METRO PLANNING COMMITTEE
OF THE TOWN PLANNING BOARD

MPC Paper No. 15/16

For Consideration by
the Metro Planning Committee on 14.9.2016

PROPOSED AMENDMENTS TO THE
APPROVED HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24

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PROPOSED AMENDMENTS TO
THE APPROVED HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24

1. Introduction

This paper is to seek Members' agreement that:

(a) the proposed amendments to the approved Hung Hom Outline Zoning Plan (OZP) No. S/K9/24 (**Attachment I**) as shown on the draft Hung Hom OZP No. S/K9/24A (**Attachment II**) and its Notes (**Attachment III**) are suitable for exhibition for public inspection under section 5 of the Town Planning Ordinance (the Ordinance); and

(b) the revised Explanatory Statement (ES) of the OZP (**Attachment IV**) is an expression of the Town Planning Board (the Board)'s planning intentions and objectives for various land use zonings of the OZP, and is suitable for exhibition together with the OZP and its Note.

2. Status of the Current OZP

On 5.10.2010, the Chief Executive in Council (CE in C) approved the draft Hung Hom OZP under section 9(1)(a) of the Ordinance which was subsequently renumbered as S/K9/24 (**Attachment I**). On 6.10.2015, the CE in C referred the approved Hung Hom OZP No. S/K9/24 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance.

3. Proposed Amendments to the OZP

3.1 The proposed amendments to the OZP are (i) to rezone a piece of government land at Lee Kung Street, Hung Hom (**Item A** on **Attachment II**) for a Senior Citizen Residences Scheme (SEN) by the Hong Kong Housing Society (HKHS); and (ii) incorporation of 'Art Studio' as Column 1 use in Schedule II for industrial or industrial-office (I-O) building for "Other Specified Uses" annotated "Business" ("OU(B)") zone. The alignments of the authorised

railway schemes of Mass Transit Railway (MTR) Kwun Tong Line Extension (KTE) and Shatin to Central Link (SCL) are also incorporated in the OZP for information (**Attachment II**).

Item A: Rezoning a site at Lee Kung Street from "Government, Institution or Community" to "Residential (Group A)"

Background

3.2 HKHS has completed two pilot SEN projects (i.e. Jolly Place in Tseung Kwan O in 2003 and Cheerful Court in Jordan Valley in 2004). SEN is one of the housing initiatives of HKHS to cater for the community's demand for purpose-built housing for the elderly who can live independently. All flats in the said two pilot projects have been leased out and there are applicants on the waiting list. HKHS has been exploring sites to develop more SEN projects. The site at Lee Kung Street, which is zoned "Government, Institution or Community" ("G/IC") on the OZP and subject to a building height (BH) restriction of 11 storeys has been identified as suitable for SEN development and rezoning for residential use is required. The Transport and Housing Bureau (THB) has given in-principle policy support to HKHS to undertake the proposed SEN project.

The Site and Its Surroundings **(Plans 1** to **4)**

3.3 The site (about 1,680m^2) is bounded by Lee Kung Street and Fat Kwong Street to its north and south respectively. The site was previously occupied by the Fire Services Department Married Quarters and is currently used as a temporary public vehicle park. The site is located in a predominantly residential area mixed with open spaces and Government, institution and community (GIC) facilities. To the immediate east are the Hung Hom Fire Station and Fat Kwong Street sitting-out area; to the immediate north across Lee Kung Street is the Tsing Chau Street Customs Staff Quarters. The Hung Hom Gardens and La Lumiere are located to the north-east of the site. Further north are mainly GIC and residential developments. To the immediate west are Fat Kwong Street Gardens Nos. 1 and 2; and to the south across Fat Kwong Street Flyover is Ka Wai Chuen, a public housing estate of HKHS. Further south is the old residential core of Hung Hom.

The Rezoning Proposal

3.4 The site at Lee Kung Street is proposed to be rezoned from "G/IC" to "Residential (Group A)" ("R(A)") subject to the same plot ratio (PR) controls as

other sites in "R(A)" zone on the OZP i.e. maximum domestic PR of 7.5 or a maximum total PR of 9 for a building that is partly domestic and partly non-domestic. The BH restriction is proposed to be revised from 11 storeys to 110 metres above principle datum (mPD).

3.5 HKHS has prepared various technical assessments to support the proposed zoning amendment (CD-Rom at **Attachment V**). HKHS submitted the proposal to the Planning Department (PlanD) in March 2015, and consulted the Housing and Infrastructure Committee of the Kowloon City District Council (HIC KCDC) on 4.6.2015 (paragraph 9.2 below refers). After considering the comments of HIC KCDC and relevant Government departments, HKHS has worked out a notional scheme to support the rezoning with proposed PR of 8.49 (7.44 for domestic and 1.05 for non-domestic) and BH of 110mPD (**Drawing 1**). The notional scheme will comprise 28 domestic storeys with 305 flats for the elderly and a 4-storey podium to accommodate elderly facilities including rehabilitation centre, medical centre and a residential care home for the elderly (RCHE) (58 bed spaces) (**Drawings 2** to **9**). The notional master landscape plans for G/F, 2/F and R/F of the development are at **Drawings 10** to **12.**

Land Use, Urban Design and Landscape Aspects

Land Use

3.6 The areas to the immediate north and south of the site covering the Customs Staff Quarters, Hung Hom Gardens, La Lumiere and Ka Wai Chuen as well as further east along Ma Tau Wai Road (covering Carlton Court and some old tenement buildings (**Plan 2**)), are all zoned "R(A)" and "R(A)5" subject to BH restriction of 100mPD. The proposed "R(A)" zoning for the site is considered compatible with the surrounding land uses.

Urban Design

3.7 According to HKHS's assessment, due to noise and air impacts from the adjacent Fat Kwong Street Flyover, domestic uses for any development with openable window should not be located below 31.4mPD, hence the first residential floor has to be raised to 31.4mPD (**Drawing 1**). Besides, a 5m-setback from Lee Kung Street and a 10m-setback from Fat Kwong Street for air mitigation measures are required by the Director of Environmental Protection (DEP) to ensure adequate buffer distance from abutting roads. As a result, the developable area of the site and the building footprint will be restricted. To optimize the use of scarce land resources within all concerned regulations and constraints, only a floor-to-floor height of 2.8m is adopted for the 28 domestic

floors. In view of the above, HKHS proposed a BH of 110mPD for the SEN development.

3.8 The proposed BH of 110mPD is generally compatible with the BH restrictions for residential zones in the vicinity. Nevertheless, as the site is located within a street block (between Lee Kung Street and Fat Kwong Street) previously with GIC facilities and open spaces with generally open view, the proposed development will alter the open views for local stakeholders and may result in some adverse visual impacts which is inevitable when more intensive development is proposed on the site.

3.9 In this regard, HKHS has conducted a visual appraisal (VA) (**Attachment V**) to assess the possible visual impact of the proposed development on the surrounding areas. Three viewpoints are selected, which represent the views from key public open spaces and/or pedestrian nodes that are highly accessible by the public in the area. Viewpoint 1 (**Drawing 13**) is from Ma Tau Wai Road which is the main arterial street in Hung Hom, and Viewpoints 2 and 3 (**Drawings 14** and **15)** are from nearby Station Lane sitting-out area and Fat Kwong Street Park, which are the accessible open spaces in the vicinity.

3.10 The VA concluded that the proposed SEN development will cause slightly adverse visual impact to the environment. To alleviate the visual impact of the proposed SEN development, HKHS have incorporated design mitigation measures including appropriate building footprint to reduce visual obstruction; suitable height profile to appear less visually intrusive; adoption of building finishes in recessive or neutral colours; setting back of the tower from Fat Kwong Street and provision of landscaped area in the southern portion of the podium to achieve visual permeability; provision of plantings within the landscaped areas to mitigate the impact of the building and to improve the quality of the streetscape; and provision of green roofs and vertical greening to mitigate visual impact of buildings. The Chief Town Planner/Urban Design and Landscape, PlanD (CTP/UD&L, PlanD) has no adverse comment on the proposed development from urban design and visual points of view but advises that design and landscape mitigation measures to soften the visual impact at close range should be considered at detailed design stage by HKHS.

Landscape

3.11 In terms of landscape, CTP/UD&L, PlanD has no in-principle objection to the zoning amendment as the proposed SEN development is not incompatible with the surrounding landscape character and significant disturbance to existing landscape resources and characters is not anticipated. According to the planning

statement (**Attachment V**), HKHS will provide open space of 867m^2 at 2/F and 261m^2 at 4/F to serve the proposed population of the development in accordance with the requirements under the Hong Kong Planning Standards and Guidelines (HKPSG). There are currently no trees on the site. To enhance the quality of the building and external spaces for gathering and enjoyment, tree and shrub planting will be provided at different podium floors (**Drawings 10** to **12**). Common species trees will be provided throughout the development to ensure natural shade to residents and workers. The outdoor areas provided will create microclimates, reduce ambient temperature and ensure a harmonious landscape.

Air Ventilation Aspect

3.12 HKHS commissioned an air ventilation assessment (AVA) study (**Attachment V**) to assess the air ventilation impact of the proposed SEN development and to recommend appropriate mitigation measures. According to the AVA, the annual prevailing winds are from north-east and east whereas the prevailing wind in summer time are from the east, south-west and south. The proposed SEN development does not encroach into any air paths of the area. The adjacent existing high-rise structures (i.e Fat Kwong Street Flyover and Hung Hom Fire Station) will already reduce the wind speed for the annual prevailing winds and summer winds from the south. Mitigation measures in terms of stepping podium; setting back of the residential block from Fat Kwong Street; provision of 4.5m-high open landscaped area between the first residential floor and the podium; alignment of building block in east-west direction; and provision of a 5m-high opening at the driveway and car park areas on ground floor are proposed to minimize the potential impact for the wind from southwest and southeast directions during summer. It is concluded in the AVA that the height and scale of the proposed SEN development with mitigating measures has no significant air ventilation impact to the local areas. Based on the above, CTP/UD&L, PlanD has no comment on the AVA and the proposed rezoning.

Other Technical Aspects

Traffic

3.13 The site is served by well connected road network and public transport. The MTR Ho Man Tin Station of the KTE Line (due for operation in October 2016) is about 400m away (**Plan 1**). There are a number of bus/mini-bus routes operating along Fat Kwong Street providing services to various other railway stations.

3.14 HKHS has conducted a traffic impact assessment (TIA) for the SEN project (**Attachment V**). Based on the TIA, the development will unlikely induce adverse traffic impact to the existing road network in the vicinity. The Commissioner for Transport (C for T) has no adverse comment on the submitted TIA and the proposed rezoning.

Environment

3.15 HKHS has conducted an environmental assessment (EA) for the SEN project (**Attachment V**). According to the EA, to mitigate noise impact, traditional and innovative mitigation measures (including adoption of building setback to increase buffer distance from Fat Kwong Street and appropriate building layout/orientation, end wall with blank façade facing the noise source, and provision of fins and acoustic windows to further reduce noise level, etc.) are proposed. It is considered that future residents would not be subject to adverse traffic noise impact. The first residential floor is raised to 31.4mPD as one of the air mitigation measures to locate sensitive receivers (i.e. potential residents of the domestic units) to higher floors and minimize impact of traffic noise from Fat Kwong Street. To mitigate possible air and noise impacts to the other elderly facilities below the residential floors, e.g. RCHE, air conditioning system will be provided at these floors such that they will not rely on openable window for ventilation. The EA confirms the acceptability of the proposed SEN development.

3.16 DEP indicates that HKHS has conducted an EA for the SEN project (**Attachment V**). He understands that HKHS will finalize and submit the EA, including the detailed design such as the location of fresh air intake for the elderly facilities below the residential floors for his agreement. According to the EA, insurmountable environmental impacts are not anticipated from the proposed SEN project with implementation of recommended mitigation measures. Besides, the Sewerage Impact Assessment (SIA) concludes that adverse sewerage impacts from the proposed development are not anticipated. In view of the above, DEP has no objection to the proposed rezoning from environmental perspectives.

Infrastructure

3.17 HKHS has conducted water supply impact assessment and drainage impact assessment for the SEN development (**Attachment V**) which concluded that the proposed SEN development would not result in any adverse impacts on infrastructural capacity in the area. Concerned government departments including the Drainage Services Department (DSD) and Water Supplies

Department (WSD) have no comment on the assessments and proposed rezoning.

Public Comments

3.18 The Secretariat of the KCDC has referred to PlanD a letter dated 5.2.2016 from a group of owners from a nearby soon to be completed residential development (La Lumiere) (**Plan 2**) indicating strong objection to the SEN proposal. Their main grounds are that it is questionable whether the SEN project will benefit the community as a whole as similar SEN residences in other parts of Hong Kong are not well received and demand for such residences is low; relaxation of BH restriction for the development will adversely affect the surrounding built environment and public interest; wall effect of the development will aggravate air and noise pollution and sunlight exposure in the area; proposing the SEN project to be built on alternative site in Hung Hom; the SEN development will detrimentally affect the living quality (on noise, air and visual) of existing residence; and keeping the existing BH restriction of 11-storey for the SEN project. They also considered that HKHS did not inform the public and potential buyers about the SEN development prior to the sale of La Lumiere, hence, the proposed rezoning and relaxation of BH restriction for the SEN development on the site will cause injustice to all buyers of La Lumiere and the matter may be subject to judicial review challenges. The submission from the group of owners of La Lumiere is at **Attachment VI.** The letter has been referred to the HKHS for consideration, and HKHS's reply has been conveyed to KCDC and relevant responses are set out below.

3.19 For the issues on relaxation of BH and visual, air ventilation and noise pollution aspects, HKHS has conducted technical assessments as elaborated above to ascertain the acceptability of the project. On demand for SEN, HKHS indicated (paragraph 18 of **Attachment VII**) that according to a survey conducted by the University of Hong Kong, there was strong demand for the SEN Scheme that was generally supported by the elderly. The housing units of Cheerful Court and Jolly Place were all let out and over 700 applications were placed on the waiting lists with average waiting time of five years. The elderly housing project at Tanner Hill developed under the Joyous Living Scheme was targeted at higher income elders with no asset limits. That project is different from Cheerful Court, Jolly Place and the proposed Lee Kung Street project under the SEN Scheme, which will be built to serve elders of the middle income group. The elders under the SEN Scheme could provide a relatively lower 'Entry Contribution' but they are subject to asset means test. If the proposed rezoning amendment is agreed by the Committee, the draft OZP incorporating the amendment will be exhibited for two months for public inspection.

Members of the public, including the La Lumiere owners; can submit representations on the amendments to the OZP to the Board for consideration.

Incorporation of 'Art Studio' as Column 1 use in Schedule II for industrial or I-O building for "OU(B)" zone

3.20 With a view to support art development, the feasibility of allowing 'Art Studio' in the I-O buildings has been investigated by relevant bureaux and departments. As the key concern is on fire safety, 'Art Studio' is considered acceptable in the industrial and I-O buildings if it does not involve direct provision of services or goods (e.g. does not involve hobby classes, seminars and sale of goods, art gallery and venue for rehearsal for art performance). The proposal was generally supported by the stakeholders with no objection from concerned Government departments. To take forward the above proposal, it is proposed to incorporate 'Art Studio (excluding those involving direct provision of services or goods)' as a Column 1 use in Schedule II of the "OU(B)" zone.

4. Provision of Open Space and G/IC Facilities

4.1 The subject "G/IC" site has not been identified for any GIC use. Based on the requirements in HKPSG, as shown in **Attachment VIII**, the planned provision for various community facilities in the area is generally sufficient except for primary/secondary school classrooms, sport and police facilities. Regarding the slight deficit of these facilities in Hung Hom area, it should be noted that these facilities are intended to serve the population on a district-wide basis. For Kowloon City District where the site is located, there are surplus of such facilities.

4.2 Regarding open space provision, there is a surplus of existing/planned local open space (1.47ha) to serve the area. Regarding the slight shortfall in existing/planned district open space (DO) (-1.47ha) in the planning area, DO should be assessed on a district basis and there is a surplus of 54.7ha of existing/planned DO in the entire Kowloon City District. Thus, the shortfall in DO in the planning area can be addressed by the surplus provision in the wider Kowloon City District.

5. Proposed Amendment to Matters shown on the Plan (Attachment II)

The proposed amendments as shown on the draft Hung Hom OZP No. S/K9/24A at **Attachment II** and **Plan 1** are as follow:

Amendment Item A (about 0.168ha)

5.1 Rezoning of a site at Lee Kung Street from "G/IC" to "R(A)" with revision of BH restriction to 110mPD in accordance with paragraph 3 above.

Incorporation of the Authorised Alignment of KTE and SCL

5.2 The alignments of MTR KTE and SCL railway schemes, as authorised by CE in C under the Railways Ordinance (Chapter 519) on 30.11.2010 and 27.3.2012 respectively are incorporated on the Plan for information. The authorised schemes are deemed to be approved under section 13A of the Ordinance.

6. Proposed Amendments to the Notes of the OZP (Attachment III)

6.1 There is no need to amend the Notes of the "R(A)" zone arising from Amendment Item A.

6.2 To take forward the proposal as stated in paragraph 3.20 above, it is proposed to incorporate 'Art Studio (excluding those involving direct provision of services or goods)' as a Column 1 use in Schedule II for industrial or I-O building of the "OU(B)" zone. As 'Art Studio' is subsumed under the use 'Place of Recreation, Sports or Culture' use, corresponding amendment will be made to replace 'Place of Recreation, Sports or Culture' use under the same Schedule by 'Place of Recreation, Sports or Culture (not elsewhere specified)'.

6.3 The following technical amendments will also be made to the Notes :

(a) incorporation of provisions in the Remarks in the Notes for the "Commercial", "Comprehensive Development Area", "R(A)" "R(B)", "OU" annotated "Multi-storey Carpark to Include Garages for Maintenance and Servicing of Motor Vehicles and Petrol Filling Station", "OU" annotated "Public Mortuary, Funeral Depot & Funeral Parlour", "OU(B)", and "OU" annotated "Commercial Development and Freight Yard" zones to allow for applications for minor relaxation of PR/GFA/minimum number of coach park restrictions;

(b) incorporation of a clause in the Remark in the Notes of "R(A)" zone stating that the PRs of the existing building shall apply only if any addition, alteration and/or modification to or redevelopment of an existing building is for the same type of building as the existing building, otherwise, the OZP restrictions shall be applied; and

(c) other minor textual amendments, which would not have any implications on the interpretation of the OZP provision.

6.4 The proposed amendments to the draft Notes of the OZP (with additions highlighted in ***bold and italics*** and deletions in '~~crossed out~~') are at **Attachment III** for Members' consideration.

7. Revision to the ES of the OZP (Attachment IV)

The ES of the OZP has been revised to take into account the proposed amendments as mentioned in the above paragraphs. Opportunity has also been taken to update the general information for various land use zones to reflect the latest status and planning circumstances of the OZP. The proposed amendments to the ES of the OZP (with additions in ***bold and italics*** and deletions in '~~crossed out~~') are at **Attachment IV** for Members' consideration.

8. Plan Number

Upon exhibition for public inspection, the OZP will be renumbered as S/K9/25.

9. Consultation

Departmental Consultation

9.1 The proposed amendments have been circulated to the relevant Government bureaux/departments, and their comments have been incorporated where appropriate. The following departments have no objection to or no adverse comment on the proposed amendments:

(a) Chief Building Surveyor/Kowloon, Buildings Department;
(b) Chief Engineer/Construction, WSD;
(c) Chief Engineer/Mainland South, DSD;
(d) Chief Highway Engineer/Kowloon, HyD;
(e) Chief Engineer/Railway Development 1-3, Railway Development Office, HyD;
(f) CTP/UD&L, PlanD;
(g) C for T;
(h) Commissioner of Police;

(i) DEP;
(j) Director of Food and Environmental Hygiene;;
(k) Director of Housing;
(l) Director of Leisure and Cultural Services*;*
(m) Director of Social Welfare;
(n) District Lands Officer/Kowloon West, Lands Department;
(o) District Officer (Kowloon City), Home Affairs Department; and
(p) Head of Geotechnical Engineering Office, Civil Engineering and Development Department.

Consultation with HIC KCDC

9.2 On 4.6.2015, HKHS together with PlanD consulted the HIC KCDC on the proposed SEN project. There were both Members supporting and objecting to the project. The relevant extract of the minutes of the meeting is at **Attachment VII**. On 23.6.2016, a HIC KCDC member enquired about the progress of the SEN project and HKHS provided a written reply dated 15.6.2016 and attended the meeting to further brief the HIC KCDC members on the project (**Attachment IX)**. After the HIC KCDC meeting in 2016, the HIC KCDC wrote to the Board indicating that a number of Members objected to the SEN project and requested that the site be used for building public housing (**Attachment X**). Members' major views at these two meetings and the responses of HKHS are summarised as follows:

HIC KCDC's views	**HKHS's Responses**
(a) In the 2015 meeting, some Members supported and some objected to the proposed SEN project. In the 2016 meeting, Members generally objected to the SEN project.	Noted and see detailed responses to views below.
(b) The site should be reserved for public housing to meet the pressing needs for housing by the grassroots or Sandwich Class Housing Scheme. HKHS could apply for an increase in the PR for the site with a view to building more housing units and enhancing the facilities to meet different needs of the elderly.	The HKHS formulated various kinds of housing schemes with different eligibility thresholds, to meet the housing needs of different sectors in the community, including public rental housing (PRH). According to a survey conducted by the University of Hong Kong, the elderly in general appreciated the SEN Scheme. The SEN housing units of HKHS' Cheerful Court and Jolly Place were all let out and over 700 applications were placed on the waiting

	lists with an average waiting time of 5 years.
(c) Priority should be given for elderly of Kowloon City to apply for the SEN scheme. To cater for the need of low-income elderly, consideration could be given to lowering the application threshold and rental charge under the scheme.	HKHS would work with the policy bureau in setting the arrangements for application for residence at the Lee Kung Street project and explore the feasibility of according priority to elderly living in Kowloon City District.
(d) HKHS should increase the number of beds of RCHE in the proposed development or consider operating a RCHE on a self-financing mode.	After the 2015 meeting, HKHS revised the proposal and increased the number of RCHE bed places from 44 to 58.
(e) For its PRH estates, HKHS had launched the Ageless Community (AC) Scheme[1] to encourage young members of a family to take care of the elderly members with a view to promoting social cohesion and cross-generational harmony. However, the waiting lists for the AC Scheme in Ka Wai Chuen continued to grow due to the lack of sufficient housing units for allocation. HKHS could explore the possibility of increasing the number of housing units to be provided or earmarking some units for the AC Scheme.	The principle and objective of the SEN Scheme and AC Scheme were different as the former was aimed at delaying the ageing process of elderly with a view to avoiding their early admission into homes for the aged.
(f) Elderly living in the building at the site would suffer from traffic noise problem.	To mitigate the noise from Fat Kwong Street, the orientation and disposition of the building would be carefully designed and the latest sound proof windows would be installed.
(g) The SEN project only targets at higher income group. HKHS should review their policy in view of the poor demand for similar project in North Point.	The Tanner Hill elderly housing project at North Point developed under the Joyous Living Scheme are targeted at higher income elders with no asset limits while the project at Lee Kung Street will be under the SEN Scheme, which is built

[1] The AC Scheme was launched by HKHS to improve the living conditions of three or more generation families. Existing households of HKHS's PRH estates with 3 or more generations can apply for allocation of 2 separate flats under one tenancy in the same estate.

	to serve elders of the middle income group. The elders under the SEN Scheme could provide a relatively lower 'Entry Contribution' but they are subject to asset means test.

9.3 The KCDC will further be consulted on the amendments during the exhibition period of the amended OZP.

10. Decision Sought

Members are invited to:

(a) agree to the proposed amendments to the approved Hung Hom OZP and its Notes and that the draft Hung Hom OZP No. S/K9/24A at **Attachment II** (to be renumbered to S/K9/25 upon exhibition) and its Notes at **Attachment III** are suitable for exhibition under section 5 of the Ordinance; and

(b) adopt the revised ES at **Attachment IV** for the draft Hung Hom OZP No. S/K9/24A as an expression of the planning intentions and objectives of the Board for various land use zonings of the OZP and agree that the revised ES is suitable for publication together with the OZP.

11. Attachments

Attachment I	Approved Hung Hom OZP No. S/K9/24 (reduced to A3 size)
Attachment II	Draft Hung Hom OZP No. S/K9/24A
Attachment III	Revised Notes of Draft Hung Hom OZP No. S/K9/24A
Attachment IV	Revised ES of Draft Hung Hom OZP No. S/K9/24A
Attachment V	Technical Assessments (in a CD-ROM)
Attachment VI	Letter dated 5.2.2016 from owners of La Lumiere to HIC KCDC
Attachment VII	Extract of Minutes of HIC KCDC Meeting held on 4.6.2015
Attachment VIII	Provision of Open Space and Major Community Facilities
Attachment IX	HIC KCDC paper No. 50/16 (for HIC KCDC meeting on 23.6.2016) and HKHS's written reply dated 15.6.2016
Attachment X	Letter from HIC KCDC dated 25.8.2016 enclosing minutes of the HIC KCDC Meeting held on 23.6.2016

Drawings 1 to **9**	Schematic Section and Floor Plans of Proposed SEN Development at Lee Kung Street
Drawings 10 to **12**	Notional Master Landscape Plans of Proposed SEN Development at Lee Kung Street
Drawings 13 to **15**	Photomontages for Proposed SEN Development at Lee Kung Street
Plan 1	Location Plan
Plan 2	Site Plan
Plan 3	Aerial Photo
Plan 4	Site Photos

PLANNING DEPARTMENT
SEPTEMBER 2016

MPC Paper No. 15/16
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Metro Planning Committee
on 14.9.2016

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(b) the revised Explanatory Statement (ES) of the OZP (**Attachment IV**) is an expression of the Town Planning Board (the Board)'s planning intentions and objectives for various land use zonings of the OZP, and is suitable for exhibition together with the OZP and its Note.

2. Status of the Current OZP

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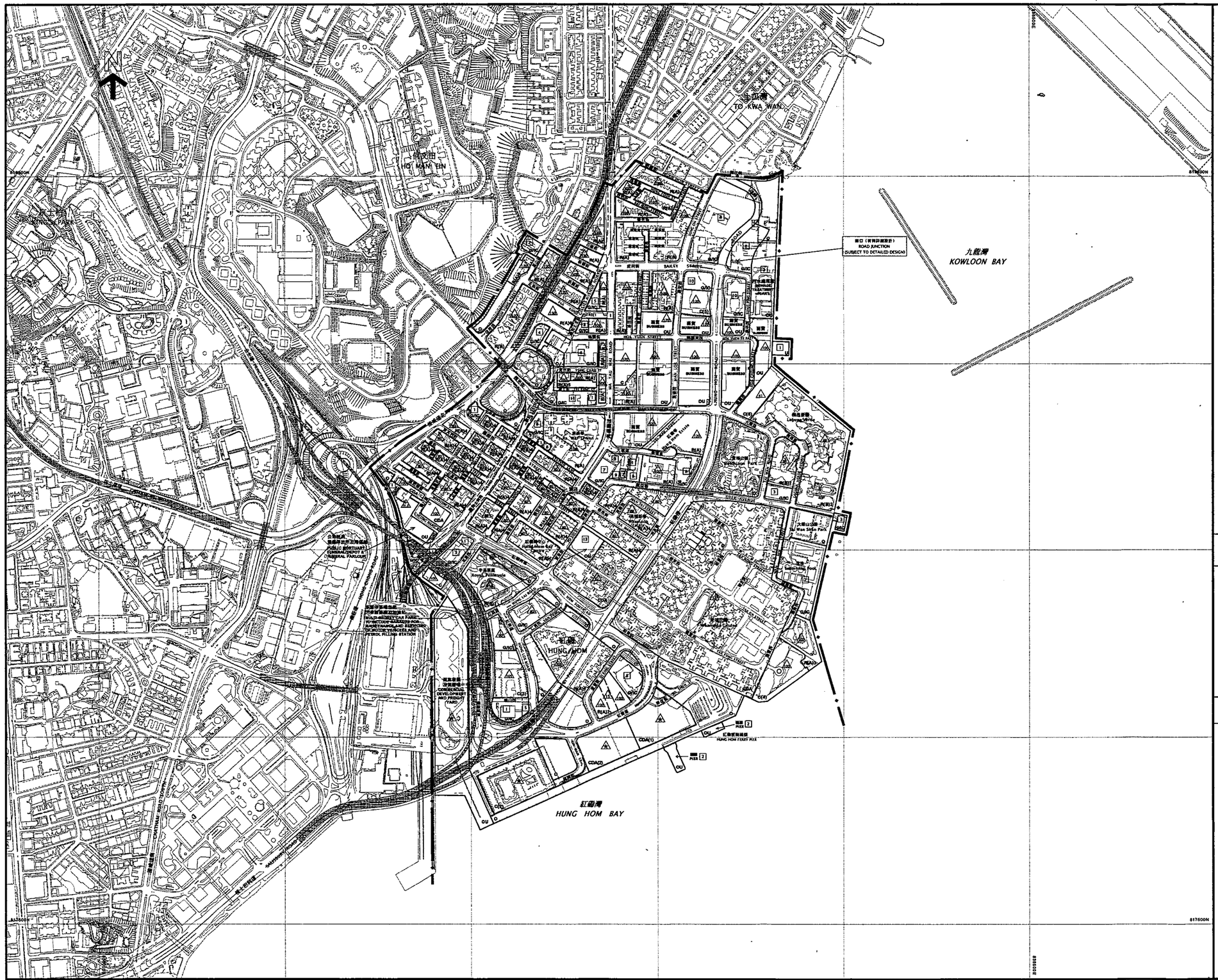


Attachment I of
MPC Paper No. 15/16

圖例 NOTATION

ZONES		地帶
COMMERCIAL	C	商業
COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
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
UNDETERMINED	U	未決定用途

COMMUNICATIONS		交通
RAILWAY AND STATION (UNDERGROUND)	XXX STATION	鐵路及車站（地下）
MAJOR ROAD AND JUNCTION		主要道路及路口
ELEVATED ROAD		高架道路

MISCELLANEOUS		其他
BOUNDARY OF PLANNING SCHEME		規劃範圍界線
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	80	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT RESTRICTION AS STIPULATED ON THE NOTES	80	《註釋》內訂明最高建築物高度限制
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	8	最高建築物高度（樓層數目）

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 & %		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	6.39	4.40	商業
COMPREHENSIVE DEVELOPMENT AREA	22.08	15.19	綜合發展區
RESIDENTIAL (GROUP A)	27.12	18.66	住宅（甲類）
RESIDENTIAL (GROUP B)	6.63	4.56	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	12.75	8.77	政府、機構或社區
OPEN SPACE	13.40	9.22	休閒用地
OTHER SPECIFIED USES	15.23	10.48	其他指定用途
UNDETERMINED	0.17	0.12	未決定用途
MAJOR ROAD ETC.	41.59	28.60	主要道路等
TOTAL PLANNING SCHEME AREA	145.36	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２０１０年１０月５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 5 OCTOBER 2010

Ms Manda CHAN 陳詠雯女士
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紅磡（九龍規劃區第９區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 9 - HUNG HOM - OUTLINE ZONING PLAN

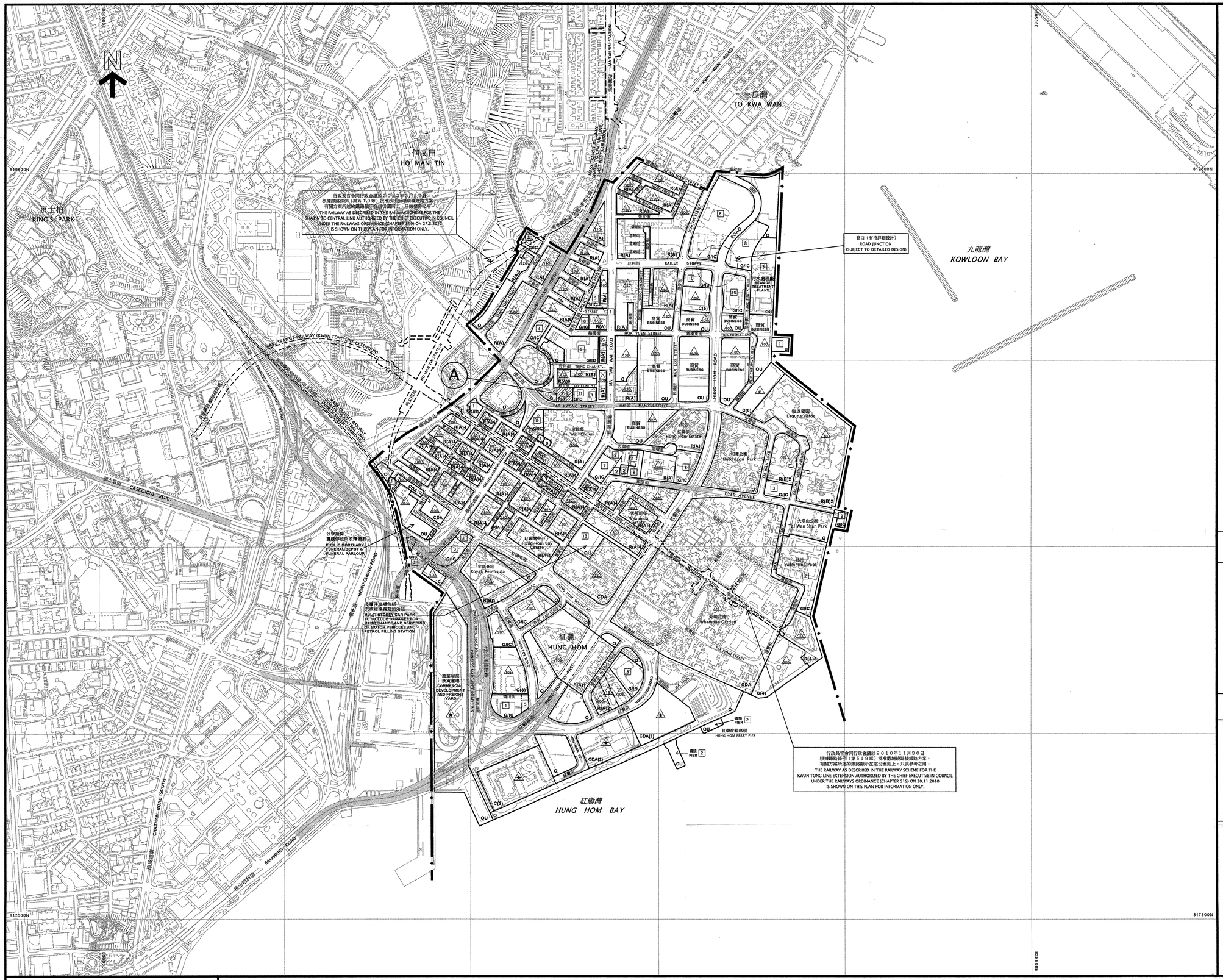
米 METRES 100 0 200 400 600 800 METRES 米

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/K9/24

本摘要圖於2016年9月1日擬備
EXTRACT PLAN PREPARED ON 1.9.2016

參考編號 REFERENCE No. M/K9/16/9



圖例
NOTATION

ZONES		地帶
COMMERCIAL	C	商業
COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
UNDETERMINED	U	未決定用途

COMMUNICATIONS		交通
RAILWAY AND STATION (UNDERGROUND)	MTR STATION	鐵路及車站（地下）
MAJOR ROAD AND JUNCTION		主要道路及路口
ELEVATED ROAD		高架道路

MISCELLANEOUS		其他
BOUNDARY OF PLANNING SCHEME		規劃範圍界線
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	80	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT RESTRICTION AS STIPULATED ON THE NOTES	80	《註釋》內訂明最高建築物高度限制
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	8	最高建築物高度（樓層數目）

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 & %		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	6.39	4.40	商業
COMPREHENSIVE DEVELOPMENT AREA	22.08	15.19	綜合發展區
RESIDENTIAL (GROUP A)	27.29	18.77	住宅（甲類）
RESIDENTIAL (GROUP B)	6.63	4.56	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	12.58	8.65	政府、機構或社區
OPEN SPACE	13.40	9.22	休憩用地
OTHER SPECIFIED USES	15.23	10.48	其他指定用途
UNDETERMINED	0.17	0.12	未決定用途
MAJOR ROAD ETC.	41.59	28.61	主要道路等
TOTAL PLANNING SCHEME AREA	145.36	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/K9/24 的修訂
AMENDMENT TO APPROVED PLAN No. S/K9/24

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

AMENDMENT ITEM A — 修訂項目A項

（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紅磡（九龍規劃區第９區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 9 - HUNG HOM - OUTLINE ZONING PLAN

SCALE 1:5000 比例尺

※ METRES 100 0 200 400 600 800 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/K9/24A**

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ ***DRAFT*** HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24***A***

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

NOTES

(N.B. These form part of the Plan)

(1) These Notes show the uses or developments on land falling within the boundaries of the Plan which are always permitted and which may be permitted by the Town Planning Board, with or without conditions, on application. Where permission from the Town Planning Board for a use or development is required, the application for such permission should be made in a prescribed form. The application shall be addressed to the Secretary of the Town Planning Board, from whom the prescribed application form may be obtained.

(2) Any use or development which is always permitted or may be permitted in accordance with these Notes must also conform to any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, as may be applicable.

(3) (a) No action is required to make the existing use of any land or building conform to this Plan until there is a material change of use or the building is redeveloped.

(b) Any material change of use or any other development (except minor alteration and/or modification to the development of the land or building in respect of the existing use which is always permitted) or redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Town Planning Board.

(c) For the purposes of subparagraph (a) above, "existing use of any land or building" means-

(i) before the publication in the Gazette of the notice of the first statutory plan covering the land or building (hereafter referred as 'the first plan'),

- a use in existence before the publication of the first plan which has continued since it came into existence; or

- a use or a change of use approved under the Buildings Ordinance which relates to an existing building; and

(ii) after the publication of the first plan,

- a use permitted under a plan which was effected during the effective period of that plan and has continued since it was effected; or

- a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan prevailing at the time when the use or change of use was approved.

(4) Except as otherwise specified by the Town Planning Board, when a use or material change of use is effected or a development or redevelopment is undertaken**,** as always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board, all permissions granted by the Town Planning Board in respect of the site of the use or material change of use or development or redevelopment shall lapse.

(5) Road junctions, alignments of roads and railway tracks**,** and boundaries between zones may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or buildings are always permitted as long as they comply with any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, and there is no need for these to conform to the zoned use or these Notes. For temporary uses expected to be over 5 years, the uses must conform to the zoned use or these Notes.

(7) The following uses or developments are always permitted on land falling within the boundaries of the Plan except where the uses or developments are specified in Column 2 of the Notes of individual zones :

(a) provision, maintenance or repair of plant nursery, amenity planting, open space, rain shelter, refreshment kiosk, road, bus/public light bus stop or lay-by, cycle track, Mass Transit Railway station entrance, Mass Transit Railway structure below ground level, taxi rank, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, telecommunications radio base station, automatic teller machine and shrine;

(b) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works, marine related facilities, waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government; and

(c) maintenance or repair of watercourse and grave.

(8) In any area shown as 'Road', all uses or developments except those specified in paragraph (7) above and those specified below require permission from the Town Planning Board :

on-street vehicle park and railway track

(9) In the "Undetermined" zone, all uses or developments except those specified in paragraph (7) above require permission from the Town Planning Board. All new development, or addition, alteration and/or modification to or redevelopment of an existing building shall not exceed a 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.

(10) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted use**s** and developments within the same zone are always permitted and no separate permission is required.

(11) In these Notes, "existing building" means a building, including a structure, which is physically existing and is in compliance with any relevant legislation and the conditions of the Government lease concerned.

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ ***DRAFT*** HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24***A***

Schedule of Uses

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 Refuse Collection Point (on land designated C(5) only) Government Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Car/Lorry Park (on land designated C(3) and C(5) only) Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle and lorry) Recyclable Collection Centre Religious Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project Wholesale Trade	Broadcasting, Television and/or Film Studio Flat (not applicable to land designated C(2), C(3) and C(6)) Government Refuse Collection Point (not elsewhere specified) Hospital Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Residential Institution

Planning Intention

This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment, eating place and hotel, functioning as territorial business/financial centres and regional or district commercial/shopping centres. These areas are usually major employment nodes.

(Please see next page)

COMMERCIAL (Cont'd)

Remarks

(1) On land designated "Commercial" ("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 plot ratio of 12.0 or the plot ratio of the existing building, whichever is the greater.

(2) On land designated "C(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 gross floor area (GFA) of 107,444m^2; and a maximum building height ranging from a maximum of 30 ~~metres above Principal Datum (~~mPD~~)~~ at the southern part of the site to a maximum of 55mPD at the northern part of the site, or the height of the existing building, whichever is the greater. A "stepped height" building profile is required.

(3) On land designated "C(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 119,280m^2 of which a GFA of not less than 16,300m^2 shall be provided for a public car/lorry park.

(4) On land designated "C(4)", 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 146,025m^2. Public open space, including a 13-metre wide waterfront promenade, shall be provided.

(5) On land designated "C(5)", 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 54,681m^2, of which a Government refuse collection point of a GFA of not less than 442m^2 and a public car/lorry park of not less than 450 spaces shall be provided**.**

(6) On land designated "C(6)", 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 25,338m^2.

(7) On land designated "C", "C(3)", "C(5)" and "C(6)", 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 heights in terms of mPD as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(8) On land designated "C(4)", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

(Please see next page)

COMMERCIAL (Cont'd)

Remarks (Cont'd)

(9) In determining the maximum plot ratio/GFA for the purposes of paragraphs (1) to (6) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(10) Where the permitted plot ratio 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 (1), (2), (3), (4), (5) or (6) 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 plot ratio/GFA specified in paragraphs (1) to (6) above may thereby be exceeded.

(11) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***plot ratio/GFA/***building height restrictions stated in paragraphs **(1) to~~,~~** ~~(2), (7) and~~ (8) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

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
	Commercial Bathhouse Eating Place Educational Institution Exhibition or Convention Hall Flat Government Refuse Collection Point Government Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Market Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances 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 Research, Design and Development Centre Residential Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

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. For "Comprehensive Development Area (1)" ("CDA(1)") and "Comprehensive Development Area (2)" ("CDA(2)") sites at the Hung Hom waterfront, the planning intention for the former is for hotel, retail and public transport interchange uses, whereas the latter is intended for retail and office uses.

Remarks

(1) 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, dimensions, and heights of all buildings to be erected in the area;

(ii) the proposed total site area and ~~gross floor area (~~GFA~~)~~ for various uses, total number of flats and flat sizes, 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 landscape 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;

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks (Cont'd)

(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.

(2) The Master Layout Plan mentioned in paragraph (1) above 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.

(3) On land designated "Comprehensive Development Area" ("CDA") at the junction of Cheong Hang Road and Winslow Street, residential development will not be permitted. 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 57,000m^2.

(4) On land designated "CDA", 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 heights in terms of ~~metres above Principal Datum (~~mPD~~)~~ as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(5) On land designated "CDA(1)" south of Hung Luen Road, residential development will not be permitted. 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 4.0, a maximum site coverage of 80% (excluding basement(s)), and a maximum building height ranging from 75mPD to 15mPD. A "stepped height" building profile descending towards the waterfront is required. Ancillary car parking should be provided in the basement.

