND CORRIDOR 10
FIGURE 6 EXISTING ANNUAL WIND ENVIRONMENT AT SUBJECT SITE (NE WIND) 11
FIGURE 7 EXISTING ANNUAL WIND ENVIRONMENT AT SUBJECT SITE (E WIND) 12
FIGURE 8 EXISTING SUMMER WIND ENVIRONMENT AT SUBJECT SITE (SW WIND) 13
FIGURE 9 LAYOUT PLAN FOR THE PROJECT 14
FIGURE 10 LAYOUT PLAN (INITIAL SCHEME) FOR THE PROJECT 16
FIGURE 11 PREVAILING ANNUAL NE WIND PASSING THROUGH THE SUBJECT SITE IN INITIAL SCHEME 17
FIGURE 12 PREVAILING ANNUAL E WIND PASSING THROUGH THE SUBJECT SITE IN THE INITIAL SCHEME 18
FIGURE 13 PREVAILING SUMMER SW WIND PASSING THROUGH THE SUBJECT SITE IN THE INITIAL SCHEME 19
FIGURE 14 POTENTIAL WIND SHELTERING BY PROJECT OF ANNUAL NE WIND PENETRATION 20
FIGURE 15 POTENTIAL WIND SHELTERING BY PROJECT OF SUMMER SW WIND PENETRATION 21
FIGURE 16 LATEST DESIGN OPTION 22

LISTS OF TABLES

TABLE 1 WIND AVAILABILITY DATA OF SHA TIN, HKO 2010 7

EXECUTIVE SUMMARY

An AVA report is prepared on behalf of The Hong Kong Housing Authority (HKHA) to facilitate the amendment to the Outline Zoning Plan for residential use by The Planning Department. This Expert Evaluation on Air Ventilation Assessment (AVA-EE) was conducted for the Project according to the *Technical Circular No. 1/06* and its *Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong* issued jointly by Housing, Planning and Lands Bureau and Environment, Transport and Work Bureau (referred to as the Technical Guide hereafter).

The Project is located at Fo Tan Industrial Area, Sha Tin. The subject site is currently used as a bus depot where is surrounded by high-rise industrial buildings. The immediate topographies to the north, southern-east, south, southern-west, west and northern west of the subject site are relatively sloped, except the northern-east and east, where is relatively flat.

The HOS project with 8700 square meters gross site area will comprise 2 residential blocks of about 32 – 33 domestic storeys with flat production of about 560, one open parking lots and outdoor communal area.

A good design feature was incorporated into the initial scheme, which includes the proper building's orientation to capture the prevailing winds without substantial impediment from and to the surrounding developments and the terrain.

However, a drawback for the initial scheme of the Project is also identified that the building block would possibly contribute wind screening effect at the open area at ground level and the wind permeability into the site would be significantly affected, particularly the annual and summer prevailing winds

To ameliorate the potential effects, additional design measures are recommended to be adopted in the detailed design of the Project in order to minimize any potential adverse ventilation impact on the surrounding environment. They include:

- Dividing one building block into two and modifying the sharp to provide a separation in order to reduce the blockage to the prevailing winds and the possible stagnant area.
- Maintaining ventilation paths to enhance the wind environment at pedestrian level during annual and summer periods at the open area.

The above mentioned and recommended design measures has been incorporated into the latest design scheme for the Project. An AVA Initial Study using Computational Fluid

Dynamic (CFD) Simulation is recommended to quantitatively assess the potential ventilation impacts on the surrounding environments due to the Project based on the latest design scheme.

1. INTRODUCTION

Hong Kong Housing Authority (HKHA) proposes to develop the HOS Development at Wo Sheung Tun Street at Fo Tan (the Project). The project site area is approximately 8700 square meters. The development will comprise 2 residential blocks of about 32 and 33-domestic storeys with flat production of about 560, one open parking lots and outdoor recreational area. The expected completion of the development is around the end of 2019.

Allied Environmental Consultants Limited (AEC) was commissioned by HKHA to carry out an Expert Evaluation on Air Ventilation Assessment (AVA-EE) to qualitatively evaluate the potential air ventilation impacts due to the Project. The AVA-EE was carried out according to the air ventilation assessment framework as set out in *Technical Circular No. 1/06* and its *Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong* issued jointly by Housing, Planning and Lands Bureau and Environment, Transport and Work Bureau (Technical Guide).

2. OBJECTIVE

The objective of the AVA-EE is to qualitatively review and evaluate the potential air ventilation impact on the pedestrian wind environment within and in the vicinity of the subject site due to the Project by comparing that to the existing conditions, i.e. without the Project.

3. SCOPE OF STUDY

The scope of study includes as follows:

- 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 advise whether any further detailed study is required for concerned areas and the scope of the detailed study required.

4. SITE CHARACTERISTICS

4.0. SITE LOCATION AND SURROUNDING ENVIRONMENT

The Project is adjacent to Fo Tan Industrial Area, Sha Tin as shown in ***Figure 1***. The subject site is currently used as a bus depot. The subject site is positioned at an elevation level, approximately 52mPD. The immediate topographies to the north, south-east, south, south-west, west and north-west of the subject site are relatively sloped, except the northern-east and east, which is relatively flat. The immediate surrounding environments as shown in ***Figure 1*** are analysed as follows:

- The north of the subject site is bounded by low-rise residential buildings, namely Kwei Tei New Village, where are located on the slope next to Kwei Tei San Chuen Road, with building heights ranged from 80mPD to 100mPD.

- To the immediate north-east, the subject site is bounded by mid-rise industrial buildings on Man Hang Street, such as Wah Luen Industrial Centre, Yan Hing Centre; Wah Sang Industrial Building and Sun Hung Kai Logistics Center on Wong Chuk Yeung Street, of which the building heights range from 60mPD to 120mPD.

- At approximately 280m to southern-east of the subject site, there are high-rise residential buildings, such as Sha Tin 33, Scenery Garden and Sui Wo Court, of which the building heights range from 110 to 190mPD.

- At approximately 300m to south of the subject site on the hillside, there are low-rise residential buildings, such as Garden Villa and Ville De Cascade of which the building heights range from 175 to 185mPD.

- HKHA proposes to develop the Public Rental Housing at Fo Tan (Area 16 & 58D) with six domestic blocks and the completion date will be in around 2018 and 2021 for Phase 1 and Phase 2 respectively. The building heights up to maximum 160mPD and located to the north of the subject site.