(6) On land designated "CDA(2)" at the junction of Hung Luen Road and Kin Wan Street, residential development will not be permitted. 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 4.0, a maximum site coverage of 60% (excluding basement(s)), and a maximum building height ranging from 75mPD to 40mPD. A "stepped height" building profile descending towards the waterfront is required. Ancillary car parking should be provided in the basement.

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks (Cont'd)

(7) In determining the maximum plot ratio/GFA for the purposes of paragraphs (3)**,** (5) and (6) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(8) In determining the maximum plot ratio for the purposes of paragraph (5) above, any floor space that is constructed or intended for use solely as public transport facilities as required by the Government should be included for calculation.

(9) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***plot ratio/GFA/***building height~~/ and/or~~ site coverage restrictions mentioned in paragraphs ***(3)*** ~~(4), (5) and~~ ***to*** (6) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

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) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances 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)

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 bay***s*** 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. For the "Residential (Group A)5" ("R(A)5") zone, the planning intention is purely for residential development.

Remarks

(1) On land designated "Residential (Group A)" ("R(A)"), "Residential (Group A)3" ("R(A)3") and "Residential (Group A)4" ("R(A)4"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the plot ratio for the building upon development and/or redevelopment in excess of 7.5 for a domestic building or 9.0 for a building that is partly domestic and partly non-domestic, or the plot ratio of the existing building, whichever is the greater. Except where the plot ratio is permitted to be exceeded under paragraph***s*** ~~(12)~~ ***(13) and/or (14)*** hereof, under no circumstances shall the plot ratio for the domestic part of any building, to which this paragraph applies, exceed 7.5.

(2) For a non-domestic building to be erected on the site, the maximum plot ratio shall not exceed 9.0 except where the plot ratio is permitted to be exceeded under paragraph***s*** ~~(12)~~ ***(13) and/or (14)*** hereof.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(3) For the purposes of paragraph (1) above, on land designated "R(A)", "R(A)3" and "R(A)4", no 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 relevant maximum domestic and/or non-domestic plot ratio(s), or the domestic and/or non-domestic plot ratio(s) of the existing building, whichever is the greater, subject to, as applicable-

(i) the plot ratio(s) of the existing building shall apply only if any addition, alteration and/or modification to or redevelopment of an existing building is for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building; or

(ii) the maximum domestic and/or non-domestic plot ratio(s) stated in paragraph (1) above shall apply if any addition, alteration and/or modification to or redevelopment of an existing building is not for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building.

~~(3)~~***(4)*** 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 domestic ~~gross floor area (~~GFA~~)~~ of 144,300m^2 and a maximum non-domestic GFA of 4,500m^2.

~~(4)~~***(5)*** 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 plot ratio of 4.5 (including a maximum non-domestic plot ratio of 0.5), a maximum domestic site coverage of 30% and a maximum non-domestic site coverage of 60% (both excluding basement(s)). Ancillary car parking should be provided in the basement.

~~(5)~~***(6)*** On land designated "R(A)5", 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 domestic plot ratio of 7.5, or the plot ratio of the existing building, whichever is the greater.

~~(6)~~***(7)*** On land designated "Residential (Group A)6" ("R(A)6"), 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 domestic GFA of 28,396.05m^2 and a maximum non-domestic GFA of 5,679.21m^2.

~~(7)~~***(8)*** On land designated "R(A)", "R(A)1", "R(A)2", "R(A)4", "R(A)5" and "R(A)6", 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 heights in terms of ~~metres above Principal Datum (~~mPD~~)~~ as stipulated on the Plan, or the height of the existing building, whichever is the greater.

~~(8)~~***(9)*** On land designated "R(A)3", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

~~(9)~~***(10)*** On land designated "R(A)4", a maximum building height restriction of 100mPD would be permitted for sites with an area of 400m^2 or more.

~~(10)~~***(11)*** In determining the relevant maximum plot ratio***/GFA*** for the purposes of paragraphs (1) ~~to (6)~~ ***(2), (4) to (7)*** above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating Government, institution or community facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

~~(11)~~***(12)*** In determining the relevant maximum plot ratio/GFA for the purposes of paragraphs (1)***,*** ~~to (6)~~ ***(2) and (4) to (7)*** above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters 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.

~~(12)~~***(13)*** Where the permitted plot ratio 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 paragraphs (1), (2), ~~(3),~~ (4), (5)***,*** ~~or~~ (6) ***or (7)*** 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 plot ratio/GFA specified in the paragraphs (1) ~~to (6)~~***, (2) and (4) to (7)*** above may thereby be exceeded.

~~(13)~~***(14)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***plot ratio/GFA/***building height restrictions mentioned in paragraphs ~~(7) and (8)~~ ***(1), (2) and (4) to (9)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance, except on land designated "R(A)6".

~~(14)~~***(15)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the site coverage restriction mentioned in paragraph ~~(4)~~ ***(5)*** 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 Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances 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.

(Please see next page)

RESIDENTIAL (GROUP B) (Cont'd)

Remarks

(1) 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 ~~gross floor area (~~GFA~~)~~ of 139,797m^2, of which a GFA of not less than 2,435m^2 shall be provided for Government, institution or community facilities; and the maximum building height in terms of ~~metres above Principal Datum (~~mPD~~)~~ as stipulated on the Plan, or the height of the existing building, whichever is the greater. Public open space of not less than 2,700m^2 shall be provided.

(2) On land designated "Residential (Group B)2" ("R(B)2"), no new development, or addition, alteration and/or modification to or redevelopment of and existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 394,600m^2, of which a GFA of not less than 1,299m^2 shall be provided for Government, institution or community facilities. Public open space of not less than 13,000m^2 including a 6-metre wide waterfront promenade and a public transport terminus shall be provided.

(3) On land designated "R(B)2", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

(4) In determining the relevant maximum GFA for the purpose of paragraphs (1) and (2) above, any floor space that is constructed or intended for use solely as carpark, loading/unloading bay, plant room~~,~~ ***and*** 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.

(5) In determining the relevant maximum GFA for the purpose of paragraph (2) above, any floor space that is constructed or intended for use solely as public transport terminus, as required by Government, may also be disregarded.

(6) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the **GFA/**building height restrictions mentioned in paragraphs (1) ~~and~~ **to** (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

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)	Holiday Camp
Hospital	Hotel
Institutional Use (not elsewhere specified)	House
Library	Marine Fuelling Station
Market	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
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
School	Utility Installation for Private Project
Service Reservoir	Zoo
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 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.

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Remarks

(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 the maximum building height, in terms of number of storeys or ~~metres above Principal Datum~~ ***mPD***, as stipulated on the Plan or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction mentioned in paragraph (1) 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 Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances 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 "Multi-storey Carpark to Include Garages for Maintenance and Servicing of Motor Vehicles and Petrol Filling Station" only	
Petrol Filling Station Public Vehicle Park (excluding container vehicle) Vehicle Repair Workshop	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Office Shop and Services Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended to provide/reserve land for the development of a multi-storey carpark to include garages for maintenance and servicing of motor vehicles and petrol filling station serving the needs of local residents as well as the general public.

Remarks

(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 excessive of a maximum plot ratio of 12.0 or the plot ratio of the existing building, whichever is the greater.

(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 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.

(3) In determining the relevant maximum number of storeys for the purposes of paragraph (2) above, any basement floor(s) may be disregarded.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Remarks (Cont'd)

(4) Where the permitted plot ratio 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 for the building on land to which paragraph (1) 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 plot ratio specified in paragraph (1) above may thereby be exceeded.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***plot ratio/***building height restriction mentioned in paragraph***s (1) and*** (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(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 "Public Mortuary, Funeral Depot & Funeral Parlour" only	
Funeral Facility	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Private Club Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended to provide/reserve land for the provision of funeral facilities serving the needs of the general public.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the total development and/or redevelopment in excess of a maximum plot ratio of 6.6, or the plot ratio of the existing building, whichever is the greater.

(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 the maximum building height, in terms of ~~metres above Principal Datum~~ ***mPD***, as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(3) Where the permitted plot ratio 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 for the building on land to which paragraph (1) 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 plot ratio specified in paragraph (1) above may thereby be exceeded.

(4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***plot ratio/***building height restriction mentioned in paragraph***s (1) and*** (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(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 "Pier" only

Government Use Pier	Eating Place Exhibition or Convention Hall Marine Fuelling Station Office Public Vehicle Park (excluding container vehicle) Shop and Services

Planning Intention

This zone is primarily to provide/reserve land intended for pier(s).

Remarks

(1) Kiosks not greater than $10m^2$ each in area and not more than 10 in number for uses as retail shop and service trades are considered as ancillary to ferry pier use serving the needs of local residents as well as the general public.

(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 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.

(3) In determining the relevant maximum number of storeys for the purposes of paragraph (2) above, any basement floor(s) may be disregarded.

(4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction mentioned in paragraph (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(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[△])
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 ~~school~~ 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
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
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
Schedule II: for industrial or industrial-office building [@]	
Ambulance Depot ***Art Studio (excluding those involving direct provision of services or goods)*** 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[△]) 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 Industrial Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office (not elsewhere specified) Petrol Filling Station Place of Recreation, Sports or Culture ***(not elsewhere specified)*** 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[△], the following use is always permitted :	
Office	

(Please see next page)

OTHER SPECIFIED USES (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~~s~~ 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 respectively as approved by the Building Authority.

△ 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.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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.

Remarks

(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 12.0 or the plot ratio of the existing building, whichever is the greater.

(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 the maximum building height, in terms of ~~metres above Principal Datum~~ ***mPD***, as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(3) In determining the maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(4) Where the permitted plot ratio 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 for the building on land to which paragraph (1) 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 plot ratio specified in paragraph (1) above may thereby be exceeded.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***plot ratio/***building height restriction mentioned in paragraph***s (1) and*** (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(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 "Sewage Treatment Plant" only	
Sewage Treatment/Screening Plant	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended to provide/reserve land for the provision of sewage treatment plant serving the needs of the general public.

Remarks

(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 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.

(2) In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction mentioned in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(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 "Commercial Development and Freight Yard" only

As Specified on the Plan	Broadcasting, Television and/or Film Studio
Educational Institution	Flat
Government Use (not elsewhere specified)	Government Refuse Collection Point
Library	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Place of Entertainment	Petrol Filling Station
Private Club	Place of Recreation, Sports or Culture
Public Vehicle Park (excluding container vehicle)	Public Transport Terminus or Station
School	Religious Institution
Shop and Services	Residential Institution
Social Welfare Facility	Utility Installation not Ancillary to the Specified Use
Utility Installation for Private Project	

Planning Intention

This zone is intended primarily for freight yard use with mixed office/hotel/retail development on a commercial podium above the northern part of the freight yard.

Remarks

(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 132,218m^2 within, on and above an elevated podium structure over the existing freight yard at ground level; the maximum GFA of 43,933m^2 below the podium structure for the existing freight yard and facilities ancillary and directly related to the freight yard operation. A public coach park of not less than 38 spaces shall be provided.

(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 the maximum building height ranging from a maximum of 62 ~~metres above Principal Datum (~~mPD~~)~~ at the part of the site to the north of Princess Margaret Road Link to a maximum of 97mPD at the northern part of the site and a maximum of 15mPD at the remaining part of the zone, or the height of the existing building, whichever is the greater. A "stepped height" building profile descending towards the waterfront is required.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Remarks (Cont'd)

(3) In determining the maximum GFA for the purposes of paragraph (1) above, any floor space constructed or intended for use solely as a public coach park, as required by the Government, may be disregarded.

(4) For any new development (except minor alteration) or redevelopment on the part of the site to the south of Princess Margaret Road Link, planning permission from the Town Planning Board under section 16 of the Town Planning Ordinance is required.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ***GFA/***building height***/minimum number of coach park*** restrictions mentioned in paragraph***s (1) and*** (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

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 "Hotel" only	
Hotel	Commercial Bathhouse/Massage Establishment Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Public Vehicle Park (excluding container vehicle) Religious Institution Residential Institution

Planning Intention

This zone is intended primarily for hotel development.

Remarks

(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 12.0, and a maximum building height, in terms of ~~metres above Principal Datum~~ ***mPD***, as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(2) In determining the maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(3) In determining the maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as back-of-house facilities as set out in Regulation 23A(3)(b) of the Building (Planning) Regulations shall be included for calculation.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Remarks (Cont'd)

(4) No addition, alteration, modification and/or extension to the external walls and basement of the existing building shall be made for provision of any floor space.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio~~/ and~~ building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ ***DRAFT*** HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24***A***

EXPLANATORY STATEMENT

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ ***DRAFT*** HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24***A***

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KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ ***DRAFT*** HUNG HOM OUTLINE ZONING PLAN NO. S/K9/24***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*** Hung Hom Outline Zoning Plan (OZP) No. S/K9/24***A***. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the various land use zonings of the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 The first statutory plan No. LK9/8/2 covering the Hung Hom area was gazetted on 29 June 1956 under section 5 of the Town Planning Ordinance (the Ordinance). On 31 May 1957, the then Governor in Council (G in C) under the then section 8(1) of the Ordinance, approved the draft OZP. On 6 September 1960, the then G in C, under the then section 8(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as LK9/8/2C.

2.2 On 27 October 1964, the then G in C, under the then section 11 of the Ordinance, ordered the preparation of a new plan to replace the approved OZP, which was subsequently renumbered as LK9/16 and exhibited for public inspection under section 5 of the Ordinance.

2.3 On 12 August 1969, the then G in C considered the draft OZP No. LK9/17 and agreed to refer the draft OZP to the Board for further consideration and amendment under section 9(1)(c) of the Ordinance. Since then, the OZP was amended once and exhibited for public inspection under section 5 of the Ordinance.

2.4 On 18 January 1972, the then G in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as LK9/24. On 23 September 1975, the then G in C referred the approved OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended six times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.5 On 14 March 1989, the then G in C considered the draft OZP No. S/K9/4 and agreed to refer the draft OZP to the Board for further consideration and amendment under section 9(1)(c) of the Ordinance. Since then, the OZP was amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.6 On 6 May 1997, the then G in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/8. On 10 March 1998, the Chief Executive in Council (CE in C) referred the approved OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended six times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.7 On 12 March 2002, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/15. On 30 April 2002, the CE in C referred the approved OZP No. S/K9/15 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.8 On 17 February 2004, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/18. On 13 September 2005, the CE in C referred the approved Hung Hom OZP No. S/K9/18 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended once and exhibited for public inspection under section 5 of the Ordinance.

2.9 On 6 November 2007, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/20. ***On 15 January 2008, the CE in C referred the approved Hung Hom OZP No. S/K9/20 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance.*** ~~On 16 November 2007, the approved Hung Hom OZP No. S/K9/20 was exhibited for public inspection under section 9(5) of the Ordinance.~~ ***On 29 February 2008, the draft Hung Hom OZP No. S/K9/21, incorporating amendments to impose new or revised building height restrictions for various zones, was exhibited for public inspection under section 5 of the Ordinance. On 23 August 2008, after giving consideration to the representations and comments under section 6B(1) of the Ordinance, the Board decided not to uphold the representations under section 6B(8) of the Ordinance***.

~~2.10 On 15 January 2008, the CE in C referred the approved Hung Hom OZP No. S/K9/20 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference of the OZP was notified in the Gazette on 25 January 2008 under section 12(2) of the Ordinance.~~

~~2.11 On 29 February 2008, the draft Hung Hom OZP No. S/K9/21, incorporating amendments to impose new or revised building height restrictions for various zones, was exhibited for public inspection under section 5 of the Ordinance. Upon the expiry of the two-month exhibition period, a total of 105 valid representations were received. On 9 May 2008, the representations were published for 3 weeks for public comments. A total of 5 valid comments were received. On 23 August 2008, after giving consideration to the representations and comments under section 6B(1) of the Ordinance, the Board decided not to uphold the representations under section 6B(8) of the Ordinance.~~

2.1~~2~~***0*** On 5 May 2009, the CE in C, under section 9(1) (a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/22. ~~On 15 May 2009, the approved Hung Hom OZP No. S/K9/22 was exhibited for public inspection under section 9(5) of the Ordinance.~~ ***On 30 June 2009, the***

CE in C referred the approved Hung Hom OZP No. S/K9/22 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended once and exhibited for public inspection under section 5 of the Ordinance.

~~2.13 On 30 June 2009, the CE in C referred the approved Hung Hom OZP No. S/K9/22 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference of the OZP was notified in the Gazette on 10 July 2009 under section 12(2) of the Ordinance.~~

~~2.14 On 11 September 2009, the draft Hung Hom OZP No. S/K9/23, incorporating amendments to rezone a site at Wuhu Street from "Residential (Group A)4" to "Other Specified Uses" annotated "Hotel" was exhibited for public inspection under section 5 of the Ordinance. During the two-month exhibition period, no representation was received.~~

2.1~~5~~***1*** On 5 October 2010, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/24. ~~On 15 October 2010, the approved Hung Hom OZP No. S/K9/24 (the Plan) was exhibited under section 9(5) of the Ordinance.~~

2.12 On 6 October 2015, the CE in C referred the approved Hung Hom OZP No. S/K9/24 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 16 October 2015 under section 12(2) of the Ordinance.

2.13 On _____ 2016, the draft Hung Hom OZP No. S/K9/25 (the Plan), incorporating amendments including (i) the rezoning of a site at Lee Kung Street from "Government, Institution or Community" ("G/IC") to "Residential (Group A)" ("R(A)"); and (ii) inclusion of 'Art Studio (excluding those involving direct provision of services or goods)' as a Column 1 use in Schedule II for industrial or I-O building of the "Other Specified Uses" annotated "Business" ("OU(B)") zone, was exhibited for public inspection under section 5 of the Ordinance. In addition, the alignments of the Mass Transit Railway (MTR) Kwun Tong Line Extension (KTE) and Shatin to Central Link (SCL) authorised by the CE in C under the Railways Ordinance (Chapter 519) on 30.11.2010 and 27.3.2012 respectively are shown on the OZP for information.

3. OBJECT OF THE PLAN

3.1 The object of the Plan is to indicate the broad land use zonings and major transport networks so that development and redevelopment within the Planning Scheme Area (the Area) can be put under statutory planning control.

3.2 The Plan is to illustrate the broad principles of development. It is a small-scale plan and the transport 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 cases that small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted 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 Hung Hom area and not to overload the road network in this area.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes indicating the uses which are always permitted and other uses for which the permission of the Board must be sought. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and better 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 Area is located in the south-eastern part of Kowloon Peninsula. It is bounded by Ngan Hon Street to the north; Chatham Road North and the ~~Mass Transit Railway (~~MTR~~)~~ East Rail Line and its Hung Hom Station to the west; and Kowloon Bay to the east. To the south, it fronts onto Victoria Harbour. The boundary of the Area is shown in a heavy broken line on the Plan. It covers about 145 hectares of land.

5.2 The Area consists of the existing built-up area of Hung Hom and Hung Hom Bay Reclamation Area (the Reclamation Area). The existing built-up area in Hung Hom has been developed for a variety of uses including private residential, commercial, public housing and industrial. There are two large private comprehensive residential developments in the Area, known as Whampoa Garden and Laguna Verde. The Reclamation Area provides land for the extension of the hotel/office developments from Tsim Sha Tsui East, residential developments, open space and Government, institution or community (GIC) facilities to help redress the current shortfall in the provision of such facilities in Hung Hom.

5.3 The environmental problems of the Area include dilapidated housing stock, traffic congestion, overcrowded living conditions and a generally poor urban built form. The problem areas are located in the existing built-up area in Hung Hom mainly along Baker Street and Bulkeley Street in the west and Bailey Street in the north. The Plan is intended to alleviate some of these environmental problems.

5.4 The Area covers land on the waterfront of Victoria Harbour. For any development proposal affecting such land, due regard shall be given to the Vision Statement for Victoria Harbour published by the Board and the requirements under the Protection of the Harbour Ordinance (Cap. 531).

6. POPULATION

According to the ~~2006~~ ***2011*** Population ~~By-census~~ ***Census***, the population of the Area was about ~~116,220~~ ***126,300***. If the planned uses on the Plan are developed, the planned population of the Area will be about ~~147,640~~ ***130,550***.

7. BUILDING HEIGHT RESTRCTIONS IN THE AREA

7.1 In order to provide better planning control on the development intensity and building height upon development/redevelopment and to meet public aspirations for greater certainty and transparency in the statutory planning system, the Kowloon OZPs are subject to revisions to incorporate building height restrictions to guide future development/ redevelopment. Some of the high-rise redevelopments erected in the Area in the recent years following the relocation of the airport in Kai Tak and the removal of the airport height restrictions are considered undesirable from the visual point of view, and are also incompatible and out-of-context with the local built environment. In order to prevent excessive tall or out-of-context buildings, and to instigate control on the overall building height profile of the Area, a review has been undertaken to ascertain the appropriate building height restrictions for the ***"Commercial" (***"C"***)***, ***"Comprehensive Development Area" (***"CDA"***)***, "R(A)", ***"Residential (Group B)" (***"R(B)"***)***, "G/IC", "OU" and ***"Undetermined" (***"U"***)*** zones on the Plan.

7.2 The building height restrictions are to preserve the views to the ridgelines from public view points and to maintain a stepped building height concept recommended in the Urban Design Guidelines Study with lower buildings along the waterfront, taking account of the local area context, the local wind environment, and the need to maintain visually compatible building masses in the wider setting. There are in general four main building height bands – 52 metres above Principal Datum (mPD), 80mPD, 100mPD and 120mPD in the Area for the "C", "CDA", "R(A)", "R(B)" and "OU" annotated "Business" ("OU(B)") zones – increasing progressively from the waterfront to the inland and foothill areas. The proposed building height bands help preserve views to the ridgelines, achieve a stepped height profile for visual permeability and wind penetration and circulation, and maintain a more intertwined relationship with the Victoria Harbour edge.

7.3 Moreover, specific building height restrictions for the "G/IC", "OU" (except "OU(B)") and "U" zones in terms of mPD or number of storeys, which mainly reflect the existing and planned building heights of developments, have been incorporated into the Plan mainly to provide visual and spatial relief to the Area. The building height restrictions are specified in terms of mPD to provide certainty and clarity of the planning intention. On the other hand, building height control for low-rise developments, normally with a height of not more than 13 storeys, will be subject to restrictions on the number of storeys so as to allow more design flexibility, in particular for GIC facilities with specific functional requirements, unless such developments fall within visually more prominent locations and major breathing spaces.

7.4 An air ventilation assessment (AVA) by expert evaluation has been undertaken to assess the likely impact of the proposed building heights of the development

sites within the Area on the pedestrian wind environment. The building height bands shown on the Plan have taken into account the findings of the AVA.

7.5 A minor relaxation clause in respect of building height restrictions is incorporated into the Notes of the Plan in order to provide incentive for development/redevelopments with design merits/planning gains. Each application for minor relaxation of building height restriction will be considered on its own merits and the relevant criteria for consideration of such relaxation are as follows:

(a) amalgamating smaller sites for achieving better urban design and local area improvements;

(b) accommodating the bonus plot ratio granted under the Buildings Ordinance in relation to surrender/dedication of land/area for use as public passage/street widening;

(c) providing better streetscape/good quality street level public urban space;

(d) providing separation between buildings to enhance air ventilation and visual permeability; ~~and~~

(e) accommodating building design to address specific site constraints in achieving the permissible plot ratio under the Plan; and

~~(e)~~***(f)*** other factors, such as ~~site constraints,~~ ***the*** need for tree preservation, innovative building design and planning merits that would bring about improvements to townscape and amenity of the locality and~~, provided that no~~ ***would not cause*** adverse landscape and visual impacts ~~would be resulted from the innovative building design~~.

7.6 However, for existing buildings where the building height already exceeded the maximum building height restrictions in terms of mPD or number of storeys as stipulated on the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

8. LAND USE ZONINGS

8.1 "Commercial" ("C") – Total Area 6.39 ha

8.1.1 This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment, eating place and hotel, functioning as territorial business/financial centres and regional or district commercial/shopping centres. These areas are usually major employment nodes.

8.1.2 The site located at the junction of Ma Tau Wai Road and Hok Yuen Street has been developed into a retail/office complex, known as Hung Hom Commercial Centre.

8.1.3 Developments in this zone are subject to a maximum plot ratio of 12.0 to restrain traffic growth which will otherwise overload the existing and

planned road network. In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

8.1.4 The planning intention for the two commercial sites designated "C(2)" and "C(3)" in the Reclamation Area is to serve as ~~an office and~~ hotel node***s*** extended from Tsim Sha Tsui East. They are subject to maximum gross floor area (GFA) and maximum building height restrictions. The ***hotel development at the*** "C(2)" site ***known as Harbourfront Horizon*** is subject to a maximum building height ranging from a maximum of 30mPD at the southern part of the site to a maximum of 55mPD at the northern part of the site. A "stepped height" building profile is required. A maximum building height restriction of 105mPD for the "C(3)" site is imposed. The ~~commercial~~ ***hotel*** development ***known as Harbourview Horizon*** in the "C(3)" site to the east of Princess Margaret Road Link on the Reclamation Area, with the incorporation of a multi-storey public car/lorry park, would act as a noise shield for the residential, educational and open space developments in the east from ***noise impacts of*** Princess Margaret Road Link.

8.1.5 The site designated "C(4)" is located at Tak Fung Street and known as Harbourfront and Harbour Plaza. It is a comprehensive office and hotel development consisting a public waterfront promenade and public open space. Developments within this zone will be subject to a maximum GFA of 146,025m^2. A maximum building height restriction of 100mPD is imposed in view of its prominent location at the waterfront and main wind entrance to the inland area, as well as the overall building height concept of the Area as specified in paragraph 7 above. Development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building exceeding the building height restriction (except with the permission granted by the Board for minor relaxation of the building height restriction) or up to the existing building heights is not permitted in the waterfront site.

8.1.6 The site bounded by Sung On Street and Hung Hom Road, namely the Peninsula Square, has been developed into an office building with multi-storey public carpark and is designated "C(5)". This zone is subject to a maximum GFA of 54,681m^2 and a maximum building height of 120mPD. A Government refuse collection point and a public car/lorry park shall be provided within the site.

8.1.7 The site designated "C(6)", namely the Fisherman's Wharf, is located at the junction of Tai Wan Road and Hok Cheung Street next to Laguna Verde. It has been developed into an independent commercial block separated from the main residential development of Laguna Verde which also serves as a buffer between the existing industrial and residential developments. Development within this zone is subject to a maximum GFA of 25,338m^2 and a maximum building height of 41mPD.

8.1.8 A site at Cheong Tung Road is proposed for commercial development and subject to a maximum plot ratio of 12.0 and a maximum building height of 100mPD.

8.1.9 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.

8.1.10 To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.

8.2 "Comprehensive Development Area" ("CDA") – Total Area 22.08 ha

8.2.1 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.

8.2.2 The Whampoa Garden development, zoned "CDA", on both sides of Hung Hom Road provides residential accommodation for about 32,400 persons with self-contained commercial and community facilities and open space. The development is governed by the Master Layout Plan (MLP) which was first approved by the Board on 19.10.1983 with a major revision on 22.4.1988. Since then, there were a number of partial amendments for various development sites. This site is subject to a maximum building height restriction of 52mPD. The development comprises a total of 88 residential towers which are located mainly on the landscaped roofs of non-domestic podiums with commercial uses at ground floor and/or basement floor(s), two free-standing commercial complexes (i.e. the Whampoa Plaza and the Whampoa) and four free-standing purpose-designed primary schools. The internal roads of the Whampoa Garden are private streets. Any amendment to the approved MLP requires permission from the Board under section 16 of the Ordinance.

8.2.3 The "CDA(1)" site south of Hung Luen Road is intended for hotel, retail and public transport interchange (PTI) uses. Residential development will not be permitted. Developments within this zone will be subject to a maximum plot ratio of 4.0. To avoid excessive building massing, the PTI should be included for GFA calculation. Taking account of the need to re-provide the PTI at ground level, the site will be subject to a maximum site coverage of 80% (excluding basement(s)). Developments within this sub-zone will also be subject to a maximum building height ranging from 75mPD to 15mPD. A "stepped height" building profile descending towards the waterfront is required. Ancillary car-parking should be accommodated in the basement. A planning brief setting out the planning parameters, the requirements on varying height profile, view corridor above podium structure, setback, open space provision for public enjoyment, landscaping, design integration with the adjoining waterfront promenade, basement

car-parking and the re-provisioned PTI has been approved by the Board to guide the future development of the site.

8.2.4 The "CDA(2)" site at the junction of Hung Luen Road and Kin Wan Street is intended for retail and office developments. Residential development will not be permitted. This site together with the "CDA(1)" site and the site to the west of Princess Margaret Road Link and other commercial sites within the Reclamation Area are to serve as an office and hotel node extended from Tsim Sha Tsui East. Developments within this sub-zone will be subject to a maximum plot ratio of 4.0, a maximum site coverage of 60% (excluding basement(s)), and a maximum building height ranging from 75mPD to 40mPD. A "stepped height" building profile descending towards the waterfront is required. Ancillary car-parking provision should be accommodated in the basement. To enhance air ventilation and visual porosity of the development, a single podium for the whole development will not be permitted. A planning brief setting out the planning parameters, the requirements on varying height profile, view corridor, setback, non-building area, open space provision for public enjoyment, landscaping, design integration with the adjoining waterfront promenade and basement car-parking has been approved by the Board to guide the future development of the site.

8.2.5 The two sites at the junction of Cheong Hang Road and Winslow Street are linked to form a single "CDA" so as to achieve greater flexibility in building design. As the sites are subject to severe noise impact generated from Princess Margaret Road Link and it is intended to provide screening from the existing funeral facilities, development within the "CDA" site is restricted to non-residential use. As specified in the Notes, residential development will not be permitted and the development restriction in terms of maximum GFA for the "CDA" is also stipulated. The sites are also subject to a maximum building height of 100mPD. A planning brief setting out the planning parameters and the special design requirements will be prepared to guide the future development of the site.

8.2.6 Pursuant to section 4A(1) of the Ordinance, any development within the "CDA" zone would require approval of the Board by way of a planning application under section 16 of the Ordinance. A MLP should be submitted in accordance with the requirements as specified in the Notes of the Plan for the approval of the Board pursuant to section 4A(2) of the Ordinance. A copy of the approved MLP would be made available for public inspection in the Land Registry pursuant to section 4A(3) of the Ordinance.

8.2.7 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.

8.2.8 ~~A minor relaxation clause in respect of site coverage has been incorporated into the Notes of the Plan for sites with site coverage restriction in order to cater for development with special design merits.~~ ***To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA/site coverage restrictions may be considered by the***

Board on application under section 16 of the Ordinance taking into account its own merits.

8.3 "Residential (Group A)" ("R(A)") – Total Area ~~27.12~~ ***27.29*** ha

8.3.1 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. Considering the traffic impact of office development, there is a general presumption against office use in "R(A)" zone. Thus, office development other than those along major transport route would not be supported.

8.3.2 Developments within this zone include private residential developments at Shun Yung Street and Ko Shan Road; on both sides of Ma Tau Wai Road and Gillies Avenue; and to the south of Fat Kwong Street/Man Yue Street; Ka Wai Chuen, a large public housing estate at Ma Tau Wai Road; and Hung Hom Estate ~~under redevelopment~~ at Man Yue Street.

8.3.3 In the consideration of the overall transport, environmental and infrastructural constraints, as well as the adequacy in the provision of community facilities envisioned in the Kowloon Density Study Review, completed in early 2002, developments or redevelopments within the "R(A)" zone and its sub-zones are subject to specific control on plot ratios except otherwise specified in the Notes, i.e. a maximum plot ratio of 7.5 for a domestic building or a maximum plot ratio of 9.0 for a partly domestic and partly non-domestic building. In calculating the GFA for these developments/redevelopments, the lands for free-standing purpose-designed buildings that are solely used for accommodating school or other GIC facilities, including those located on ground and on building podium, are not to be taken as parts of the site.

8.3.4 Development and redevelopment within the "R(A)", "R(A)3", "R(A)4" and "R(A)5" zones are covered by the building height bands of 80mPD, 100mPD***, 110mPD*** and 120mPD as stipulated on the Plan according to the overall building height concept of the Area as specified in paragraph 7 above.

8.3.5 A site zoned "R(A)1" near the junction of Hung Hom South Road and Hung Hom By-pass (HHBP) on the Reclamation Area has been developed for residential development, the Harbour Place, providing about 2,470 flats**.** The development includes a deck over the HHBP to mitigate the potential noise pollution problems arising from the HHBP. Taking into account the traffic capacity constraints identified by the Central Kowloon Traffic Study, the residential development on this site is restricted to a maximum domestic GFA of 144,300m^2 and a maximum non-domestic GFA of 4,500m^2. This site is also subject to a maximum building height of 105mPD to reflect the major building heights of the development.

8.3.6 A site zoned "R(A)2" at the junction of Oi King Street and Hung Luen Road on the Reclamation Area is reserved for housing development. On this site, no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in the total development and/or redevelopment in excess of a maximum overall plot

ratio of 4.5 (including a maximum non-domestic plot ratio of 0.5), a maximum domestic site coverage of 30% and a maximum non-domestic site coverage of 60% (both excluding basement(s)); and a maximum building height of 15mPD for a strip of land traversing the site in north-south direction as demarcated on the Plan and a maximum building height of 100mPD for the other parts of the site. Ancillary car-parking should be accommodated in the basement to minimize the size and height of podium. The design of the non-domestic podium (if to be provided) should take into account the need to provide connection to the footbridges to its north, east and south. To allow more space for greening, visual porosity to the waterfront and enhance air circulation, a 20m wide view corridor, i.e. the strip of land subject to a maximum building height of 15mPD, along a north-south axis perpendicular to the harbour-front has been designated. To take care of the possible visual impact of the future "R(A)2" development against the adjacent existing primary school to its east zoned "G/IC", a 5m wide non-building area (NBA) along the north-eastern boundary of the "R(A)2" site is also proposed, which should be incorporated as a Government lease condition for land sale. Minor structure for footbridge connection to the east above the NBA may be allowed. This NBA control can help ensure that the future building development in the "R(A)2" site will not be in juxtaposition to the school building.

8.3.7 A site zoned "R(A)3" abutting the waterfront at Wan Hoi Street has been developed into a residential development up to about 228mPD. Such building height is considered incongruous with the waterfront setting in the Hung Hom area. Thus, a maximum building height restriction of 100mPD is imposed in view of its prominent location at the waterfront and main wind entrance to the inland area, as well as the overall building height concept of the Area as specified in paragraph 7 above. Development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building exceeding the building height restriction (except with the permission granted by the Board for minor relaxation of the building height restriction) or up to the existing building heights is not permitted in the waterfront site.

8.3.8 For sites zoned "R(A)4", a maximum building height restriction of 80mPD is proposed to enable a smooth transition of height profile from the Whampoa Garden with building height of mainly 52mPD as well as to allow better air penetration from the waterfront through Whampoa Garden. For development with special design merits, minor relaxation of the building height restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above. Nonetheless, to avoid pencil-like buildings to be developed on small lots and to encourage amalgamation of sites for more comprehensive development, including the provision of parking and loading/unloading and other supporting facilities, a maximum building height restriction of 100mPD would be permitted for sites with an area of 400m^2 or more. Application for minor relaxation of the building height restriction of 100mPD is not allowed.

8.3.9 Two sites zoned "R(A)5" at Lee Kung Street and a site at Ko Shan Road are located on the periphery of the existing high-density residential developments and there are ample commercial and retail uses at Ka Wai Chuen and along both sides of Fat Kwong Street and Ma Ta Wai Road which can readily serve the needs of the future residents. A better living environment can be achieved by allowing only domestic uses at the subject site. Against this intention, the total plot ratio permissible is set to a maximum domestic plot ratio of 7.5 only.

8.3.10 The site zoned "R(A)6" at the junction of Chatham Road North and Hok Yuen Street is subject to a maximum building height restriction of 150mPD and maximum domestic and non-domestic GFAs of 28,396.05m^2 and 5,679.21m^2 respectively taking account of the previous planning approval, and application for minor relaxation of ***GFA/***building height restriction is not allowed.

8.3.11 The "R(A)" site at Lee Kung Street will accommodate a proposed Senior Citizen Residences Scheme project by the Hong Kong Housing Society (HKHS). The proposed development will comprise 28 domestic storeys with 305 flats for the elderly and a 4-storey podium to accommodate elderly facilities including rehabilitation centre, medical centre and a residential care home for the elderly. According to HKHS, mitigation measures in terms of stepping podium; setting back of the residential block from Fat Kwong Street; provision of 4.5m-high open landscaped area between the first residential floor and the podium; alignment of building block in East-West direction; and provision of a 5m-high opening at the driveway and car park areas on G/F are proposed to minimize the potential impact for the wind from southwest and southeast direction during summer.

8.3.1~~1~~***2*** In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratios may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

8.3.1~~2~~***3*** For development within the "R(A)" zone and its sub-zones (except "R(A)6") with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.

8.3.1~~3~~***4*** ~~A minor relaxation clause in respect of site coverage has been incorporated into the Notes of the Plan for sites with site coverage restrictions in order to cater for development with special design merits.~~ ***To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA/site coverage restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.***

8.4 "Residential (Group B)" ("R(B)") - Total Area 6.63 ha

8.4.1 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.

8.4.2 Royal Peninsula and Laguna Verde are designated ~~"Residential (Group B)1" (~~"R(B)1"~~)~~ and ~~"Residential (Group B)2" (~~"R(B)2"~~)~~ respectively. The current restrictions/requirements stipulated under "R(B)1" and "R(B)2" zones are to reflect the existing developments. The "R(B)1" site is subject to a maximum GFA of 139,797m^2, of which a GFA of not less than 2,435m^2 shall be provided for GIC facilities, and a maximum building height of 150mPD. A public open space of not less than 2,700m^2 shall be provided.

8.4.3 As for the "R(B)2" site, developments are subject to a maximum GFA of 394,600m^2, of which a GFA of not less than 1,299m^2 shall be provided for GIC facilities, and a maximum building height of 80mPD. Public open space of not less than 13,000m^2 including a 6-metre wide waterfront promenade and a public transport terminus shall be provided. The maximum building height restriction is imposed in view of its prominent location at the waterfront and main wind entrance to the inland area, as well as the overall building height concept of the Area as specified in paragraph 7 above. Development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building exceeding the building height restriction (except with the permission granted by the Board for minor relaxation of the building height restriction) or up to the existing building heights is not permitted in the waterfront site.

8.4.4 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.

8.4.5 To provide design/architectural flexibility, minor relaxation of the GFA restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.

8.5 "Government, Institution or Community" ("G/IC") - Total Area ~~12.75~~ ***12.58*** ha

8.5.1 This zone is intended primarily for the provision of 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.

8.5.2 Major existing GIC facilities include ~~a Government depot~~ ***the Kowloon City Government Offices*** at Bailey Street, a fire station at Fat Kwong Street, a clinic at Station Lane, the Tai Wan Shan swimming pool complex and a salt water pumping station at Wan Hoi Street, the Tai

Wan electricity substation, a sewage pumping station at Hung Lok Road, the Hong Kong Polytechnic University Student Hostel at the junction of Hung Lai Road and Hung Lok Road, an electricity substation at Hung Ling Street, a market complex at the junction of Ma Tau Wai Road and Dyer Avenue, Tai Wan Shan Reporting Centre and Traffic Kowloon West Operation Base at Wai Wan Lane, a Government pier used as Marine Police Operational Facility off Dyer Avenue, a post-secondary college at Hung Lok Road and a number of schools.

8.5.3 Major proposed developments include the Government buildings at Chatham Road North and Bailey Street, and two secondary schools at a proposed road to the north of Bailey Street.

8.5.4 GIC facilities are also provided within large residential developments, e.g. Whampoa Garden, Laguna Verde and Royal Peninsula.

8.5.5 Developments and redevelopments in the "G/IC" sites are subject to maximum building heights in terms of mPD or number of storeys (excluding basement floor(s)) as stipulated on the Plan. Building height restriction for most of the "G/IC" sites is stipulated in terms of number of storeys while the Hong Kong Polytechnic University Student Hostel and the Hong Kong Community College - Hong Kong Polytechnic University at the junction of Hung Lai Road and Hung Lok Road are subject to a maximum building height of 80mPD and 90mPD to reflect the existing building height and to provide a varying building height profile in the Reclamation Area. This variation of building height profile is also in line with the Urban Design Guidelines in the Hong Kong Planning Standards and Guidelines (HKPSG).

8.5.6 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.

8.6 "Open Space" ("O") – Total Area 13.40 ha

8.6.1 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.

8.6.2 Existing open spaces within the Area include the Tai Wan Shan Park at Wan Hoi Street, the Fat Kwong Street Playground, the Fat Kwong Street Garden, the Hutchison Park at Tai Wan Road and the Winslow Street Rest Garden.

8.6.3 Proposed open spaces are reserved at the waterfront sites to the north of the existing sewage treatment plant at Sung Ping Street.

8.6.4 In addition, local open spaces are also provided within Whampoa Garden, Laguna Verde and on the Reclamation Area along Hung Hom South Road which also serves as a view corridor and a visual relief for the adjacent densely populated residential area.

8.6.5 The waterfront open space on the Reclamation Area would be developed as a promenade connecting to the promenade at Tsim Sha Tsui East via a pedestrian link across the Metropolis and to the Kai Tak Planning Scheme Area.

8.7 "Other Specified Uses" ("OU") – Total Area 15.23ha

8.7.1 This zone is intended to provide/reserve land for developments of specific uses serving the needs of local residents as well as the general public**.**

8.7.2 Sites falling within this zone include the existing multi-storey car park at the junction of Po Loi Street and Bulkeley Street, the funeral parlours, the funeral depot, the public mortuary, the MTR freight yard and the commercial developments above, two public ferry piers at the waterfront of the Reclamation Area, and an existing sewage treatment plant at Sung Ping Street with an adjoining site to its north reserved for future extension; and a site at Wuhu Street for hotel development.

8.7.3 About 7.38 ha of land near the junctions of Hok Yuen Street/Man Lok Street, Hok Yuen Street East/Hung Hom Road, Man Yue Street/Man Lok Street and Hung Hom Road/Hok Cheung Street is zoned "OU(B)". Land zoned for this purpose is intended for general employment uses. Under this zoning, a mix of non-polluting industrial, office and other commercial uses will be permitted as of right. 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 will be permitted as of right in existing industrial and industrial-office (I-O) 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 or I-O building and in the Hung Hom area until the whole area is transformed to cater for the new non-polluting business uses. The setting back of buildings to cater for the future increase in traffic demand may also be required. Development within this zone should make reference to the relevant Town Planning Board Guidelines.

8.7.4 The site to the west of Princess Margaret Road Link, namely the Metropolis, is designated "OU" annotated "Commercial Development and Freight Yard". It is separated into the northern and the southern parts by the Princess Margaret Road Link flyover traversing it. The ground level and the southern part of the site serve as an extension of the existing freight yard accommodating cargo-handling activities with container stacking adjacent to waterfront cargo berths. In view of the prominent harbour front location of the southern part of the site, the use, form, design and height of any new building(s) erected thereon may have significant visual impact to the Victoria Harbour. As such, planning permission from the Board is required for any new development/redevelopment in the southern part of the site. Mixed office/hotel/retail development is located on a commercial podium above the northern part of the freight yard extension. A public coach

park of 38 spaces is also provided within the podium. This "OU" site is subject to a maximum non-domestic GFA of 132,218m^2 within, on and above the podium and 43,933m^2 for the existing freight yard and facilities ancillary and directly related to the freight yard operation under the podium. It is also subject to a building height restriction of a maximum of 62mPD at the part of the site to the immediate north of Princess Margaret Road Link stepping up to a maximum of 97mPD at the northern most part of the site, and a maximum of 15mPD at the remaining part of the site based on the Hung Hom District Study is recommended to achieve a stepped profile upon development. The restrictions are imposed to reflect the existing development scale and intensities as well as to be in line with the overall building height concept of the Reclamation Area.