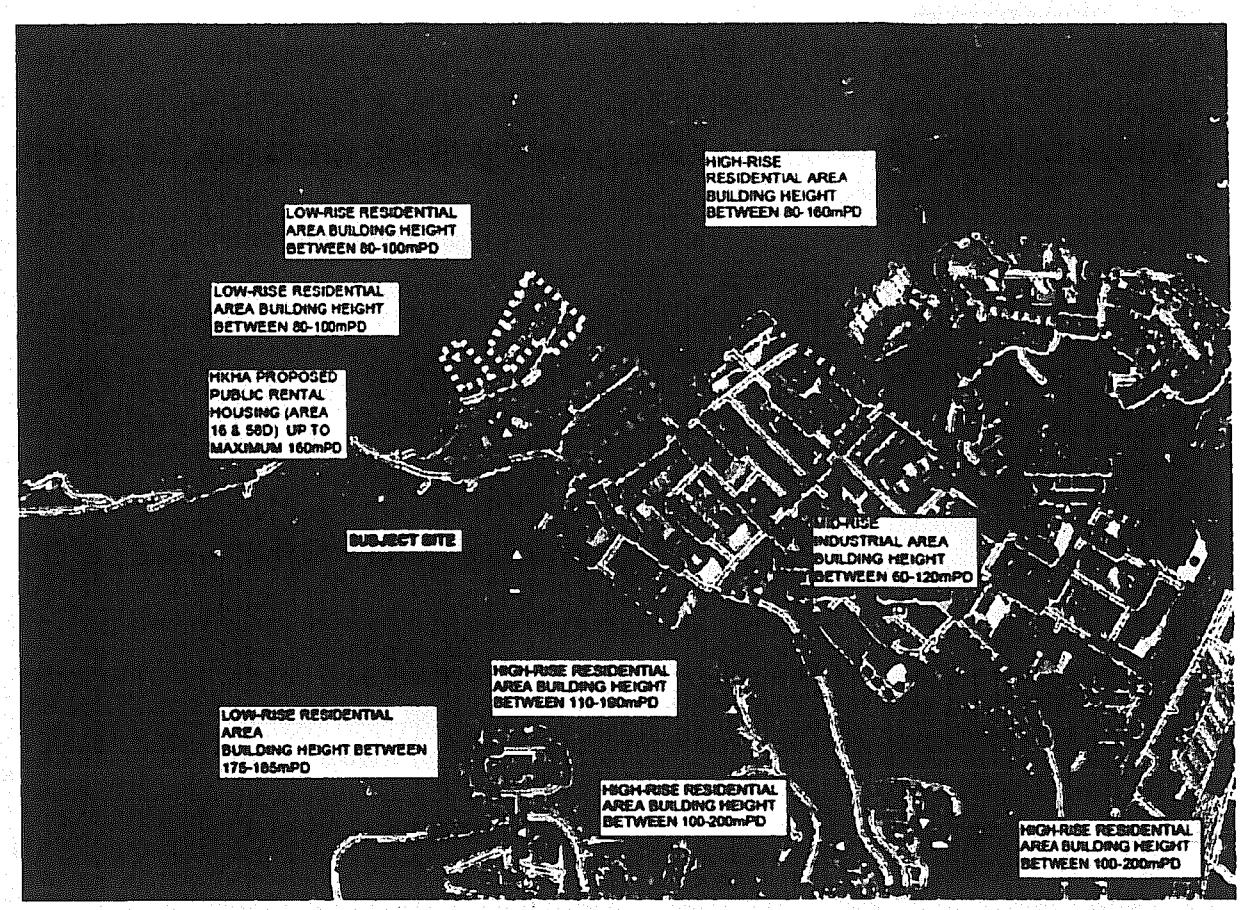


Figure 1 Existing Landuse of the Project

5. WIND AVAILABILITY

The wind data from Hong Kong Observatory (HKO) and Mesoscale Model (MM5) published by PlanD were adopted in this AVA-EE. The HKO wind data represents the lower level wind availability where the wind direction is influenced by local topography in the surrounding environment while the MM5 wind data represents the wind availability at boundary layer (i.e. 596mPD).

The occurrences of winds from different direction are referred to MM5 wind data while local wind conditions for different seasons (annual and summer periods) are referred to HKO wind data.

5.1. WIND DATA FROM HONG KONG OBSERVATORY

There is a HKO automatic weather station located in the vicinity of the subject site, Sha Tin (ST) which is approximately 1.2km on the east away from the subject site as shown in ***Figure 2***. The wind data obtained from these automatic weather stations is to identify wind availabilities during summer and annual periods as this seasonal information are not available in MM5 data.

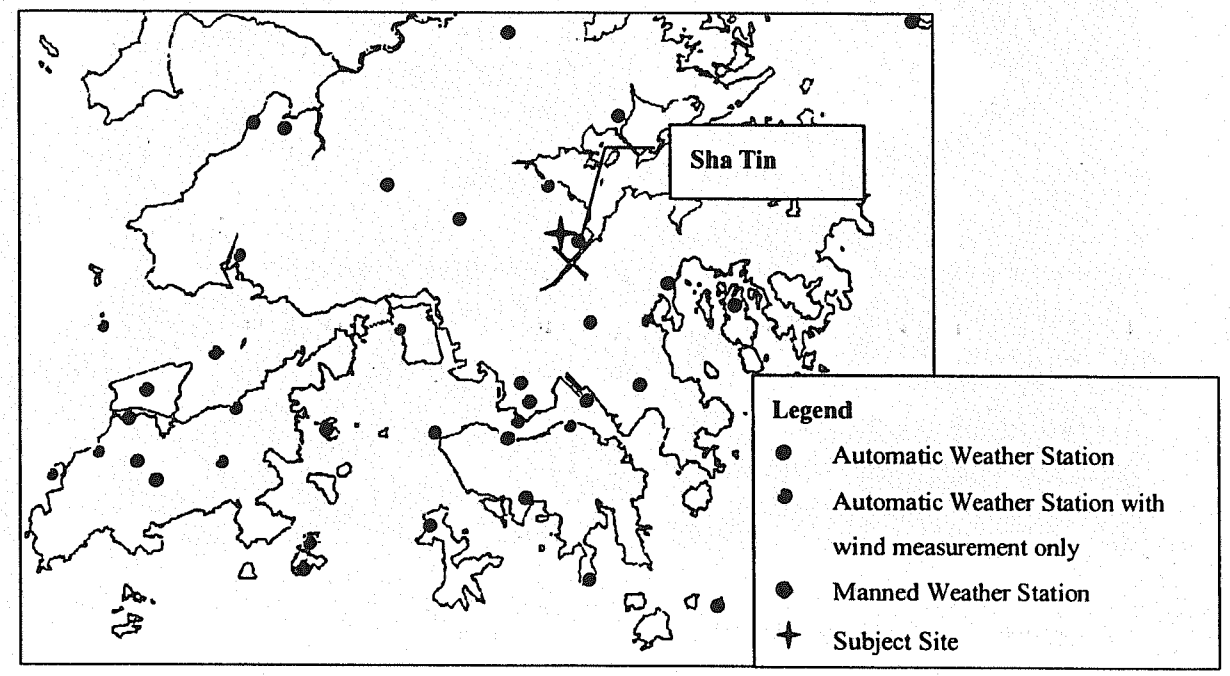


Figure 2 Locations of the Nearest HKO Weather Stations

5.1.1. Sha Tin Weather Station

The recorded annual mean wind speed measured at anemometer of ST automatic weather station was 2.22 m/s (8km/hr) in 2010. Based on the Sha Tin wind rose as shown in ***Figure 3***, it is found that east wind direction dominates the annual wind frequency. The monthly prevailing wind direction and wind speed of year 2010 are listed in ***Table 1***. It is found that wind mainly comes from southwest (SW) direction in summer period, while wind from east (E) dominates annually.

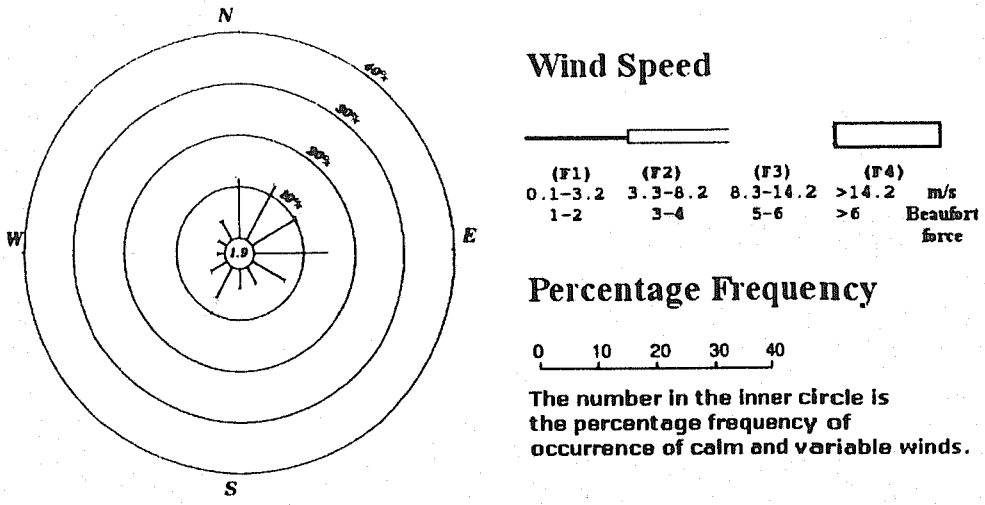


Figure 3 Sha Tin Wind Rose (2010)

Month	Monthly Prevailing Direction (Degrees)	Wind Speed (m/s)
January	30	2.11
February	90	2.22
March	80	2.28
April	90	2.25
May	90	2.17
June	220	2.50
July	220	2.53
August	220	2.14
September	90	2.06
October	90	2.22
November	30	2.17
December	30	2.08

Table 1 Wind Availability Data of Sha Tin, HKO 2010

5.1.2. Wind Data from MM5

The wind availability to the subject site is evaluated with reference to the "Site Wind Availability Data" simulated by the Fifth-Generation NCAR/Penn State MM5 at the height of 596m above ground. The subject site is located within grid (28, 32) and its wind rose is shown in ***Figure 4***. The wind velocity ranges from 0 to 14.2m/s from 16 wind directions and the mean wind velocity is 5.81m/s. It is found that northeast (NE) and east (E) winds dominate the annual wind frequency.

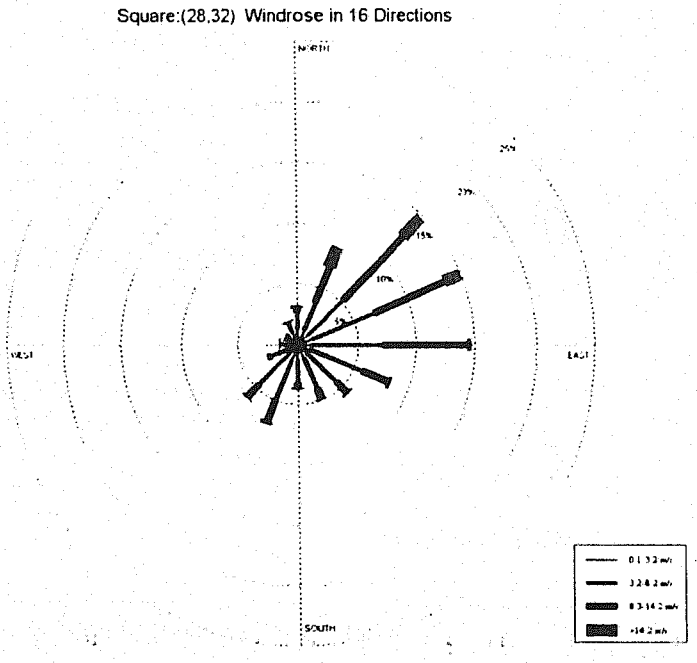


Figure 4 Wind Rose of Grid (28,32), MM5

Power law is used to convert the MM5 data at 596m above ground level to pedestrian level at 2m above ground level by taking consideration of the effect of topography/built-up area in the vicinity of the subject site on site wind availability.