8.7.5 Traffic congestion within the Area is already at a serious level. A more intensive development within the Area consequent to the removal of the Airport Height Restrictions related to the ex-Kai Tak Airport will aggravate the problem as the resultant building density will generate much more traffic than what the existing and planned transport networks and infrastructure could cope with. The building height is also another concern. Hence, a maximum plot ratio of 12.0 and a maximum building height of 13 storeys are imposed on the site zoned "OU" annotated "Multi-storey Carpark to Include Garages for Maintenance and Servicing of Motor Vehicles and Petrol Filling Station"; a maximum plot ratio of 12.0 and maximum building heights of 100mPD and 120mPD as stipulated on the Plan are imposed on the sites zoned "OU(B)"; and a maximum plot ratio of 6.6 and a maximum building height of 51.5mPD are imposed on the site zoned "OU" annotated "Public Mortuary, Funeral Depot & Funeral Parlour". The above specified restrictions are imposed to reflect the development intensities of the above specified existing developments.

8.7.6 A site at Wuhu Street is zoned ~~"Other Specified Uses"~~ ***"OU"*** annotated "Hotel" to facilitate the hotel development including conversion of an existing commercial/office building into a hotel. A maximum plot ratio of 12.0 (including back-of-house facilities) and a maximum building height of 80mPD as stipulated on the Plan as well as a restriction on any extension to the external walls and basement of the existing building for provision of floor space are imposed among others.

8.7.7 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratios may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

8.7.8 For development with special design merits, minor relaxation of ~~plot ratio and~~ the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance~~.~~ ***taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.***

8.7.9 To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.

8.8 "Undetermined" ("U") – Total Area 0.17 ha

8.8.1 This zoning is intended to denote areas where further detailed planning study is required to identify the future uses of the land.

8.8.2 The site falling within this zone is the Kowloon Permanent Pier No. 90 to the east of Harbour Centre Tower 2 at Hok Cheung Street. The original function of the pier to serve the industrial area has diminished as the adjacent area has been rezoned to "OU(B)" and undergoing transformation. As such, a review of the zoning of the pier is required. It is a long term planning intention to incorporate the pier into a promenade development from Tsim Sha Tsui to Kai Tak. However, the pier is currently under private ownership and access to the site is limited, a study is required to examine issues involved for developing the pier to form part of the promenade. In the meantime, the "U" zoning, under which all proposed development including 'Cargo Handling and Forwarding Facility' would require planning permission from the Board, will ensure that any interim development will not generate adverse impacts nor jeopardise the future planning and development of the site. A maximum building height restriction of 1 storey is also imposed to reflect the existing condition and forms a basis for maximum building height for redevelopment of the site for open space or any other uses to be considered by the Board under section 16 application. The application for permission for development on land designated "U" should include various technical assessments such as an environmental impact assessment report, a visual impact assessment report and a traffic impact assessment report to examine any possible environmental, visual and traffic impacts that may be caused to or by the proposed development during and after construction and the proposed mitigation measures to tackle them, for approval of the Board. Proposed development on the pier should be restricted to uses that will not have adverse environmental, visual and traffic impact.

9. COMMUNICATIONS

9.1 Roads

9.1.1 Chatham Road North, which passes through the north-western part of the Area, is a primary distributor connecting the Area with Tsim Sha Tsui. The district distributor road network in the Area consists of Ma Tau Wai Road, Wuhu Street and Fat Kwong Street. Fat Kwong Street runs in a north-west direction and provides a link to the Ho Man Tin area.

9.1.2 The Hung Hom By-pass runs in a northeast-southwest direction through the Reclamation Area to connect Hung Hom Road with Salisbury Road in Tsim Sha Tsui. The Princess Margaret Road Link consists of

elevated roads connecting the Hung Hom By-pass with Princess Margaret Road and Chatham Road. The Hung Hom Road extends northwards to connect with a proposed road joining Bailey Street and Sung On Street.

9.2 Railway

~~The tentative alignment of the proposed railway line is shown on the Plan. There is a station reserve proposed at the junction of Wuhu Street and Gillies Avenue. However, a decision on the construction of this railway line has yet to be made.~~

9.2.1 The CE in C on 30 November 2010 authorised the MTR KTE under the Railways Ordinance (Cap.519). Pursuant to section 13A of the Ordinance, the authorised railway scheme shall be deemed to be approved under the Ordinance. The KTE is an extension of the existing Kwun Tong Line from Yau Ma Tei Station to Whampoa, with two new stations at Ho Man Tin and Whampoa. It will provide convenient and reliable means of public transport between Yau Ma Tei and Whampoa, and will enable residents in Ho Man Tin, Hung Hom and Whampoa to have direct access to MTR service, saving time for interchange from road transport to the railway network. The construction works of the KTE started in 2011 for completion in 2016.

9.2.2 The CE in C on 27 March 2012 authorised the MTR SCL under the Railways Ordinance (Cap.519). Pursuant to section 13A of the Ordinance, the authorised railway scheme shall be deemed to be approved under the Ordinance. The SCL with 10 stations including Ho Man Tin Station and Hung Hom Station, consists of two sections, namely the Tai Wai to Hung Hom section and Hung Hom to Admiralty section. Construction started in 2012 and the Tai Wai to Hung Hom section is expected to be completed by 2019.

9.2.3 The Ho Man Tin Station will be an interchange station between the KTE and the SCL. KTE passengers heading towards the New Territories will be able to interchange at this station for the SCL, or go to Hong Kong Island by interchanging at Hung Hom Station. This will provide an alternative option for passengers travelling between Central Kowloon and Hong Kong Island, thus relieving the bottleneck of the cross harbour section of the Tsuen Wan Line and the road traffic of the Cross Harbour Tunnel in Hung Hom. The Ho Man Tin Station and Hung Hom Station will significantly improve the accessibility of the Area.

9.3 Ferries

Two ferry piers are located at the waterfront ~~of the Reclamation Area~~ to provide passenger ferry services to ~~Central, Wanchai and~~ North Point.

9.4 Other Public Transport Facilities

The Area is well served by buses and green minibuses. A public transport interchange for bus, green minibus and taxi is proposed to be incorporated into

the "CDA(1)" site south of Hung Luen Road to replace the existing temporary bus/coach terminus adjacent to the Hung Hom Ferry Pier.

9.5 Pedestrian Circulation

The Reclamation Area will be served by a comprehensive network of footbridges. Pedestrian links across the Princess Margaret Road Link are mainly through footbridges connecting from the "G/IC" site to the south of the "C(3)" site to the podium of the Metropolis. Pedestrian links across the Hung Hom By-pass are provided by the podium deck as part of the residential development above it. A grade separated walkway to the north of Royal Peninsula along Hung Ling Street links the MTR Hung Hom Station and bus terminus to the residential development in the existing built-up area in Hung Hom. Continuous public pedestrian access is provided along the waterfront promenade from Laguna Verde via the planned promenade at the Reclamation Area to Tsim Sha Tsui East.

10. UTILITY SERVICES

The Area is well served with piped water supply, drainage and sewerage systems, as well as gas, electricity and telephone services. No difficulties are anticipated in meeting the future requirements.

11. CULTURAL HERITAGE

Two historic structures including the ~~The~~ Kwun Yum Temple at Station Lane ***(Grade I)*** and the Pak Tai Temple at Ma Tau Wai Road ***are located*** within the Area ~~are Grade II and Grade III historic buildings respectively. Prior consultation with the Antiquities and Monuments Office of the Leisure and Cultural Services Department should be made if any development or re-zoning proposals might affect these buildings and structures, and their immediate environs.~~ ***In 2009, the Antiquities Advisory Board (AAB) released the list of 1,444 historic buildings, in which some buildings/structures within the Area have been accorded gradings. The AAB also released a number of new items which are subject to grading assessment by AAB. Details of the list of 1,444 historic buildings/structures have been uploaded onto the official website of the AAB at http://www.aab.gov.hk. Prior consultation with the Antiquities and Monuments Office of the Leisure and Cultural Services Department should be made if any development, redevelopment or rezoning proposals might affect the above graded/proposed historic buildings/structures, and their immediate environs.***

12. IMPLEMENTATION

12.1 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 zonings mainly rests with the Buildings Department, the Lands Department and the various licensing authorities.

12.2 The 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 as the basis for public works planning and site reservation within the Government. 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 Highways Department and the Architectural Services Department. In the course of implementation of the Plan, the Kowloon City and Yau Tsim Mong District Councils would also be consulted as appropriate.

12.3 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 plan and the guidelines published by the Board. The outline development plan is 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 applications can be downloaded from the Board's website and are available from the Secretariat of the Board, 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
~~OCTOBER 2010~~
************* ***2016***

Feasibility Study and Re-zoning Planning Proposal for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Final Planning Statement and Technical Assessments Report
September 2016

LIST OF BUREAU/DEPARTMENTS :

Query No.	Comments			Responses
1.	DEPT : ENVIRONMENTAL PROTECTION DEPARTMENT DATE RECEIVED: 6 SEPT 2016 Mr. Leo LUK			
	I refer to the email from the applicant's consultant dated 19.7.2016 enclosing an updated environmental assessment report for our comment.			
	Please note our minor comment on the updated EA report from noise perspective below for the consultant to follow up. Our comment from air quality perspective will follow shortly.			
	(1) S.3.3 - The Consultant should include the TD's endorsement on traffic data in the environmental assessment report.			The TD's endorsement has been attached in Appendix 6 of the EA report.
	(2) S.3.5.2, S.3.5.3 and elsewhere throughout this report - For acoustic windows consisting of two layers of sliding windows and openings, the name of the acoustic windows should be amended as "Acoustic Window (Baffle Type)			Noted. All the name of the acoustic windows have been amended as "Acoustic Window (Baffle Type).
2.	DEPT : ENVIRONMENTAL PROTECTION DEPARTMENT DATE RECEIVED: 4 MAR 2016 Mr. Leo LUK			
	Please note our further comments as follows:			
	Page 14			
	- 6th para.: Please confirm whether the following amended para. is factually correct: "For this project, the window configurations in different rooms would be same as ~~strictly followed with~~ those ~~presented~~ in the corresponding rooms in the public housing at ex-San Po Kong Flatted Factory. Meanwhile, the rooms ~~size~~ of this project are ~~is~~ larger than ~~the one presented~~ when compared with the corresponding rooms in the public housing at ex-San Po Kong Flatted Factory. (Refer to Appendix 5) In addition, the plenum windows would be fixed with a sound absorptive material for all type of flats. Hence, it is considered that the plenum acoustic window with sound absorption material can achieve 4.7dB noise reduction."			The 6th para of P.14 has been revised accordingly as below. "For this project, the window configurations in different rooms would be same as those in the corresponding rooms in the public housing at ex-San Po Kong Flatted Factory. Meanwhile, the rooms of this project are larger when compared with the corresponding rooms in the public housing at ex-San Po Kong Flatted Factory. (Refer to Appendix 5) In addition, the plenum windows would be fixed with a sound absorptive material for all type of flats. Hence, it is considered that the plenum acoustic window with sound absorption material can achieve 4.7dB noise reduction."

Query No.	Comments			Responses
	- Last para.: Should this para. be amended to "As mentioned above, the tested top hung acoustic window of Hong Tsuen Road project with aspect ratio for the height of top hung window to the depth of horizontal acoustic fin about 1 : 1.37 have a noise reduction of at least 5.5 dB. ~~The tested aspect ratio would be followed.~~ For ~~this project,~~ the proposed window with a 545mm window height and ~~with~~ a 750mm depth of the horizontal acoustic fin ~~is proposed~~., ~~(~~the aspect ratio would be similar ~~about 1 : 1.38~~.~~)~~ Therefore, it is considered that the proposed top hung acoustic window can also achieve 4.7dB noise reduction."			The last two para of P.14 has been revised accordingly as below. "As mentioned above, the tested top hung acoustic window of Hong Tsuen Road project with aspect ratio for the height of top hung window to the depth of horizontal acoustic fin about 1 : 1.37 have a noise reduction of at least 5.5 dB. For the proposed window with a 545mm window height and a 750mm depth of the horizontal acoustic fin, the aspect ratio would be similar. Therefore, it is considered that the proposed top hung acoustic window can also achieve 4.7dB noise reduction."
3.	DEPT : ENVIRONMENTAL PROTECTION DEPARTMENT DATE RECEIVED: 3 MAR 2016 Mr. Leo LUK			
	I refer to your emails on 18, 24 and 29 Feb 2016.			
	Table 4 and S.3.5.3			
	(i) Please confirm whether the plenum windows, if selected, would be fixed with a sound absorptive material.			It is confirmed that the plenum windows, if selected, would be fixed with a sound absorptive material for all type of flats.
	(ii) Please justify why a noise reduction of 5dB is applicable to plenum acoustic windows, if selected, for the current project by taking into account differences between the plenum acoustic window configurations and the room sizes in the ex-San Po Kong Flatted Factory project and those in the current project.			The minimum noise reduction provided by the plenum acoustic window with sound absorptive material in the ex-San Po Kong Flatted Factory project is 4.7dB. According to the paper "Full scale field study of sound transmission across plenum windows", the area of the openable portion and the size of the room are two key factors affecting the acoustic performance provided by the acoustic window. It is because the size of the window opening area controls the amount of the direct sound penetrating into the indoor area, while the room size will affect the reverberation component and hence the overall indoor noise. Generally, the noise reduction performance of acoustic window increases with room size because of the longer reverberation time and the lower reverberation effect in a large room.

Query No.	Comments			Responses
				For this project, the window configurations would be strictly followed with those presented in public housing at ex-San Po Kong Flatted Factory. Meanwhile, the room size of this project is larger than the one presented in public housing at ex-San Po Kong Flatted Factory. (Refer to Appendix 5) In addition, the plenum windows would be fixed with a sound absorptive material for all type of flats. Hence, it is considered that the plenum acoustic window with sound absorption material can achieve 4.7dB noise reduction.
	(iii) You should have justified why a noise reduction of 5dB is applicable to top hung acoustic windows by comparing the aspect ratio of the windows in the Hong Tsuen Road project and the one (450mm/850mm) in the current project.			A laboratory testing for the top hung acoustic window of Hong Tsuen Road project has been carried out and a reduction of at least 5.5 dB can be achieved with aspect ratio for the height of top-hung window to the depth of horizontal acoustic fin about 1 : 1.37, i.e. 620mm window height with 850mm depth of the horizontal acoustic fin. The tested aspect ratio would be followed. For this project, window with 545mm window height with 750mm depth of the horizontal acoustic fin is proposed (the aspect ratio is about 1:1.38)) Therefore, it is considered that the proposed top hung acoustic window can also achieve 4.7dB noise reduction.
	S.3.1			
	Last sentence: "new" should be deleted before "dwellings".			Last sentence of S.3.1 has been amended accordingly.
	Table 3			
	1st cell in 2nd row: The consultant should have indicated the noise descriptor, $L_{10\ (1\ hour)}$.			1st cell in 2nd row for Table 3 and Table 5 has been amended accordingly.
	S3.5.2 Type 2: Top Hung Acoustic Window and Figure 8			
	(i) Please specify the dimensions of the pelmet.			The width of pelmet is about 150mm which is marked in revised Figure 8.
	(ii) Please confirm whether the width of the horizontal fin at each top tung window is not less than the width of the top hung window.			It is to confirm that the width of the horizontal fin at each top tung window is not less than the width of the top hung window.

Query No.	Comments			Responses
	(iii) You should have proposed fixing a sound absorptive material at the pelmet behind each top hung window.			Sound absorptive material shall be applied at the pelmet behind each top hung window.
4.	DEPT : ENVIRONMENTAL PROTECTION DEPARTMENT Date Received: 11 Feb 2016 Mr. Leo LUK			
	We note from the EA Section 4 - Overall Conclusions that "... Based on the assessment results, the air quality at the residential floors of the proposed development would comply with the Air Quality Objectives (AQO). However, for the area below the residential floor, i.e. below 32.9mPD, the annual NO2 concentration will exceed the relevant AQOs. It must be noted that there is no exceedance of short term NO2 concentration at these areas. The uses of these areas include RCHE, recreational facilities and transfer plate. In order to mitigate the potential impact, it is recommended to have air conditioning system to be provided at these areas such that they will not rely on the openable window for ventilation. The fresh air intake location of the air conditioning system will be located at the area above 32.9mPD where the air quality would comply with the AQOs. The result indicated that the PM10, PM2.5 and SO2 concentration at all levels of the proposed development can comply with the relevant AQOs. ... " . As such, we have no further comment on the EA from air quality perspective.			Noted.
5.	DEPT : ENVIRONMENTAL PROTECTION DEPARTMENT Date Received: 12 Jan 2016 Mr. Leo LUK			
	While we are still reviewing the air quality section and checking the air model files of your submission, in the interest of time please find our advance comment on noise impact assessment for your follow up.			
	General Comment			
	Our cursory check found that the traffic noise impact may have been underestimated. Therefore, we cannot agree with the conclusion of this report.			Please note that the noise mitigation measures have been revised so the result of traffic noise impact assessment has been updated. However, the compliance rate of the proposed development is still 100%. Please refer

Query No.	Comments			Responses
				to updated Section 3.0 of EA report.
	Supporting Planning Statement			
	S4.4.4 & S4.4.5 The discussions and findings (e.g. the compliance rate) in these sections are inconsistent with those in the Environmental Assessment Report.			Please refer to Query No. 1.
	Annex C – Environmental Assessment Report			
	S3.4			
	Traffic noise assessment should be carried out for all NSRs of the proposed developments which would be subject to "adverse traffic noise impact", but not merely limited to "higher traffic noise impact".			Section 3.4 has been revised accordingly.
	S.3.4.1 vi) Fins & Appendix 7			
	Please confirm whether the sound absorptive material shown in Appendix 7 is suitable for outdoor application.			It is confirmed that the sound absorptive material shown in Appendix 7 is suitable for outdoor application.
	An absorption coefficient of 0.4 at 500 Hz is insufficient.			According to "Guidelines on Design of Noise Barriers" issued by EPD and Highways Department, it is stated that "it is desirable for absorption coefficients to be better than 0.8 at frequencies which are significant in the traffic noise spectrum. In general, the peak traffic noise frequencies lie between 500 - 1500 Hz." Therefore, an absorption coefficient of 0.9 at 500 Hz is recommended to be adopted in this project.
	S3.5.1 v) End Wall			
	Should "facing Chatham Road North" be deleted?			Section 3.5.1 has been revised accordingly.
	S.3.5.1 (Traffic Noise Mitigation Measures Considered but Found to Be Ineffective)			
	Unless the compliance rate is less than 100%, it is unnecessary to discuss the constraints on adopting further traffic noise mitigation measures.			Please refer to Query No. 1.

Query No.	Comments			Responses
	S3.5.2			
	As a noise reduction of 5 dB is required for achieving a 100 % compliance rate, use of the top-hung type window design which would achieve a maximum noise reduction of about 5 dB may be risky unless the consultant have identified practicable contingency measures in this EA if found necessary in the laboratory test.			For this project, it is considered that the proposed acoustic window should achieve 5dB noise reduction. The design of the acoustic window can make reference to Hong Tsuen Road project which laboratory tests have been carried out and a reduction of at least 5.5 dB with aspect ratio for the height of top-hung window to the depth of horizontal acoustic finis about 1 : 1.37 has been adopted, i.e. 545mm window height with 750mm depth of the horizontal acoustic fin.
	You should have included indicative drawings showing the design of the plenum type acoustic window.			The indicative drawings showing the design of the plenum type acoustic window has been included in Section 3.5.2 of EA report.
	S3.5.3			
	2nd para: "Table 5" should be amended as "Table 4".			Since Table 4 has been added into Section 3.5.2, the table in Section 3.5.3 is Table 5.
	3rd para: "experience" in the 2nd line should be amended to "test".			The typos have been revised accordingly.
	Figures 6a to 6c			
	Some designs seem to be uncommon, e.g. the acoustic window and the fin at NT-19 in Figure 6b. Notwithstanding the proposed sound absorptive material on the fin, having a fin in parallel with a window may not be desirable.			The fin next to NT-19 has been deleted.
	Appendix 3			
	You should have also presented the posted speed limits and the types of the road surfaces.			Appendix 3 has been revised to include the posted speed limits and the types of the road surfaces.
	Appendix 6			
	The relevant correspondence with the TD, including the traffic assessment methodology and traffic data, should be included in this Appendix.			Appendix 6 has been updated to include the traffic assessment methodology and traffic data.
6.	DEPT : ENVIORMENTAL PROTECTION DEPARTMENT Date Received: 9 SEP 2015			

Query No.	Comments			Responses
	Mr. Terence SIT			
	It appears that the model files of the supporting document *Annex C – Environmental Assessment Report (EA)* contains a lot of errors which may render the findings and conclusions of the EA questionable. The consultant is required to revise and reassess their models, and check carefully to ensure that the model files are in order.			Please note that the model files have been revised.
	Regarding the assessment on sewerage impact in the supporting document *Annex F – Sewerage Impact Assessment (SIA)*, the unit flow factor are wrongly quoted and assumptions on population are incorrect. The consultant is required to rectify the calculation and revise the SIA accordingly. Please also consult DSD on local sewer connection issue.			Noted.
	Detailed comment on the Planning Statement, EA and SIA are as follows:			
	Planning Statement			
	i) Section 3.3.2 Wording such as “unacceptable” traffic noise impact" which is not well defined should not be used "; such that the future resident would not be subject to unacceptable traffic noise impact" should be deleted from the penultimate sentence.			Please note that the statement has been deleted.
	ii) Section 3.4.1 Please include TD's comments on the traffic data in the EA report instead of the R-t-C.			The TD’s endorsement has been incorporated into Appendix 6 of EA report.
	iii) Section 3.4.4 The 5th line: Should "for public housing" deleted? Please check			Please note that the statement has been revised
	iv) Section 4.5 Unless the road traffic noise criterion is fully complied (100% compliance rate), the conclusion that there is no adverse traffic noise impact is misleading.			Please note that the section has been revised
	Annex C - Environmental Assessment Report			

Query No.	Comments			Responses
	v) General There are a number of grammatical mistakes in the EA report . Please check and revise.			Noted.
	Quality Impact Assessment FAC-HK Model			
	vi) Section 2.4.2 Please clarify if the assessment year for EMFAC model run and traffic prediction year are 2021 and 2036, respectively. If affirmative, please check and revise, if necessary, the text of EA report and/or descriptions/remarks in the Appendices, in particular Appendix 2b.			We would like to clarify that the assessment year for EMFAC model run and traffic prediction year are 2021 and 2036, respectively for a worst case scenario study.
	vii) Section 2.4.4 For fleet average emission factors ("FAEFs"), to better reflect the general background weather conditions, please make reference to the annual average ambient temperature and RH recorded at the nearest HKO weather station to compute FAEFs, instead of choosing the highest ones among all combinations of temperature and humidity.			The suggestion of using the annual average ambient temperature and RH recorded at the nearest HKO weather station to compute EFs is well noted. However, it is considered that the use the highest ones among all combinations of temperature and relative humidity is considered in this submission as a worst case scenario.
	viii) Modelling Files for App 2b EMFAC info including "1 EF Lee Kung v2.6 2021 NOx PM10 (20141211)" & "2 EF Lee Kung v2.6 2021 NOx PM25(20141211)" We spotted some errors in the formulas used to calculate EFs, e.g., PM2.5-running (g/km) under column HX. Please double check carefully and ensure that all the formulas are in order.			The mentioned modelling files have been revised.
	ix) Appendix 2b Please add/repeat table heading for each table and its subsequent pages.			Appendix 2b has been updated with /repeat table heading for each table.
	AQ Model Files			
	x) There are discrepancies in the 24-hour load factors for RSP and FSP between the ISC3 model files and the excel file for portal emission calculations. Rectification is required.			Since the excel file for portal emission calculations has been updated due to the comment 4.5.3, the ISC3 model files are also updated accordingly.
	xi) We also noted that the receivers' heights of the first four receivers used in assessing the vehicle emission impact (Caline4 model runs) at hour 1 are wrong. They are all at 19.2m above ground instead of 1.8m			The modelling files for assessing the vehicle emission impact (Caline4 model runs) at hour 1 have been updated.

Query No.	Comments			Responses
	above ground for all other hours. Re-assessment is required.			
	AQ Impact Assessment Results			
	xii) Appendix 2c a) Please provide a summary to show the breakdown of contribution by different sources incl. vehicles, tunnel portal, chimneys, background for the concerned air pollutants.			A summary to show the breakdown of contribution by different sources incl. vehicles, tunnel portal, chimneys, background for the concerned air pollutants (NO2, PM10 and PM2.5) has been included in Appendix 2c.
	b) Please also provide contour plots of cumulative short term and long term concentrations for the concerned air pollutants at the worst hit level.			The contour plots of cumulative short term and long term concentrations for the concerned air pollutants at first residential floor (32.9mPD) and the worst hit level (8 mPD) are provided in Appendix 2f and 2g of the EA report.
	Traffic Noise Impact Assessment			
	xiii) Section 1.2 Please refer to comment (i).			Wording “unacceptable traffic noise impact" has been revised to “adverse traffic noise impact”.
	xiv) Section 3.1 The 2nd para. is unnecessary.			The 2nd para of Section 3.1 has been deleted.
	xv) Section 3.5.1 Figures 6a to 6c a) According to the R-t-C, sound absorptive material is to be provided on the surface of some of the vertical fins which may cause reverberation effect. The consultant should have included detail information on the sound absorptive material (e.g. its specification and locations) in this EA report to make this report self-contained.			A statement “Sound absorptive material will be provided on the surface of the fin in order to minimize the reverberation effect.” has been included in Section 3.5.1 of report. The specification of the sound absorptive material has also been included in Appendix 7 of the EA report.
	b) Please make reference to a cross section to demonstrate why the "stepping design" of the podium would make barriers along the podium boundary ineffective.			Since the height of residential floor is from 31.4mPD to 109.8mPD, the erecting barrier or canopy on the podium (16.5mPD) is considered not effective to reduce noise. Refer to Figure 7, it is demonstrated that a 5m(H) barrier on the podium would not be effective to reduce the traffic noise.
	xvi) Section 3.5.2, 2nd sentence in the 3rd para Please refer to comment (iii).			The wording "for public housing" has been deleted.

Query No.	Comments			Responses
	xvii) Table 4 As far as noise reduction is concerned, the unit should not be weighted and therefore should be "dB" rather than "dB(A)".			We note the unit for should not be weighted and therefore should be "dB" rather than "dB(A)". Table 4 has been revised accordingly.
	xviii) Section 3.5.3 As the occupants would be the elderly, it should be better to advise the management rather than the occupants on the window setting.			Section 3.5.3 has been revised.
	xix) Section 3.5.4 To-hung window design, which could achieve a noise reduction of up to 8dB, has been developed. The consultant may consider adopting this kind of windows instead of the proposed plenum windows with a view to achieving a 100% compliance rate.			Acoustic window with reduction performance of 5 dB would be adopted, and therefore, a 100% compliance rate can be achieved.
	xx) Section 3.6 Please refer to comment (i).			Wording “unacceptable traffic noise impact" has been revised to “adverse traffic noise impact”.
	xxi) Traffic Noise Assessment There are still some errors in the traffic noise model, such as the road segment heights.			Some road segment heights in the modelling has been revised.
	Sewerage Impact Assessment			
	xxxii) General There is no employee allowed for the home-care support service for the 305 rooms of residential units.			The home-care support service will be provided by the staff at the RCHE (in response to emergency calls from the residents). As such, no further allowance is required (or appropriate).
	xxiii) Appendix A The unit flow facto for J10 should be 1.58m^3 / day, not 1.5m^3 / day.			Noted, this has been corrected in the latest sewage flow calculations (attached).
	xxiv) R-t-c The no. of staff population of 29 employees for RCHE does not match with any numbers in the revised SIA.			The number of beds and employees for the RCHE was amended after submission of the previous Responses to Comments. The correct number is 53 employees, as included in the latest sewage flow calculations (attached).
7.	DEPT : ENVIRONMENTAL PROTECTION DEPARTMENT Date Received: 14 May 2015 EMAIL VIA PLANNING DEPARTMENT, TERENCE SIT FOR DPO/K			
	General			
i)	The consultant should further explore measures to further minimise the			Noted. The MLP will be further reviewed subject to agreement of Architect

Query No.	Comments			Responses
	traffic noise impact.			in order to the further minimise the traffic noise impact.
	Planning Statement			
ii)	Section 3.4			
	The statement "After the provision of the mitigation measures, the predicted noise levels at all noise sensitive receivers will comply with the traffic noise standard. The future residents would not be subject to unacceptable traffic noise impact" is incorrect. Please consider "With all the practicable mitigation measures identified, the road traffic noise impacts would be minimised."			The statement is revised to "With all the practicable mitigation measures identified, the road traffic noise impacts would be minimised."
	Annex C – Environmental Assessment Report			
	Air Quality Impact Assessments			
iii)	Section 2.4.2 air model results			
	The NO2 concentration at ASRs should be reassessed as:-			
	a) There is a discrepancy in the hour by hour NOx concentration for the portal emission impact between the ISC3 model files and the excel file for processing the cumulative NO2 results; and			The discrepancy is checked. The hour by hour NOx concentration for the portal emission impact between the ISC3 model files and the excel file for processing the cumulative NO2 results are now matched.
	b) Temperature adjustment factors do not need to apply to the ISC3 model results for the portal emission impact.			The result has been revised accordingly. Please be advised that with the adjustment factors for the portal emission removed, the predicted air quality pollutant concentration at all representative air sensitive receivers would still comply with the relevant AQOs. No exceedance of the air quality is expected.
iv)	Section 2.4.2 air model results			
	The project proponent should provide the following information:-			
	a) The justification for using initial NO2 to NOx ratio of 6.5% for assessing the portal emission impact; and			Initial NO2 to NOx ratio of 7.5% for assessing the portal emission impact is adopted.
	b) The vehicle emission factors, traffic flow rates and chimney emission rates for checking the data used in the model runs.			The vehicle emission factors can be found in Table 3.1, 3.2 of App 2b of the report. The traffic flow rates can be found in Table 7 of App 2b of the report. The chimney emission rates can be found in App 2e of the report.
v)	Section 2.6			

Query No.	Comments			Responses
	Please clarify if the predicted results are "cumulative" including vehicular, portal and industrial emissions to tally with the results in Appendix 2c.			We confirm that the predicted results are "cumulative" including vehicular, portal and industrial emissions.
	Traffic Noise Impact Assessment			
vi)	Section 1.1 & Section 3.4			
	4th para. In section 1.1: to our knowledge, provision of central air conditioning system to Residential Care Home for the Elderly is not acceptable to SWD. Moreover, it appears to me that the statement will not rely on openable windows for ventilation" is contradictory to section 3.4.			In reference to the Code of Practice by SWD (Clause 4.91, 4.92 & 7.2), every room used for habitation or for the purposes of an office or as a kitchen in the RCHE shall be provided with natural lighting and ventilation complying with Regulations 30, 31, 32 and 33 of the Building (Planning) Regulations, Cap. 123, sub. Leg. F. There is no restriction on whether natural ventilation or mechanical ventilation should be provided for a RCHE.
vii)	Section 3.2			
	TD's endorsement on the road traffic data should be included.			Please find the attached TD comments on the methodology adopted estimating 2036 traffic data for Environmental Impact Assessment. (Annex I)
viii)	Section 3.5.1 – traffic Noise Mitigation Measures Considered but found to be Ineffective			
	para. (ii) Acoustic Balconies: Relevant guidelines and/or information of HKHS's instruction on safety concern due to the use of acoustic balconies should be included.			After considering the noise performance at the subject site, it is considered that provision of the acoustic window would provide a better acoustic performance than acoustic balcony. Therefore, the traffic noise impact upon the residents would be minimized. The relevant information regarding Acoustic Balconies is removed from the text.
ix)	Section 3.5.2			
	Penultimate para.:, According to this para. The rooms in this development are larger than 2B(BR2) in the referred development (ex-San Po Kong Flatted Factory). The consultant should provide further details, such as comparison of room sizes with confirmation from the architect, to justify this statement. To avoid misunderstanding, "(with			Further information is provided.

Query No.	Comments			Responses
	sound absorptive material)" should be added after "winder" in the 1st sentence.			
x)	Table 4			
	Presumably, the unit of the sound attenuation performance is dB.			The unit of the sound attenuation performance is dB(A) in accordance with the report for the Public Housing at Ex-San Po Kong Flatted Factory.
xi)	Section 3.6			
	The conclusion is incorrect. The consultant may consider "With all the practicable mitigation measures identified, the road traffic noise impacts would be minimised."			The conclusion is revised accordingly.
xii)	Traffic Noise Model			
	There are some errors in the traffic noise model, such as the road segment heights.			The traffic noise model has been revised.
	Our spot cheeks found that the traffic noise assessment results may have been underestimated for some NSRs (e.g. NP_07 on 1/F, NS_13 on 4/F and 5/F)			The traffic noise result has been revised.
	The use of vertical fin may cause reverberation effect if the distance between the fins, or a fin and a parallel building façade, is too short. Fro example, the vertical fin applied at NSR NT_19. Please check if such effect will affect the assessed traffic noise levels at the NSRs concerned.			Absorption material will be provided on the surface of the fin in order to minimize the reverberation effect.
	Annex F – Sewerage Impact Assessment			
xiii)	General			
	a) The proposed connection pipe size needed to be specified.			The connection pipe will be at least 225mm diameter, in accordance with the DSD Sewerage Manual, Part 1.
	b) The residential population of 275 does not tally with the no. of bed spaces (44 bed spaces), please clarify.			The 44 bed spaces are for the Residential Care Home for the Elderly (RCHE). An appropriate allowance (staff population of 29 employees) has been included in the updated sewage generation calculations.
xiv)	Appendix A			
	The estimated no. of staff of 3 (J11) & 2 (General) is too low for a residential population of 275 with 307 rooms. Please clarify.			These numbers have been adjusted to 12 and 8 persons respectively, giving a total employee population of the main residences of 20 persons (see attached revised sewage generation calculations).
xv)	Appendix B			

Query No.	Comments			Responses
	Hydraulic Capacity Calculation for the existing sewers. The existing sewer flow of the concerned sewers at Fat Kwong Street needed to be included in order to assess the actual utilisation condition of the concerned sewers.			Please see the attached revised hydraulic calculations, including flows from adjacent buildings in Fat Kwong Street. The calculations indicate that the overall flow in the sewer after development will be no more than 50.5% of the sewer capacity and generally much less
8.	DEPT : PLANNING DEPARTMENT Date Received: 24 Feb 2016 Mr. Vincent LUK, Landscape Unit Via Barry Yan for DPO/K, PlanD (2231 4978) CA/K2 (bcc)			
	Please see comments of the Planning Department's Landscape Unit (Contact Officer :Mr. Vincent LUK Tel No. 2231 4844) for your follow-up action please :			
(a)	The landscape proposals shown in Figure Nos. 2.5 to 2.7 are not 1:250. To facilitate our comment, landscape proposals in right scale should be submitted.			We have double checked the figures that they should be in the correct scale (1:250) if printed on A3-sized paper as stated on the figures. Otherwise, we assume that only slight error in scale might occur from printing setting.
(b)	With reference to para. 3.1.4, a 10m setback from Lee Kung Street and 10m from Fat Kwong Street. However, buildings are still located within the proposed setback areas according to Figures 2.5 to 2.7. Please clarify.			As mentioned in para 3.1.4, the 10m setback from Fat Kwong Street is for air mitigation measures which only applies to the residential units. (Please refer to Annex C- Environmental Assessment Report for more information) However, ground floor and 1st floor are proposed to have central air-conditioning system and are thus not air-quality sensitive and can be located within the 10m setback given that the 7.5m setback from the centre line of the abutting streets are provided (to comply with PNAP152) as already been illustrated in Annex A – Indicative Architectural Drawings.
(c)	To enhance the streetscape of the vicinity, tree planting should be provided in the setback areas, e.g. car park etc.			High shrub and small tree planting has already been proposed at setback area along Lee Kung Street.(Please refer to Figure 2.7) However, due to the limited space available, tree planting next to the open car park along Fat Kwong Street cannot be achieved while shrub planting is proposed at the mentioned area instead (Refer Figure 2.7)

<table>
<tr><th>Query No.</th><th>Comments</th><th></th><th></th><th>Responses</th></tr>
<tr><td>(d)</td><td>There is no target population of the proposed development. In addition, the communal open space demarcation plan with detailed calculation was not submitted to demonstrate that the requirement of HKPSG could be achieved</td><td></td><td></td><td>Noted. The projected population is about 386 persons which would require about 386 m² of open space under the HKPSG (1m²/ person), A separate Figure has been attached along with this RtoC.

Table 3.1 Projected population of the Proposed SEN Housing Development
<table>
<tr><th>Total GFA</th><th>Total Approximately 14,263m²</th><th>Total Approximate Projected population (About)</th></tr>
<tr><td>Total Nos. of Studio Room</td><td>122 (40%)</td><td>122 persons</td></tr>
<tr><td>Total Nos. of 1 Bed Room</td><td>160 (52.5%)</td><td>160 persons</td></tr>
<tr><td>Total Nos. of 2 Bed Room</td><td>23 (7.5%)</td><td>46 persons</td></tr>
<tr><td>Total Nos. of Rooms</td><td>Total 305 Rooms</td><td>Total 328</td></tr>
<tr><td>Total Nos. of RCHE Bed Spaces</td><td>Total 58 Bed Spaces</td><td>Total 58 persons</td></tr>
</table>
Noted. The projected Employment is about 81 persons which would require about 40m² of open space under the HKPSG (0.5m²/ person), A separate Figure has been attached along with this RtoC to demonstrate the adequate provision of open space is proposed.

Table 3.2 Projected Employment of the Proposed SEN Housing Development
<table>
<tr><th></th><th>No. of Staffs (Approximate)</th></tr>
<tr><td>Medical Centre</td><td>12</td></tr>
<tr><td>Rehab Centre &</td><td>53</td></tr>
</table></td></tr>
</table>

Query No.	Comments			Responses
				RCHE | Management 16 | Total 81
(e)	The landscape proposals at 2/F and roof floor are mixed with other floors. For clarity, please remove the irrelevant landscape provisions other than the specified floor.			Noted. Figures have been revised accordingly.
(f)	With reference to Figure 2.5, the roof floor plan includes levels +12.0, +16.5, +95.8 and +109.8. For clarity, landscape provisions on different levels roof floor should be separated.			Noted. Figures have been revised accordingly.
(g)	According to Second Floor Plan and Schematic Section in Annex A, the landscape garden is located on the same level. However, the landscape gardens as shown in Figure 2.5 are in different levels, please clarify.			Noted. Figures have been revised accordingly.
(h)	With reference to Figure 2.5, the landscape garden located on +12.0 is separated from domestic building. Please clarify the tentative users of the proposed garden			The proposed garden in question is proposed on level +16.5 mPD with universal access from the clubhouse. Figures have been revised accordingly.
(i)	It is noted that the users are elderly. However, there are no landscape facilities for the elderly, e.g. site furniture, universal access, railing, wheelchair users etc., addressed in paras. 3.2.1 to 3.2.4 and the landscape drawings. The landscape design to meet the elderly needs could not be fully ascertained.			Please kindly refer to Figure 2.5 - 2.6 with indicative landscape facilities with furniture, e.g. seating are proposed in the landscape garden and illustrated in Figure 2.5-2.6 (Please also refer to the legends). In addition, other facilities suitable for elderly such as tai-chi court and outdoor fitness corner have also been proposed and illustrated in Figure 2.6.
(j)	The proposed vertical green noted in para. 3.2.1 is not observed in the landscape proposals in Figures 2.5 to 2.7.			Noted. Report has been revised accordingly.
(k)	For clarity, all the amendments should be highlighted or clouded in the revised submission.			Noted.
9.	DEPT : PLANNING DEPARTMENT Date Received: 16 SEP 2015 Mr. Terence SIT			
	General Comments			
	Para. 1.1.2, Line 3 – as commented before, 'Residential Institution' is a Column 2 use under the current "G/IC" zone which requires planning permission from the TPB. Therefore, without a planning permission, it			Please note that the Paras. 1.1.2 and 4.9.2 have been revised.

Query No.	Comments			Responses
	cannot be said that the proposed development conforms to the prevailing "G/IC" zoning. Please delete the sentence ~~'While the proposed development conforms to the prevailing "G/IC" zoning of the Site,~~' accordingly. This comment also applies to Para. 3.9.2, Line 2.			
	Para. 1.8 – Please cover all the points mentioned in the KCDC meeting dated 4.6.2015 but not just the suggestion on increasing the no. of bed spaces at the proposed RCHE.			Please note that Section 1.8 has been revised accordingly.
	Para. 2.3.2, i. Line 8 – For easy reference, please annotate Hung Hom Fire Station on Fig. 2.4 ii. Line 9 – The western side of the Site is the Fat Kwong Street Garden, which does not adjoin the Tsing Chau Street Playground. Please revise the wordings. For easy reference, please also indicate clearly on Fig. 2.4 the Fat Kwong Street Garden No. 1 & No.2 and Tsing Chau Street Playground.			i. The figure has been revised accordingly. ii. Please note that Para. 2.3.2 has been revised.
	Para. 2.3.3, Line 5 – we have commented that the sentence 'The provision of supporting facilities for the proposed development would be in line with permitted "G/IC" uses' is not understandable. We do not notice any elaboration has been made. Please improve.			Please note that Para. 2.3.3 has been revised.
	Para. 2.3.4 – i. Line 2 – We do not agree that there are a number of approved planning applications in the vicinity of the Site. Please delete the first sentence ~~"Moreover, there are a number of approved planning applications in the vicinity of the Site which indicated the Site is surrounded by residential sites with adequate amount of retails and supporting facilities".~~			Please note that the sentence has been removed.
	ii. no revisions to the concerned sentences have been made to address our three previous comments which are recapped below:			

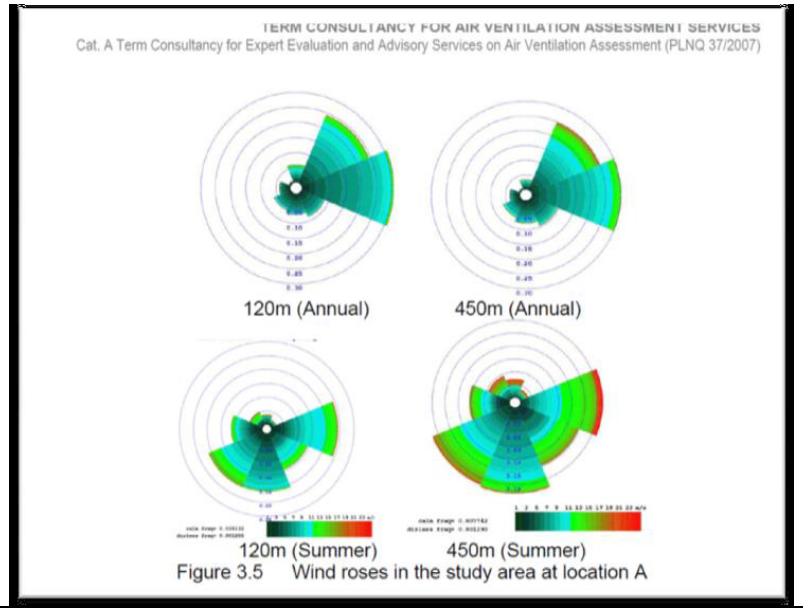
Query No.	Comments			Responses
	(a) it is stated that Fig. 2.3 indicates the location of approved applications but the information is missing on Fig. 2.3.			(a) Please note that the figure 2.3 has been revised to show the surrounding land uses.
	(b) there is no approved planning application covering the development of 'La Lumiere' which falls within area zoned "R(A)5" on the OZP where planning application for 'Flat' is not required. Please revise the relevant sentences.			(b) Please note that Para.2.3.4 has been revised.
	(c) it seems the mentioned hotel to the north of the site refers to the Chatham Gate. However, please be advised that the proposed hotel has not been implemented, instead, that subject premises has been developed as a shopping arcade. Please revise the paragraph as appropriate.			(c) Please note that Para.2.3.4 has been revised.
	Para. 2.3.6, Line 2 to 4 – The meaning of this sentence is unclear. Please improve.			Please note that Para. 2.3.6 has been revised.
	Para. 2.4 – 'Building Design' should not be put under the heading of 'The Site and Its Surrounding Context'. Please use a new heading of '3. The Proposed Development' and make 'Building Design' the sub-heading of para. 3.1. Please amend para. '2.4.1' as para. '3.1.1' accordingly and so on and so forth.			Please note that the Para. has been revised and renumbered as Chapter 3.
	Para. 3.4.3 – SEN should not be regarded as Public Housing.			Please note that the Para. has been revised and renumbered as 4.4.3.
	Fig. 2.5 & 2.6 of the Planning Statement and Fig. 3 of Annex G – According to the latest building design, a portion of the RCHE would protrude towards Fat Kwong Street to cater for more bed spaces (First Floor Plan of Annex A refers). However, abovementioned figures have not been updated accordingly. Please amend the drawings.			Please note that the extension of the first floor is covered by the landscape garden on the 2nd floor as shown on the landscape master plan.
	Visual Impacts			
	Para. 2.3.5 i. Line 4 – The sentence commencing from 'Given the development opportunities (i.e. room for higher development) of the proposed			Please note that the Para. has been revised and renumbered as 2.3.5.