5.1.3. Findings of Wind Availability

Based on the wind data from HKO and MM5, it is concluded that winds come from NE and E are dominant annual wind directions. While in summer period, wind mainly comes from SW directions.

6. EXPERT EVALUATION

This AVA-EE qualitatively evaluates the ventilation performance in the site environs with and without the Project. The study area of air ventilation assessment is approximately 200m from the subject site boundary of the subject site. The coverage is approximately 900m diameter from the centre of the subject site. The conditions of prevailing wind under annually and summer time are considered. Building heights, street/road orientation and patterns, and open spaces have also been taken into account for evaluating the characteristics of wind environment.

6.1. EXISTING CONDITION

The subject site is currently used as bus depot as shown in ***Figure 5***. The existing conditions of subject site (i.e. without the Project) are summarized as the follows.

- Building Heights

The subject site is located in the west end of Fo Tan Industrial Area, a large plain on the elevation, which facilitates air movement. The existing land uses in the vicinity of the subject site includes residential and industrial areas. The building heights of the existing buildings located within the study area are shown in ***Figure 5***.

The heights of majority of the existing industrial buildings located to the east and northeast of the subject site are ranged from 90mPD to 120mPD. These mid-rise industrial buildings might cause impediment to the oncoming land breezes and annual prevailing wind especially the E and NE winds to penetrate into the street level. On the other hand, substantial noise impact from the nearby industrial activity may impact on the proposed development.

Low-rise residential buildings are located on the hillside and the north of the subject site. The average building heights of these residential buildings range from 80 to 100mPD. Due to the highest level of the site, no prevailing wind is obstructed by the adjacent buildings.

- Road/Street Pattern

Roads such as Wong Chuk Yeung Road, Shan Mei Street and Fo Tan Road are considered as wind corridors within the study area for both summer and annual prevailing winds.

- Open Spaces

Open spaces and areas located within 500m from the subject site as shown in ***Figure 5***, including a bus depot, an open car park and public garden. These open spaces promote air circulation at pedestrian level and increase pedestrian comfort.

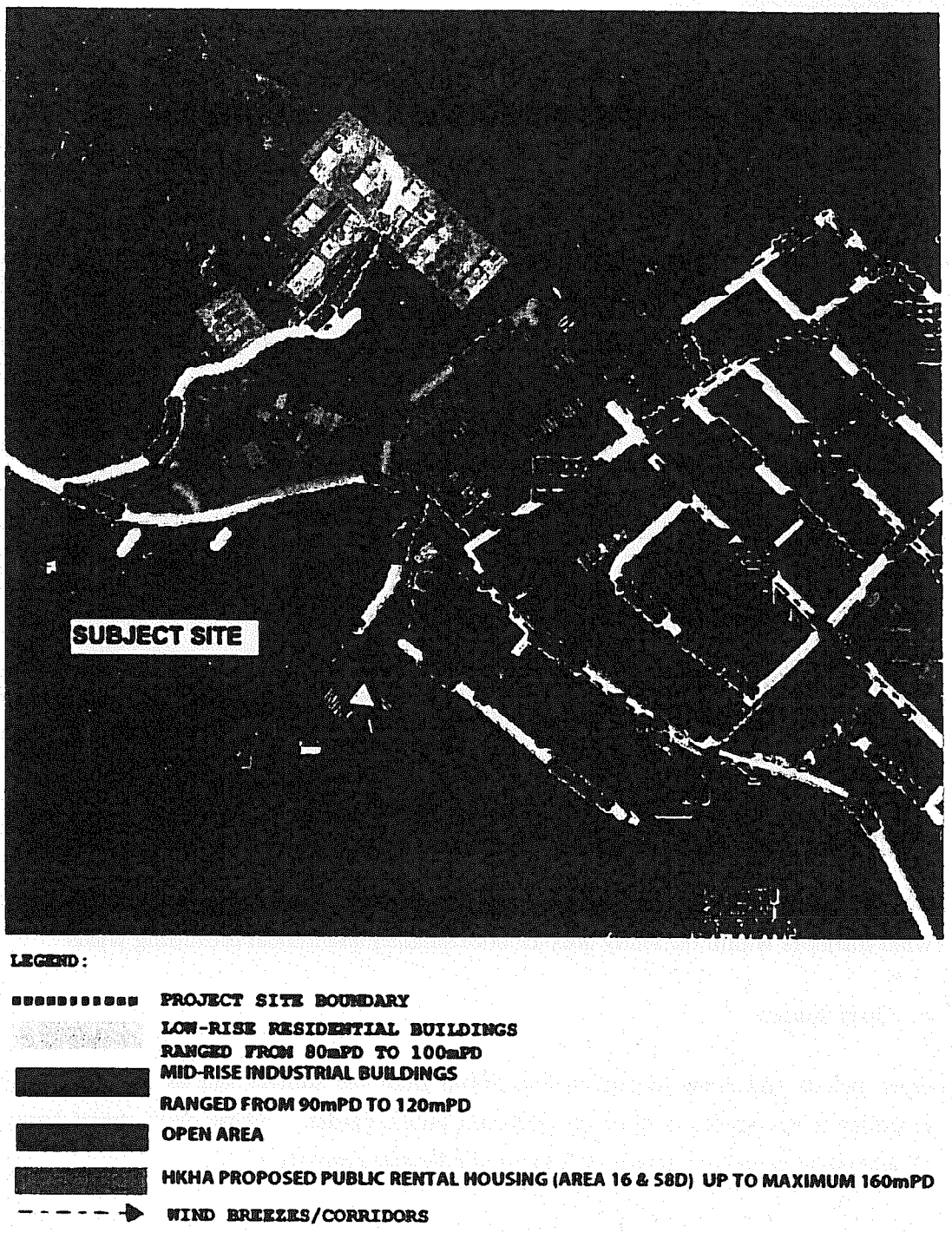


Figure 5 Site Environment and Wind Corridor

6.1.1. Annual Condition

Throughout the year, it is expected that the prevailing winds from E and NE directions flow

pass the subject site.

In terms of NE wind condition as shown in ***Figure 6***, the roads within Fo Tan Industrial Area are orientated to align with the NE prevailing wind direction which greatly facilitate wind ventilations from reaching the subject site.

However, as shown in ***Figure 7***, the development immediate to the east of the subject site act as a screen which preventing the prevailing E wind from reaching the subject site. Moreover the anticipated wind availability is expected to be limited to the subject site under annual E wind condition.

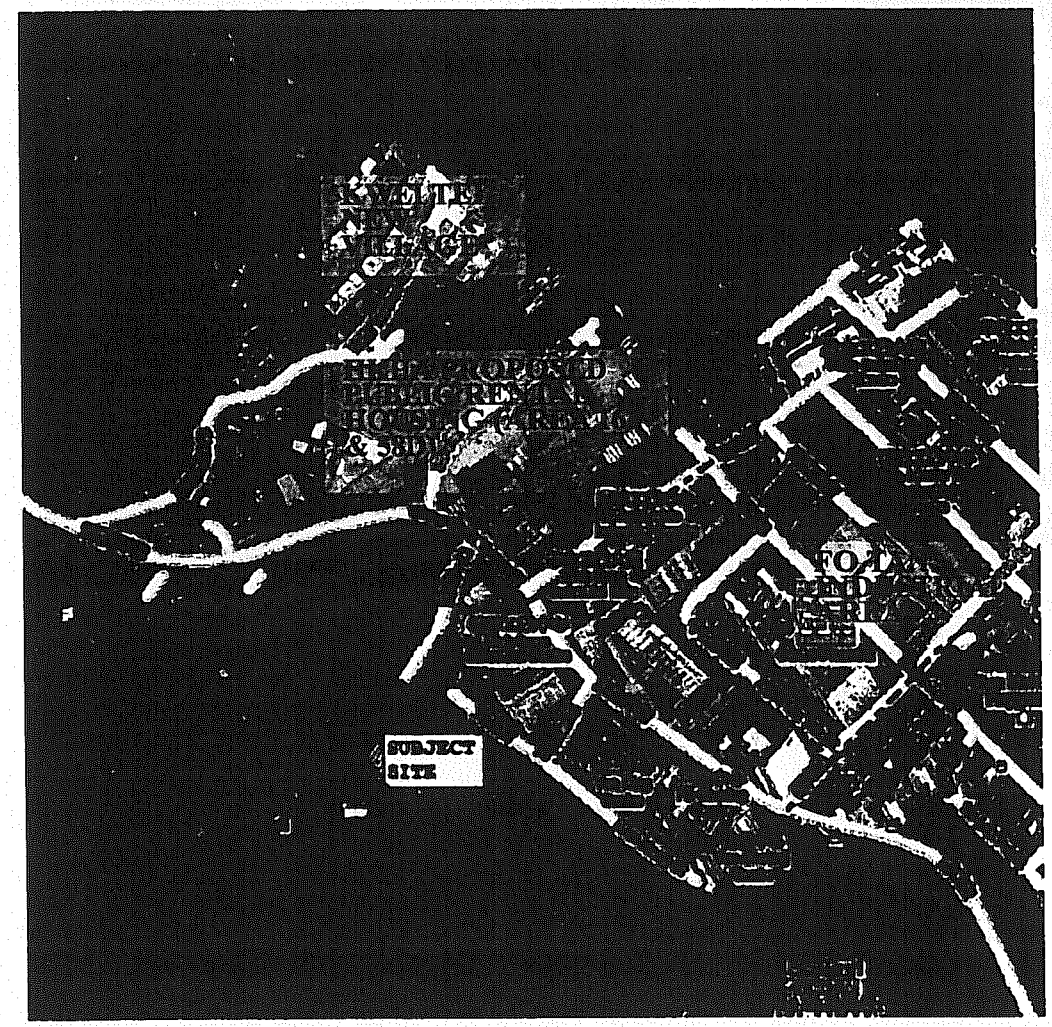


Figure 6 Existing Annual Wind Environment at Subject Site (NE Wind)

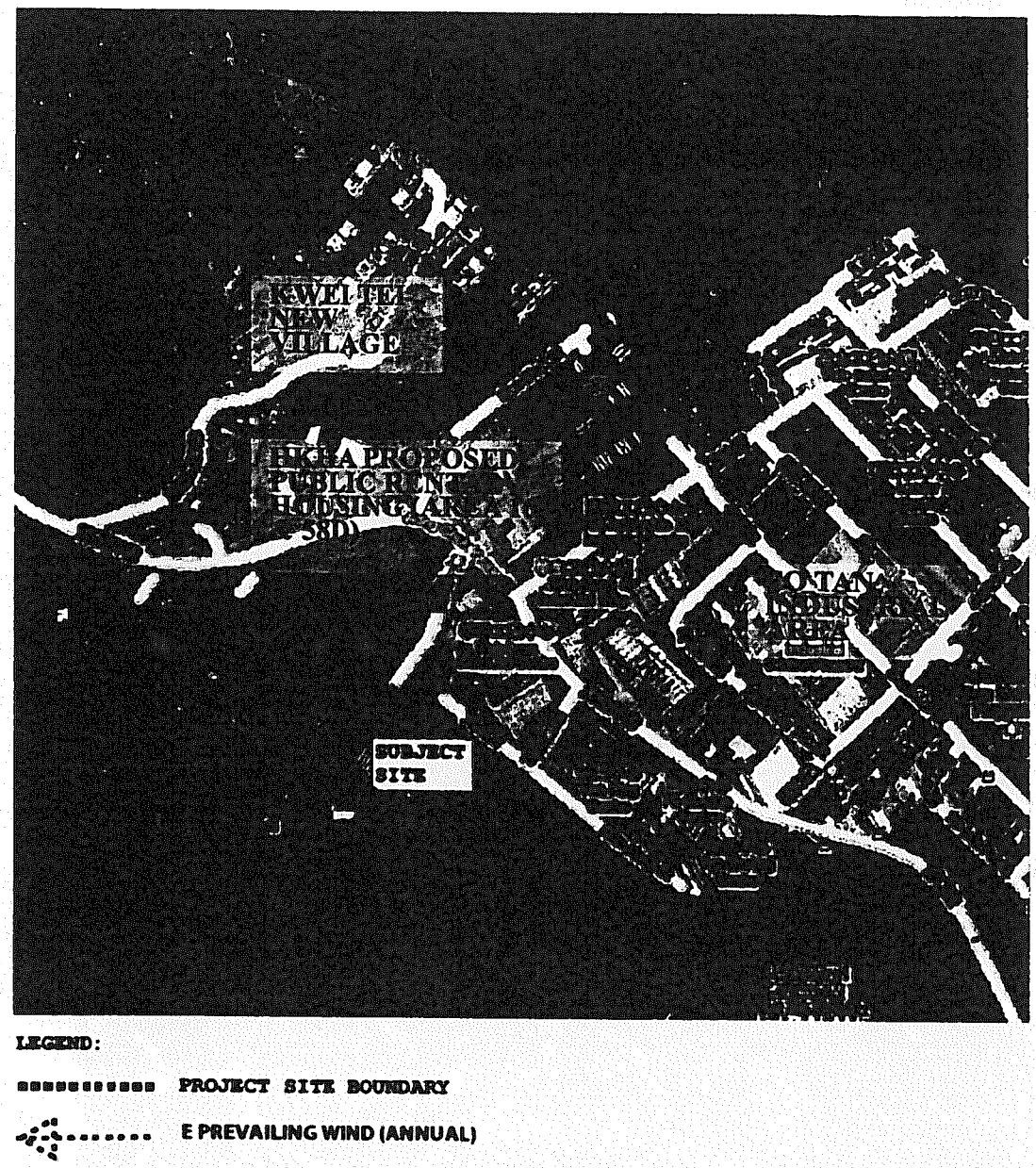


Figure 7 Existing Annual Wind Environment at Subject Site (E Wind)

6.1.2. Summer Condition

During the summer period, it is expected that the prevailing winds from SW directions flow pass the subject site.

As shown on ***Figure 8***, since the hill and slope at the west of the site is relatively high from 256.9mPD to 70mPD downhill from south-west to north-east towards the subject site, it may

affect the summer wind coming into the site at the pedestrian level and lower level and building blocks.

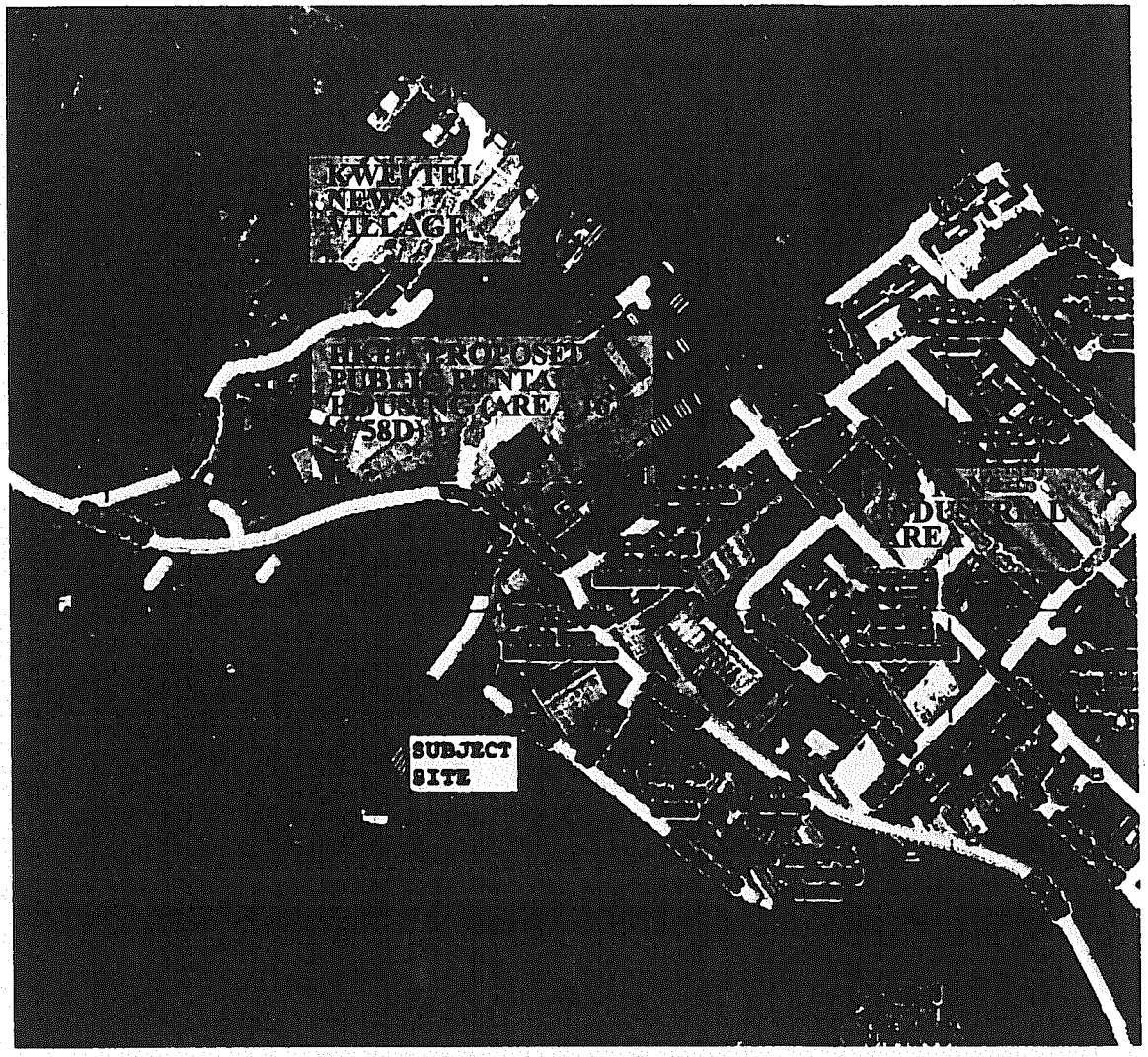


Figure 8 **Existing Summer Wind Environment at Subject Site (SW Wind)**

6.2. PROPOSED DEVELOPMENT

The project site area is approximately 8700 square meters. The development, as shown on *Figure 9*, will comprise 2 residential blocks of about 32 – 33 domestic storeys with flat production of about 560, one open parking lots and outdoor recreational area. The

composition of the latest scheme of the Project is summarized in the following table.