Query No.	Comments			Responses
	development' is an incomplete sentence. Please improve.			
	ii. Line 9 – Please delete ~~'Therefore, it is concluded that allowing a proposed development with a plot ratio of 7.44 for domestic and about 1.05 non-domestic would not create adverse visual or physical impacts.~~' It is considered too early to jump to a conclusion before any technical assessment results mentioned.			ii. Please note that the sentence has been removed.
	iii. raising the first residential floor to 31.4mPD as one of the air mitigation measure (para. 2.4.4 bullet point 4 refers) has direct impact on the proposed building height; a more detailed explanation on the raised level to 31.4mPD (but not at a lower level) is required.			iii. Please note that justification has been given to Section 3.1.4.
	iv. in para. 3.9.2 it is mentioned that 'prevent adverse noise impacts to future residents' is a reason for raising the BH but it is not mentioned in this paragraph. Please clarify.			iv. Please note that the Para. has been revised and renumbered as 4.9.2.
	Para. 3.9.3 – The structure of the overall discussion seems note supportive to the rezoning. HKHS should consider more mitigation measures.			Please note that Para. has been revised and renumbered as 4.9.3.
	Para. 4.1.2, Line 4 – Please be advised that 'Kaiser Estate' are a group of three industrial buildings and is inappropriate to be included in the assessment.			Please note that Para. has been revised and renumbered as 5.1.2.
	Para. 4.2.1 – the discussion on the justifications and mitigation measures for the proposed BH of 110mPD scatter at different parts of the report. Notwithstanding the fact that the proposed BH is higher than the height band of the developments of the immediate surroundings, it is concluded in the VIA that the visual impact of the proposed development as a whole is Moderately Adverse. Therefore, strong justification is required. But the report lacks a paragraph specifically pinpointing all the justifications for the proposed BH and the mitigation measures to be adopted. The rationale for justifying the proposed BH that the proposed development would only cause moderately adverse			Please note that justifications have been made in Section 5.2

Query No.	Comments			Responses
	impact but not serious adverse impact (as stated in para. 4.2.1) is insufficient. In this connection, you are advised to incorporate your responses to CTP/UD&L's comments (1) regarding the proposed BH of 110mPD and your assessment at para. 2.3.5 and 4.1.2 into this paragraph as a consolidated justification for the proposed BH.			
	Para. 4.4.1 – Why is Fung Tak Road project mentioned?			Noted. Mention of the Fung Tak Road Project has been removed.
	Other Clerical Comments			
	Para. 1.1.2, Line 6 – Please amend "……to its full potential for meeting ~~facilitating~~ the demand of Elderly Housing".			Please note that the report has been revised.
	Para. 1.7 – Please amend "PROPOSED ~~PLANNING~~ REZONING…"			Please note that the report has been revised.
	Para. 1.7.1, Line 2 – Please amend "the proposed elderly housing development under this ~~planning~~ rezoning proposal have been……"			Please note that the report has been revised.
	Para. 1.7.2, i. Line 1 – Please amend "The Site is occupied by an temporary open-air car park" ii. Line 6 – "shall not exceed those presented in this statement ~~to facilitate the amendment to the HH OZP"~~.			Please note that the report has been revised. Please note that the report has been revised.
	As we commented before, the proposed development will not be processed under s.12A rezoning application. Please amend wordings of 'Planning Application' as shown on Fig 1.1 to 2.15 to 'Planning Proposal'.			The figures have been revised accordingly.
	Fig. 1.2 and Fig. 2.3 – While it is indicated on these figures that Hung Hom OZP No. S/K9/24 is used as base map, but in fact S/K9/23 is used. Please rectify. Besides, other OZPs as shown on these figures should also be updated to show the current ones.			The figures have been revised accordingly.

Query No.	Comments			Responses
	Fig. 1.3 & 1.4 – the annotation on Fig. 1.3 reads "to be amended from "G/IC" 11 storeys to "G/IC" with Max 110mPD", which does not tally with the rezoning proposal from "G/IC" to "R(A)". Please amend. By the same token, please delete Fig. 1.4 on proposed amendment to the Notes of the "G/IC" zone.			The figure 1.3 has been revised and 1.4 has been deleted accordingly.
	Para. 2.1.1, Line 3 – Please amend 'is occupied by an open-air car park, and zoned "Government, Institution or Community" ("G/IC") on the HH OZP.'			Please note that the report has been revised.
	Para. 2.3 – Please amend 'SURROUNDING LAND USES AND LANDUSE COMPATIBILITY'			Please note that the report has been revised.
	Para. 2.4.1, Line 2 – please amend: 'has therefore been proposed for the Site development'.			Please note that the report has been revised.
	Para. 2.4.6, Table 2.1 – Note 14, the second floor of the proposed development is not proposed as RCHE. Please amend.			Please note that the report has been revised.
	Para. 2.4.8, Line 3 to 4 – Please use superscript for no. 15-20 for easy reference.			Please note that the report has been revised.
	Para. 2.5.1, i. Line 3 – Typo, '2rd' should be amended as '3rd'. ii. Line 4 - please amend: 'a staggered podium garden of the Site development to maximize available floor space' iii. Line 8 – Fig. 2.9 depicts vehicular access only but is not related to landscape matters.			Please note that the report has been revised. Please note that the report has been revised. Please note that the report has been revised.

Query No.	Comments			Responses
	Para. 3 – please amend 'TECHNICAL ASSESSMENTS ON THE ~~PLANNING~~ REZONING PROPOSAL FOR THE PROPOSED ELDERLY HOUSING DEVELOPMENT'			Please note that the report has been revised.
10.	DEPT : PLANNING DEPARTMENT Date Received: 27 AUG 2015 Conveyed by Terence Sit			
	Comments from Chief Town Planner/Urban Design & Landscape, (CTP/UD&L), PlanD			
9.1	General Comments			
	For the visual impact assessment supporting the application, the consultant should compare the visual changes between the current OZP-compliance scheme, i.e. a GIC building of 11 storeys and the proposed development under the rezoning scheme.			Noted. The report has been revised.
	Given the close distance view to the development from Fat Kwong Street Park (view point 3), the consultants should provide illustration on possible design and mitigation measures to reduce the perceivable bulk and/or soften the visual impact as seen from that view point as much as possible in order to support the proposal, and review the VIA as appropriate.			Noted. The report has been revised.
11.	DEPT : PLANNING DEPARTMENT Date Received: 9 AUG 2015 Conveyed by Terence Sit			
	Comments from Chief Town Planner/Urban Design & Landscape, (CTP/UD&L), PlanD from Air Ventilation Perspective			
	According to the AVA Report, the wind environment under the proposed scheme would be facilitated by various design measures including (i) openings at 4/F level, (ii) stepped podium design, (iii) alignment of building blocks in E-W direction, (iv) opening at G/F and (v) setback from Fat Kwong Street etc. However, the implementation of			According to section 3.3 of the revised report, it is recommended that should such mitigation measures be not implemented in accordance with the current Proposed Scheme in future, a quantitative Air Ventilation Assessment is needed to ascertain that the future scheme will not perform worse than the current Proposed Scheme.

Query No.	Comments			Responses
	these proposed mitigation measures and good design features has not been covered. In view of the above, the consultant is requested to clarify on how these measures would be implemented.			
	Annex B of Planning Statement (AVA Expert Evaluation Report)			
	Section 2.4 – The consultant should include Tsing Chau Street Playground in the text.			Please note that Section 2.4 has been revised accordingly.
	Annual and Summer Wind Roses (Figures 3a and 3b) – Wrong wind roses have been incorporated in the report. The consultant should make reference to the correct ones extracted below.  Figure 3.5 Wind roses in the study area at location A			Please note that Figures 3a and 3b have been amended in the revised report.
	Directional Analysis of East Wind (Section 3.1, page 6, 1st para, line 3) – It should read "*… Tsing Chau Street Playground and the* ***<u>northern</u>*** *part of the Fat …*".			Please note that Section 3.1 has been revised accordingly.

Query No.	Comments			Responses
	Summer Wind Condition (Section 3.2, 1st line) – It should read "*During summer period, the prevailing winds are from the east, **south-east,** south-west and south.*".			Please note that Section 3.2 has been revised accordingly.
	Stepped design (page 6, last para.) – The consultant should provide more information in illustrating the details of such stepped design that would be effective to facilitate east wind, e.g. towards which direction it is stepping up or down. The consultant should also discuss how the Fire Station at 38.5mPD in height would affect the effectiveness of this stepped design under east wind.			The relevant para is revised as below. "However, stepping design is adopted in the podium of the proposed development which will minimize the potential blocking, but the effectiveness of the stepping would not be significant as the incoming wind is expected not too strong. In this proposed development, 10m tall podium is proposed at G/F and 1/F with the south-eastern corner of the site is uncovered. A small portion of the south-western corner of the podium has 1 storey only. Annex B2 and B4 show the stepping design of the podium and section of the podium with the relevant dimension respectively."
	Mitigation Measures – Details of all mitigation measures, such as the layout of opening above the podium and height of opening along the eastern boundary at ground level, should be provided.			The section 1.3 is revised at below. Dimension of the mitigation measures are shown in Annex B of the revised report. "As discussed in above section, following mitigation measure were adopted in the proposed development in order to enhance air ventilation to surrounding area: - Openings at 4/F levels (Annex B3 and B4); - Stepped podium design (Annex B2); - A ~ 5.0 m tall opening at ground floor (Annex B1); - Setback from boundary along the Fat Kwong Street (Annex B3); and

Query No.	Comments			Responses
				- Alignment of building block in E-W direction Annex B1 to B4 shows the approximate dimension of the mitigation measures incorporated into the building design."
	Implementation of the Proposed Mitigation Measures and Good Design Features – The consultant should make recommendations on the implementation of all the proposed mitigation measures and good design features including (i) openings at 4/F level, (ii) stepped podium design, (iii) alignment of building blocks in E-W direction, (iv) opening at G/F and (v) setback from Fat Kwong Street etc.			As stated in the Section 3.3 of the revised report, it is recommended that should such mitigation measures be not implemented in accordance with the current Proposed Scheme in future, a quantitative Air Ventilation Assessment is needed to ascertain that the future scheme will not perform worse than the current Proposed Scheme.
	Section 3.2, page 10, last sentence – The consultant should list out all the mitigation measures in detail.			Please note that mitigation measures have been incorporated in section 3.3
	Planning Statement			
	The consultant should provide a summary concerning the summer condition in the text.			Please note that the section of the summer condition has been provided.
12.	DEPT : PLANNING DEPARTMENT DATE RECEIVED: 27 MAY 2015 Ref./Date : EMAIL Terence Sit			
	I refer to your email of 26.3.2015 and the full report to this office on 31.3.2015. Further to my emails of 15, 28 & 30.4.2015, 13 & 19.5.2015, please find attached comments from CTP/UD&L, PlanD from air ventilation perspectives for your response.			Noted with thanks. Corresponding responses will be provided in due course.
	As a reminder, please provide response to departmental comments we forwarded to you earlier as soon as possible. In passing, and as we commented on the same issue before, it is noticed that in the DC paper recently sent out by HKHS that the proposed building height is 34 storeys (including rooftop). For clarity, please confirm whether it means the proposed 34 storeys include the			The proposed numbers of storeys includes the ground floor for rehabilitation centre / medical centre (1 floor), the first floor for RCHE (1 floor), the second floor for recreational facilities (1 floor), the third floor for M/E (1 floor), the fourth floor for covered landscape area (1 floor), the

Query No.	Comments			Responses
	rooftop structures atop the main roof level of 109.8mPD as indicated on Appendix II of the DC paper.			fifth floor for transfer plate (1 floor) and the 28 domestic storeys. As such, the proposed total numbers of storeys for the development are 6 + 28 = 34 storeys.
	Comments from CTP/UD&L, PlanD from Air Ventilation Perspective			
I.	Annex B of Planning Statement (AVA Expert Evaluation Report)			
1.	Mitigation Measures – Based on our following comments, the consultant should explore if any effective mitigation measures could be provided to alleviate the air ventilation impact on the pedestrian wind environment to the surrounding of the subject site.			Please be advised that the proposed development have incorporated the following mitigation measures to minimize the potential air ventilation impact. i) stepped podium, ii) provision of 4.5m tall opening above the podium, iii) setting back the residential tower to the Ka Wai Chuen iv) The residential block align from east to west which follow the one of the major wind directions from E under both annual and summer condition there is an opening at ground floor along the eastern portion of the proposed development which allows wind passing through the proposed development.
2.	Annex B, Cover Page – It appears that only an Expert Evaluation Report is provided. The consultant should revise the cover page.			Noted. The cover page has been revised.
3.	Section 1.1 (line 6) – It should read "*… Ventilation Assessment (PLNQ 37/2007) **commissioned** by Planning Department, …*".			Noted. Please note that the said text has been amended accordingly.
4.	Section 1.1 (line 9) – It should read "*… Ventilation Assessment Services, Expert Evaluation on Ho Man Tin Area) **commissioned** by Planning Department…*".			Suggestion has been considered. Please refer to the revised text accordingly.
5.	Wind data (section 2.1) –			
i.	The consultant should provide the wind roses of HKO wind data.			The information regarding HKO wind data has been provided in the Figure 3c of the revised report.
ii.	The consultant should confirm that the most related wind data to the subject site (e.g. simulated MM5 wind roses of Hung Hom AVA EE			Noted. The relevant wind data and discussions relating to Ho Man Tin AVA EE report is deleted in the revised report.

Query No.	Comments			Responses
	report (2008) at location A) has been adopted in the current study. If affirmative, all the irrelevant wind data and discussions relating to Ho Man Tin AVA EE report should be deleted.			
iii.	It should be noted that the annual prevailing winds are mainly coming from NE quadrant, while the summer prevailing winds are coming from E, SE, S and SW directions. The consultant should revise the directional analysis and discussion of wind environment based on the updated prevailing winds appropriately.			Noted. The summer wind from SE direction has been discussed in the revised report.
iv.	All the relevant wind roses from Hung Hom AVA EE report should be provided.			Noted. As recommended, the wind roses from Hung Hom AVA EE report has been provided in the revised report.
6.	Summer Wind Rose (Figure 3b) – In relation to comment item 2 above, the consultant should use the simulated MM5 summer rose at 450m at location A of Hung Hom AVA EE Study (see Figure 3.5 of Hung Hom AVA EE report (2008)).			Noted. MM5 summer rose at 450m at Location A is referred.
7.	Summer Condition (section 2.2) – According to the Hung Hom AVA EE report (2008), Hung Hom Road is not an efficient air path due to the building blockage to its south. The consultant should clarify and revise the relevant argument appropriately.			Noted. Clarification for the argument of air path in Hung Hom Road has been provided in the revised text accordingly.
8.	Wind Environment under Summer Condition (section 2.3, 4th para.) –			
i.	The second sentence should be revised as "*The Subject Site is located closed to Chatham Road North with an open area in between. The summer wind would therefore flow from Chatham Road North to the area where the Subject Site is located.*"			Noted. Suggested text for the details of the site has been provided within the amended Text accordingly.
ii.	According to the Hung Hom AVA EE report (2008), Gillies Avenue South is not an efficient air path due to high roughness of the area to its south. The consultant should clarify and revise the relevant argument appropriately.			Noted. Corresponding text has been amended with reference to the Hung Hom AVA EE (2008).
9.	Existing Buildings (section 2.4) – The consultant should name all the mentioned buildings in Figure 4 clearly.			Relevant existing buildings have been provided in the revised Figure.
10.	Directional Analysis (section 3.0) – The consultant should provide directional analysis for summer prevailing SE winds. The following issues should also be discussed.			The prevailing SE winds has been discussed in the revised report.

Query No.	Comments			Responses
i.	Given that the previous developments on the subject site have already been demolished and the subject site is currently occupied by an open carpark, it is not meaningful to compare the proposed development with the previous scenario with the quarters. The consultant should revise the relevant arguments appropriately.			Comparison of the proposed development with the previous scenario with the quarters has been removed as suggested.
ii.	NE wind (1st para.) – Rather than discussing whether the proposed development would affect wind penetration along Ma Tau Wai Road and Tsing Chau Street, the consultant should discuss whether the proposed development with height of 110m would create wake areas to the existing developments located in the downstream, especially Blocks 7 and 8 of Ka Wai Chuen. Also, the consultant should indicate Tsing Chau Street Playground in Figure 1.			The proposed development with height of 110m would create wake areas to the existing developments located in the downstream. However, mitigation measures, in terms of the stepped podium, provision of 4.5m tall opening above the podium, setting back the residential tower to the Ka Wai Chuen have been incorporated into the proposed development to minimize the potential impact. Further, there is an opening at ground floor along the eastern portion of the proposed development which allows wind passing through the proposed development. This will further minimize the potential blockage of wind for the downstream area to the south of the proposed development, including Blocks 7 and 8 of the Ka Wai Chuen.
iii.	NE wind (2nd para., line 4) – Given that the mentioned buildings are 4-storey only, it should be considered as low-rise rather than mid-rise buildings.			Noted. Text has been amended accordingly.
iv.	NE wind (3rd) – It is doubtful that the proposed development would not affect the wind environment around Fat Kwong Street Garden No. 2 under NE wind.			Under NE wind, the existing Custom & Excise Service Hung Hom Quarter and the Hung Hom Garden which as podium are located at the upwind of the Fat Kwong Street Garden No. 2. These existing developments would block the NE wind to reach the garden. The proposed development is not located at the upwind of the garden under the NE wind and would not have significant impact to the garden. Nevertheless, the relevant discussion will be amended and advised that the proposed development would not have significant impact to the garden instead of not affecting it.
v.	E wind – Given that building height of the existing fire station is around 38.5mPD which is much lower than that of the proposed development, the consultant should discuss whether the proposed development would create a larger wake area in the downstream areas. The consultant should admit that the proposed development with height of			Noted. The text has been amended accordingly. The proposed development with height of 110m would create wake areas to the downstream areas such as Fat Kwong Street Garden No. 1 and 2 under the E wind. However, the current building block is aligned from east-west array that the potential blockage of wind is minimized.

Query No.	Comments			Responses
	110m would create wake areas to the downstream areas such as Fat Kwong Street Garden No. 1 and No. 2.			
vi.	E wind (1st para.) – Given that there are some existing buildings located to the eastern part of Tsing Chau Street, we do not agree that E wind could travel along Tsing Chau Street and reach Fat Kwong Street Garden No. 1. The consultant should rewrite the argument appropriately.			Noted. The relevant section regarding E wind has been revised as suggested.
vii.	E wind (last para.) The consultant should clarify which Fat Kwong Street Playground is being referred in the last sentence.			The Fat Kwong Street Playground is located southwest of the Fat Kwong Street Garden No. 1 , and its location has been shown on Figure 1.
viii.	E wind under summer condition – Given that E wind under summer condition should have the same or similar performance as under annual condition, it is not required to repeat the directional analysis of E wind under summer condition.			Noted. The relevant discussion of E wind under summer condition has been deleted from the report.
ix.	SW and S wind – As mentioned above, the previous developments on the subject site have already been demolished. It is not meaningful to compare the proposed development with the previous scenario with the quarters. After all, the proposed development (110m) is much taller than the quarters (6 storeys). It is doubtful how the consultant could draw the conclusion that both the quarters and the proposed development would create similar air ventilation impact to the surrounding. The consultant should revise the relevant arguments appropriately.			Noted. The relevant section has been revised accordingly. The high-rise existing building Ka Wai Chuen is located at the upwind of the proposed development under the SW and S wind. The Ka Wai Chuen has blocked the wind from SW and S directions; and there is not much wind from reaching the proposed development and the downwind area. It is considered that the proposed development would not have significant impact on blocking the SW and S wind to the downwind area. Further, there are mitigations measures in terms of stepped podium, provision of 4.5m tall opening above the podium and opening along the eastern boundary at ground level incorporating into the proposed development to minimize the potential blockage to the downwind areas including Custom Staff Quarter and Hung Hom Garden.
x.	SW and S wind – The consultant should discuss whether the proposed development would impact the pedestrian wind environment around the downstream areas include Custom Staff Quarter and Hung Hom Garden.			Noted. Please refer to the response to item ix above.
xi.	SW and S wind (page 8, para.3) – Considering that Gillies Avenue South would allow SW wind to reach the subject site, the first sentence would only apply to S wind, not SW wind.			Noted. Suggestion regarding SW and S wind have been considered and corresponding text has been amended.
xii.	SE wind – The consultant should provide the directional analysis			Directional analysis under SE wind is provided in the revised report.

Query No.	Comments			Responses
	under SE wind.			Generally, the existing bulky Ka Wai Chuen is located at the upwind of the proposed development under SE wind. The building height of the Ka Wai Chuen is ranging from 51.6 mPD to 86.3 mPD which have blocked the wind from SE direction. Therefore, it is considered that the proposed development would not significantly affect the wind performance of the downwind area including Custom Staff Quarter.
11.	Opening at First Residential Floor (page 9, 1st para.) – The consultant should provide the details of proposed opening and elaborate on how such opening would alleviate the possible air ventilation impact at pedestrian level.			Noted. The opening is 4.5m tall and is located between 24.5 mPD and 29 mPD. The podium design is stepping and it would allow the wind flow along opening and follow the stepped podium to the pedestrian level. Furthermore, please be advised that there is an opening at the ground level from north-south array along the eastern portion of the proposed development. This opening would further alleviate the possible air ventilation impact at pedestrian level.
12.	Building Height (Figure 4) – The consultant should confirm and amend the building height of the following buildings.			Noted. Recommendations have been considered and building height of the concerned building has been provided in the revised accordingly.
i.	Yun Tat Commercial Building is at 51.4mPD, not 24.7mPD.			
ii.	Buildings to the NW side of Yun Tat Commercial Building are at 26.6mPD and 24.7mPD, not 21.3mPD and 26.6mPD.			
iii.	Hong Kong Polytechnic University Homantin Student Halls are ranged from 107.4mPD to 117.4mPD.			
13.	Building Layout of Custom Staff Quarters (Figure 5) – Layout of the Custom Staff Quarters shown in this figure is different from that in Figure 6 and Annex A. The consultant should confirm and use the correct layout throughout the entire report.			Noted. The revised Figure 5 has been provided.
14.	Building Separation (Figure 6) –			
i.	Information provided in Figure 6 has not been discussed in the text.			Noted. Recommendations have been considered and relevant information have been provided in the revised Figure 4.
ii.	The building separation should be measured from the proposed development to the existing Customs Staff Quarters which should be less than 20.24m.			
iii.	This figure shows separations from tower to tower. The consultant should not miss out the fact that there are podia under these towers which may affect the pedestrian wind environment.			

Query No.	Comments			Responses
15.	Level of Covered Landscape Area (Figure 7) – The consultant should report the level of coverall landscape area and discuss whether such elevated permeable design would enhance the pedestrian wind environment effectively. For easy reference, the consultant should illustrate the level of each floor on plan			Noted. The Figure 7 has been revised accordingly.
16.	The consultant should correct the spelling as "Tsing Chau Street" throughout the entire report.			Noted. Clarified text has been provided within the revised AVA EE.
II.	Planning Statement			
17.	paragraphs 3.2.2, 3.2.3 and 4.5.1 – These paragraphs should be suitably revised in accordance with the revised AVA EE report in addressing our comments above.			Noted. The suggestions have been considered and amendments have been made to the revised Planning Statement.
13.	DEPT : PLANNING DEPARTMENT DATE RECEIVED: 19 MAY 2015 Ref./Date : EMAIL Terence Sit			
	I refer to your email of 26.3.2015 and the full report to this office on 31.3.2015. Further to my emails of 15, 28 & 30.4.2015 and 13.5.2015, please find attached comments from CTP/UD&L, PlanD (Landscape Unit) for your response.			
1.	Some existing trees outside the site adjoining the western boundary of the site might be affected by the proposed development. Minor disturbance to the existing landscape resources is anticipated. To minimise the impact to existing trees, advice from relevant authority should be sought and proper tree pruning is recommended.			Noted with thanks.
2.	Comments on the landscape proposal:			
i.	The proposed 10m set back from Fat Kwong Street is not observed in the landscape proposal. In addition, it seems that the set back area at Lee Kung Street is less than 10m.			The Landscape Master Plans have been revised accordingly for presenting the proposed 10m set back.
ii.	Tree planting should be provided at the set back area to enhance streetscape of the rezoned site. Opportunity for at grade tree planting is observed in the landscape proposal.			Noted.
iii.	Please ensure that there would be adequate open space provision in according to HKPSG to meet the planned population and should be			Noted. Adequate open space provision has been provided in the design with respect to the requirement stipulated under the HKPSG.

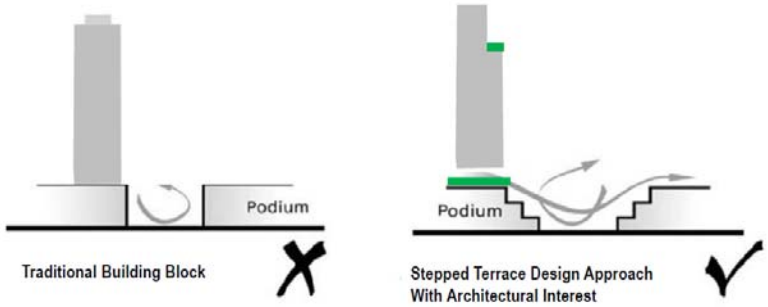
Query No.	Comments			Responses
	indicated in the submission.			
iv.	The landscape proposals at different levels, e.g. ground level, podium levels, roof level etc., should be provided for clarity.			Noted. Landscape Master Plan at ground level has been provided as suggested.
v.	The description mentioned in bullet point 1 of para. 2.5.2 is inconsistent to the at grade planting illustrated in Fig. 2.5 and 2.6.			The report has been revised accordingly.
vi.	With reference to the landscape proposal at 2/F (Fig. 2.6), landscape gardens would be provided at different levels, e.g. +16.50 and +12.00. Access between two gardens is desirable. Besides, please ensure that there would be access to the gardens from the building.			Please note that the landscape gardens both at +16.50 and +12.00 are accessible from the building. The access between the two gardens is provided through the proposed elevators inside the building.
vii.	As the main users are elderly, please ensure that the landscape design, site furniture/facilities, universal access would be suitable for users' needs.			Careful consideration for the targeted elderly user has been incorporated within the landscape design. The landscape design provides facilities for passive recreational activities which are suitable for the elderly such as shaded seating areas, Tai Chi court and outdoor fitness corner. These facilities can also be easily accessible from the building via escalators.
14.	DEPT : PLANNING DEPARTMENT Date Received: 28 APR 2015 Ref./Date : Email Terence SIT for DPO/K, PlanD			
	I refer to your email of 26.3.2015 and the full report to this office on 31.3.2015. Further to my email of 15.4.2015 providing comments of our CTP/UD&L to you, please find attached comments from this Office. The comments of other departments (including EPD, TD, LandsD and our landscape unit) would be forwarded to you once available.			
1.	It appears that the boundary of the site follows that of the existing STT car park. According to DLO/KW, LandsD's STT allocation plan, the site area is about 1,680m2. Thus, please adopt 1,680m2 as site area and revise all relevant parts in the whole document.			Noted. The report has been revised accordingly.
2.	Para. 1.1.2, line 3 – 'Residential Institution' is a Column 2 use under the current "G/IC" zone which requires planning permission from the TPB. Therefore, it cannot be said that the proposed development conforms to the prevailing "G/IC" zoning. Please revise.			Noted. The report has been revised accordingly.

Query No.	Comments			Responses
3.	Para. 2.3.3, line 5 – The sentence 'The provision of supporting facilities for the proposed development would be in line with permitted "G/IC" uses' is not understandable. Please improve.			Elaboration has been added to Para 2.3.3.
4.	Para. 2.3.4.			
i.	it is stated that Fig. 2.3 indicates the location of approved applications but the information is missing on Fig. 2.3.			Noted. Para 2.3.4 has been revised accordingly.
ii.	There is no approved planning application covering the development of 'La Lumiere' which falls within area zoned "R(A)5" on the OZP where planning application for 'Flat' is not required. Please revise the relevant sentences.			Noted. Para 2.3.4 has been revised accordingly.
iii.	It seems the mentioned hotel to the north of the site refers to the Chatham Gate. However, please be advised that the proposed hotel has not been implemented, instead, that subject premises has been developed as a shopping arcade. Please revise the paragraph as appropriate.			Noted. Para 2.3.4 has been revised accordingly.
5.	Para. 2.3.5.			
i.	Line 3: "R(A)" zone is intended primarily for high-density residential developments, but not medium-density. Please revise the wording accordingly.			Noted. Para 2.3.5 has been revised accordingly.
ii.	Line 4: It is not appropriate to consider the proposed development density is 'lower' as the proposed density is close to those permitted under adjacent "R(A)" zones. Please revise this sentence. On the other hand, the maximum building height (BH) for the residential developments immediately abutting the site, including Ka Wai Chuen, Tsing Chau Street Customs Staff Quarters and La Lumiere (under construction), Hung Hom Gardens and the row of residential buildings along Ma Tau Wai Road are all 100mPD. The current justification is not strong enough to support the proposed 110mPD for BH restriction. As commented by CTP/UD&L, PlanD, strong justifications should be provided. Moreover, while this paragraph tries to justify the proposed BH by comparing with the residential developments in the immediate vicinity, however, para. 4.1.2 focuses on comparing the BH with those residential developments to the north-east of Chatham			Noted. Para 2.3.5 has been revised accordingly.

Query No.	Comments			Responses
	Road North only. Please revise the relevant paragraphs as appropriate.			
iii.	The last sentence is incomplete.			Noted.
6.	Para. 2.4.4, fifth bullet point – It is stated that 6 private car parking spaces would be provided. However, according to Table 2.1 at para. 2.4.6 and Fig. 2.5, the no. of car parking spaces proposed to be provided is 7 (including one space for the disabled). Please clarify.			Noted. Para. 2.4.4, fifth bullet point has been revised accordingly.
7.	Para. 2.4.6			
i.	Line 1: What does 'data centre use' refer to?			Noted. Text has been revised accordingly.
ii.	For the table of planning parameters, please clarify if the proposed no. of storeys of 34 includes the top roof level. If so, please add '(including top roof level)' behind '34 storeys' for easy reference.			Please note that all utility rooftop structures (e.g. roof-top water tanks and machine) are excluded from the proposed 34 storeys i.e. 110 mPD. The proposed numbers of storeys includes the ground floor for rehabilitation centre / medical centre (1 floor), the first floor for RCHE (1 floor), the second floor for recreational facilities (1 floor), the third floor for M/E (1 floor), the fourth floor for covered landscape area (1 floor), the fifth floor for transfer plate (1 floor) and the 28 domestic storeys. As such, the proposed total numbers of storeys for the development are 6 + 28 = 34 storeys.
8.	Para. 2.5.2, first bullet point – it is stated that there is 'no space for greening at grade level'. However, according to Fig. 2.5 and 2.6, it seems there are some planters provided at the northern entrance of the site along Lee Kung Street. Please clarify			Noted. Para. 2.5.2 has been revised accordingly.
9.	Para. 3.10.2, line 5 – "OU" should stand for "Other Specified Uses" but not "Specified Other Use".			Noted. The report has been revised.
10.	Para. 3.10 and Para. 3.11 – Please include the overall result of the Visual Impact Assessment.			Noted. The report has been revised with a summary of impacts
11.	Para. 4.1.2			
i.	please see our comments on point ii under para. 2.3.5 above with regard to your comparison of the proposed BH with those of the surrounding developments. Please be reminded that the proposed BH deviates from those permitted under the nearby "R(A)" zones.			Noted. Please refer to response No.1 for further elaborations on the proposed building height.

Query No.	Comments			Responses
	Strengthening of the justifications for BH is required.			
ii.	It may seem out of context to compare the subject development with those residential developments as mentioned in para. 4.1.2 as they are rather farther away from the site.			Those residential developments mentioned in 4.1.2 are within 200m radius that is deemed to be applicable to the application site.
iii.	we cannot locate the mentioned residential development of 'Kaiser'. Please clarify.			Please refer to figure 1.3, the Kaiser Estate is located about 150m (OU zoning with 120mPD) east of the Application Site.
iv.	VIA matters should be mentioned in para. 4.2.1 instead.			Noted. The report has been revised accordingly.
12.	Para. 4.1.3, second bullet point - Typo, please delete 'm' after 34.			Noted. The report has been revised accordingly.
13.	Para. 4.2.1 – there is no Fig. 4 to 6 attached to the Planning Statement.			Noted. The report has been revised accordingly.
14.	Para. 4.10 – the proposed development will not be processed under S.12A rezoning application. Please delete or revise the paragraph. Please also check the whole document and revise as appropriate (e.g. change 'application site' to 'subject site' in the whole document and figures).			Noted. The report has been revised accordingly.
15.	Fig. 1.2 and Fig. 2.3 – the base map seems to be the draft Hung Hom OZP no. S/K9/23 but not the approved Hung Hom OZP no. S/K9/24. Please revise.			Noted. The figure has been revised accordingly.
16.	Fig. 1.4 – No proposed changes in Explanatory Statements is shown on the drawing. Please amend the title to 'Proposed Amendment to the Notes ~~Explanatory Statement~~ of the OZP No. S/K9/24'.			Noted. The figure has been revised accordingly.
17.	Fig. 2.4 – the base map is not updated (Hung Hom Estate still in construction). Please revise.			Noted. The figure has been revised accordingly..
18.	Annex G, Fig. 3 - the site layout plan does not tally with Fig. 2.5-2.9 of the Planning Statement. Please revise.			Noted. The figure has been updated.
15.	DEPT : PLANNING DEPARTMENT Date Received: 15 Apr 2015 Ref./Date : EMAIL Terence Sit			
1.	Comments from Chief Town Planner/Urban Design & Landscape, (CTP/UD&L), PlanD			
	<u>General Comments</u>			

Query No.	Comments			Responses
1.	We recalled from our meeting with HKHS on 21.11.2014 that the building height (BH) for the proposed development is not more than 100mPD. However, the current proposal indicated that the maximum BH for the proposed development is 110mPD. In view of the building height restriction of the nearby developments are about 100mPD, effort should be made to follow the same height band for the proposed development. Otherwise, strong justification should be provided to support the proposal. The applicant should examine whether there is scope to increase the site coverage of the tower portion to keep the building height similar to the surroundings.			At our meeting we did also raise the possibility of the building being slightly taller. We did state that we would try to ensure that the development would not exceed 100 mPD. Nevertheless, for technical reasons related to air quality and to ensure that the client's schedule of accommodation can be met we are obligated to increase the building height to 110 mPD (the building is proposed to be raised on piloti to mitigate the problem so creating a lower level covered but not enclosed space). As you know the height restriction applicable to residential developments within the immediate vicinity of the site (developments within a 200m radius) ranges from 80mPD to 120mPD A general plot ratio of 7.5 for domestic and about 1.0 non-domestic are ascribed to the development sites which will generate medium-density residential developments. Given the proposed development density of the proposed development as compared to that within adjacent "R (A)" zones. We would suggest that raising the development height on our client's site to 110 mPD would not have a significant visual impact and that the increased building height would be barely perceptible (from past projects we know that the Plan D Urban Design Section do not regards there to be a significant margin in development height unless there is a difference of at least 15 metres) Moreover, the design intention to optimize the use of scared land resources within the jurisdictions of all regulations and constraints. Therefore, the 10 meters (2 two-storeys with 20 flats) above 100mpd is proposed to be maintained. Overall we believe that the variation in height would not be perceptibly significant. Given that for air quality reasons we cannot utilise lower levels for accommodation and that the building will be raised on piloti, a lower level cavity will be generated at the lower levels of the proposed building. This can be used for planting and it will serve to enhance lower level visual permeability and air circulation at lower levels. In a similar regard we have adopted a steepen terrace architectural design to

Query No.	Comments			Responses
				enhance visual variety and diversity. The terraces can also provide additional opportunities for greening.
				
	<u>Specific Comments</u>			
	<u>Main Text</u>			
2.	Section 3.10 – It is assumed that this section is going to discuss the visual changes arising from the proposed development. However, the section only discuss about the selection of viewpoint. There is no analysis and justification to support the proposed building height and building bulk from visual point of view. Please review this section.			Noted. The report has been revised in accordance with your comments
3.	Para 3.10.1 – The third sentence stated that 'in respect to the surrounding development, a maximum of 110mPD height is proposed for the application site to minimize visual impact to surrounding development.' Please explain or rephrase the sentence.			Noted. The report has been revised in accordance with your comments
4.	Para 4.2.1 – To strengthen the conclusion that the proposed development will not cause significant visual impact to its surrounding uses (i.e. Heading of Section 4.2), please state the mitigation measures that help to reduce the visual impact.			The paragraph has been revised to include proposed Mitigation Measures
	<u>Appendix G –Visual Impact Assessment</u>			

Query No.	Comments			Responses
5.	As stated in paragraph 1.2.2, the subject site fall within area zoned "G/IC" on the approved Hung Hom OZP with maximum BH of 11-storeys. The current proposal is to rezone the site for residential development with maximum BH of 110mPD and total PR of 9.0. To facilitate TPB members' decision, please demonstrate the visual changes between the OZP compliance scheme (i.e. development with BH up to 11-storey) and the current proposal.			Noted. The report has been revised
6.	Para. 1.2.2 – The meaning of the last sentence is not clear. Please review.			Noted. The report has been revised
7.	Para. 3.2.3 – "OU" should read as 'Other Specified Uses'.			Noted. The report has been revised
8.	Para. 3.3.3, First bullet – (i) Since there is no reclamation in the area, please delete the word 'reclamation'. (ii) Is the large scale development refers to the construction site for residential development at Fat Kwong Street/Chung Hau Street(KIL 11175)? It affirmative, this site is now under construction. Please review the statement.			(i) Noted. The report has been revised (ii) Noted. The report has been revised
9.	Para. 3.3.3, Third bullet: "Fat Kwong Flyover" should read as "Fat Kwong Street Flyover".			Noted. The report has been revised
10.	Para. 4.2.3 – It is obvious that the proposed development causes visual blockage of the skyline which reduces the visual permeability when viewing from Viewpoint 1. Please review the last sentence.			Noted. The report has been revised
11.	Para. 4.2.4, 4.3.4 and 4.4.4 – According to the Landscape Master Plan, streetside plantings and landscape garden will be provided as visual and noise mitigation (para. 2.5.4 of the main text). Please discuss whether there is any positive or negative changes to the condition of the subject site, especially at the pedestrian level.			A slight positive effect on Visual Resources would result from the addition of small tree/shrub planting along streetscape of Lee Kung Street, however this street view is not visible from any of the selected viewpoints and is thus not included in the viewpoint discussion.
12.	Para. 5.2.1 – It is concluded that the visual impact significance of the proposed development would be considered Moderately Adverse. Please clarify whether the rating refers to the development after implementation of mitigation proposals. Please also conclude how the mitigation proposals as stated in Section 4.5 help to reduce the visual impact.			Noted. The report has been revised.

Query No.	Comments			Responses
13.	Please check and keep the consistency of the abbreviation for Town Planning Board Guidelines on Submission of Visual Impact Assessment for Planning Applications to the Town Planning Board (TPB PG-No. 41).			Noted. The report has been checked for consistency
16.	DEPT : PLANNING DEPARTMENT UD&L (AVA SECTION) Date Received: 29 Jan 2015			
	Comments on AVA EE Report for the captioned proposal received on 24.12.2015.			
	Annex B of Planning Statement (AVA Expert Evaluation Report)			
	Stepped design (page 6, last para.) – As mentioned in our previous comment, the consultant should discuss the details of proposed stepped design. However, only very limited description of such stepped design is provided. The consultant should supplement more details.			The relevant para is revised as below. "However, stepping design is adopted in the podium of the proposed development which will minimize the potential blocking, but the effectiveness of the stepping would not be significant as the incoming wind is expected not too strong. In this proposed development, 10m tall podium is proposed at G/F and 1/F with the south-eastern corner of the site is uncovered. A small portion of the south-western corner of the podium has 1 storey only. Annex **B2** and **B4** show the stepping design of the podium and section of the podium with the relevant dimension respectively."
	Mitigation Measures (section 1.3 and section 3.3) – As mentioned in our previous comment, the consultant should provide the details of all mitigation measures in this section. Description under section 1.3 is not clear. ◆ **Openings at 4/F level** – The consultant should report the height and width in meters of these openings and indicate their locations on plan. ◆ **Stepped podium design** – In relation to our comment in item **Error! Reference source not**			The section 1.3 is revised at below. Dimension of the mitigation measures are shown in Annex B of the revised report. **"As discussed in above section, following mitigation measure were adopted in the proposed development in order to enhance air ventilation to surrounding area:** - **Openings at 4/F levels (Annex B3 and B4);** - **Stepped podium design (Annex B2);**

Query No.	Comments			Responses
	found. above, more details of the stepped podium design should be provided. ◆ **Alignment of building blocks in E-W direction** – Typo should be revised. ◆ **Opening at ground floor** –The consultant should report the height and width of this opening in meters and indicate its location on plan. **Setback** – The consultant should clarify whether this refers to the tower setback from Fat Kwong Street above podium level. The width of the setback should be provided and indicated on plan.			- **A ~ 5.0 m tall opening at ground floor (Annex B1);** - **Setback from boundary along the Fat Kwong Street (Annex B3); and** - **Alignment of building block in E-W direction** **Annex B1 to B4 shows the approximate dimension of the mitigation measures incorporated into the building design."**
	Recommendation (section 3.3) – According to the response-to-comment, a quantitative AVA should be conducted if the mitigation measures would not be implemented in the future schemes. This section should be revised to accurately reflect in the recommendation.			A section 3.4 Further Study is added as below: **"It is recommended that should the mitigation measures proposed above be not implemented in accordance with the current Proposed Scheme for the future scheme, a quantitative Air Ventilation Assessment will be conducted for the future proposed scheme to ascertain that the future scheme will not perform worse than the current Proposed Scheme."**
17.	DEPT : TRANSPORT DEPARTMENT Date Received: 6 SEP 2016 Ms. Joyce Lee, EK/HM			
	Please justify the adequacy of the loading/unloading facilities.			Reference is made to the provisions at Cheerful Court in which one bay each is provided for goods vehicle, ambulance and car for disabled. Similar provisions are proposed for the proposed development, i.e. one bay each for goods vehicle, ambulance and car for disabled.
18.	DEPT : TRANSPORT DEPARTMENT Date Received: 31 Aug 2016 email via Planning Department			

Query No.	Comments			Responses
(i)	Table 5-1 shows that the number of private car parking spaces was assessed by making reference to similar rental housing development for elderly. Please include the assessment in the TIA report.			With regard to the demand for visitor parking, Table 1 below shows the no. of visitor trips in Cheerful Court recorded on 31 January 2016 (Sunday) which is considered the peak demand for visitor parking. Table 1: Hourly visitor trips in Cheerful Court on a Sunday Being noted that the hourly parking spaces in Cheerful Court is open to the public including the visitors to Cheerful Court and it was observed that vacant spaces are available in the car park throughout the whole survey period as there are plenty of parking spaces (47 nos.) in the public car park. Hence, the no. of visitor trips by private car is likely on the high side

	No. of Private Car	
Hour	In	Out
9:00	2	0
10:00	1	0
11:00	5	2
12:00	5	5
13:00	2	2
14:00	3	6
15:00	3	4
16:00	3	4
17:00	6	2
18:00	8	3
19:00	2	6
Total	40	34

Query No.	Comments			Responses
				as the public car park inside Cheerful Court with ample vacant spaces is highly attractive to private car users. In this regard, it is not considered appropriate to provide visitor car parking spaces in the proposed development based on the visitor car parking usage in Cheerful Court. Instead, as shown in Table 5-1, it is proposed to provide 3 nos. of parking spaces for visitor parking similar to the HKPSG provisions for "private housing" (i.e. 1-5 spaces per block) which is in line with the policy to encourage public transport use. Even if the demand as shown in Table 1 is materialized, there are numerous on-street and off-street public car parking spaces which are located within walking distance of the Subject Site to cope with the demand. Hence, the proposed parking provision (i.e. 6 car parking spaces and 1 LGV parking space) is considered sufficient to meet the anticipated level of demand by the proposed elderly housing development which would be very low similar to Cheerful Court. Also, the proposed parking provision which is in line with the HKPSG standard for rental housing type is considered appropriate as the proposed elderly housing development is also rental housing. The assessment is updated in the TIA report accordingly.
19.	DEPT : TRANSPORT DEPARTMENT Date Received: 30 Apr 2015 email via Planning Department, Terence SIT for DPO/K			
(i)	Visibility from a run-in should be checked according to the Transport Planning and Design Manual (TPDM).			As the horizontal alignment of Lee Kung Street is straight, slight lines to both ends of the street with sight distances of 50m - 70m from the run-in are achievable and hence accord with the requirement by TPDM.
(ii)	The desirable width of the driveways should be 7.3m for two-way traffic.			Due to site constraints, it is considered appropriate to provide 6m driveway as the amount of internal traffic would be light and do not involve long and large vehicles. Moreover there are only 7 parking spaces in total are proposed.

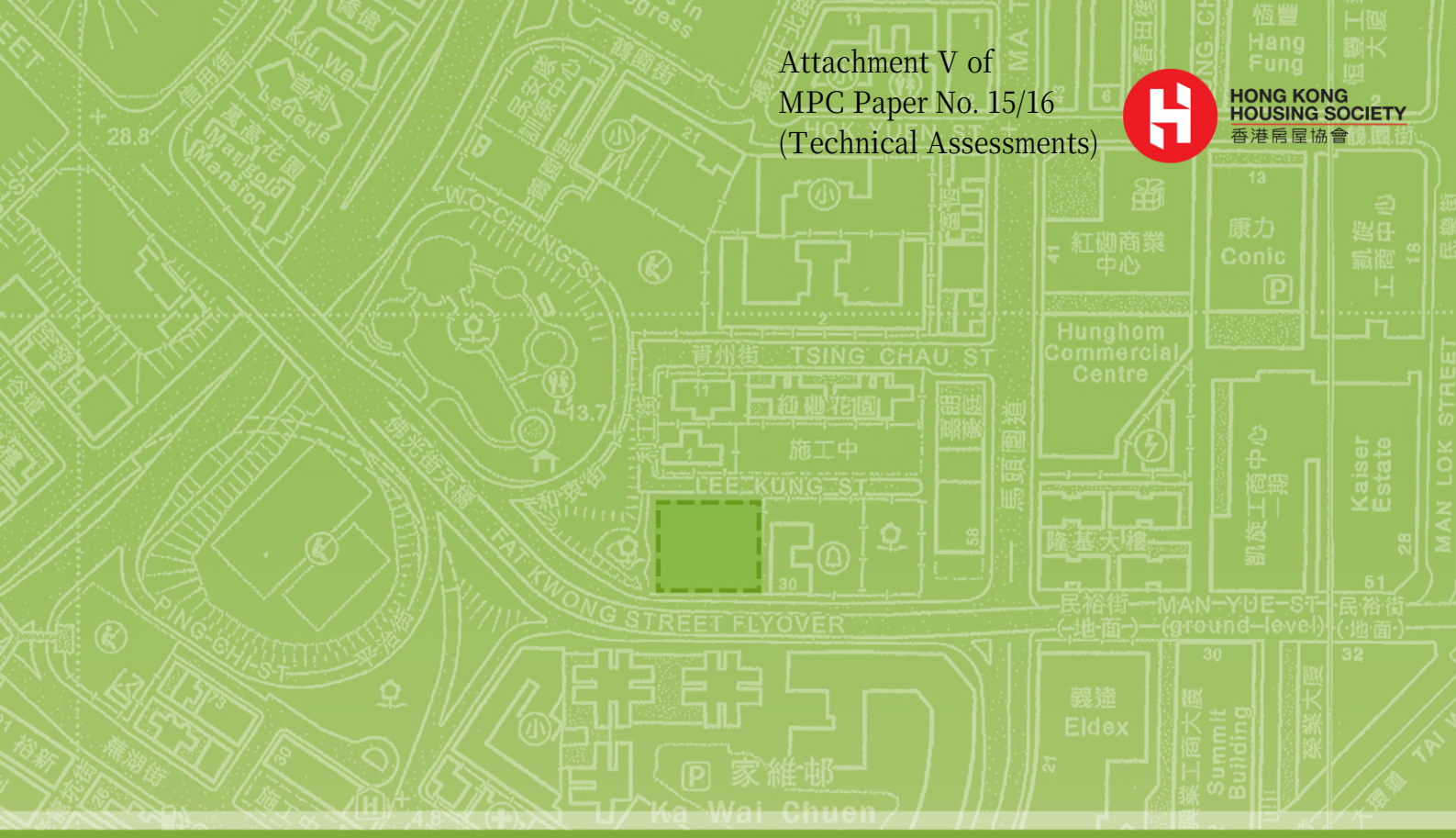
Query No.	Comments			Responses
(iii)	Please indicate the headroom of the carparks and loading/unloading spaces in Table 2.1.			Table 2.1 is amended accordingly.
(iv)	Please clarify the discrepancy between the number of parking spaces shown in Table 2.1 and that shown in Figure 2.7.			Table 2.1 is amended accordingly.
(v)	The proposed parking and loading/unloading provisions shown in Table 2.1 is inconsistent with the information in TIA. Please check.			Table 2.1 is amended accordingly.
(vi)	In general, the design year for traffic forecast should be set at the time at least 3 years after the planned completion of the development, or five years from the date of submission, whichever is the later. Please clarify whether this condition is met.			The design year is revised to 2024, i.e. 3 years from the planned completion of the proposed development in 2021. The assessment in the TIA Report is updated accordingly.
(vii)	It is noted that reference has been made to some existing developments in the estimation of the traffic generated by the proposed development. Please give details of the existing developments.			Trip generation surveys were undertaken at Cheerful Court and Jolly Place, which there are existing elderly housing developments as detailed in Paragraph 4.9 of the TIA Report (or Paragraph 4.10 of the Updated TIA Report). The higher trip rates at Cheerful Court are adopted to estimate the additional traffic to be generated by the proposed development.
(viii)	There is a planned residential development at Lee Kung Street opposite to Hung Hom Fire Station. Please check if the development has been taken into account in TIA.			The development is now included in the updated TIA Report. The additional traffic to be generated by this development is added to the Reference Flows.
(ix)	It is noted that the accessibility adjustment ratio of 0.85 has been applied in the calculation of car parking spaces. Please indicate the location of the rail station in relation to the proposed development for reference.			Figure A (attached) shows the locations of the future MTR Ho Man Tin Station and Whampoa Station which is around 340m and 540m from the proposed development respectively.
(x)	Please provide details of the future pedestrian condition at Lee Kung Street, in particular the section of the footpath adjacent to the development.			At present, the amount of pedestrian flow at Lee Kung Street is extremely low (only 1 pedestrian was observed during the peak hour on a weekday). The pedestrian flow is not expected to increase significantly even with the proposed and new developments at Lee Kung Street as both developments are not significant in scale and size. The existing footpaths along Lee Kung Street would be sufficient to provide safe and comfortable walking facilities for the residents by the proposed and new developments at Lee Kung Street. Additional assessment will be included in the updated TIA Report.

Query No.	Comments			Responses
(xi)	Under the Senior Citizen Residences (SEN) Scheme, tenant is required to make a single entry fee payment to obtain a residential unit which is quite different from the nature of the subsidised housing. Noting that the calculation of the internal parking provision is based on the parking requirements given in Hong Kong Planning Standards and Guidelines for subsidised housing, the applicant should make reference to the current elderly housing under SEN, such as Cheerful Court, in assessing the parking provision. The proposed parking provision should be comparable to that for the current elderly housing.			Table A (attached) shows the car park usage data at Cheerful Court provided by Hong Kong Housing Society. As shown in the table, the utilization rate of the existing car park is extremely low with only 1-3 parking spaces being let out to the residents in Cheerful Court over the past 5 years. In order to minimize the wastage of resources, HKHS have outsourced Wilson Parking to manage the car park for public use since Nov 2014. Hence, the proposed parking provision (i.e. 6 car parking spaces and 1 LGV parking space) is considered sufficient to meet the anticipated level of demand by the proposed elderly housing development which would be very low similar to Cheerful Court. Also, the proposed parking provision which is in line with the HKPSG standard for rental housing type is considered appropriate as the proposed elderly housing development is also rental housing.
20.	DEPT : WATER SUPLIES DEPARTMENT Date Received: 10 Aug 2015 Conveyed by Colin Moreby – AIM Group			
	Comments from C M Tong E/P (7), Dev2, WSD Ref.: (18) in WSD 3053/15/56Pt.13			
	Our previous comment dated 17.4.2015 is still valid.			
	Due to re-orgainsztion of WSD, System Planning Unit has been put under Construction Division instead of Development (2) Division with immediate effect. Grateful if you would update your record accordingly.			Noted. Record has been updated in the revised report.
21.	DEPT : WATER SUPLIES DEPARTMENT Date Received: 17 Apr 2015 Conveyed by Colin Moreby – AIM Group			
	Comments from C M Tong E/P (7), Dev2, WSD, Ref.: (16) in WSD 3053/15/56Pt.13			
	I have no objection in-principle to the captioned proposal and the proposed diversion works for an affected fresh water main (0.75"). The project proponent should submit details of the proposed waterworks to			Noted. Further details will be provided at later stages of implementation.

Query No.	Comments			Responses
	our Region Office for approval prior starting the construction works.			
22.	DEPT : WATER SUPLIES DEPARTMENT Date Received: 22 Jan 2015 Conveyed By Colin Moreby – Aim Group			
	Comments from C M Tong E/P (7), Dev2, WSD			
	Please be advised that I have no objection to the proposed development at Le Kung Street from water supply planning point of view.			Noted. Thank you.
	However, according to our record, existing water main will be affected (please refer to the attached drawing) by the proposed development. The developer shall bear the cost of any necessary diversion works of the concerned water main as affected by the proposed development. In case it is not feasible to divert the affected water mains, Waterworks Reserve shall be provided to WSD. No structure shall be erected over this waterworks reserve and such area shall not be used for storage purposes. The Water Authority and his officers and contractors, his or their workmen shall have free access at all times to the said area with necessary plant and vehicles for the purpose of laying, repairing and maintenance of water mains and all other services across, through or under it which the Water Authority may require or authorize. Government shall not be liable to any damage whatsoever and howsoever caused arising from burst or leakage of the public water mains within the site.			Noted. Further details will be provided at later stages of implementation.

Attachment V of
MPC Paper No. 15/16
(Technical Assessments)

HONG KONG HOUSING SOCIETY
香港房屋協會



Feasibility Study and Re-zoning Planning Proposal for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

FINAL SUPPORTING PLANNING STATEMENT AND SUPPORTING TECHNICAL ASSESSMENTS

September 2016

Urbis Limited
in association with

CYS Associates (HK) Limited
Ramboll Environ HK Ltd.
OZZO Technology (HK) Limited
AIM Group Limited
Rider Levett Bucknall Limited
Wu Hill & Associates Limited

CONSULTANCY SERVICE FOR PREPARATION OF
AMENDMENT OF PLAN UNDER THE TOWN PLANNING ORDINANCE FOR PROPOSED ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM

Final Supporting Planning Statement

(Doc. Ref. No.:161857)

URBIS LIMITED

Prepared by :	*Winona Ip* ***SP***	Sept 2016 **Date**
Checked by :	*Alan Macdonald* ***PM***	Sept 2016 **Date**
Approved for Issue by:	***PD***	Sept 2016 **Date**

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1. INTRODUCTION AND BACKGROUND

1.1 THE PROPOSAL

1.1.1 This supporting planning document seeks the agreement of the Town Planning Board (the TPB) to rezone the subject site (the Site) from "Government, Institution or Community" ("G/IC") to "Residential (Group A)" ("R(A)") to enable 'Residential Institution' [1] development under Column 1 to facilitate an Elderly Housing Development with a residential care home for the elderly (RCHE) in a site of about 1,680m² along Lee Kung Street in Hung Hom, Kowloon[2]. (Figure 1.1 for the Aerial photo of the Site)

1.1.2 The Site falls within the boundary of the approved Hung Hom Outline Zoning Plan No. S/K9/24 (the HH OZP) (Figure 1.2), zoned "G/IC" and can be accessed via Fat Kwong Street and Lee Kung Street. The current building height restriction is limited to 11 storeys for 'Residential Institution' that are permissible subject to application under Column 2 of the OZP. In order to develop the Site to its full potential for meeting the demand of Elderly Housing and to mitigate adverse noise impacts to future residents, it is proposed to rezone the Site to an appropriate zone "R(A)" as a proposed amendment with a maximum building height restriction at 110 mPD of the OZP under the Town Planning Ordinance (Cap.131) (the Ordinance). (Refer to Figures 1.3 and 1.4 for the proposed OZP rezoning amendment).

1.2 ELDERLY HOUSING DEVELOPMENT

1.2.1 For the purposes of this proposed amendment, an elderly housing development is defined as a purpose-built residential complex for senior citizens operating under the Senior Citizen Residences Scheme (SEN). Components of the proposed development will include: studio, 1-bedroom and 2-bedroom units, supporting facilities (fitness room, multi-purpose rooms, library, children play area, pantry, sitting area), a clubhouse, rehabilitation service, emergency facilities, home care support and an in-house transport service.

1.3 DEMAND FOR ELDERLY HOUSING

1.3.1 As a result of advanced healthcare and enhanced quality of life, developed countries are increasingly being faced with ageing populations. Hong Kong is no exception; by 2036, it is expected that there will be over 2,700,000 people over the age of 65, accounting for 31% of the population [3] . Additionally, the Comprehensive Study on the Housing

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1 Residential Institution refers to residential facilities in a wholly owned development managed or operated by an institution, society, college, religious/voluntary/charitable body or other organizations. It includes hostel, dormitory, and elderly housing provided not as a form of social welfare facility but excludes hotel and guesthouse regulated under the Hotel and Guesthouse Accommodation Ordinance (Cap. 349), and other residential facilities provided as a form of social welfare facility such as boys'/girls' homes, residential care home for the elderly, drug treatment centre, etc.

2 The Site of about 1,680m² falls within portion of existing "G/IC" area of about 4,077 m² in the approved Hung Hom Outline Zoning Plan No. S/K9/24.

3 Census and Statistics Department, 2011

Needs of the Elderly in Hong Kong (2007)[4] identified an increase in single and elderly couple households, meaning that fewer elderly persons are choosing to live with their adult children and extended families. Despite this, Hong Kong has been slow to adopt a systematic and comprehensive housing policy to cater to its elderly citizens. According to the Thematic Household Survey Report No.40 in 2009, 37.7% of the elderly population were living in Public Rental Housing, and 15.9% were living subsidised sale flats such as those under the Home Ownership Scheme[5] or Tenants Purchase Scheme[6]. According to the Housing Aspirations Survey, a further 12,600 elderly people were living in temporary housing structures[7] in 2004[8]. This is problematic, as the majority of public housing units are not provided with proper facilities for elderly residents. Those living in temporary housing structures do not even have a secure, permanent place of residence, potentially causing anxiety and stress. Additionally, the majority of residences catering towards the elderly are residential care homes primarily intended for frail individuals requiring assistance, rather than general senior citizens who are still healthy and do not need or want special care. This will continue to be a problem, as future cohorts of elderly people are likely to be more educated, healthy and may have more assets enabling them to live independently for a longer period of time.

1.3.2 The only available option for 'elderly housing' that is not institutional in nature is the homes provided under the Senior Citizens Residences Scheme (SEN) by the Hong Kong Housing Society (HKHS). In short, there is an acute shortage of land in Hong Kong available for the development of RCHE's and while sub vented RCHE's are set up in areas located in public housing estates or purpose-built complex provided by the Government, private RCHE's are mostly located in commercial or residential buildings which are relatively less spacious but more expensive in rental cost.

1.3.3 Moreover, it is a known fact that the elderly are more prone to certain health problems than other age groups. This is a concern with Hong Kong's aging population and the proposed medical centre and re-habitation facilities can provide monitoring services to elderly's health conditions with related support services that are proposed within the development proposal. These facilities will serve the needs of the SEN and RCHE's residents as well as the general public in the surrounding area.

1.4 PROJECTED DEMAND FOR SEN HOUSING

1.4.1 In view of the expanding elderly population in the coming decades, it is expected that the demand for multipurpose – design housing would increase. A survey in 2015 under "A Comprehensive Study on Housing in An Ageing Community"[9] shows that there is a need to develop more varied form of housing to meeting long-term housing needs of the elderly

[4] Housing for the Elderly in Hong Kong – Affordability and Preferences (A Research Supported by the Hong Kong Institute of Surveyors)

[5] The Home Ownership Scheme is a subsidised-sale public housing scheme managed by the Hong Kong Housing Authority.

[6] The Tenants Purchase Scheme allows tenants in public housing estates under Hong Kong Housing Authority to purchase their flats. The price set is much lower than standard market prices.

[7] 'Temporary housing structures' includes temporary huts, rooftop structures, and unsheltered accommodation.

[8] Hong Kong Housing Society, 2004

[9] A comprehensive Study on Housing in an Ageing Community by the University of Hong Kong, 2015

especially for SEN development. The study findings also reveal an urgent need to expand the provision of purpose-design housing for the middle –income elderly.

1.4.2 Further the expansion of purpose-design housing for the elderly can also help provide a fuller spectrum of supports and services to the related localities, enhancing their elderly friendliness and improving accessibility to the elder services.

Table 1.1 below shows the projected demand for SEN development, 2016 - 2041

Year	2016	2021	2031	2041
Soon-to-be-old and elderly population (1,000 persons)				
Age 50-59	1263	1218	1088	1153
Age 60-69	893	1086	1159	1038
Age 70-74	223	381	569	530
Total	2379	2686	2816	2721
Middle-income soon-to-be-old and elderly (1,000 persons)				
Age 50-59	297	286	256	271
Age 60-69	210	255	272	244
Age 70-74	52	90	134	125
Total	559	631	662	640
Middle-income soon-to-be-old and elderly interested in SEN (1,000 persons)*				
Age 50-59	106	102	91	96
Age 60-69	71	87	92	83
Age 70-74	14	24	36	33
Total	191	213	219	213

1.4.3 To sum up the above, there are not enough existing housing units to satisfy the growing demand and the proposed rezoning for development is therefore viewed as a necessary addition to Hong Kong's current elderly housing situation, and will go some way to alleviating the shortage of elderly-friendly housing throughout the territory.

1.5 HONG KONG HOUSING SOCIETY (HKHS) ELDERLY HOUSING INITIATIVES

1.5.1 The Hong Kong Housing Society (HKHS) is an organization with a social conscience, aiming to serve the needs of the Hong Kong community in housing and related services. Since its formation in 1948, HKHS has implemented different innovative quality housing schemes to meet the evolving needs of the community, in particular the elderly. HKHS has successfully introduced the new Senior Citizen Residences Scheme (SEN) in 2003. It was hoped that the introduction of this scheme would fill a market niche for elderly people in the middle-income group who would prefer not to live in subsidised institutional care homes, cannot afford the long-term cost of high quality, private elderly homes, or simply wish to remain living independently. The key aims of the scheme are:

- To provide life-long leases to elderly residents, providing affordability and security of tenure;

- To allow residents to "age in place" by providing housing with integrated services tailored toward their future physical needs;
- To provide a homely, non-institutional feel;
- To provide continued care and rehabilitation support with Medical Centre and Rehabilitation facilities to serve the future SEN, RCHE and the community as a whole;
- To provide club facilities (including games rooms, multi-purpose halls, hobby rooms, libraries, gymnasiums, swimming pools, canteens, fitness rooms etc.); and
- To provide care facilities, such as Residential Care Homes for the Elderly (RCHEs) and polyclinics within close proximity.

1.5.2 Under the SEN, tenants obtain a residential unit through a "long lease" arrangement. After payment of a single entry fee, the tenant can live in the unit free of rental payments for an unlimited time. Throughout their tenancy, the only further payment required is a monthly management fee, which includes basic services. Other optional services provided by the operator can be enjoyed on a user-pays basis. Upon termination of the tenancy, a portion of the entry payment is refunded, the amount of which is dependent upon the length of occupation.

1.5.3 There are two existing SEN projects in Hong Kong; Jolly Place in Tseung Kwan O, and Cheerful Court in Jordan Valley, opened in 2003 and 2004 respectively. Both have received positive feedback from residents in terms of enjoyment of recreational facilities, satisfaction toward the lease arrangement, universal design within flats and proximity to local community infrastructure such as open space, shopping complexes and public transport options[10]. This success suggests that a new, well-located elderly housing development under the SEN will be well received by the elderly population in Hong Kong.

1.6 KOWLOON DISTRICT ELDERLY HOUSING DEFICIT

1.6.1 The popularity of the SEN has been demonstrated in the previous section. Despite the lack of active promotion of the scheme, there are currently around 600 applicants on the waiting list, with the waiting time for both existing SEN developments exceeding 5 years on average. This outstanding demand is only expected to grow as a consequence of Hong Kong's ageing population[11].

1.6.2 As a matter of fact, there is potential demand for an SEN development in the local context of the Site at Lee Kung Street in Hung Hom. In 2011, 16% of Kowloon City District was over the age of 65, and there are currently around 12,000 elderly households in Kowloon City District, with some 6,300 being owner-occupiers who are not subject to outstanding mortgage loans for their own residences[12]. These people are potential candidates for the SEN, and could benefit from the addition of an elderly housing development in their area.

[10] HKU Scholars Club, 2012

[11] Comprehensive Study on Housing in an Ageing Community Paper EC 3/2014, HKU, 2014

[12] Census and Statistics Department, 2011

1.7 PROPOSED REZONING FOR ELDERLY HOUSING DEVELOPMENT

1.7.1 The development parameters for the proposed elderly housing development under this rezoning proposal have been derived from a detailed architectural feasibility study with technical specifications to support the proposed amendment. Under the proposed amendment, the proposed development aims to enable elderly housing development under SEN targeted at addressing the prevailing demand by middle-income senior citizens. At the same time the proposed scheme taken into consideration site characteristics and constraints and prevailing standards and requirements applicable to the development of the site and the proposed use.

1.7.2 The Site is currently occupied by a temporary open-air car park. It is not reserved for any specific 'GIC' type development, and would not adversely affect the provision of GIC facilities in the district on a long-term basis. Subject to the approval of the TPB, the Site will be available for use in late 2016/ early 2017. The development parameters and impacts of the proposed elderly housing development on the surrounding areas shall not exceed those presented in this statement. Relevant Government departments have been consulted to ensure that the proposed elderly housing development will be developable and feasible to the existing context.

1.8 KOWLOON CITY DISTRICT COUNCIL MEETING

1.8.1 On 4th June, 2015, the proposed Elderly Housing at Lee Kung Street in Hung Hom had been discussed on the 21st meeting of the Housing and Infrastructure Committee of the Kowloon City District Council. During the meeting, the committee had expressed various concerns regarding not only to the proposed development but also to the administrative issue of the SEN project[13]. One of the major concern that considered applicable to the proposed development without generating adverse impact to the surrounding developments, is to increase the provision the number of RCHE beds for facilitating the demand of elderly care facilities within the local area. Subsequently, the suggestion has been incorporated in the revised scheme for feasibility study.

1.9 STRUCTURE OF THE SUPPLEMENTARY PLANNING STATEMENT

1.9.1 This Supporting Planning Statement seeks to provide members of the TPB with the relevant information in support of the rezoning proposal and OZP amendment and is divided into the following sections:

- Section 2: The Site and its Surrounding Context.
- Section 3: Summary of Findings of the Technical Assessments.
- Section 4: Planning Justifications in Support of the Rezoning Proposal and OZP Amendment.

[13] Concerns: 1. The actual demand for the SEN housing units; 2. Noise generated from the surrounding developments; and 3. Development cost of the proposed development. Suggestions: 1. Lower the threshold of application / "Entry Contribution" with a view to taking care of the elderly in need; 2. Increase the number of beds of the RCHE proposed within the development; 3. Increase the development potential (i.e. plot ratio); 4. Provide more facilities to meet different needs of elderly; 5. Construction of Public Housing for easing the public's housing aspiration; and 6. Provide more additional services within the proposed development;

2. THE SITE AND ITS SURROUNDING CONTEXT

2.1 THE SITE

2.1.1 The Site, with an area of about 1,680m², is located on Lee Kung Street in Hung Hom, Kowloon. Please refer to Figure 1.1 for the location and boundary of the Site. At present, the Site is occupied by an open-air car park, and zoned "Government, Institution or Community" ("G/IC") on the HH OZP.

2.2 CURRENT LAND STATUS, TOPOGRAPHY AND ACCESS

2.2.1 The Site currently consists of an open-air car park. It is relatively flat with no buildings or structures. The spot height of the adjacent Lee Kung Street is 7.3mPD, and is approximately level with the Site itself. Please refer to Figure 2.1 for the topography survey for the Site.

2.2.2 Main access to the Site is via Lee Kung Street (Figure 2.2). The Site is served by numerous public transport facilities including several franchised buses (2E: Kowloon City Ferry ←→ Pak Tin, 6C: Kowloon City Ferry ←→ Mei Foo, 6F: Kowloon City Ferry ←→ Lai Kok, 41: Kowloon City Ferry ←→ Cheung Ching, 45: Kowloon City Ferry ←→ Lai Yiu, 85X: Ma On Shan Town ←→ Hung Hom Ferry, 106/106P: Siu Sai Wan ←→ Wong Tai Sin) and taxis. In addition, Hung Hom MTR Station is within 1.2km of the Site, and can also be accessed by public bus.

2.3 SURROUNDING LAND USES AND LAND USE COMPATIBILITY

2.3.1 The Site, located within the boundary of the HH OZP, is situated adjacent to the Hung Hom Fire Station. Lee Kung Street and Fat Kwong Street respectively abut the north and south sides of the Site. The Site is also located to the immediate north of the Fat Kwong Street flyover close to the Chatham Road. The latter is one of the main distributor roads in the Hung Hom area. The Site will, therefore be subject to noise and air pollution from each road. This has constituted one of the major design issues that has influenced the design of the proposed elderly development. The Site occupies an area of about 1,680m², is zoned "G/IC" and currently being used as an open-air car park. Please refer to Figure 2.3 for the surrounding land uses)

2.3.2 The majority of the surrounding land uses within a 500m radius comprise residential developments zoned "Residential (A)" ("R(A)"), with clusters of business-type developments located in "Other Specific Uses (Business)" ("OU(B)") and "Commercial" ("C") zones to the east and northeast of the Site along, Man Yue Street, Hok Yuen Street and Ma Tau Wai Road. The new Departmental Quarters building for the Customs and Excise Department and Hung Hom Gardens are located to the north of the Site in an "R(A)" zone. To the south of the Site is the Ka Wai Chuen development abutting the south side of Fat Kwong Street, also zoned "R(A)". To the immediate east of the Site is the 11-storey high Hung Hom Fire Station, while the west side of the Site abuts an "Open Space" ("O") zone (i.e. Fat Kwong Street Garden No.2)(). (Figure 2.4 depicts the adjacent development of the Site)

2.3.3 The proposed development would not encroach onto the open space. The close vicinity of the open space could provide the elderly with a place for passive recreational use. "GIC" uses located in close proximity (within a 500m radius) of the Site comprise schools, a fire station, a church and a municipal services building. Please refer to Figures 2.3 and 2.4 for details of the Site and its surrounding context.

2.3.4 Furthermore, an under-construction residential development "La Lumiere" is located to the immediate north-east of the Site. It is apparent that the proposed housing development at the Site would be compatible with the existing land uses in the vicinity of Lee Kung Street. Please refer to Figure 2.3 which indicates surrounding land uses in the vicinity of the Site.

2.3.5 As shown in Figure 1.2, the height restriction of the residential developments within the immediate context of the site is ranging from 80mPD to 150mPD with a plot ratio of 7.5 for domestic and about 1.0 non-domestic which is intended for high-density residential developments. It is indicated that the area has development potential for relaxation on the building height restriction from the existing 11 storeys to the proposed 110mPD, as compared to that within adjacent "R (A)" zones. The proposed development would adopt a comparatively similar proposed height of 110 mPD whilst at the same time producing a stepped building height profile, visual permeability and a 4.5m raised platform to ensure adequate ventilation that in line with AVA requirements and maintaining compatibility with the surrounding developments.

2.3.6 The Site is reserved for 'G/IC' facilities and capable of meeting the specific requirements of an elderly housing development. For example,

i. the nearby open spaces (i.e. Fat Kwong Street Garden, Tsing Chau Street Playground) offer space for the elderlies;

ii. the site provides ample site area for auxiliary recreational facilities and clinics which provides sufficient recreational facilities and clinical services for the elderlies; and

iii. and a multitude of transport options (public bus, MTR and taxis) which means the site has high accessibility for the visitors and the elderlies.

2.3.7 It is also surrounded by numerous other residential blocks, giving the elderly the option of living independently yet still potentially within close proximity to their children and other family members. It is apparent that the proposed elderly housing development would be compatible with existing land uses in the vicinity of Lee Kung Street.

2.3.8 The proposed development will be supported by an elderly hub comprising a range of ancillary facilities like RCHE, rehabilitation centre, Medical Clinic, Activity Centre etc. These facilities will service the elderly tenants, RCHE and the residents in the neighbourhood.

3. THE PROPOSED DEVELOPMENT

3.1 BUILDING DESIGN

3.1.1 A total Plot Ratio (PR) of 8.49 of which 7.44 for domestic and 1.05 for non-domestic development has therefore been proposed for the Site development. This results in a total Gross Floor Area (GFA) of 14,263m^2. As mentioned earlier the proposed elderly housing development is a residential complex tailored towards senior citizens inclusive of a residential care home for the elderly (RCHE) development and other supporting facilities, as defined in Section 1.2. The SEN development will not generate any significant noise, air emission or other pollution impacts.

3.1.2 Noise and air pollutions are the major concerns for the Site, in order to minimize air/noise nuisance from nearby Chatham Road, Fat Kwong Street and Lee Kung Street, mitigations measures including a 10m setbacks is proposed from these two roads, positioning window openings away from traffic, provision of acoustic window, provision of podium, vertical fin and fixed glazing and raising height level of first residential floor are incorporated into the building design. (Please refer to Figure 2.15 for raised platform, stepped height profile and Annex C for more details on Environmental Impact Assessment).

3.1.3 An architectural technical feasibility study has been carried out to establish the basic development parameters applicable to the proposed SEN development. While maximizing the development potential of the site, due consideration has also been given to the special requirements of elderly housing developments, existing site conditions, noise and air pollutions, green requirement, the building height restrictions on the OZP, and other standard requirements in deriving the optimal development parameters.

3.1.4 The tentative design elements and assumptions adopted for the proposed development include:

- Plot Ratio (PR) of 8.49 where 7.44 for Domestic and 1.05 for Non-Domestic;
- Gross Floor Area (GFA) of 14,263m^2 where 12,499 m^2 for domestic development and 1,764 m^2 for non-domestic development;
- About 110mPD maximum building height is proposed;
- Raised first residential floor to 31.4 mPD[14] as one of the air mitigation measure. This can locate the sensitive receivers (i.e. potential residents of the domestic storeys) to higher floors and avoid the direct contact to the noise source from Fat Kwong Street Flyover;
- 7 parking spaces (6 for private cars and for LGV), 1 Ambulance bay, 1 loading/unloading bay for disabled and 1 loading/unloading bay for goods vehicle;
- stand-alone fuel tanks for emergency power generation;
- a 10m setback from Lee Kung Street and a 10m setback from Fat Kwong Street for air mitigation measures (Please refer to Annex C for more information) to ensure air compliance rate achieved according to EPD standard; and

[14] The height of the first residential floor is calculated with the formation level of 6.5 mPD and proposed building height from ground floor to the fourth floor (22.5 m) with transfer plate (2.4 m).

- emergency vehicular access (EVA) surrounding the building in conformity to BD guidelines.

3.1.5 Please refer to Annex A for the architectural layout plans and road plan which show a viable development scheme (hereinafter referred to as the "Indicative Scheme") for the proposed elderly housing development on the Site.

3.1.6 Whilst the final layout and design of proposed SEN housing development use will be subject to detailed design, the basic development parameters for the proposed development can be summarized as follows:

Table 3.1 Planning Parameters of the Proposed SEN Housing Development

Details	Summary of Planning Parameters
Site Location	Western portion of the "G/IC" site on Lee Kung Street
Site Area	Approximately 1,680m²
Site Classification	A
Outline Zoning Plan	Approved Hung Hom Outline Zoning Plan No. S/K9/24
Current Zoning	"Government, Institution or Community" / "G/IC)
Proposed Zoning	"Residential (Group A)"/ "R(A)"
Proposes Use	Residential Institution under column 1 of "R(A)"
Total Plot Ratio	7.44 (Dom) + 1.05 (Non Dom) = About 8.49 (Proposed)
Domestic GFA	About 12,499 m² (Proposed)
Non-Domestic GFA	About 1,764 m² (Proposed)
Total GFA	Total Approximately 14,263m²
Total Nos. of Studio Room	122 (40%)
Total Nos. of 1 Bed Room	160 (52.5%)
Total Nos. of 2 Bed Room	23 (7.5%)
Total Nos. of Rooms	Total 305 Rooms
Total Nos. of RCHE Bed Spaces	Total 58 Bed Spaces
Building Height/ No. Storeys	Below 110mPD (34 storeys[15], excluding roof top level)
Proposed No of Parking Spaces	7
Proposed No. of Loading and Unloading Bays	3

[15] The proposed numbers of storeys includes the ground floor for rehabilitation centre / medical centre / lift lobby (1 floor), the first floor for RCHE (1 floor), the second floor for the suggested Clubhouse (1 floor), the third floor for M/E (1 floor), the fourth floor for covered landscape area (1 floor), the fifth floor for transfer plate (1 floor) and the 28 domestic storeys. As such, the proposed total numbers of storeys for the development are 6 + 28 = 34 storeys.

*Note: Figures are rounded up to the nearest hundred.

3.1.7 There may be minor adjustments and refinements in the design and layout of the proposed scheme by the ultimate user of the Site. Future development on the Site will not exceed the development parameters as presented above and would not pose any additional adverse impacts on air ventilation, environmental, drainage, traffic and water supply beyond what have been identified, if any, under the technical assessments as detailed in Section 4.

3.1.8 The proposed design of the new SEN development aims to create a harmonious built environment that complies with all relevant guidelines, regulations and standards. This includes conformity with the principles set out in the OZP, the [16]HKPSG, the [17]PNAP 152, the latest [18]AQO; the [19]PNAP 152, the [20]Building Ordinance Cap 132 (BD) and the [21]Building (Planning) Regulations (B(P)R) etc. These have been referred to as tools to extract an optimal development arrangement on the Site. It is therefore considered that the proposed development is compatible with the surrounding land uses.

3.2 LANDSCAPE DESIGN

3.2.1 Greening is an important aspect in elderly housing development that will need to give careful thought to the comfort of its future users, as well as potential adverse impacts on the surrounding sensitive receivers. In this regard, communal open space can be provided on 2nd and 4th floor of the development as a staggered podium garden to maximize greening opportunity. The staggered podium arrangement will not only regard as visual mitigation, it will also enhance air ventilation within the Site. The proposed open space of approximately 867m^2 at 2nd floor and 261m^2 at 4th floor will have universal access from clubhouse and lift lobby respectively. The provision of open space mentioned above will be sufficient to accommodate the projected population of approximately 386 persons with ratio not less than 1m^2/person and employment of approximately 79 persons with ratio not less than 0.5m^2/person under the Hong Kong Planning Standards and Guidelines. (Please refer to Figures 2.5 to 2.7 for the proposed Landscape Master Plans and Annex A for the architectural layout plan for the proposed development).

3.2.2 The landscape design for the proposed elderly housing development will change the landscape and visual context of the area and, if well-conceived, will improve both the quality

[16] The Hong Kong Planning Standards and Guidelines (HKPSG) the Urban Design Guidelines (UDG), Practice Note for Authorised Person (PNAP)
[17] The Practice Note for Authorized Persons 152. This practice note promulgates guidelines on building design which will enhance the quality and sustainability of the built environment in Hong Kong.
[18] The Air Pollution Control Ordinance (Cap. 311) sets out Air Quality Objectives (AQOs) in 2014 and provides for the periodic review of the AQO sat least once every five years with a view to promoting the conservation and best use of air in the public interest.
[19] The Practice Note for Authorized Persons 152. This practice note promulgates guidelines on building design which will enhance the quality and sustainability of the built environment in Hong Kong.
[20] To provide for the planning, design and construction of buildings and associated works; to make provision for the rendering safe of dangerous buildings and land; to make provision for regular inspections of buildings and the associated repairs to prevent the buildings from becoming unsafe; and to make provision for matters connected therewith.
[21] Code Of Practice For The Provision Of Means Of Access For Firefighting And Rescue Purposes. Fire safety in a building is determined by a number of factors one of which is the means of access to it to enable firefighting personnel to effect rescue and fight fire. Requirements for means of access to buildings are laid down in regulations 41A, 41B, 41C and 41D of the Building (Planning) Regulations (B (P) R).

and identity of the Lee Kung Street site and its immediate surroundings as a whole. The type and range of treatments will be partially contingent on the layout of development on site. A comprehensive approach and established guidelines will ensure that the landscape and visual impacts of the proposal are fully considered in the decision-making process and that adequate mitigation measures are developed. Key features of the landscape approach include the following:

- Site layout: The arrangement of the building layout for the scheme serves allows sufficient setback for the typical floors from the surroundings to mitigate possible noise impacts. The setback also provided sufficient space for the proposed open spaces and greenery areas will also be provided at different podium roof levels. (Refer Figures 2.5 to 2.7 for Landscape Master Plans)
- Proposed Planting: To enhance the quality of the building and external spaces for gathering and enjoyment, generous tree and shrub planting will be provided at the different podium roof levels cited above. The specific planting and design are proposed to comprise the following:
- The theme: The use of feature trees could add specific character to each area, making them easy to identify. Semi mature species should be selected for immediate effect ensuring the latter is achieved. The theme 'Vibrant Heart'[22] emphasizes the use of plants with vibrant colours or interesting forms such as African Tulip Tree (Spathodea campanulata), Alexandra Palm (Archontophoenix alexandrae) and Weeping Fig (Ficus benjamina) and the design with a mosaic of colours and patterns.
- Natural shade: Common trees will be provided throughout the development to ensure natural shade to residents and workers. As many outdoor areas are provided, these will create microclimates, reducing the ambient temperature and ensuring a harmonious landscape. A specific palette of planting and plant species will be applied according to functions of spaces within the site and to create different types of tree clusters and character areas.

3.2.3 On the overall site, wide space, medium and low planting will ensure visual interest through selection of an assortment of species. Various heights, colours and textures will optimise the visual interest. Attention will be given to location. Species will be appropriate to various conditions (e.g. shaded, semi-shaded or sunny areas).

3.2.4 Most trees and shrubs will be planted in raised planters along the edge of the podium rooftop to provide visual and noise mitigation from the adjacent fire station and traffic along Fat Kwong Street. (Please refer to Figures 2.5 to 2.7) The proposed raised planters will allow sufficient soil depth for planting and will also serve as guardrails. The proposed planting will be of indigenous species to minimise maintenance and to promote longevity. The selected species will also have limited root systems and of small scale to avoid the damage to the building structure. Planting will consist of a combination of indigenous flowering and non-flowering shrubs. Small to medium sized trees will be planted in order to provide shade where

[22] CEDD Greening Master Plan: The CEDD Greening Master Plan sets out aspirations for the greening of the public realm. The theme applied to the environs of Lee Kung Street Site is that of a 'Vibrant Heart'. The focus is to create a more dynamic and vibrant atmosphere in the traditional and residential areas of To Kwa Wan and Hung Hom.

possible. Benches of high quality, durable material are also proposed along the planters to provide sitting space for the residents and workers.

3.3 ACCESS ARRANGEMENT AND VEHICLE PARKING PROVISION

3.3.1 Vehicular traffic will access/ egress the proposed development via Lee Kung Street, which is then connected to the wider network via the Tsing Chau Street/ Ma Tai Wai Road junction which is a priority junction with all movements permitted.

3.3.2 The immediate vehicular access for the proposed development is located at Lee Kung Street. Car parking and loading/ unloading provisions are situated on the ground floor of the development, adjacent to the vehicular access. (Figure 2.9 depicts the proposed vehicular access arrangement)

3.3.3 There will be two points of pedestrian access. One will be located along the southern side of the development and connecting to Fat Kwong Street. The alternate connection will link to Lee Kung Street on the northern side of the development. (Figure 2.8 depicts the proposed pedestrian access arrangement)

3.3.4 Table 2-2 below summarises the internal car parking and loading/ unloading provisions for the proposed development, which meet the requirements for a development of this nature and size as stipulated in the Hong Kong Planning Standards and Guidelines (HKPSG). Taking into account the nature of the proposed development and the accessibility of the elderly residents, a disabled car parking space and an additional loading/ unloading bay for ambulance are also proposed.