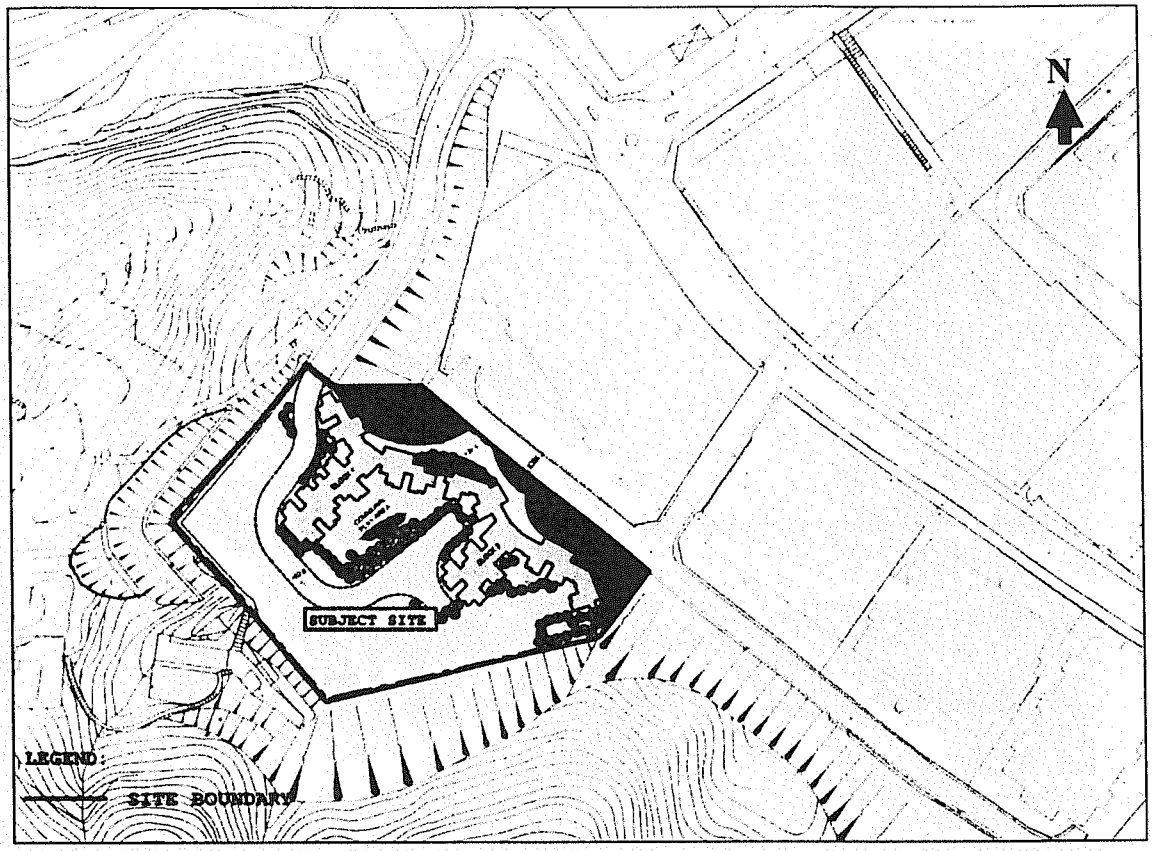


Figure 9 Layout Plan for the Project

	Proposed Development
Site Area	Around 8700 square meters
No of Residential Blocks	2
No of Domestic Storeys	33 for Block 1 and 32 for Block 2
No of flats	Around 560 units
Building Height	Maximum 150mPD

6.2.1. Design Features

Before developing the latest design scheme, an initial design scheme as shown on ***Figure 10*** had been evaluated and design features of the initial scheme for improving air ventilation performance of the Project had been considered as follows:

- The domestic block as shown in ***Figure 10*** was designed and oriented so that substantial noise associated from the industrial buildings immediate north-east to the subject site and

its related traffic noise could be screened so that significant noise impact could be reduce to the residential area other than the north-east direction.

- The building block is setback at a distance of 25 meters from Man Hang Street to allow wind ventilation at Man Hang Street.
- The building block is positioned towards the south-east side of the project site, allowing a setback distance of 10 meters from the north-west boundary which allows SW and NE prevailing wind to pass through to and from Wo Sheung Tun Street.
- As shown in ***Figure 11***, under the annual prevailing NE wind, the wind corridor from Kwei Tei Street through Wo Sheung Tun Street towards the subject site area through to the hillside area is generally maintained.
- As shown in ***Figure 12***, under the annual prevailing E wind, due to the location of the subject site where mid-rise industrial buildings are located directly east of the subject site; where the height of the industrial area is ranged 90 to 120mPD. The E prevailing wind is expected to be screened and diverted away by the industrial buildings. Moreover the anticipated impact to the prevailing E wind by the subject development is not significant.
- Referring to ***Figure 13***, under the summer prevailing SW wind, the wind corridor on Wo Sheung Tun Street and Kwei Tei Street is maintained without substantial impediment by the proposed development which demonstrates that the anticipated impact on the wind availability to the inner industrial area of Fo Tan is expected to be minimal under SW wind condition. However, due to the design of noise screening, wind availability at Man Hang Street may be limited under SW wind condition.