The number of parking spaces to be provided on site is as follows (Refer to Annex H for TIA Report):

Table 2-2 Proposed Parking and Loading/ Unloading Provisions

	Vehicle Type	Number	Headroom	Dimensions
Parking	Car	4	Open space	5m x 2.5m
Visitor Parking	Car	2	Open space	5m x 2.5m
	LGV/Car	1	4.5m	7m x 3.5m
Loading/ Unloading	Goods Vehicle	1	4.5m	7m x 3.5m
	Disabled Car	1	Open space	5m x 3.5m
	Ambulance	1	4.5m	7m x 3.5m

3.4 OVERVIEW

3.4.1 All of the above planning and design principles were taken into account in the formulation of the proposed development Scheme. (Refer to Annex A for the Indicative Architectural Drawings for the Proposed Elderly Housing Development). They served to dictate the proposed access locations, disposition and height of buildings, quantum of development and land use compatibility etc.

4. TECHNICAL ASSESSMENTS ON THE REZONING PROPOSAL FOR THE PROPOSED ELDERLY HOUSING DEVELOPMENT

4.1 INTRODUCTION

4.1.1 Assuming that the Site will be rezoned for the proposed elderly housing development with all the necessary supporting facilities, technical assessments have been carried out to examine the potential impacts of the proposed development on its surrounding areas. These technical assessments examine potential impacts on air ventilation, the environment, drainage, traffic and water supply. Relevant legislation, standards and guidelines are followed when carrying out the impact assessments. The findings are presented in Annexes B to H and summarised below for easy reference.

4.2 AIR VENTILATION ASSESSMENT

4.2.1 Annual Condition

4.2.2 The Site is located at northwest fringe of the Hung Hom area, i.e. the areas to the north, east and south of the Site are dense and compacted development. For the Site with 0.15ha area, it is immediate surrounded by medium to high-rise buildings to the east and north. A row of compact medium rise buildings are sitting along the Ma Tau Wai Road. The Lee Kung Street to the immediate north of the Site is enclosed by these buildings. Fat Kwong Street is located to the south of the Site with a large scale of built development Ka Wai Chuen at the opposite side. The building height of the Ka Wai Chuen is ranging from 51 mPD to 89 mPD. These compact built developments would block the annual prevailing winds from north-east and east by reaching the Site. The annual prevailing winds would flow along the streets / roads, such as the Fat Kwong Street which align from east to west. However, it must be noted that the section of the Fat Kwong Street in front of the Site include an elevated flyover with the level of 17 mPD. It is expected that the elevated Fat Kwong Street flyover would reduce the wind speed of the pedestrian level underneath the flyover. Please refer to Annex B for details of the Air Ventilation Assessment.

4.2.3 Summer Condition

4.2.4 During the summer period, the prevailing winds are from the east, south-east, south and south-west directions. The wider road, Chatham Road North (align from northeast to southwest) and Hung Hom South Road (align southeast to northwest), would be the major air path of the area in summer direction. Although Gillies Ave Street aligns from northeast to southwest, it is considered not to be an efficient air path, due to the building blockage to its south.

4.2.5 North-East wind

4.2.6 Under the prevailing winds from north-east, the wind would flow along the Ma Tau Wai Road as well as Tsing Chau Street. The Site is located at the downwind area of the Ma Tau Wai Road and Tsing Chau Street. The proposed development would not have any significant impact to the wind performance of these two air paths. Therefore, the air ventilation of the Tsing Chau Street Playground would also not to be affected.

4.2.7 In order to minimize the possible blockage of the NE wind due to the Proposed Development, mitigation measures have been incorporated in the Proposed Development to minimize the potential impact; and the mitigation measures include: provision of 4.5m high opening between 24.5 mPD and 29 mPD, provision of opening at ground floor along the eastern boundary of the Proposed Development, provision of stepping design, and increase separation between the proposed development and the Ka Wai Chuen by sitting the residential tower to the northern portion. The wind from NE can flow through the 4.5m high opening and follow the stepping podium to the pedestrian level of downstream area.

4.2.8 East Wind

4.2.9 The Site is not located at the upwind of the Tsing Chau Street and Ma Tau Wai Road, the proposed development would not have any significant impact on its air ventilation performance under this wind direction. It is considered that the Tsing Chau Street Playground and the northern part of the Fat Kwong Street Garden No.1 should also not be significantly affected by the proposed development which is not located at the upwind direction of these areas under east wind. Similarly, the air ventilation performance at Ka Wai Chuen, the sitting area within the Ka Wai Chuen and the sitting area at Gilles Avenue South would not be significantly affected as the Site is not located at the upwind direction of these areas. The design of the Proposed Development would not have any significant impact on them.

4.2.10 For the wind flow along the Fat Kwong Street, the elevated Fat Kwong Street Flyover has reduced the wind speed at pedestrian level. The building footprint of the Hung Hom Fire Station is closed to the Fat Kwong Street, i.e. no setting back from the footpath of the Fat Kwong Street. The existing fire station has already reduced the wind speed for the area of the Fat Kwong Street at downwind area including the Site. Although there is podium in the Proposed Development, it is only two storeys with the first storey is recessed from the Fat Kwong Street. In addition, the recreational facilities and the residential block is also further setting back from the Fat Kwong Street. These mitigation measures would help to minimize the potential impact upon the air ventilation performance along the Fat Kwong Street by reducing the obstruction on the wind flow along the Fat Kwong Street.

4.3 ENVIRONMENTAL ASSESSMENT

4.3.1 On-site visit has been conducted in Oct 2014 to identify any active chimneys located within 500m from the Site. Based on the survey, there are 2 active chimneys located within 200m from the Site. In addition, the Site is bounded by Lee Kung Street to the north and Fat Kwong Street to the south. The proposed development may be subject to adverse air quality impact; and mitigation measures may be required. Qualitatively, the buffer distance between the Proposed Development and the kerb side of Fat Kwong Street (District Distributer) is more than 10m, and that of for Lee Kung Street (Local Distributer) is more than 5m. Therefore, Hong Kong Planning Standard and Guideline (HKPSG) recommended buffer distance for vehicular emission can be complied.

4.3.2 As the Site is close to the busy roads, such as Fat Kwong Street and Chatham Road North, the proposed development is likely subject to severe traffic noise impact. Due to the limited site area, provision of sufficient setback for the residential block to the busy road is unlikely to be applicable. Therefore, traditional and innovative mitigation measures may be required. Please refer to Annex C for details of the Environmental Assessment.

4.4 NOISE

4.4.1 The Noise Impact Assessment concerns the prediction of the maximum L10(1-hr) traffic noise level at noise sensitive receivers (NSRs) of the proposed development due to the projected traffic data on the adjacent major road networks for year 2036, which is considered as the worst case scenario within 15 years upon completion of the proposed development in end of 2021. Traffic data was predicted by the project traffic consultant – Ozzo Technology Limited.

4.4.2 Fat Kwong Street, Lee Kung Street and Chatham Road North are considered to be the dominant sources contributing to traffic noise impact on the NSRs. Other roads within 300m from the Site are also considered in the assessment.

4.4.3 In order to mitigate traffic noise impact to the site, both traditional and innovative noise mitigation measures have been proposed to some units that shall experience traffic noise exceedances.

4.4.4 With the implementation of the mitigation measures proposed, the compliance rate of layout options will be 100%.

4.4.5 For the Residential Care Home for the Elderly, it will be equipped with air-conditioning system such that it will not rely on openable window for ventilation.

4.5 AIR QUALITY

4.5.1 The Air Quality Impact Assessment has based on the new Hong Kong Air Quality Objectives (AQOs) enacted on 1/1/2014. AQOs are tabulated below for information. Assessment heights for the Air Sensitive Receivers (ASRs) scattered around the Proposed Development are taken from ground level including 1.5m breathing zone up to 102.9mPD of which the base elevation of the Proposed Development is taken as 6.2 mPD.

The air pollutant concentrations at the ASRs of the residential use of the proposed development are expected to be within the relevant AQOs. No adverse air quality impacts for the future residents are expected. With careful location of the fresh air intake at the location where air pollutant concentrations comply with the AQOs, the occupant of the RCHE and recreational facilities use will not be subject to unacceptable air quality impact.

4.6 WATER SUPPLY

4.6.1 A Water Supply Impact Assessment (WSIA) has been conducted to determine the water demand supply of the proposed elderly housing development. The existing freshwater connection pipe actually runs through the western portion of Site and will almost certainly be in conflict with the proposed development. In order to avoid the clash, it is proposed to retain the 4” connection pipe only to approximately the Site Boundary, with internal pipework to be provided within the Site to suit the final building layout(s). The existing pipeline continues onwards (as 0.75” diameter) to the Fat Kwong Street Garden No. 1 and it is proposed to relocate this connection along the footpath and through Fat Kwong Street Garden No. 2. The diversion/relocation will need to be developed in detail to demonstrate that it meets WSD design, construction, operation and maintenance requirements and will need to be submitted to WSD for comment and approval. This will be carried out in later stages of implementation. The saltwater connection to the Site will be unaffected by the proposed development,

although, as for the freshwater mains, the future alignments within the Site will be developed to suit the layout of the future building(s). Please refer to Annex D for details of the WSIA.

4.7 DRAINAGE

4.7.1 The Site is already fully paved and properly connected to the public drainage system, with no known drainage capacity problems. The proposed development therefore cannot increase the amount of runoff and therefore cannot have any adverse drainage impacts. In reality, the runoff will need to discharge from the rooftop(s) and some landscaping is likely to be introduced, and these factors will actually slightly reduce the runoff, although these have been ignored for this assessment. It is recommended that internal drainage systems be provided to convey runoff to the existing discharge point at the south east corner of the Site. The Project Proponent will be responsible for the design, construction, repair and maintenance of any new drains within the Site to the satisfaction of relevant Government departments. The proposed development will not have any adverse drainage impacts. Please refer to Annex E for details of the Drainage Impact Assessment.

4.8 SEWERAGE

4.8.1 A Sewerage Impact Assessment (SIA) has been conducted to evaluate the possible impacts of the proposed elderly housing development on the local sewerage network. The hydraulic capacities of the existing sewers in the vicinity of the Site have been assessed (Please refer to Annex F for details of the Sewerage Impact Assessment) and the overall peak discharge from the Site represents a very small percentage of the available sewer capacity (generally less than 10% of available capacity).

4.8.2 With consideration that there would have been previous discharge from the Married Quarters at the Site and the general area would have previously had industrial land uses, which have largely been removed, it is therefore reasonable to conclude that the future peak flow can be accommodated in the existing public sewerage system. It is recommended that an internal sewerage system be provided to deliver flow by gravity to the existing sewerage connection point in Fat Kwong Street.

4.9 VISUAL

4.10 A Visual Impact Assessment has been conducted to determine the resulting positive and/or negative effects of the proposed elderly housing development. Please refer to Annex G for details of the VIA.

4.11 The visual impact of the baseline scheme (compliance with the building height set by the prevailing HH OZP) – a G/IC building of 11 storeys has been assessed. The largest visual impact resulting from the proposed development under the rezoning scheme would be the change from a building with maximum height of 11-storeys to that of one with a maximum building height of 110mPD. The proposed scheme, with a notably taller building height than the baseline scheme, is however in conformance with the existing building height profiles in the area that range from 80mPD to 150mPD as compared to the adjoining “Residential (Group A)” zones. Furthermore, it is noted that a stepped height building profile can also be achieved with the proposed height to ensure a degree of visual permeability with stepped height profile descending from north to south. Other factors such as building footprint, setbacks, etc. would be similar under both schemes and no additional visual impacts are predicted. Thus, under

the proposed rezoning scheme, public viewers will be subject to a building with taller height and resulting larger shadow, but the building, itself, would be in conformance with others in the area, and at the ground level the visual impacts would be similar under the baseline scheme and the proposed rezoning scheme.

4.12 After the implementation of the proposed mitigation measures, there will be adverse residual visual impacts. For VP3, specifically, it is expected that public viewers will be subject to a magnitude of change predicted to be Intermediate. Implementation of the proposed mitigation measures, OM1-OM6, shall be of high importance here in mitigating the effects on public viewers. Specifically, implementation of vertical greening (OM6), special attention given to the façade of the proposed building (OM3), and a stepped building profile (OM2) should be thoroughly explored in order to reduce the residual visual impacts on public viewers here.

4.13 In overview, the visual impact significance of the proposed development would be considered Slightly Adverse.

4.14 TRAFFIC

4.14.1 A Traffic Impact Assessment (TIA) has been conducted to assess the existing traffic conditions in the vicinity of the Site as well as the traffic impact due to the proposed elderly housing development. Please refer to Annex H for details of the TIA.

4.14.2 The Site is well served by public transport, including bus and GMB services. In order to appraise the existing traffic condition in the area, classified turning movement counts were carried out at the key junctions in the vicinity of the Site over the AM and PM peak periods on 30 May 2016 (Tuesday). The AM and PM peak hours are identified to be 08:30 to 09:30 and 17:45 to 18:45 respectively.

4.14.3 Traffic impact assessments are undertaken by comparing the peak hour junction performance of the 2024 Reference scenario (i.e. without the proposed development) against the Design scenario (i.e. with the proposed development). The results of the assessments indicate that all the assessed junctions in the vicinity of the proposed development would perform satisfactorily during the AM and PM peak periods for both scenarios.

4.14.4 As the amount of additional development traffic is not significant, there are minimal differences between the Reference and Design scenarios in term of junction performances. It is therefore concluded that the development traffic would not cause adverse traffic impact on the road network in the vicinity of the proposed development.

4.15 SUMMARY

4.15.1 Based on the technical assessments carried out, it is concluded that the proposed elderly housing development will not pose any adverse impacts on the surrounding areas from air ventilation, environmental, drainage, sewerage, water supply, and traffic perspectives.

4.15.2 Based on the visual impact assessment, it is concluded that the proposed development will result in an impact significance considered Moderately Adverse.

5. PLANNING JUSTIFICATIONS IN SUPPORT OF THE REZONING PROPOSAL

5.1 JUSTIFICATION FOR PROPOSED ELDERLY HOUSING DEVELOPMENT

5.1.1 As stated previously, the Site is currently zoned "Government, Institution or Community" ("GIC"), and 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 territory. To foster development of elderly housing development in Hong Kong to meet the demand as mentioned above, the Site is considered one of the most suitable sites for the proposed development given the consideration to the compatibility surrounding prevailing land uses while optimising the utilization of land resources and better echoes market demands. Therefore, it is proposed to rezone the Site from "G/IC" to "R(A)" zone with 110 mPD maximum height to ensure a wide variation in building heights exists within the area.

5.1.2 In respect to the surrounding development, a maximum of 110mPD height is proposed for the Site to minimise visual impact to surrounding development. The proposed height limit of maximum of 110mPD should be provided is considered comparable to the residential development Kiu Wai Mansion, Marigold Mansion Estate and Chuen Fat building in north west, Loong King Mansion to the east and the Hung Hom commercial centre to the north east. A stepped height building profile can also be achieved with the proposed height to ensure a degree of visual permeability with stepped height profile descending from north to south, moreover, the proposed staggered podium garden can also provide adequate ventilation, which are two of the design considerations under this proposal. A Visual Impact Assessment has carried out this this assignment and the methodology for deriving the magnitude of change upon the Public Viewer's and the significance of the visual impacts is described in Annex G.

5.1.3 As stated in Section 1.5, a relatively large proportion (16%) of the Kowloon City District is over the age of 65, and this number will only increase over the next few years as Hong Kong faces an ageing population. The current provision of elderly housing developments for middle-income senior citizens consists of only 2 SEN developments (i.e. Jolly Place and Cheerful Court) serving the whole territory. As a result, there are already approximately 600 applicants on the waiting list, with an average waiting time of over 5 years. Increasing the building height of the proposed SEN development would provide more residential units, and consequently allow more of these elderly persons to be accommodated. This is a demand that needs to be met in a responsive and economic manner;

- There is a limited supply of land in Hong Kong, and it would be prudent to maximise the development potential of the Site. Rezoning the Site from "G/IC" to "R(A)" would allow more residential units to be provided on an individual site without recourse to the occupation of additional land parcels.
- A 34 storey development would bring economies of scale and promote an operationally viable critical mass;
- The proposed permitted building height of 110 mPD will not result in adverse impacts to surrounding developments, as the Site is predominantly surrounded by high rise residential developments of a similar height to the proposed development (e.g. Loong King Mansion, Hung Hom Garden Carlton Court);
- Raising the building height will allow the inclusion of required clubhouse facilities, parking and recreational facilities to be located at lower levels. This will allow residential units to

be located on higher floors which will have the important advantage of ameliorating traffic related environmental impacts to the future residents of the proposed development.

5.2 BUILDING HEIGHT

5.2.1 As mentioned in Section 2.3.5, the proposed development falls within the area with height profile ranging from 80mPD to 150mPD with a plot ratio of 7.5 for domestic and about 1.0 non-domestic which is intended for high-density residential developments. The proposed building height of 110mPD is considered not incompatible with the surrounding building height profile.

5.2.2 Besides, the building design has incorporated with the various mitigation measures on the building height for the impacts. For example,

- Raised first residential floor to 31.4 mPD[23] as one of the air mitigation measure. This can locate the sensitive receivers (i.e. potential residents of the domestic storeys) to higher floors and avoid the direct contact to the noise source from Fat Kwong Street Flyover; and
- a 10m setback from Lee Kung Street and a 10m setback from Fat Kwong Street for air mitigation measures to ensure air compliance rate achieved according to EPD standard. The developable area of the Site has been restricted; hence, the height of the proposed building for the proposal has to be increased for the provision of the SEN efficiently.

5.2.3 As such, it is suggested that the building height restriction of the Site should be increased from the prevailing 11 storeys to 110mPD.

5.3 WILL NOT CAUSE SIGNIFICANT ADVERSE VISUAL IMPACT TO ITS SURROUNDING USES

5.3.1 After the implementation of proposed mitigation measures, OM1-OM6 in Section 4.5 of Annex G, there will be adverse residual visual impacts. Although implementation of the recommended mitigation measures should slightly reduce the magnitude of the residual visual impacts during the construction and operation phase, this will not be sufficient to reduce the overall significance thresholds.

In overview, the visual impact significance of the proposed development has been assessed as being moderately adverse. A summary of degree of impacts to key public viewing points is provided in the attached VIA report located in Annex G.

5.4 WILL NOT CAUSE ADVERSE TRAFFIC IMPACTS

5.4.1 A TIA was carried out to assess the traffic implications of the proposed elderly housing development on the surrounding road network to ensure that there will not be any adverse traffic impact. As the amount of additional development traffic is not significant, based on the results of the TIA, it is concluded that the traffic impact generated by the proposed elderly

[23] The height of the first residential floor is calculated with the formation level of 6.5 mPD and proposed building height from ground floor to the fourth floor (22.5 m) with transfer plate (2.4 m).

housing development is minimal and the proposed development will not impose adverse traffic issues on the adjacent road network (Refer Annex H for TIA report).

5.5 WILL NOT CAUSE ADVERSE AIR VENTILATION IMPACTS

5.5.1 The design development parameters that have been adopted for the proposed rezoning proposal for the elderly housing development have taken cognisance air ventilation impact factors. The AVA, as stated in Section 3.2, has concluded that adverse air ventilation impact is not anticipated in connection with the proposed scheme (Refer Annex B for AVA report).

5.6 NO INSURMOUNTABLE ENVIRONMENTAL IMPACTS

As stated in Sections 3.3 to 3.5, an Environmental Assessment was carried out to assess the noise and air quality impacts of the proposed elderly housing development. Based on the results of the Environmental Assessment, it was concluded that the proposed elderly housing development will not generate insurmountable noise and air quality impacts on the neighbouring sensitive receivers (Please refer Annex C for EIA report) nor will the development and future residents, given the protective architectural design and other mitigation measures that have been adopted, be subject to adverse environmental impacts.

5.7 WILL NOT CAUSE ADVERSE WATER IMPACTS

5.7.1 As stated in Section 3.6, a WSIA has been conducted to determine the water requirements of the proposed elderly housing development. There will be new demands both fresh and salt water as a result of the development. However, the volumes are not large and the increases from previous demands at the Site are considered to be insignificant in terms of overall supplies to the area. There will be a conflict between the existing freshwater main within the site and the proposed building. However, this can be resolved by a minor diversion of a small diameter pipe around the Site. It is concluded that the proposed development can be implemented without any unacceptable adverse water supply impacts. (Refer to Annex D for WIA report).

5.8 WILL NOT CAUSE ADVERSE DRAINAGE IMPACTS

5.8.1 As described in Section 3.7, There will be a no increase in the amount of runoff from the Site as a result of the proposed development. All runoff will continue to discharge to the existing drainage connection point. The proposed development will result in no adverse drainage (Refer Annex E for DIA report).

5.9 WILL NOT CAUSE ADVERSE SEWERAGE IMPACTS

5.9.1 As stated in Section 3.8, the proposed development at the Site will generate sewage flows. However, the existing local sewers have adequate capacity to accommodate the expected flows. New internal sewers will be required to connect to existing public manhole FMH4027955. The proposed development will be provided with properly planned sewerage facilities and no adverse impact on the public sewerage system is anticipated. No significant

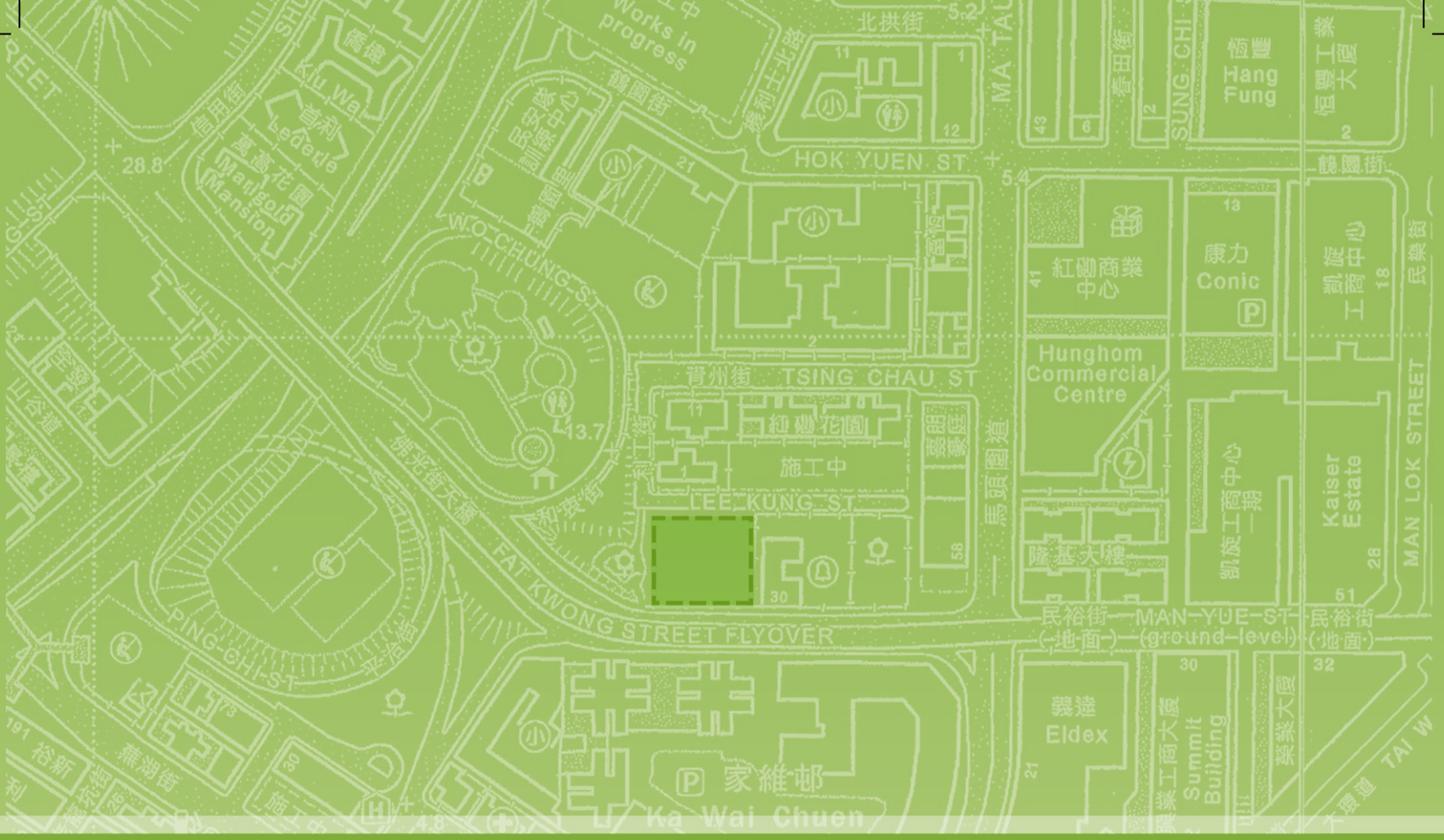
sewerage impact on the existing sewerage system is anticipated to arise from the proposed development (Refer Annex F for SIA report).

5.10 CONCLUSION

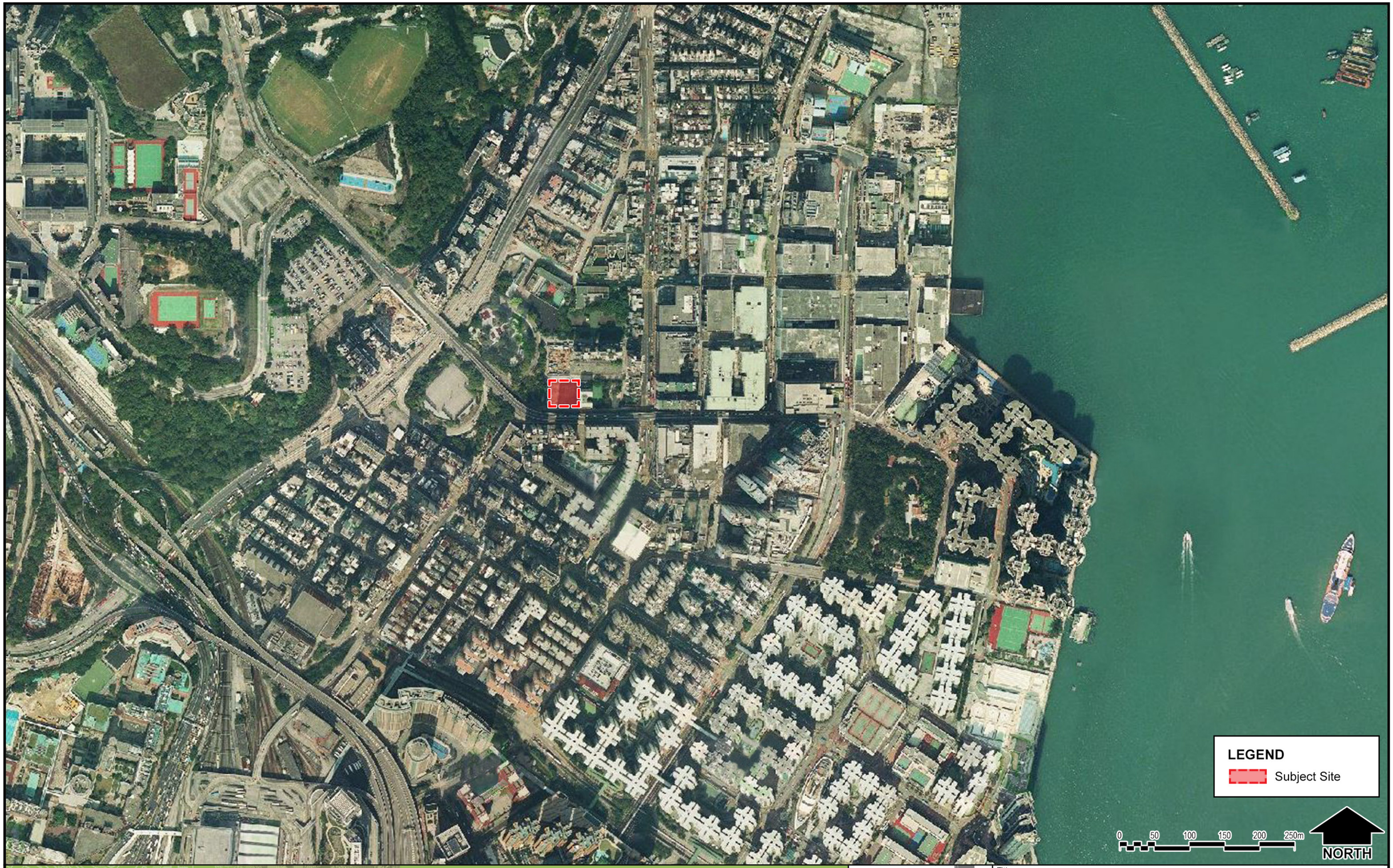
5.10.1 As demonstrated in the earlier sections, the intensity of an elderly housing development within the Site is compatible with the land uses in the surrounding areas and the approval of the proposed amendment for the development will not set an undesirable precedent. The proposed rezoning from "G/IC" to "R(A)" with 110 mPD height restriction on the basis of the preliminary assessments for the Site, which suggest that the rezoning will not have any adverse impacts and will bring numerous benefits. The amendment is intended to realise the optimise development potential and use of the Site, while taking into account various planning, environmental, traffic, infrastructure and other considerations.

5.11 DECISION SOUGHT

5.11.1 In light of the planning merits and justifications put forward in this Planning Statement, we sincerely seek for the favourable consideration from the TPB to give its support to this rezoning proposal.


HOK YUEN ST
TSING CHAU ST
LEE KUNG ST
WO CHUNG ST
FAT KWONG STREET FLYOVER
PING CHI ST
MAN LOK STREET
MA TAU
SUNG CHI
Hang Fung
Conic
Hunghom Commercial Centre
Kaiser Estate
Eldex
Summit Building
Ka Wai Chuen
民裕街 MAN YUE ST (ground level)
Works in progress

Figures

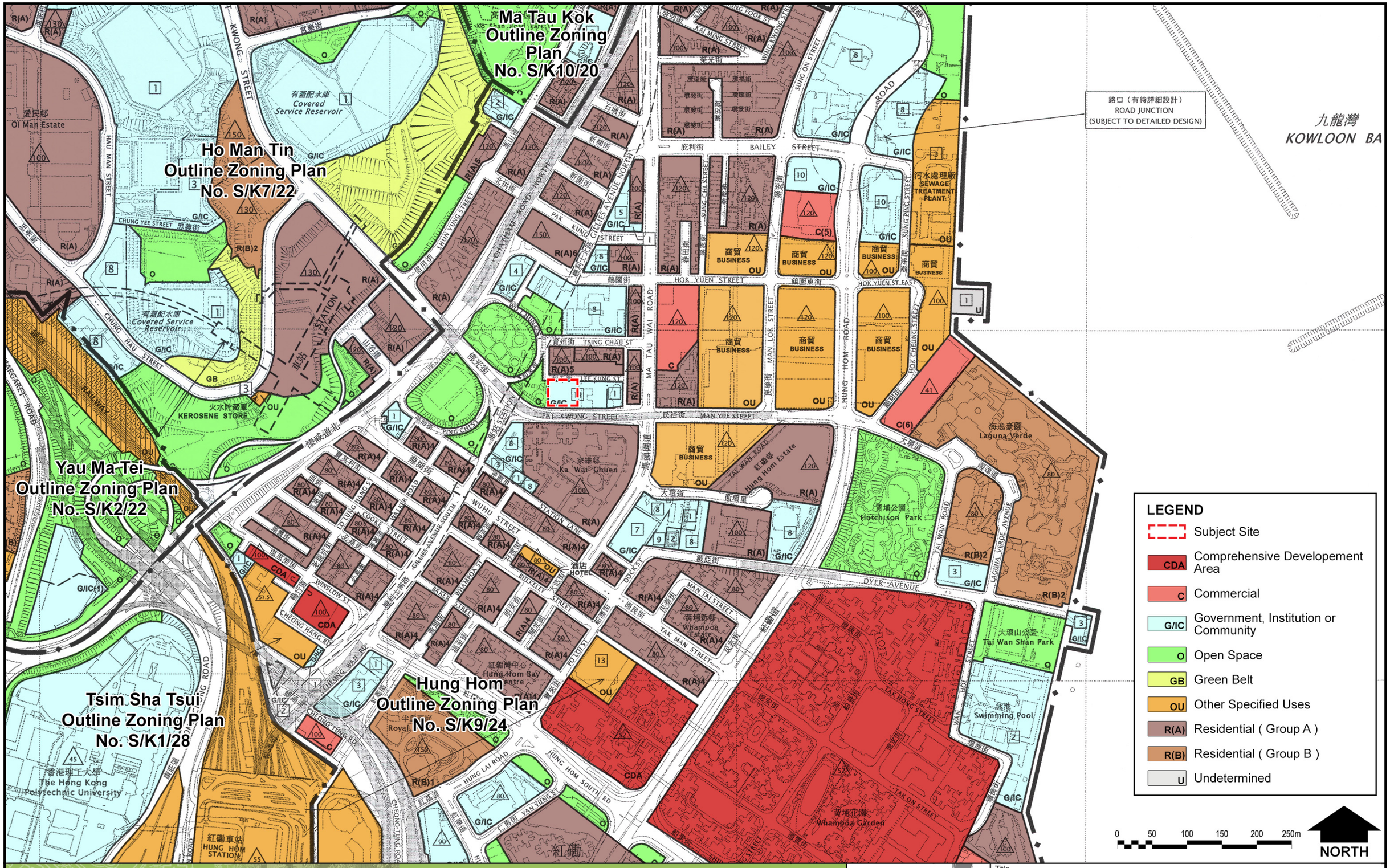


Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Aerial Photo

Scale	Date	Figure No.
1:5,000 @ A3	December 2015	1.1

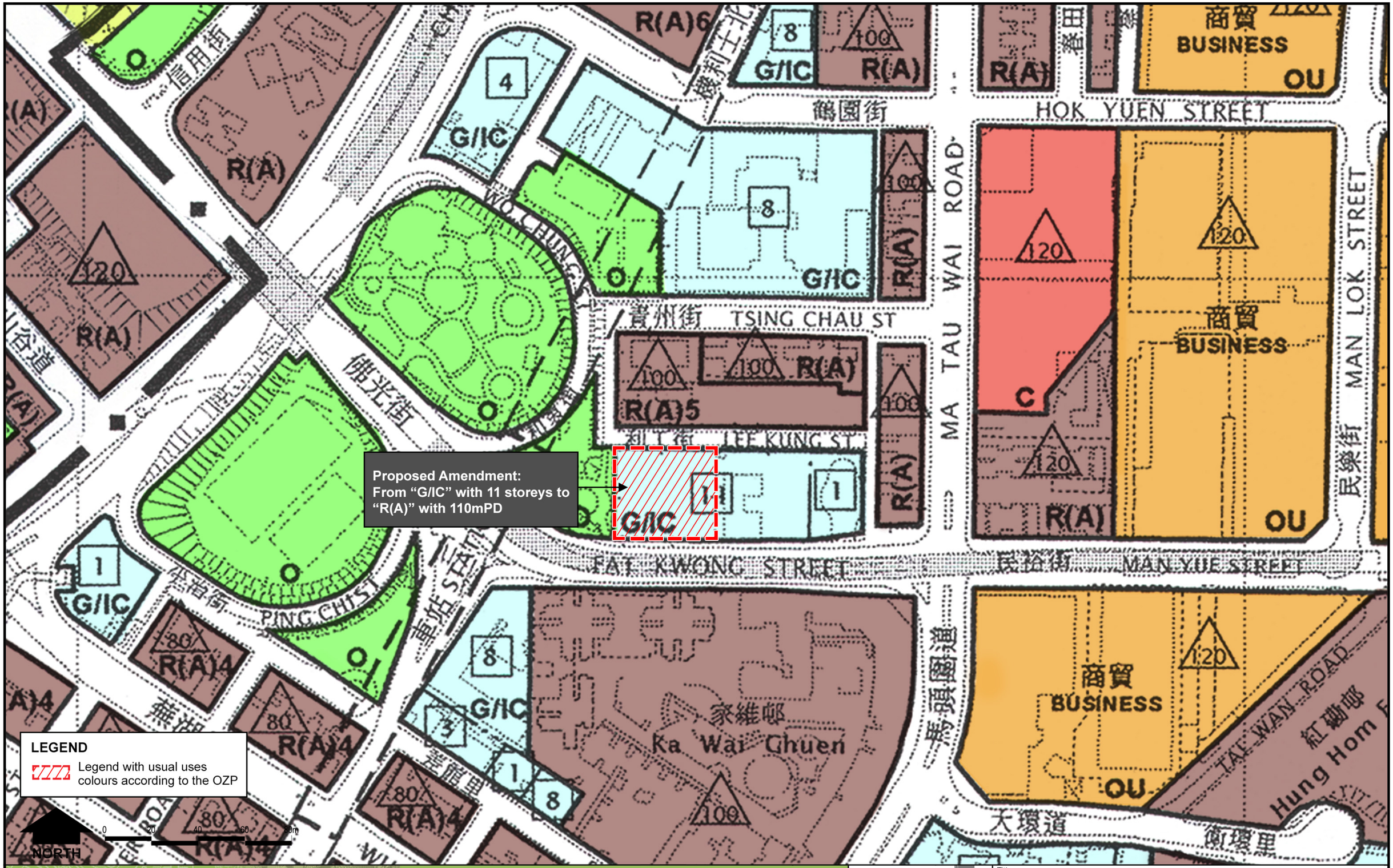


Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

The Approved Hung Hom Outline Zoning Plan No. S/K9/24

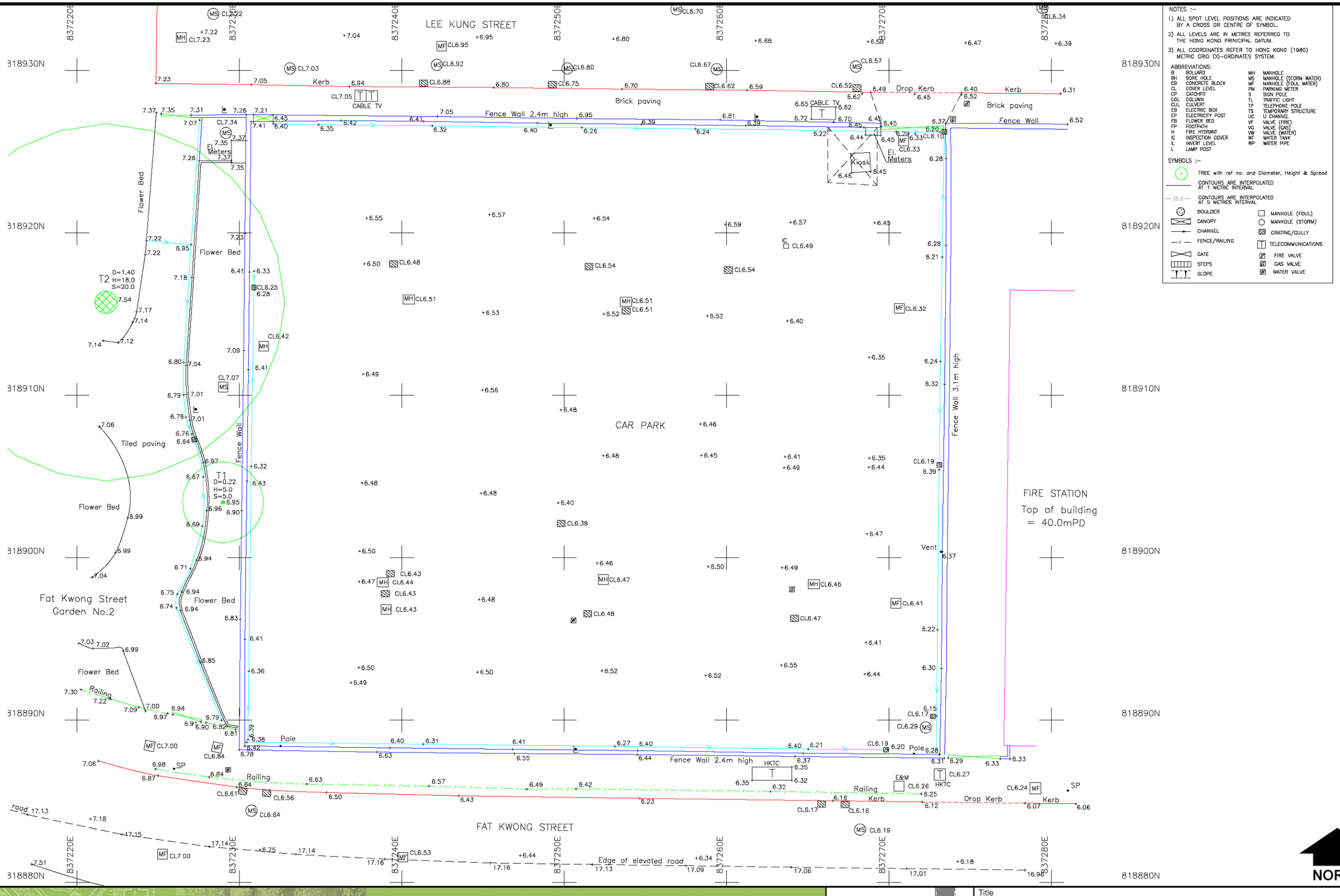
Scale	Date	Figure No.
1:5,000 @ A3	December 2015	1.2



Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Proposed Amendment of Plan for the Approved Hung Hom OZP No. S/K9/24

Scale	Date	Figure No.
1:1,500 @ A3	December 2015	1.3



NOTES :-

1) ALL SPOT LEVEL POSITIONS ARE INDICATED BY A CROSS OR CENTRE OF SYMBOL.
2) ALL LEVELS ARE IN METRES REFERRED TO THE HONG KONG PRINICIPAL DATUM.
3) ALL COORDINATES REFER TO HONG KONG (1980) METRIC GRID CO-ORDINATES SYSTEM.