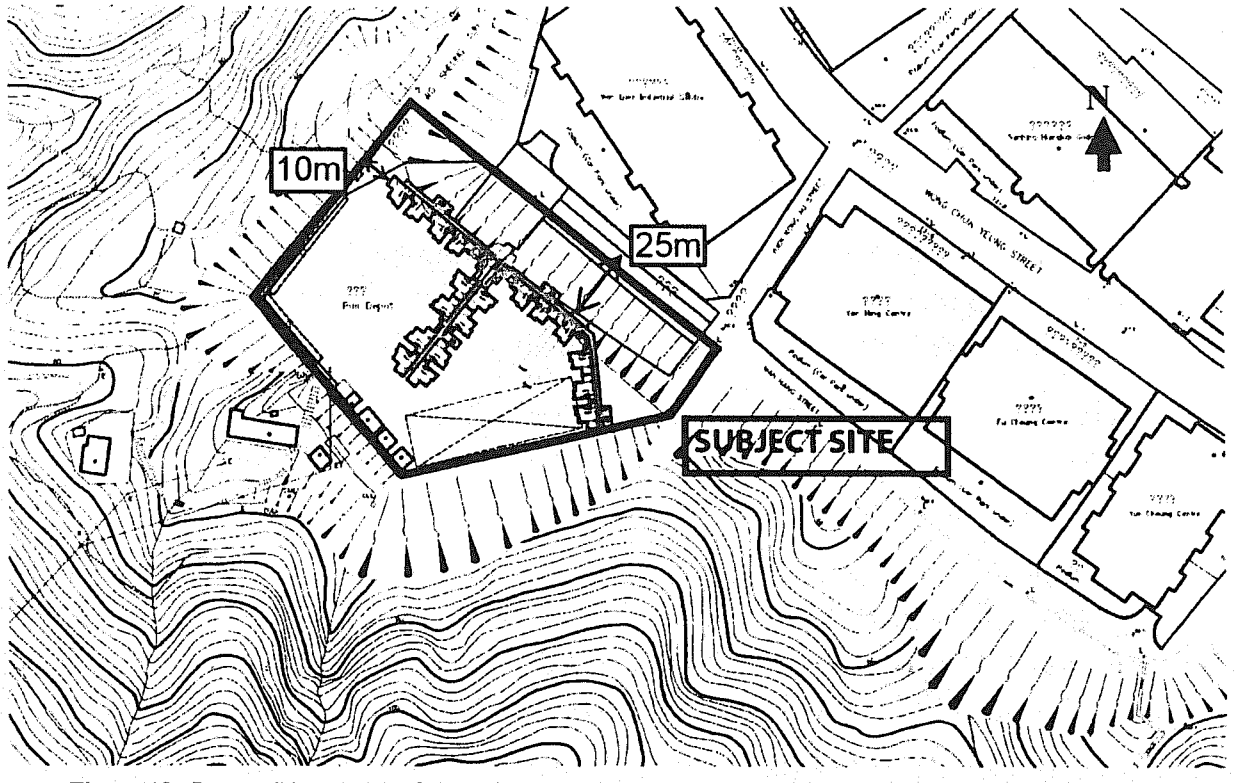


Figure 10 Layout Plan (Initial Scheme) for the Project

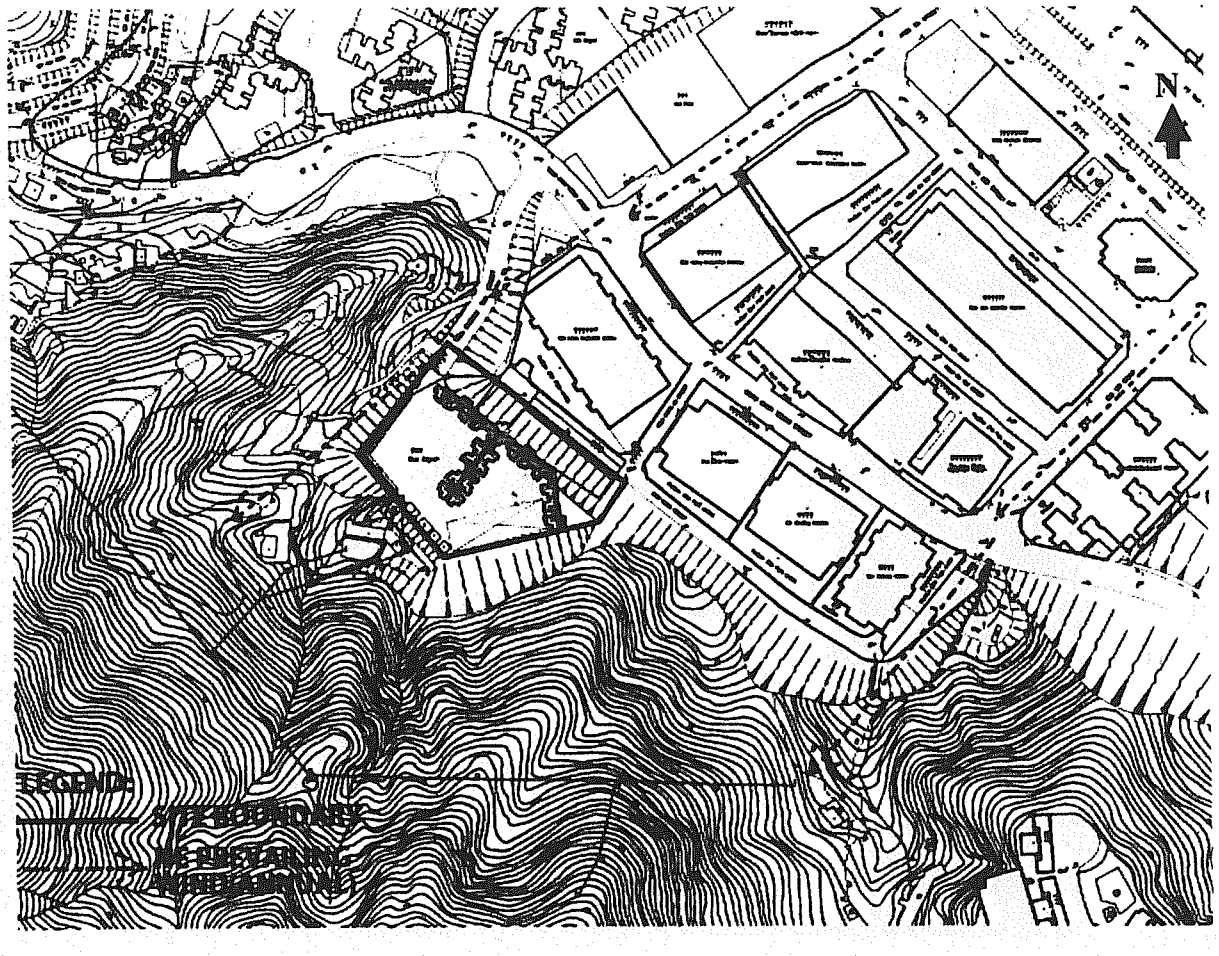


Figure 11 Prevailing Annual NE wind passing through the subject site in Initial Scheme

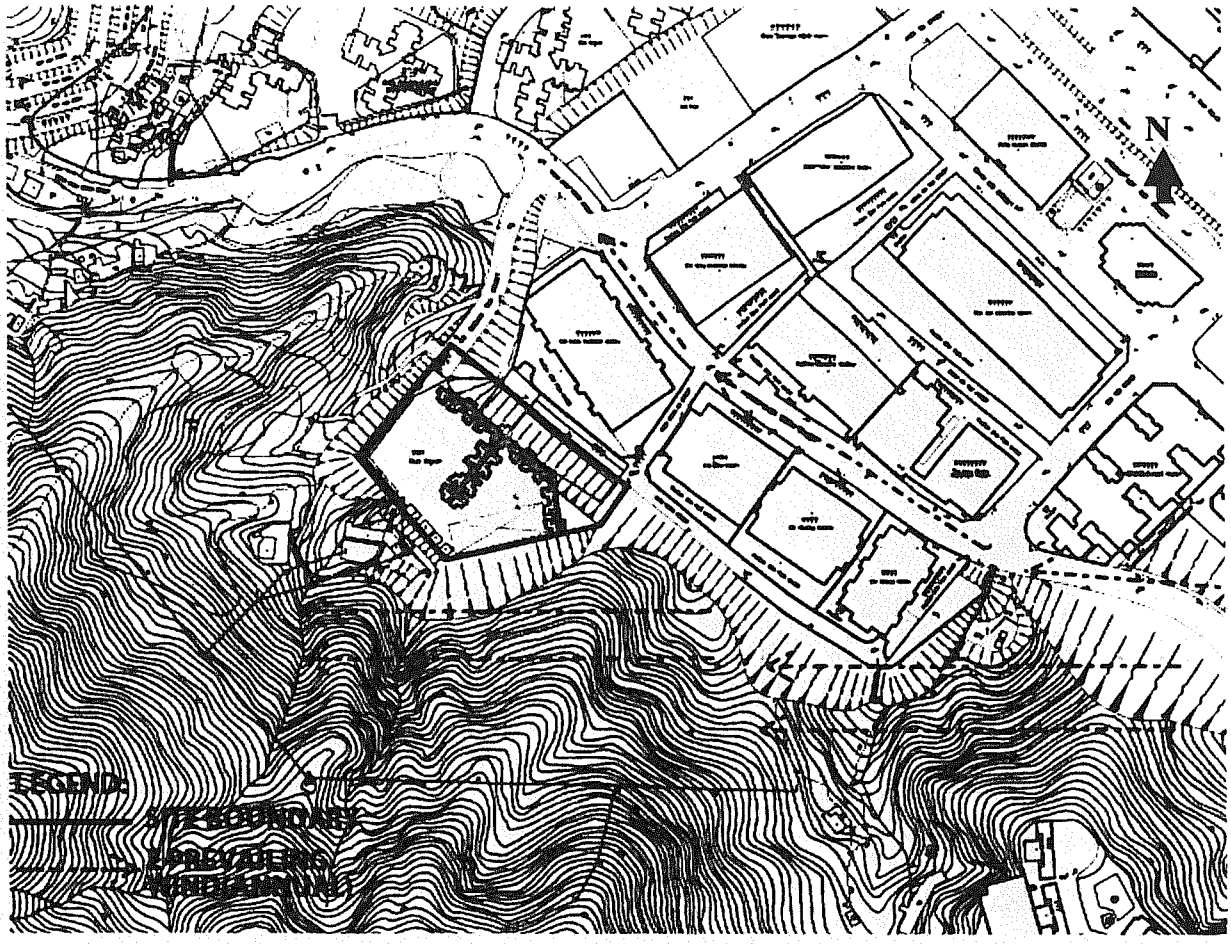


Figure 12 Prevailing Annual E wind passing through the subject site in the Initial Scheme