ABBREVIATIONS:

B	BOLLARD	MH	MANHOLE
BH	BORE HOLE	MS	MANHOLE (STORM WATER)
CB	CONCRETE BLOCK	MF	MANHOLE (FOUL WATER)
CL	COVER LEVEL	PM	PARKING METER
CP	CATCHPIT	S	SIGN POLE
COL	COLUMN	TL	TRAFFIC LIGHT
CUL	CULVERT	TP	TELEPHONE POLE
EB	ELECTRIC BOX	TS	TEMPORARY STRUCTURE
EP	ELECTRICITY POST	UC	U CHANNEL
FB	FLOWER BED	VF	VALVE (FIRE)
FP	FOOTPATH	VG	VALVE (GAS)
H	FIRE HYDRANT	VW	VALVE (WATER)
IC	INSPECTION COVER	WT	WATER TANK
IL	INVERT LEVEL	WP	WATER PIPE
L	LAMP POST		

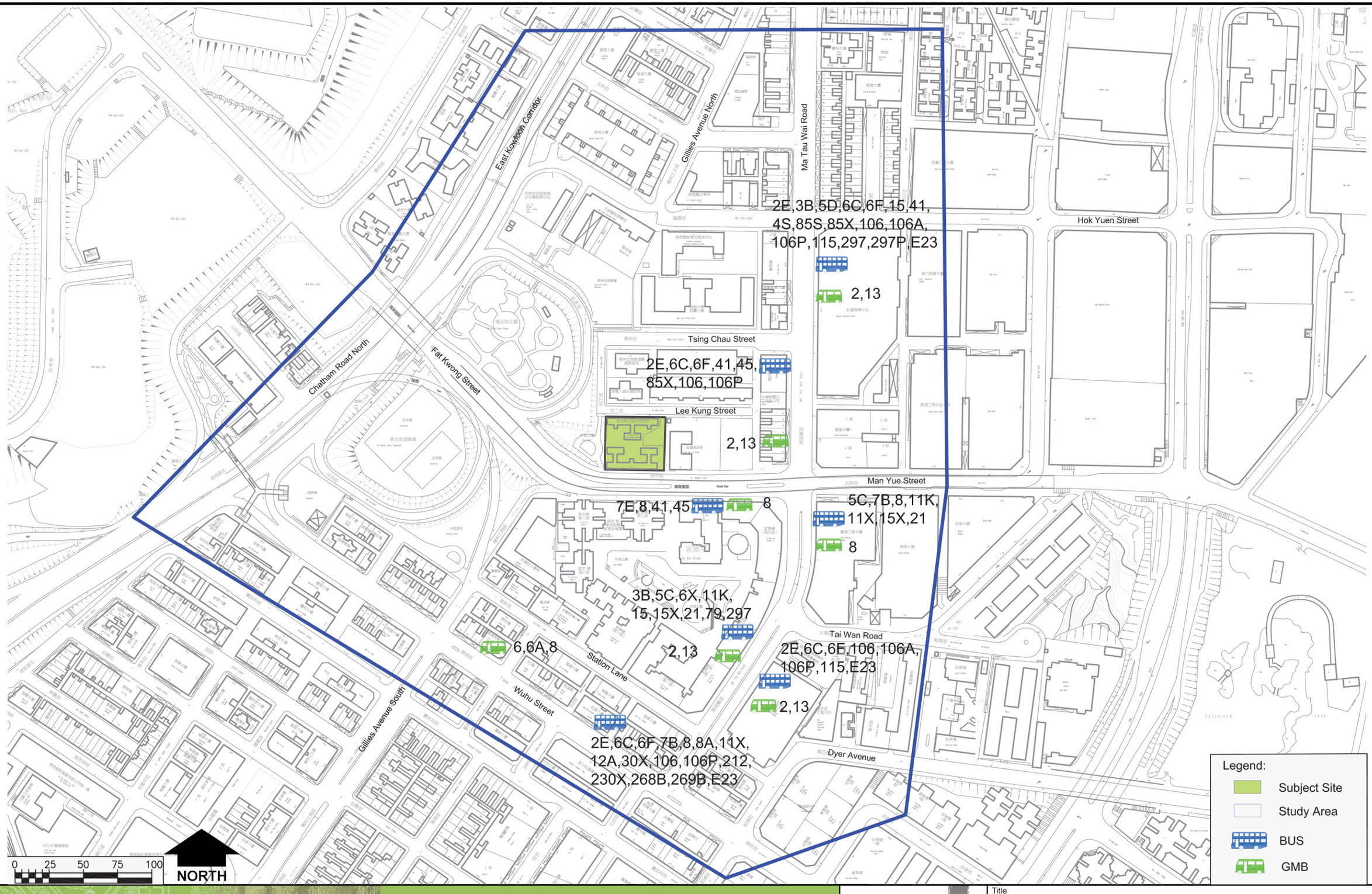
SYMBOLS :-

- TREE with ref no. and Diameter, Height & Spread
- CONTOURS ARE INTERPOLATED AT 1 METRE INTERVAL
- 35.0 CONTOURS ARE INTERPOLATED AT 5 METRES INTERVAL
- BOULDER
- CANOPY
- CHANNEL
- FENCE/RAILING
- GATE
- STEPS
- SLOPE
- MANHOLE (FOUL)
- MANHOLE (STORM)
- GRATING/GULLY
- TELECOMMUNICATIONS
- FIRE VALVE
- GAS VALVE
- WATER VALVE

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Topography Survey for the Application Site

Scale	Date	Figure No.
N.T.S. @ A3	December 2015	2.1

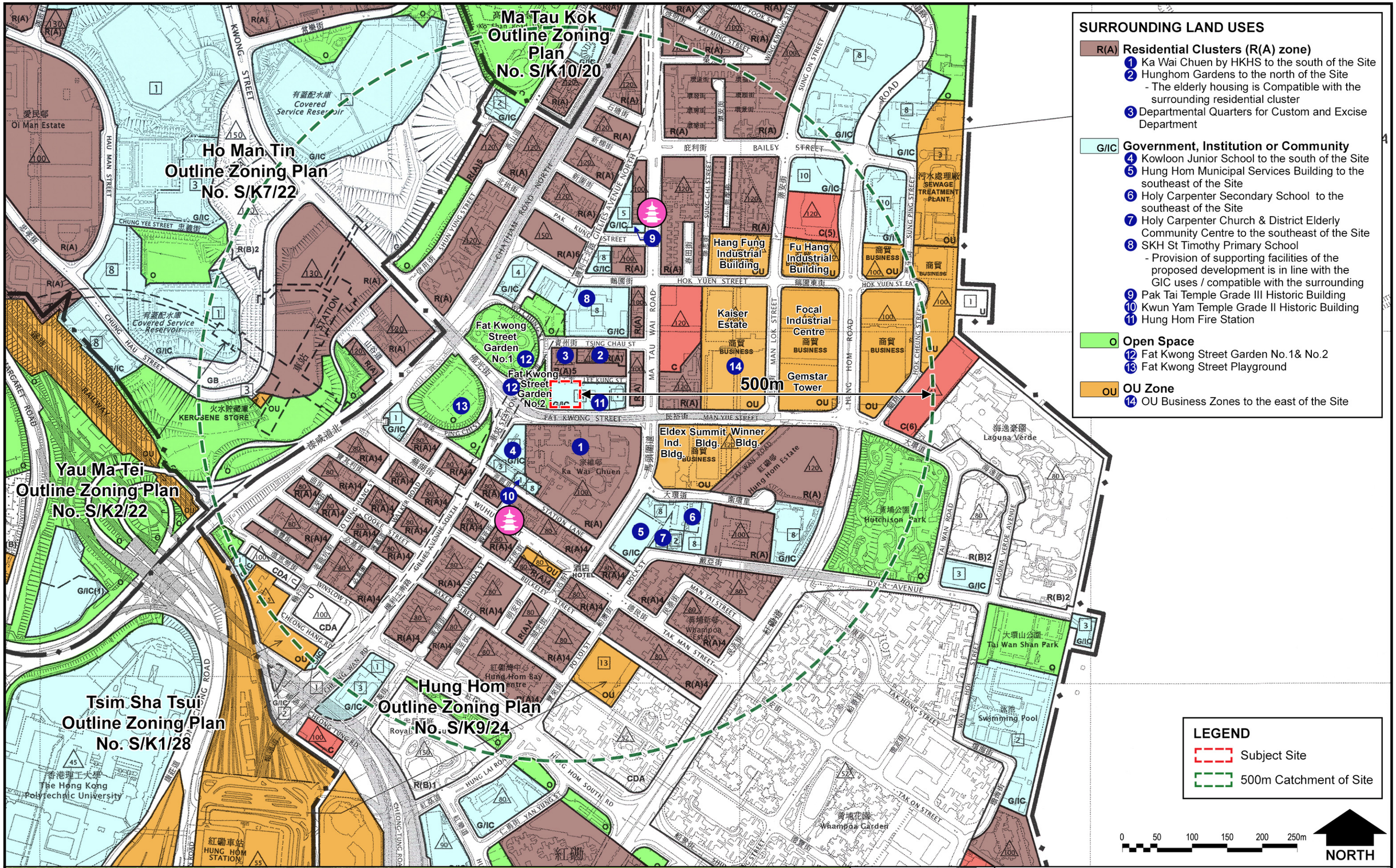


Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Proposed Main Access and Public Transport Facilities

Scale	Date	Figure No.
AS SHOWN @ A3	December 2015	2.2



Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Location and Boundary of the Application Site Identified Major Existing and Planned Development

Scale	Date	Figure No.
1:5,000 @ A3	December 2015	2.3

Hang Fung Industrial Building

Fu Hang Industrial Building

Kaiser Estate

Focal Industrial Centre

Gemstar Tower

Tsing Chau Street Playground

Fat Kwong Street Garden No.1

Fat Kwong Street Garden No.2

Hung Hom Fire Station

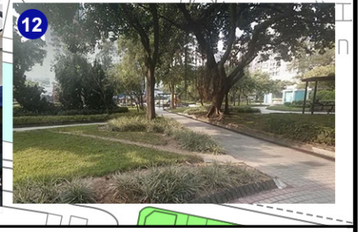
Eldex Ind. Bldg.

Summit Bldg.

Winner Bldg.

Ka Wai Chuen

Hung Hom Estate

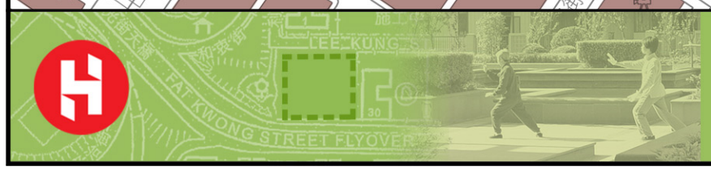


LEGEND

- Subject Site
- Government, Institution or Community
- Open Space
- Other Specified Uses
- Residential (Group A)
- Commercial

NORTH

0 20 40 60 80 100m



Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Existing Site Condition and Surrounding Context

Scale	Date	Figure No.
1:2,500 @ A3	December 2015	2.4

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Landscape Master Plan - Roof Floor Plan

Scale	Date	Figure No.
1:250 @ A3	December 2015	2.5

1-3

7.45

7.19

LEE KUNG STREET

6.63

6.54

6.29

B.L.

Hung Hom

LANDSCAPE GARDEN
+16.50

RESIDENTIAL
LOBBY

EXERCISE ROOM

*LOUNGE
*READING AREA
*MULTI-PURPOSE AREA

RCHE
LOBBY

*TOILET
*PANTRY
*M&E

TAI CHI
COURT

OUTDOOR
FITNESS
CORNER

BUILDING LINE

LANDSCAPE GARDEN
+16.50

CAR PARK
+6.35

B.L.

LANDSCAPE GARDEN
+12.00

30

at Kwong Street
Garden No.2

FAT KWONG STREET +6.20

FAT KWONG STREET
FLYOVER ABOVE

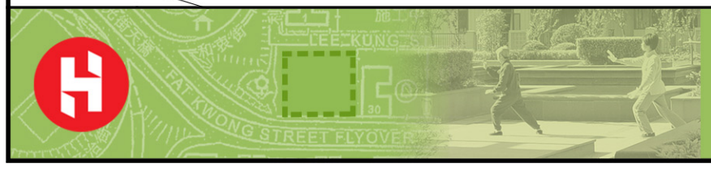
SCALE 1 : 250

0 2 4 6 8 10m

NORTH

LEGEND

- Subject Site
- Medium Sized Trees
- High Shrubs / Small Trees
- Low Shrubs / Groundcovers
- Hedges / Screening Shrubs
- Stone Paving
- Stone Paving with Feature Pattern
- Trellis
- Seating



Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Landscape Master Plan - Second Floor Plan

Scale	Date	Figure No.
1:250 @ A3	December 2015	**2.6**

1-3

7.45

7.19

LEE KUNG STREET

6.63

6.54

6.29

LEGEND

- Subject Site
- High Shrubs / Small Trees
- Low Shrubs / Groundcovers
- Hedges / Screening Shrubs

MEDICAL CENTRE ENTRY

REHABILITATION CENTRE ENTRY

RESIDENTIAL ENTRY

B.L.

BUILDING LINE ABOVE

10000

6000

Hung Hom Fire Station

*REHABILITATION CENTRE
*TRAINING AREA
*RCHE ADMIN. OFFICE
*INTERVIEW ROOM

*E&M
*REFUSE

*RESIDENTIAL
*LIFT LOBBY

DRIVEWAY

BACK ENTRY

7500

AMBULANCE

L/UL

L/UL

*MEDICAL CENTRE

*KITCHEN
*LAUNDARY

BUILDING LINE ABOVE

6000

*E&M
*CHANGING ROOM
*STORE ROOM

1 2 3 4 5 6 7

30

at Kwong Street Garden No.2

MEDICAL CENTRE ENTRY

STAFF ENTRY

SITE ENTRY FROM FAT KWONG STREET

FAT KWONG STREET

FAT KWONG STREET FLYOVER ABOVE

SCALE 1 : 250

0 2 4 6 8 10m

NORTH

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Landscape Master Plan - Ground Floor Plan

Scale	Date	Figure No.
1:250 @ A3	December 2015	**2.7**

LEE KUNG STREET

7.19 + 6.63 + 6.54 + 6.29 +

MEDICAL CENTRE ENTRY

REHABILITATION CENTRE ENTRY

RESIDENTIAL ENTRY

P. P. P.

*REHABILITATION CENTRE
*TRAINING AREA
*RCHE ADMIN. OFFICE
*INTERVIEW ROOM

*E&M
*REFUSE

*RESIDENTIAL
*LIFT LOBBY

BUILDING LINE ABOVE

10000

6000

B.L.

DRIVEWAY

BACK ENTRY

7500

AMBULANCE

L/UL

L/UL

*MEDICAL CENTRE

*KITCHEN
*LAUNDARY

BUILDING LINE ABOVE

6000

*E&M
*CHANGING ROOM
*STORE ROOM

1 2 3 4 5 6 7

P.

P.

30

LEGEND :

LIFTS and STAIRS

Hung Hom Fire Station

Kwong Street
arden No.2

MEDICAL CENTRE ENTRY

STAFF ENTRY

SITE ENTRY FROM FAT KWONG STREET

FAT KWONG STREET

FAT KWONG STREET FLYOVER ABOVE

LEGEND

Subject Site

Established points of access

At grade walkway

Undercover at grade walkway

0 2 4 6 8 10m

NORTH

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Pedestrian Circulation

Scale: AS SHOWN @ A3

Date: December 2015

Figure No.: **2.8**

LEE KUNG STREET

7.19 + 6.63 + 6.54 + 6.29 +

MEDICAL CENTRE ENTRY

REHABILITATION CENTRE ENTRY

RESIDENTIAL ENTRY

P. P. P.

*REHABILITATION CENTRE
*TRAINING AREA
*RCHE ADMIN. OFFICE
*INTERVIEW ROOM

*E&M
*REFUSE

*RESIDENTIAL
*LIFT LOBBY

BACK ENTRY

*MEDICAL CENTRE

*KITCHEN
*LAUNDARY

*E&M
*CHANGING ROOM
*STORE ROOM

BUILDING LINE ABOV

10000

6000

DRIVEWAY

7500

AMBULANCE

L/UL

L/UL

BUILDING LINE ABOVE

6000

1 2 3 4 5 6 7

P.

P.

B.L.

LEGEND :

LIFTS and STAIRS

Hung Hom Fire Station

Kwong Street
arden No.2

30

MEDICAL CENTRE ENTRY

STAFF ENTRY

SITE ENTRY FROM FAT KWONG STREET

FAT KWONG STREET

FAT KWONG STREET FLYOVER ABOVE

LEGEND

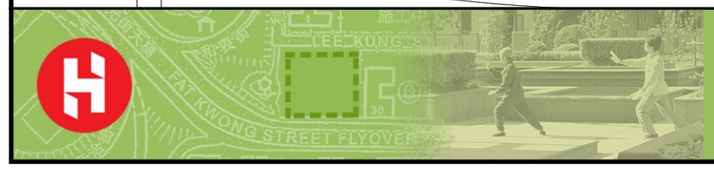
Subject Site

Internal Road within the Site

Traffic routing

0 2 4 6 8 10m

NORTH

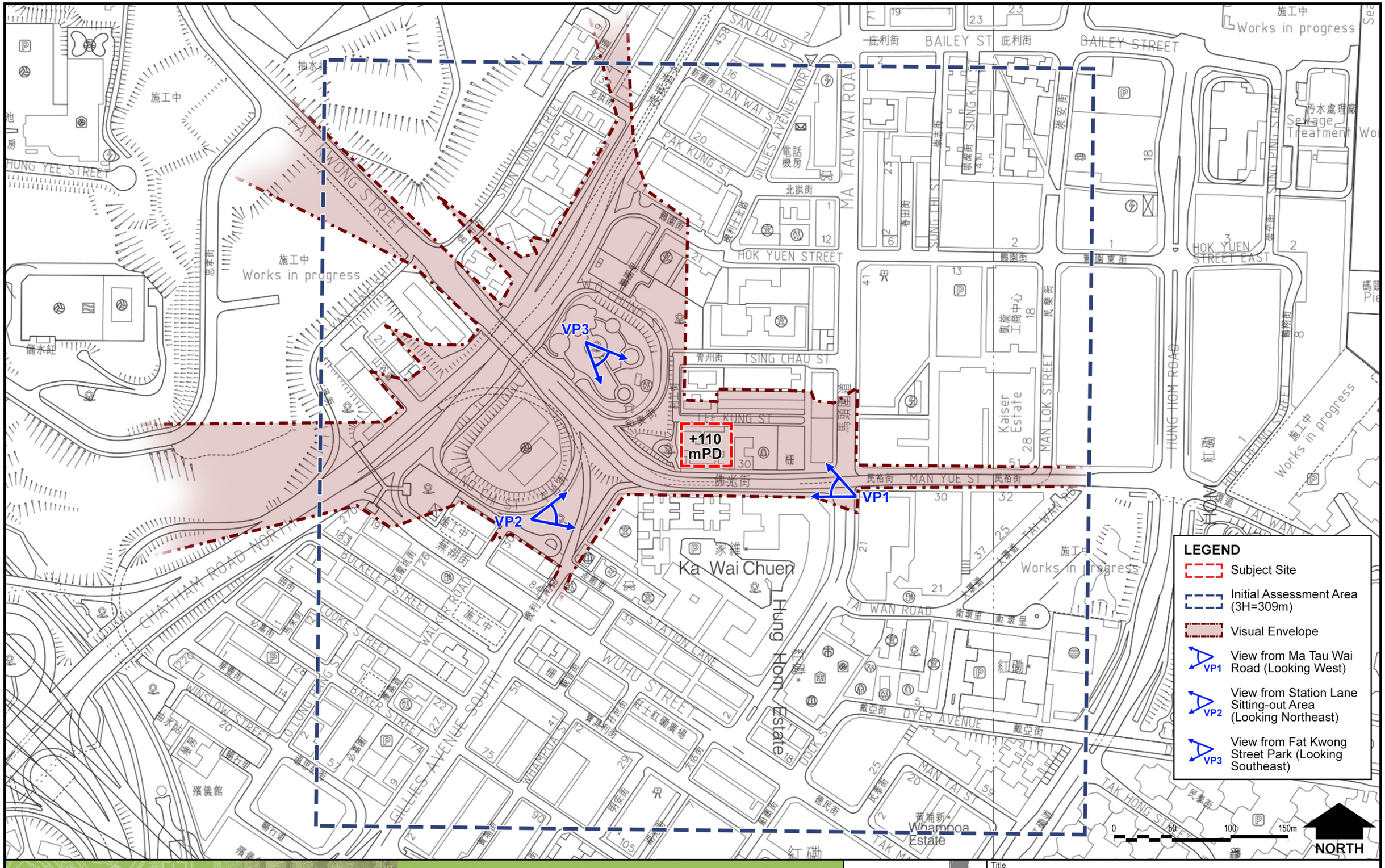


Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Vehicular Access Circulation

Scale	Date	Figure No.
AS SHOWN @ A3	December 2015	2.9

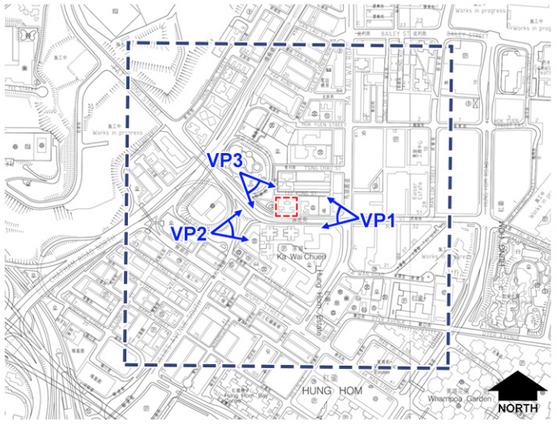


Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Initial Assessment Area and Zone of Influence

Scale	Date	Figure No.
1:3,000 @ A3	December 2015	2.10



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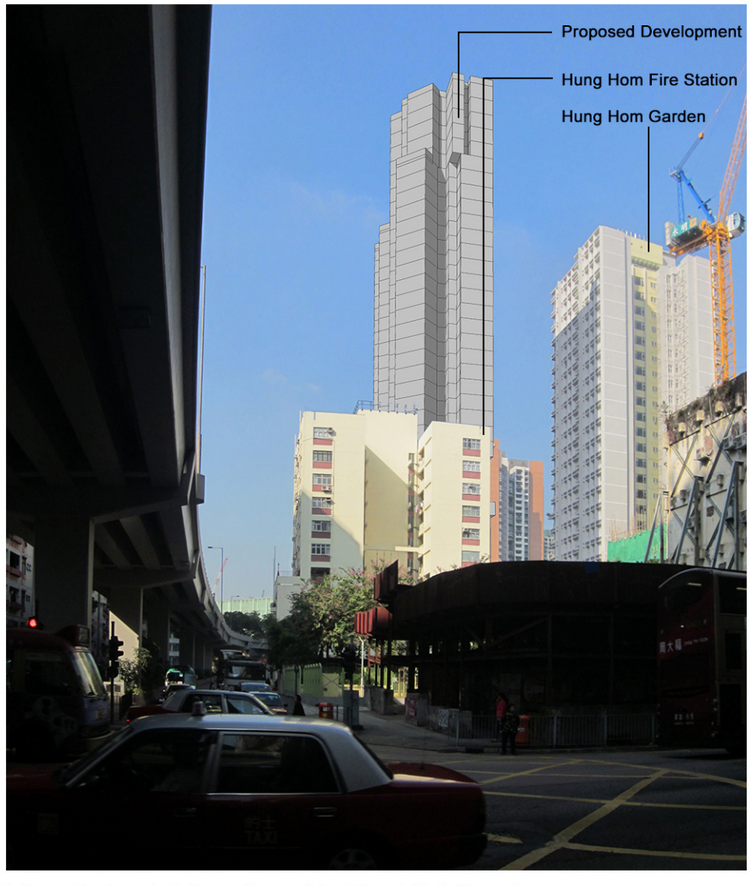


View Point 1: View from Ma Tau Wai Road

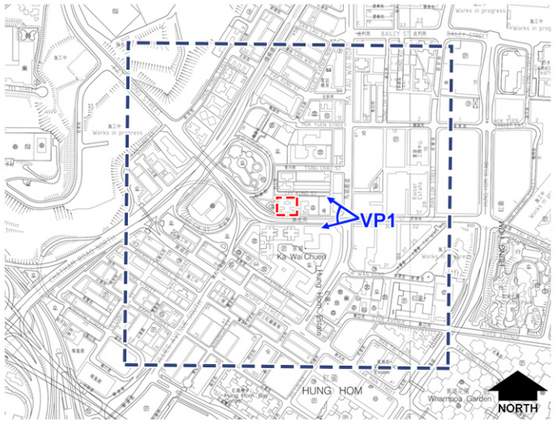
View Point 2: View from Station Lane Sitting-out Area

View Point 3: View from Fat Kwong Street Park

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Assessment Area and Proposed View Points for the Application Site

Scale	Date	Figure No.
N.T.S. @A3	December 2015	**2.11**



Keyplan

Existing Condition

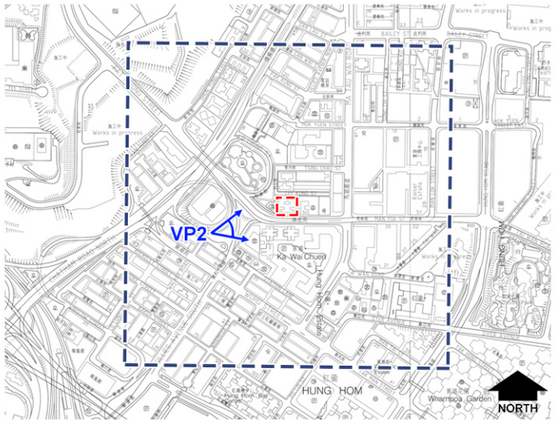
Baseline Development

Proposed Development

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

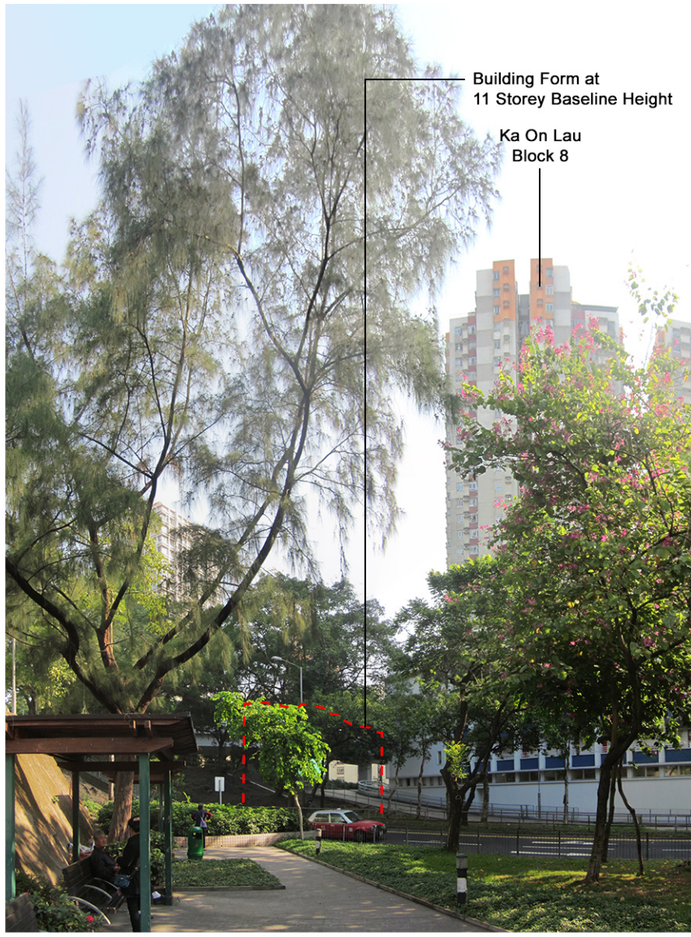
Title: View Point 1 - View from Ma Tau Wai Road (Looking West)

Scale	Date	Figure No.
N.T.S.	December 2015	**2.12**



Keyplan

Existing Condition



Baseline Development

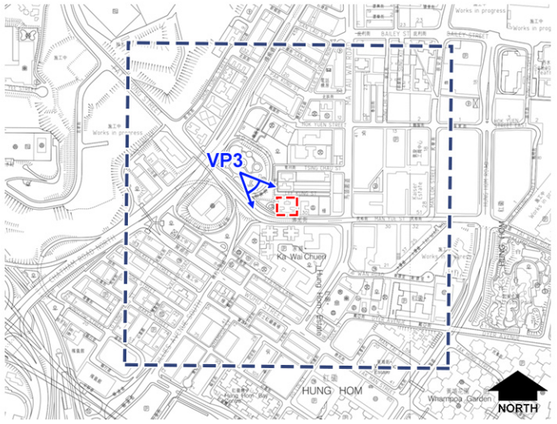
Proposed Development

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

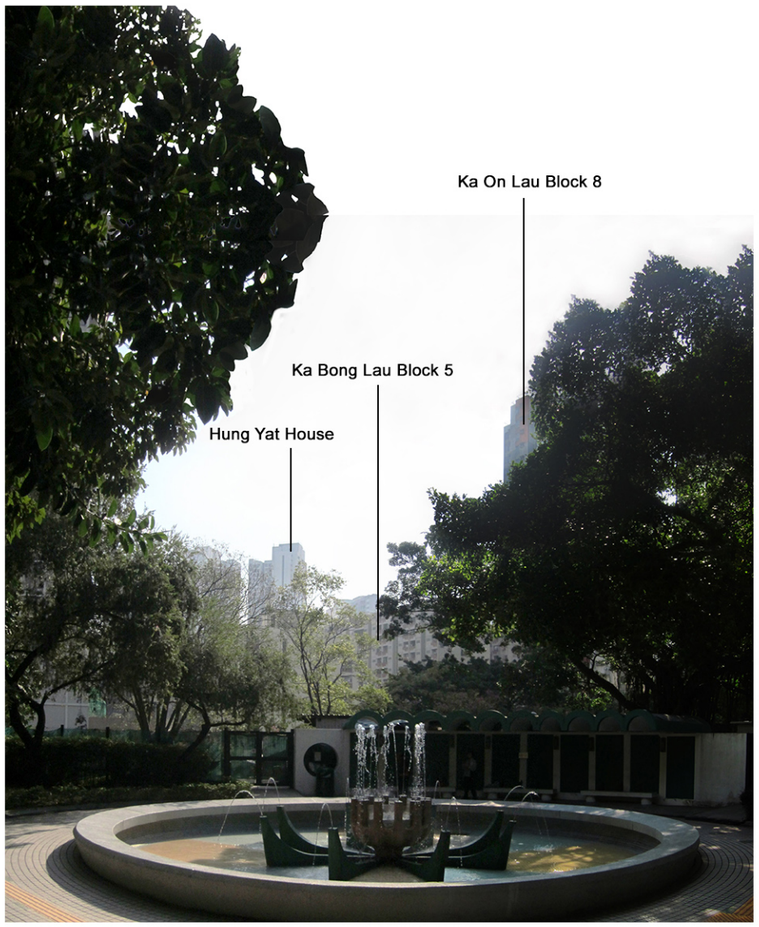
Title

View Point 2 - View from Station Lane Sitting-out Area
(Looking Northeast)

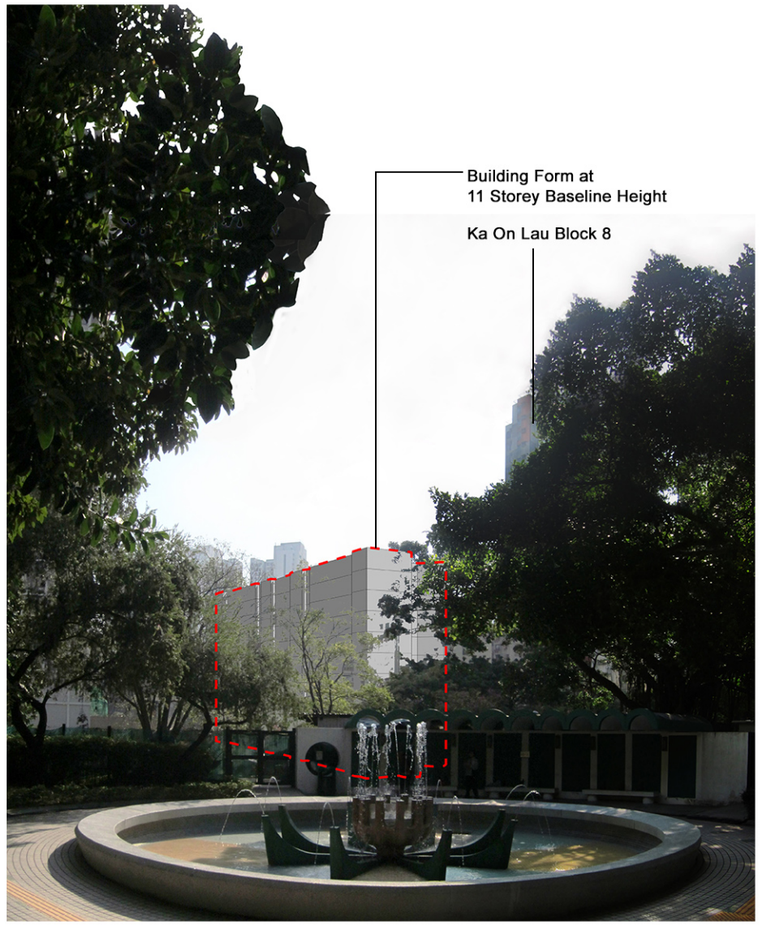
Scale	Date	Figure No.
N.T.S.	December 2015	**2.13**



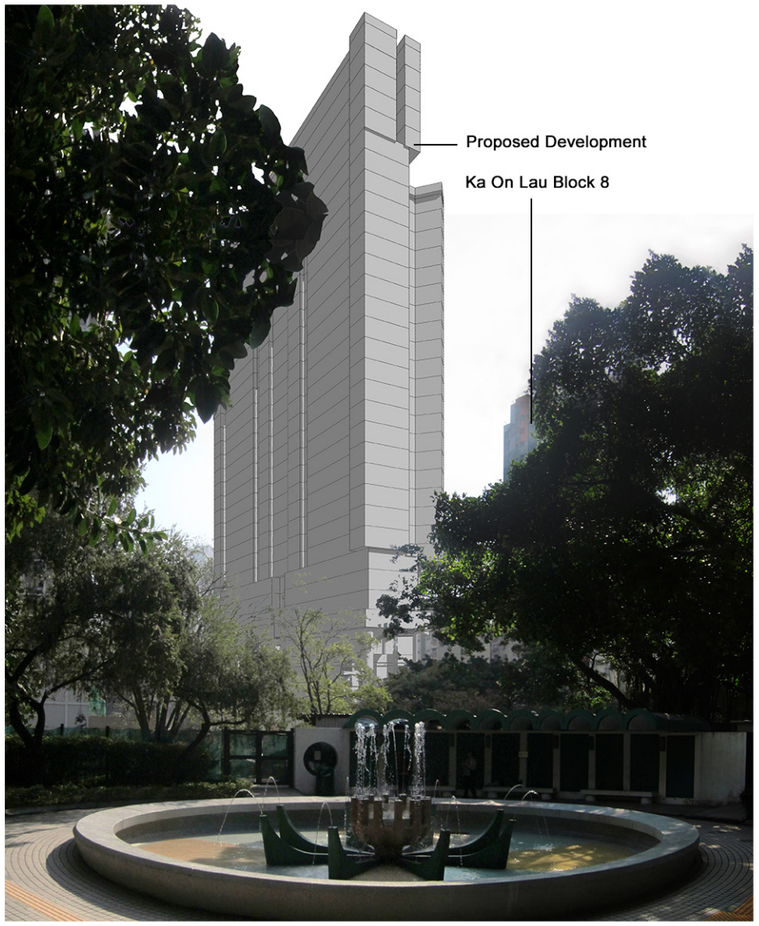
Keyplan



Existing Condition



Baseline Development

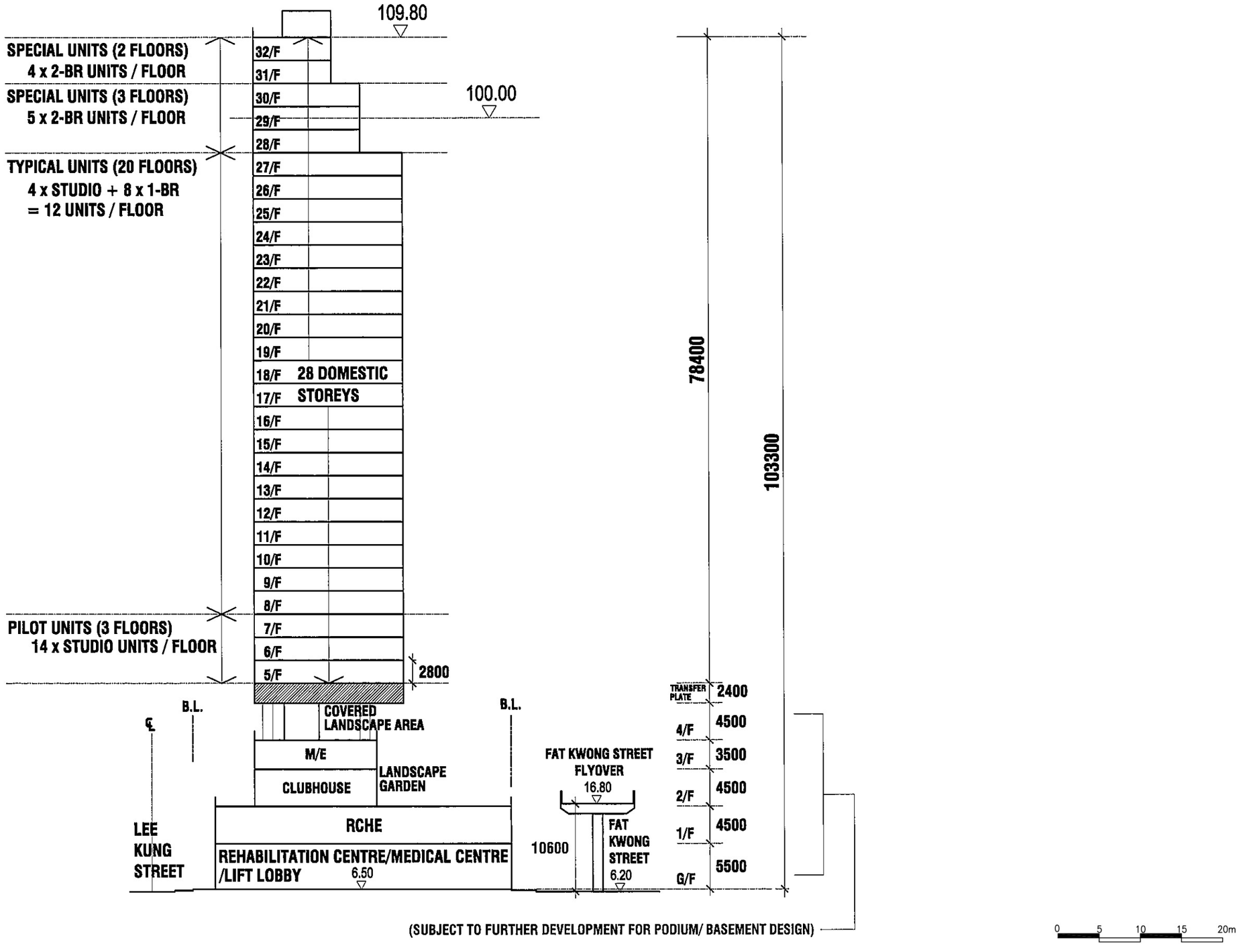


Proposed Development

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Title: View Point 3 - View from Fat Kwong Street Park (Looking Southeast)

Scale	Date	Figure No.
N.T.S.	December 2015	**2.14**

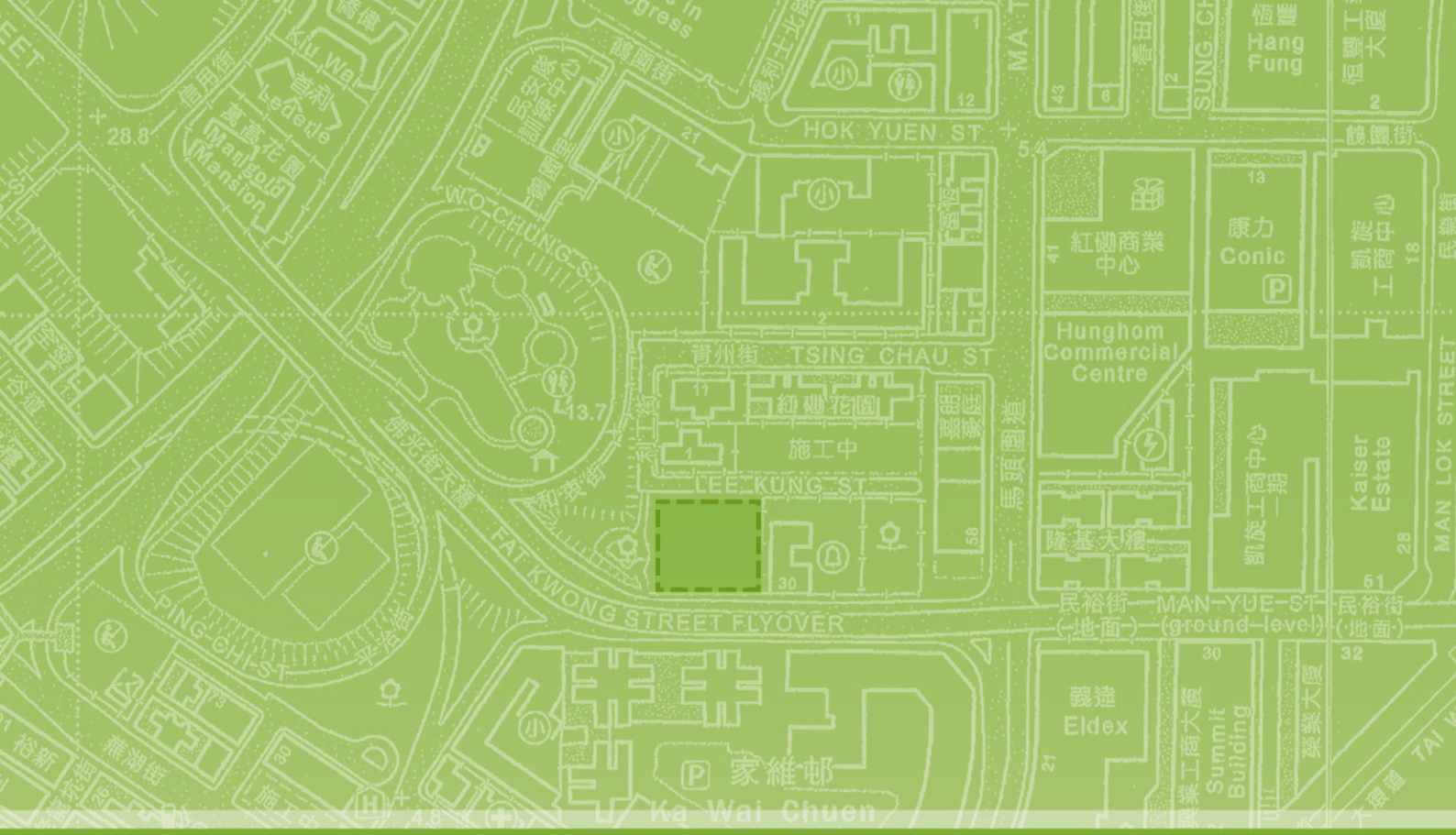


Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Cross Section Illustration with Stepped Height Profile