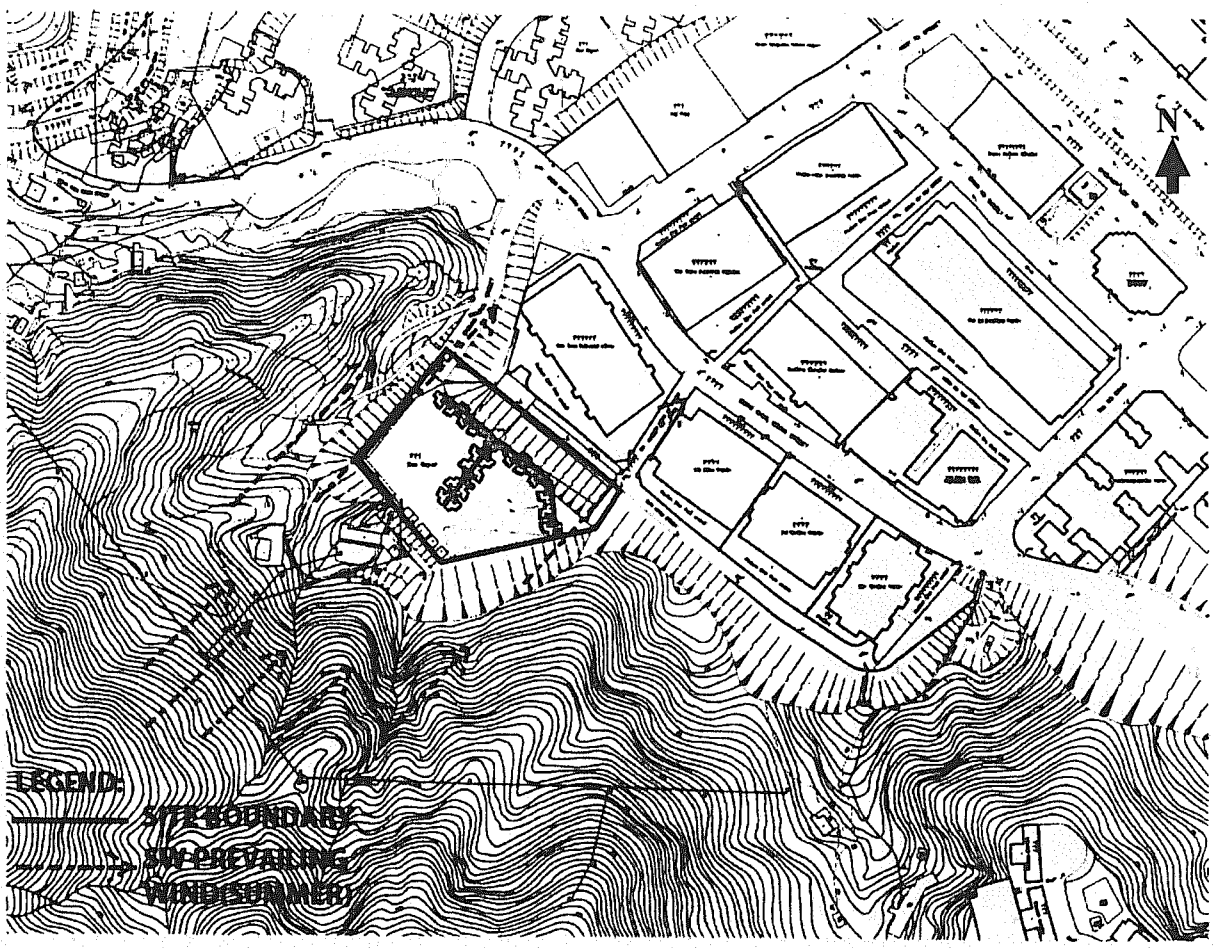


Figure 13 Prevailing summer SW wind passing through the subject site in the Initial Scheme

6.2.2. Problem and Focus Areas

Some drawback is identified in the initial scheme during the AVA EE study.

- The building block would possibly contribute wind screening effect at the open area at ground level and the wind permeability into the site would be significantly affected , particularly the annual prevailing NE wind, as shown in ***Figure 14***.
- On the other hand, the building block may create a stagnant zone around the downstream areas at Man Hang Street under summer prevailing SW prevailing wind during summer as shown in ***Figure 15***.

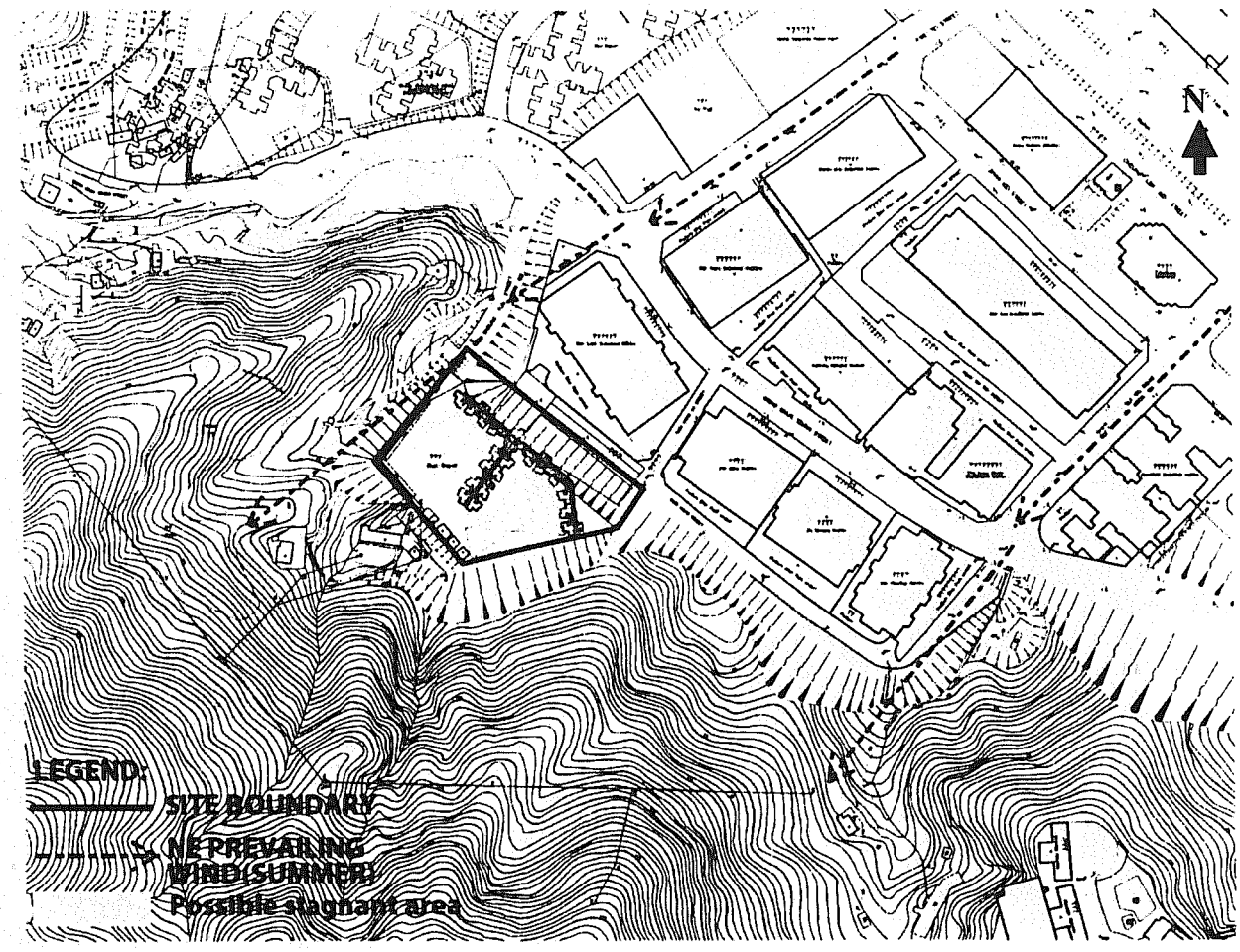


Figure 14 Potential Wind Sheltering by Project of annual NE Wind Penetration

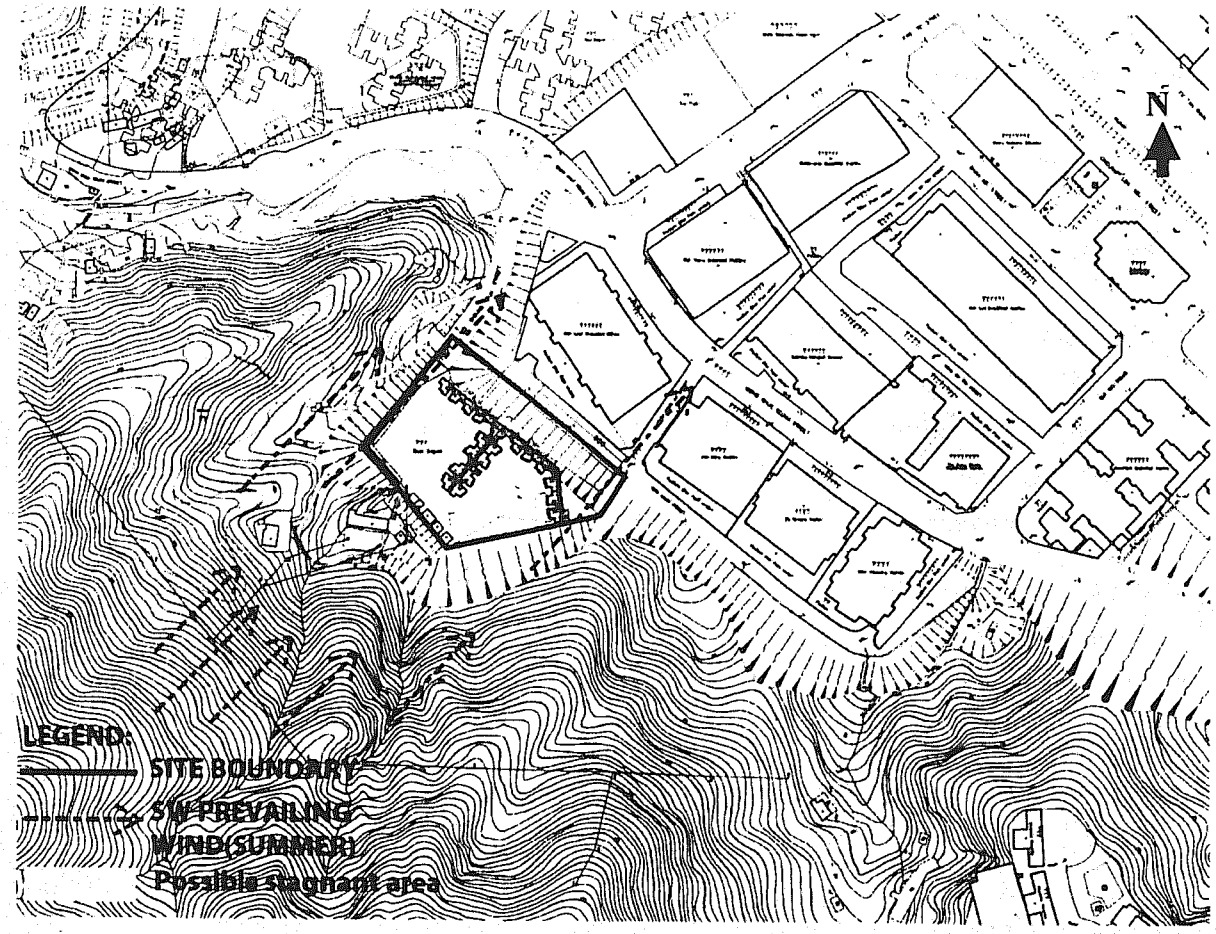


Figure 15 Potential Wind Sheltering by Project of summer SW Wind Penetration

6.3. RECOMMENDATION

To enhance the air ventilation performance of the Project, the following improvement measures are recommended to be incorporated into the refined Design Scheme as shown in **Figure 16**:

- Divide the initial building block into 2 separate buildings with building gaps as large as practicable without affecting the noise screening effect. This arrangement would reduce the potential wind screen effects due to the building block and allows reasonable amount of wind exchange through the subject site and reduces the possible stagnant area caused by the screening effect by the building blocks.
- Set back the building blocks at least 8 meters away from the middle of Man Hang Street to minimize the I/R interface and facilitate air ventilation.

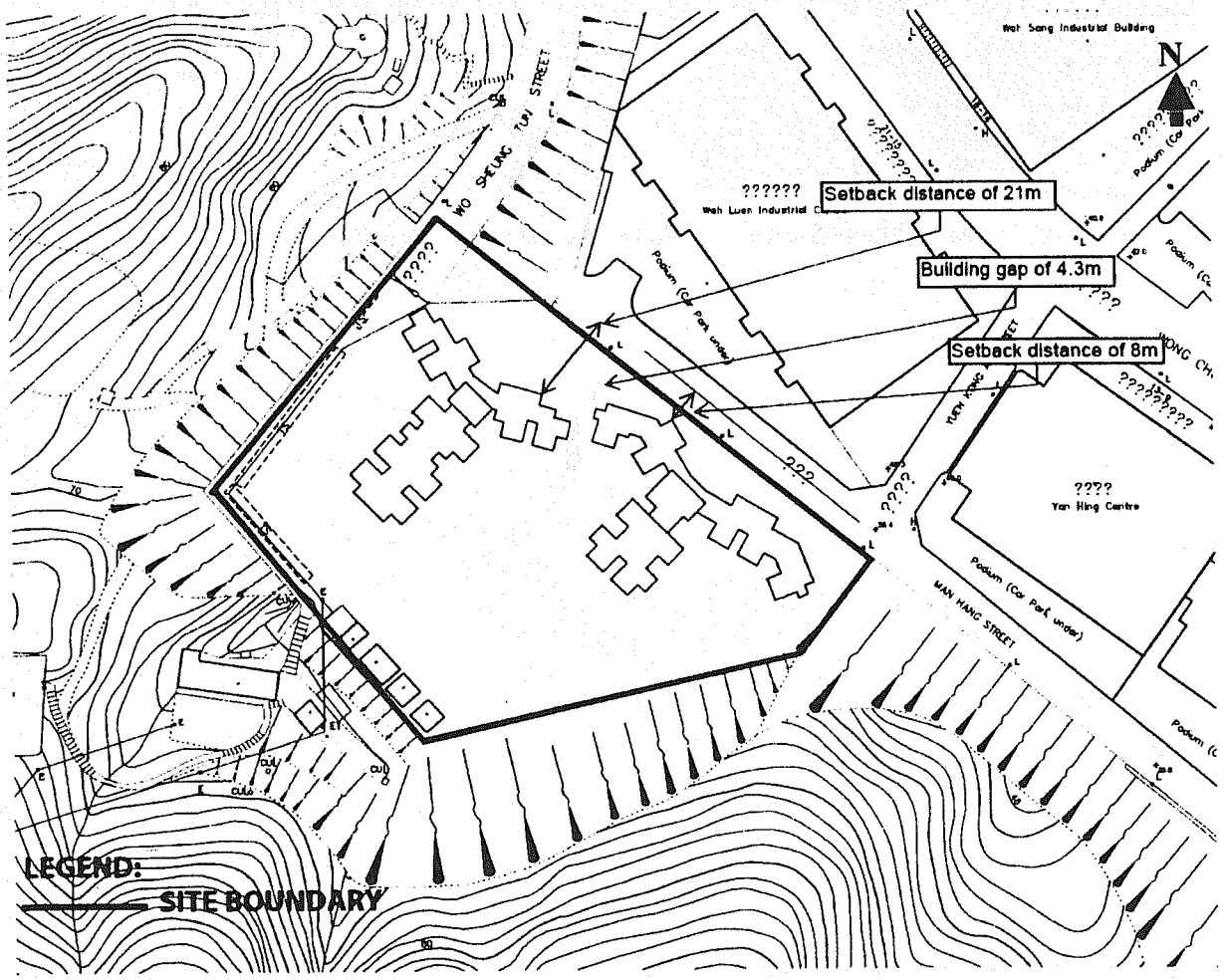


Figure 16 Latest Design Option

HKHA has incorporated the above recommendations into the latest design scheme and provide a sufficient separation to the surrounding industrial buildings to improve the air ventilation performance of the Project. Also, substantial landscape treatment would be provided to the building facade. It is recommended an AVA Initial Study to be conducted for the design scheme to quantitatively evaluate the air ventilation performance at the pedestrian level to evaluate the effectiveness of the recommended design measures.

7. FUTURE STUDY

As the Project would likely impose changes on the existing wind environment in the surrounding area, an AVA Initial Study will be conducted to quantitatively assess the potential air ventilation impacts due to the Project, identify any potential problematic areas and the mitigation measures required to ensure no adverse impact.

7.1. METHODOLOGY FOR INITIAL STUDY

According to the Technical Guide, both Computational Fluid Dynamics (CFD) and wind tunnel could be considered as the appropriate tools for AVA Initial Study. CFD is recommended as a cost-effective means for AVA Initial Study to evaluate the changes of the wind environment due to the Project.

The AVA Initial Study is to quantitatively evaluate potential air ventilation impacts of the proposed development based on wind data obtained from MM5 by determining the Velocity Ratios (VR) at various concerned locations. The airflow distribution within the flow domain, being affected by the subject site-specific design and the nearby topography will be visualized under the prevailing wind conditions round the year.

8. CONCLUSION

This AVA-EE Study aims at providing qualitative evaluation of wind performance of the subject site under existing condition and proposed design option. The subject site is currently used as a bus depot where is surrounded by high-rise industrial buildings. Building heights and separations of these surrounding buildings have different degree of implications on air ventilation at pedestrian level within neighbourhood during summer and annual conditions.

The air ventilation performance of the Initial Scheme of the Project, which consists of one proposed public housing block, has been evaluated by comparing to the Latest Design Scheme. Besides, the following good design feature in the Initial Scheme has been considered:

- Capturing the prevailing east and south-westerly winds without substantial impediment from and to the surrounding developments and the terrain;

The following additional enhancement measures are recommended in the Expert Evaluation in order to improve the air ventilation performance of the Latest Design Scheme:

- Dividing one building block into two and modifying the shape to provide a separation in order to reduce the blockage to the prevailing winds and reduce the stagnant effect caused by the building blocks;
- Maintaining ventilation paths to enhance the wind environment at pedestrian level during annual and summer periods at the open area.

Lastly, an AVA Initial Study is recommended to quantitatively assess the potential air ventilation impacts on existing environment due to the Project based on the Latest Design Scheme using Computational Fluid Dynamic (CFD) Simulation.