Scale	Date	Figure No.
AS SHOWN @ A3	December 2015	2.15



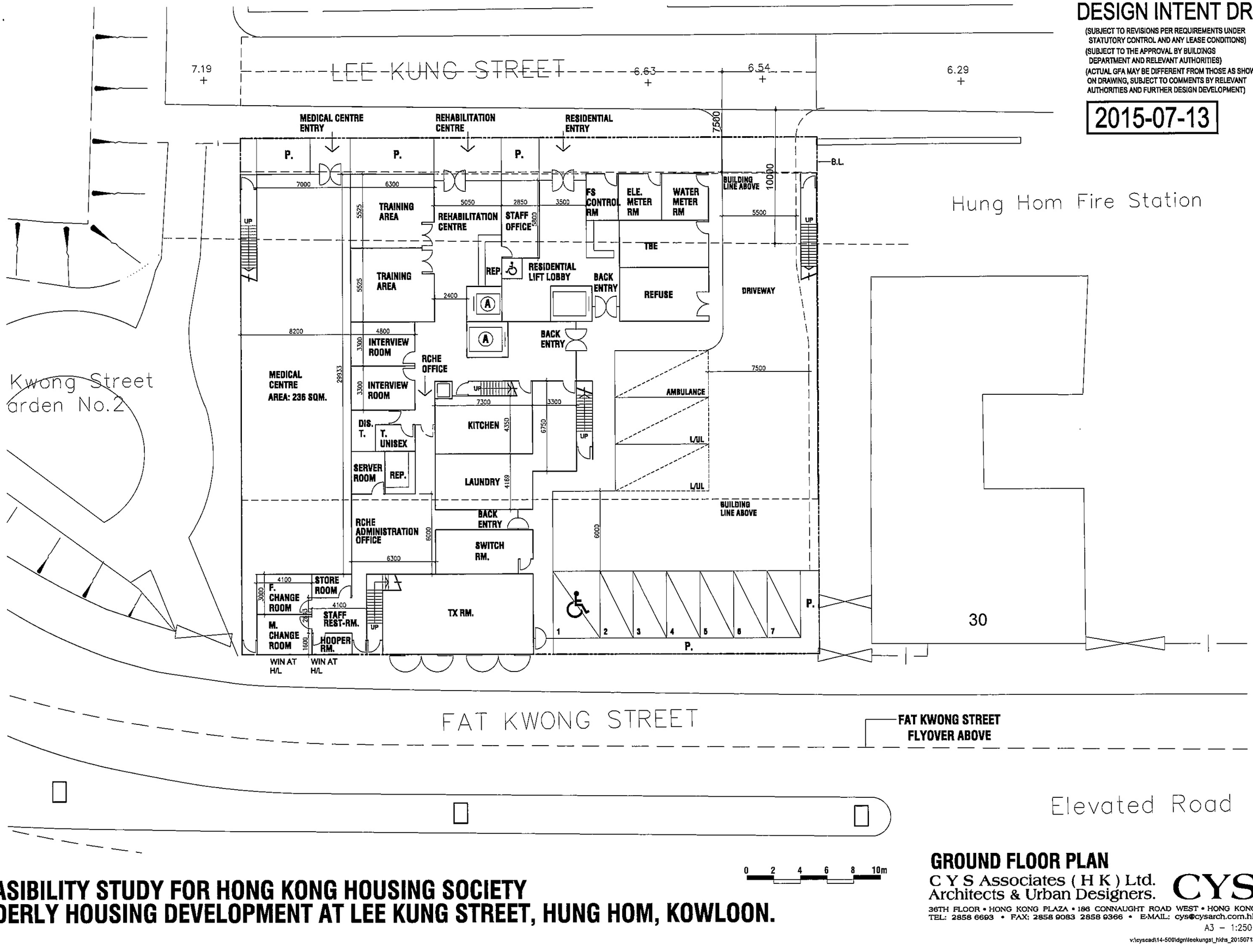
Annex A

Indicative Architectural Drawings for the Proposed Elderly Housing Development

DESIGN INTENT DRAWING

(SUBJECT TO REVISIONS PER REQUIREMENTS UNDER STATUTORY CONTROL AND ANY LEASE CONDITIONS)
(SUBJECT TO THE APPROVAL BY BUILDINGS DEPARTMENT AND RELEVANT AUTHORITIES)
(ACTUAL GFA MAY BE DIFFERENT FROM THOSE AS SHOWN ON DRAWING, SUBJECT TO COMMENTS BY RELEVANT AUTHORITIES AND FURTHER DESIGN DEVELOPMENT)

2015-07-13



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

GROUND FLOOR PLAN

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A3 – 1:250

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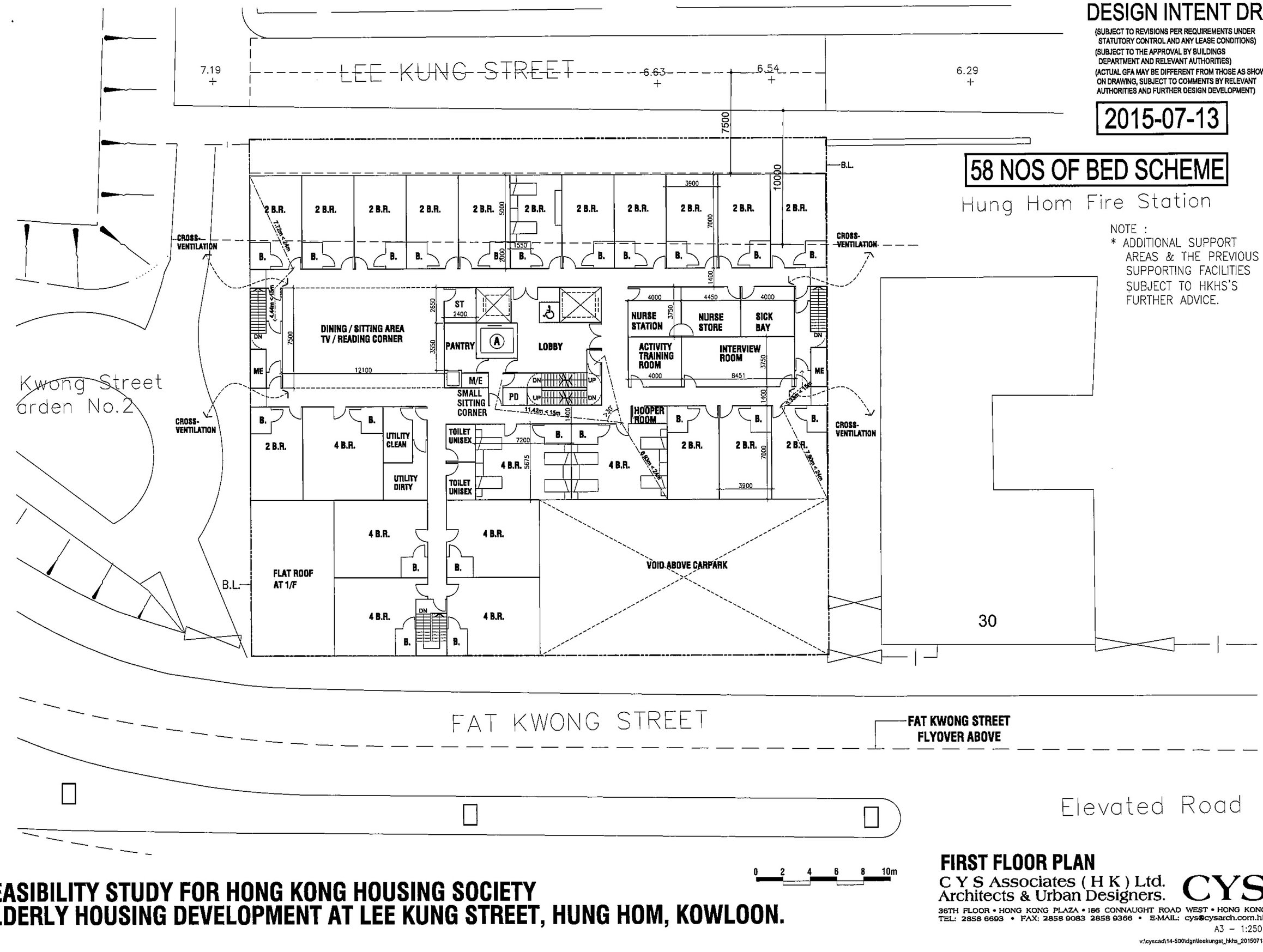
2015-07-13

58 NOS OF BED SCHEME

Hung Hom Fire Station

NOTE :
* ADDITIONAL SUPPORT AREAS & THE PREVIOUS SUPPORTING FACILITIES SUBJECT TO HKHS'S FURTHER ADVICE.



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
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FIRST FLOOR PLAN

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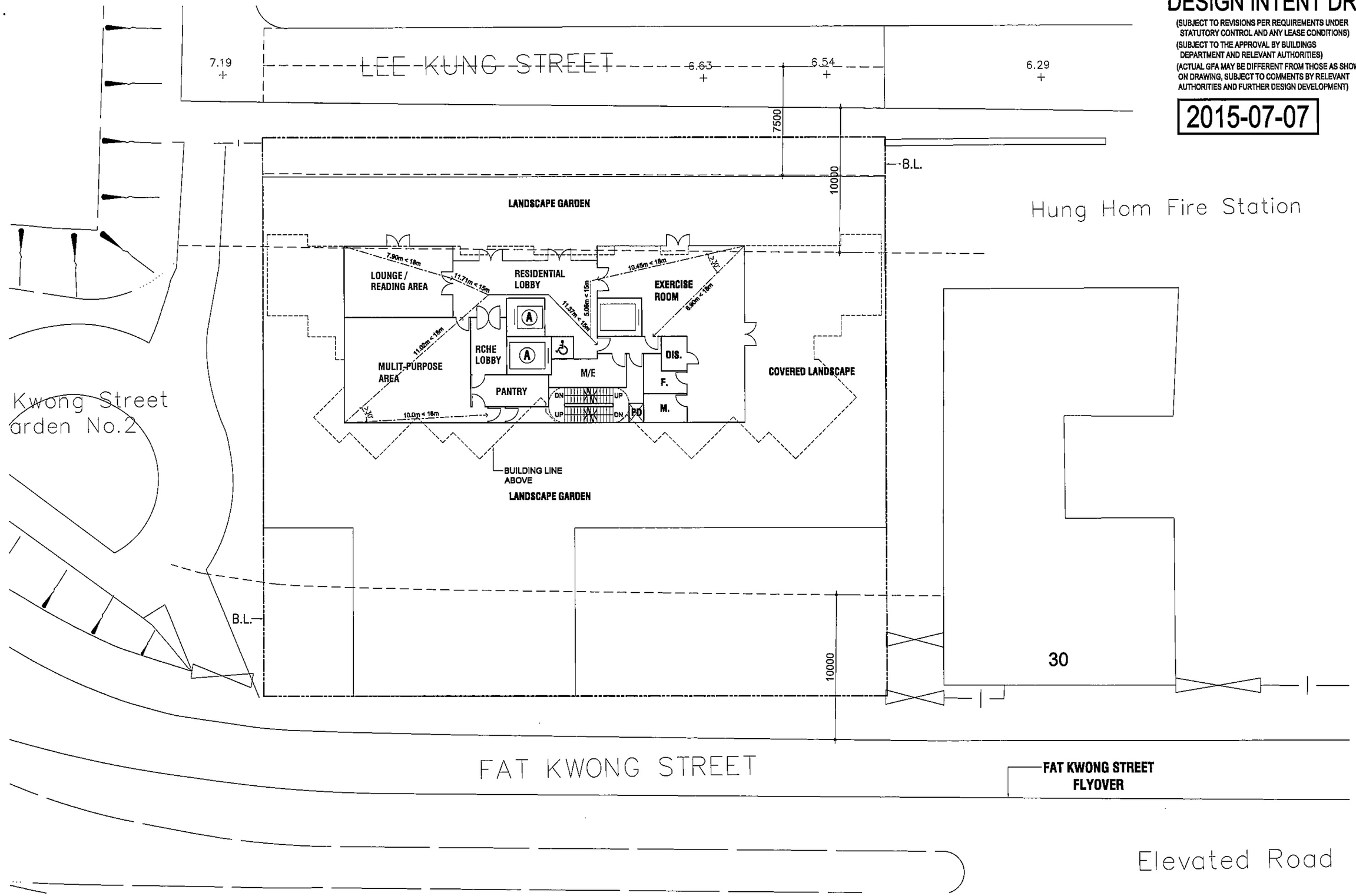
2015-07-07



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SECOND FLOOR PLAN

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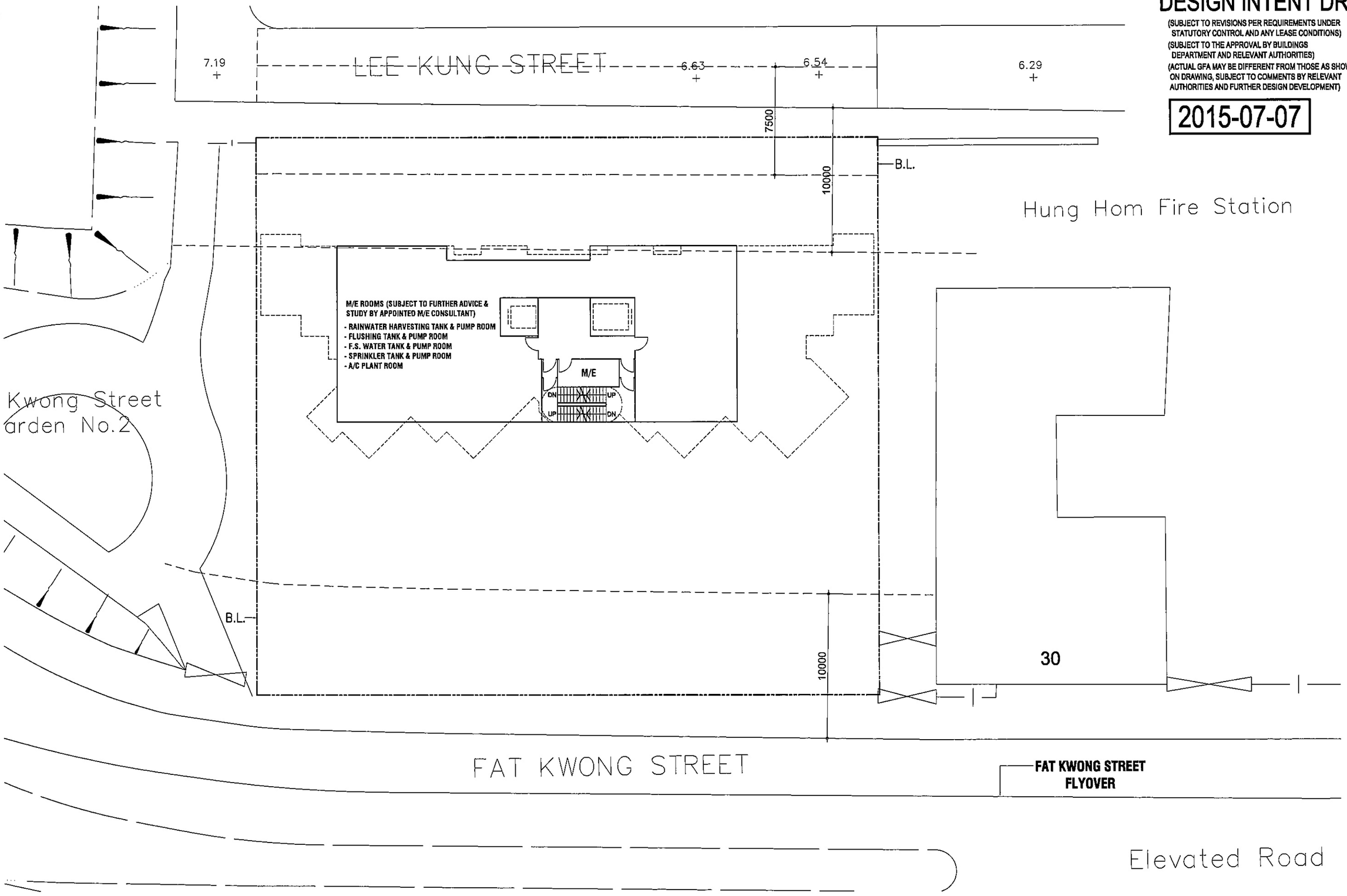

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

THIRD FLOOR PLAN

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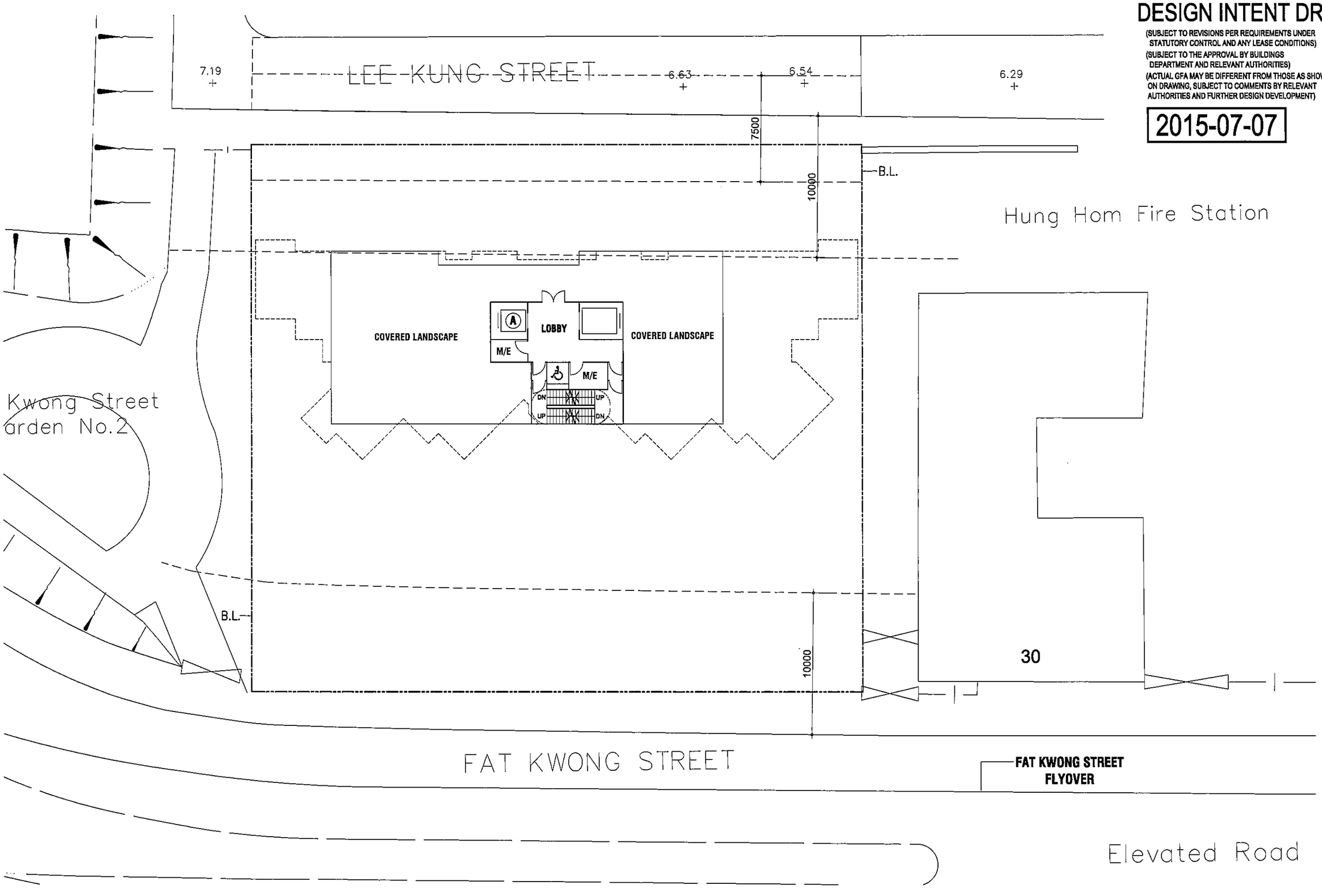

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

4/F PLAN

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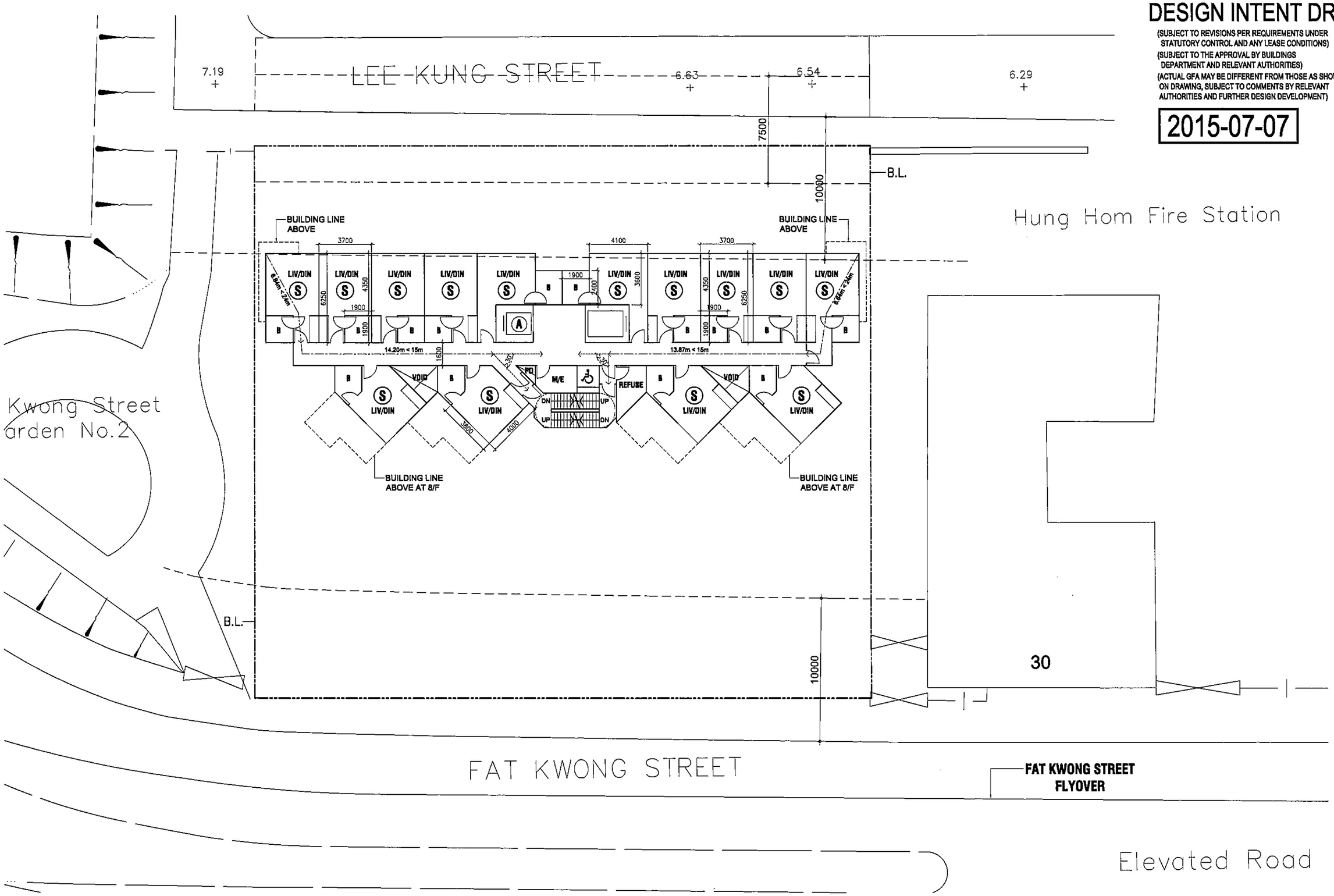

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

PILOT UNIT FLOOR PLAN (5/F-7/F)

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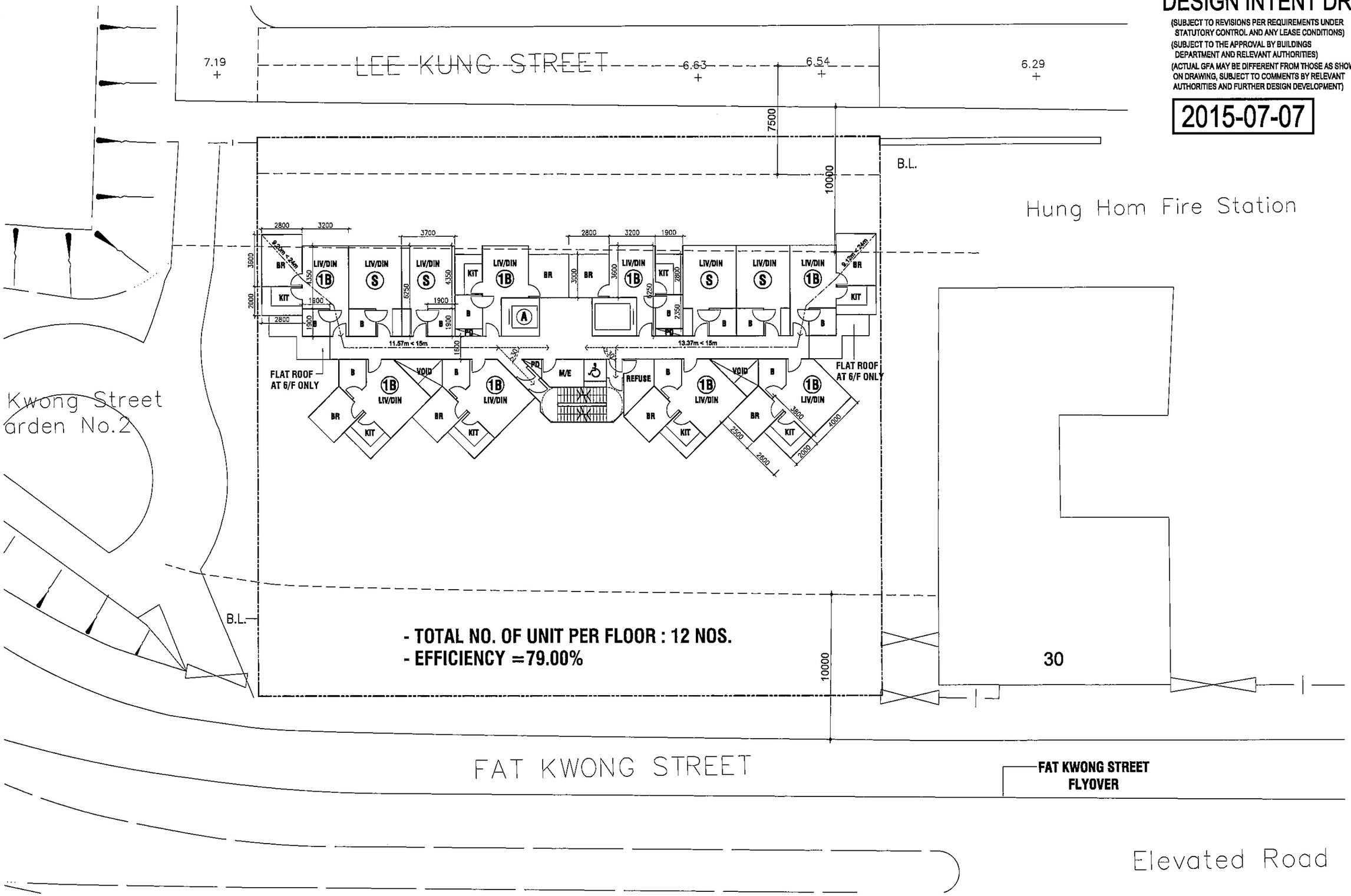

- TOTAL NO. OF UNIT PER FLOOR : 12 NOS.
- EFFICIENCY =79.00%

0 2 4 6 8 10m

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

TYPICAL UNIT FLOOR PLAN (8/F-27/F)

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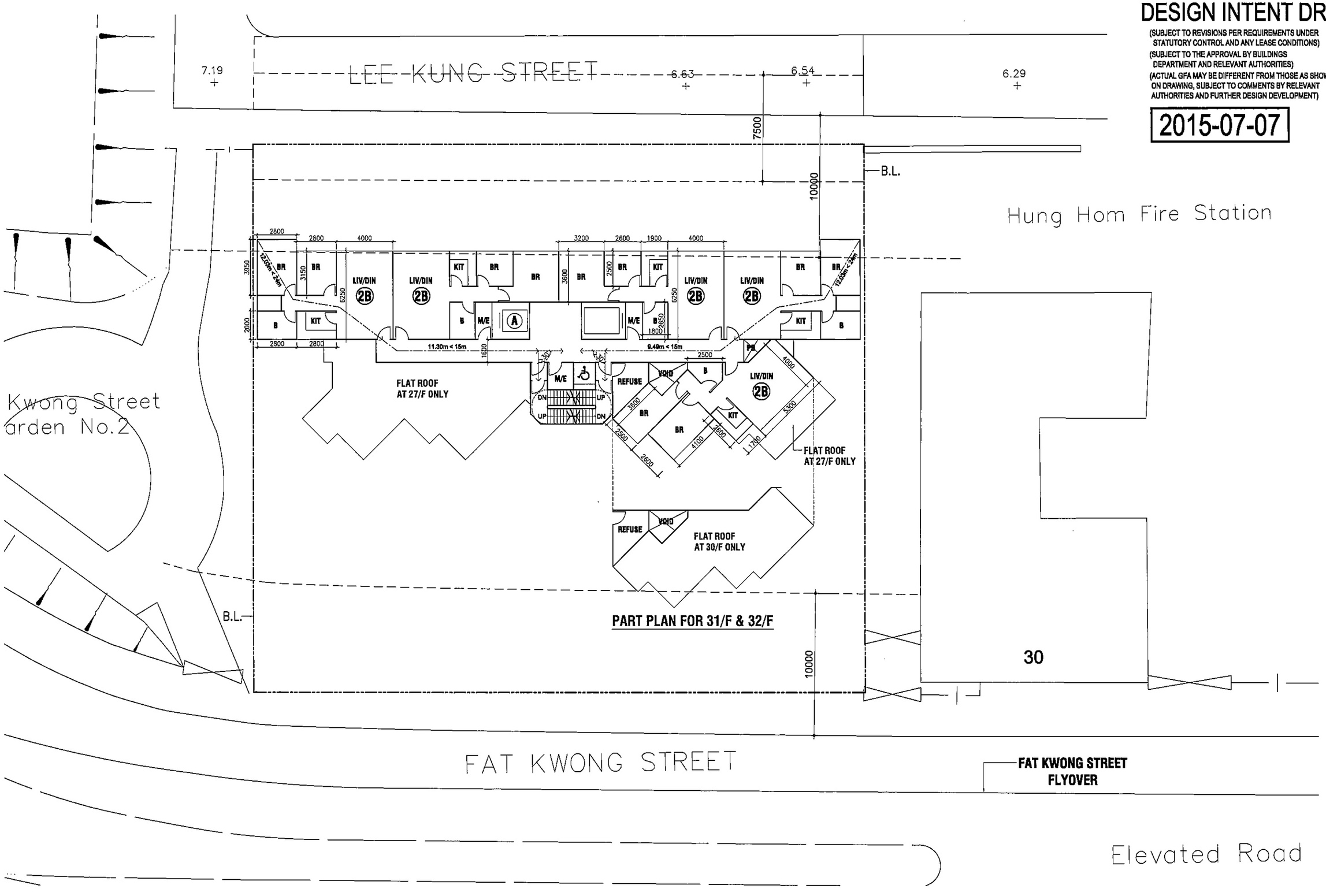

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
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SPECIAL UNIT FLOOR PLAN (28/F-32/F)

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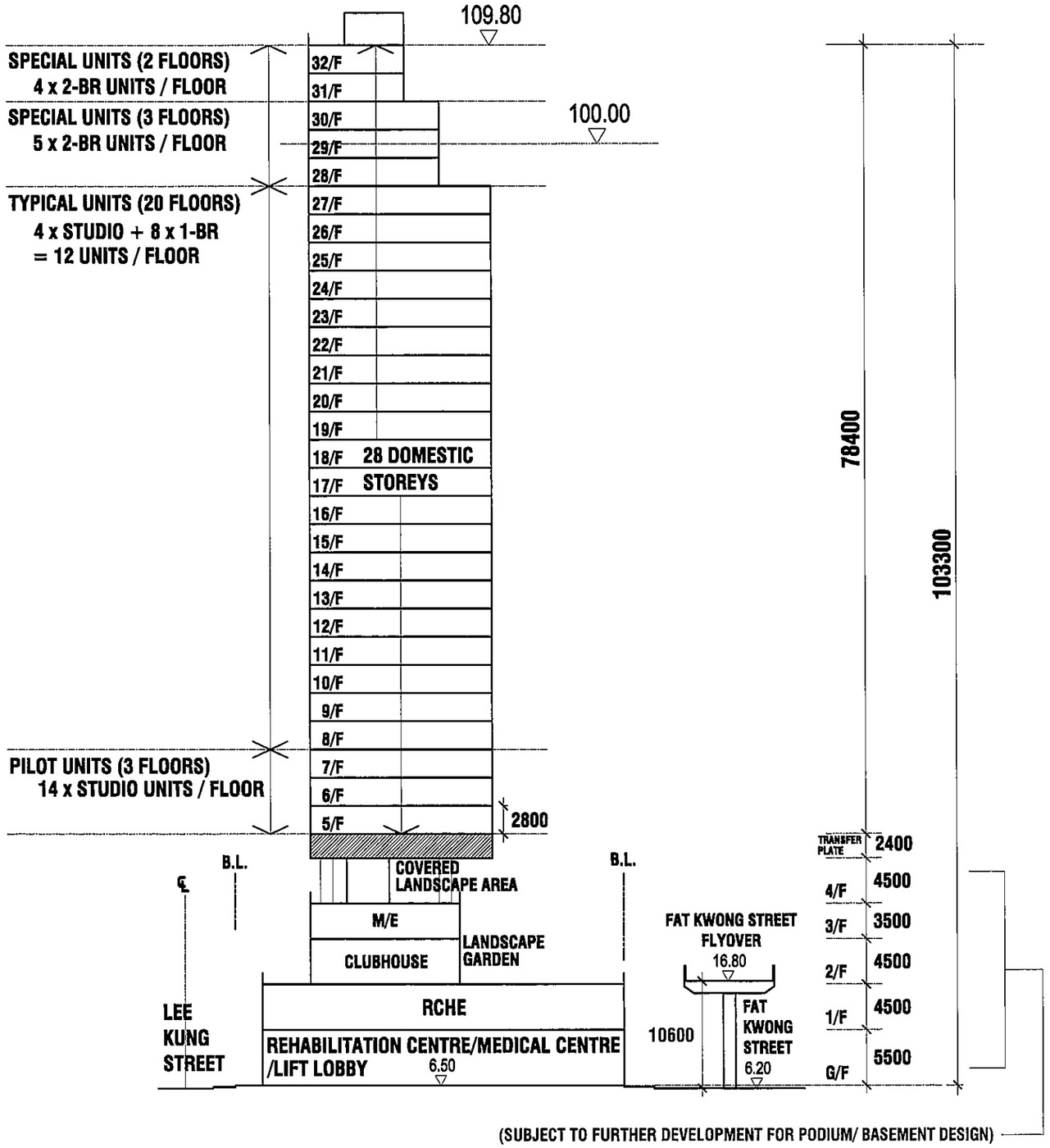
2015-07-07

58 NOS OF BED SCHEME



DEVELOPMENT PARAMETER

	PROVIDED
SITE AREA	1,680m²
SITE CLASSIFICATION	-
PLOT RATIO DOMESTIC NON-DOMESTIC	 7.44 1.05
GFA DOMESTIC NON-DOMESTIC CLUBHOUSE	 12499 1764 2.4% / 300m²
SITE COVERAGE	490.911m² < 559.944m² 33.33% / 559.944m² (DOMESTIC > 61M)
MAX. BUILDING HEIGHT	109.80 MPD (2.8M/ FLOOR)
FLAT MIX	NO. %
STUDIO	122 40.0%
1-BEDROOM	160 52.5%
2-BEDROOM	23 7.5%
	305 100%

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SCHEMATIC SECTION

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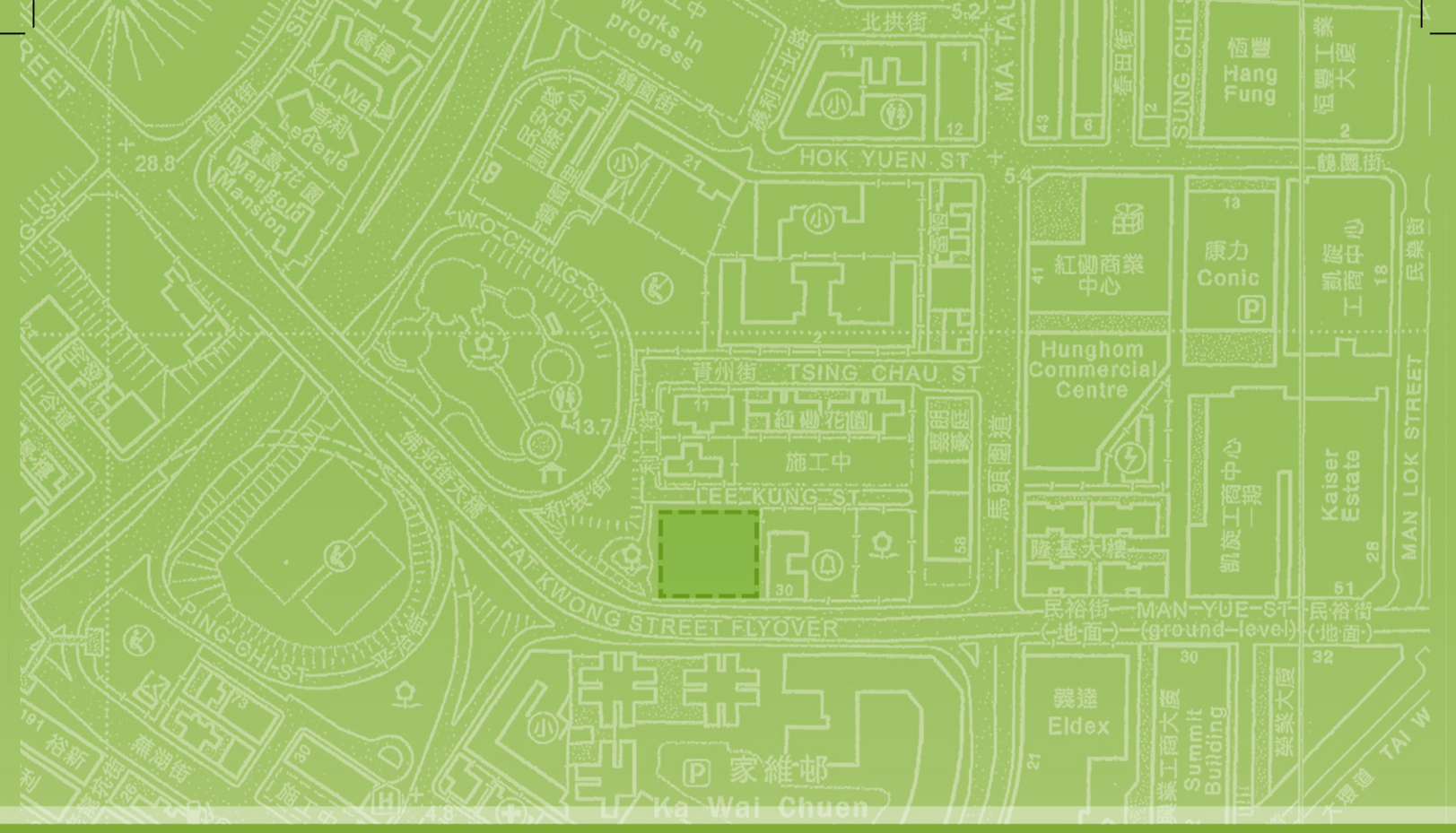

Annex B

Air Ventilation Assessment – Expert Evaluation Report

Planning Consultancy Services for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Air Ventilation Assessment Expert Evaluation

Prepared for:

Urbis Limited

Prepared by:
Ramboll Environ Hong Kong Limited

Date:
Feb 2016

Reference:
R4316_V1.5

RAMBOLL ENVIRON

Prepared by:

Steve Lo
Environmental Consultant

Approved by:

Tony Cheng
Senior Manager

ENVIRON Hong Kong Limited
Room 2403, Jubilee Centre,
18 Fenwick Street, Wan Chai, Hong Kong
Tel: (852) 3465 2888
Fax: (852) 3465 2899
E-mail: info.hk@environcorp.com

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Contents

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List of Figures

List of Annexes

1.0 Introduction

The Housing Society proposes to develop the Subject Site as a Public Elderly Housing Development with all the necessary supporting facilities.

The Subject Site falls within the overall planning context of the urban area of Hung Hom. It is bounded by Lee Kung Street to the north and Fat Kwong Street to the south. Fat Kwong Street Garden No. 2 is located to the west of the Subject Site and the Hung Hom fire station is located immediate east of the Subject Site.

Ramboll Environ Hong Kong Limited (formerly ENVIRON Hong Kong Limited) is commissioned by the Applicant to prepare the Air Ventilation Assessment (AVA) Study report – Expert Evaluation based on the layout plan to support the planning application. Architectural drawings and technical information on the Project are provided by the project team members. Figure 1 shows the location of the Subject Site.

The proposed development comprises 297 flats for the people aged 60 or above and supporting care facilities e.g. Residential Care Home for the Elderly (RCHE), M/E and recreational facilities. Master layout plan of the residential floor of proposed development is shown in Figure 2a to 2c.

Master Layout Plan and section of the proposed development are shown in Annex 1.

1.1 Methodology

This Expert Evaluation (EE) is undertaken based on the framework set out in Technical Circular No. 1/06 – Air Ventilation Assessments jointly issued by Housing, Planning and Lands Bureau, and Environment, Transport and Works Bureau and its Annex A – Technical Guide for Air Ventilation Assessment for Developments in Hong Kong. The Air Ventilation Assessment (AVA) report for Hung Hom area (Cat. A – Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment (PLNQ 37/2007) commissioned by Planning Department, (herewith after named as AVA for Hung Hom) will be referenced. As the Subject Site is located at the fringe of the Hung Hom close to Ho Man Tin area, the AVA report for Ho Man Tin area (Term Consultancies for Air Ventilation Assessment Services, Expert Evaluation on Ho Man Tin Area) commissioned by Planning Department (herewith after named as AVA for HMT) may also be referred.

In this EE, weather data from MM5 has been reviewed to understand the wind environment of the Site. As the Subject Site is located close to the Location A mentioned in the AVA for Hung Hom, the most related wind data can be referred to the Location A. It is considered that the wind data mentioned in the AVA for HMT is not necessary to be referred.

1.2 Subject site and its Environs

The whole site area is about 0.15 ha. It was used for the Fat Kwong Street Fire Services Married Quarters before April 2007.

The Subject Site is located at northwestern fringe of the Hung Hom area, near Ho Man Tin. It is bounded by the Lee Kung Street to the north, the Fat Kwong Street Flyover to the south and Wo Chung Street to the west. The Chatham Road North is located further west of the Subject Site with open space located in between. The Hung Hom Fire Station with roof level at ~ 38.5 mPD is located

immediate east of the Subject Site. Further east of the fire station, a row of built development with roof level from ~ 20 mPD to 88 mPD is sitting from north to south along the Ma Tau Wai Road. Compact large scale built development Ka Wai Chuen with roof level from ~ 52 mPD to ~ 88 mPD is sitting south of the Subject Site with the Fat Kwong Street Flyover located in between. Medium to high rise built developments (Custom & Excise Service Hung Hom Quarters with roof level of ~ 91 mPD and Hung Hom Garden with roof level of 52 mPD) are located north of the Subject Site with Lee Kung Street located in between. **Figure 4** shows the building height of the surrounding area.

1.3 Proposed Development

The Proposed Development consist one 28 domestic storeys building sitting on a podium with a 4.5m gap located in between. The first residential floor starts at 31.1 mPD while the roof level of the podium is at ~ 16.2 mPD. Recreational facilities and M/E floor is sitting on the podium with the footprint similar to the residential tower above. The roof level of the recreational facilities and M/E floor above the podium is about 24.2 mPD. The podium consists of 2 storeys with rehabilitation centre, medical centre and lift lobby at ground floor; while the first floor of the podium will be used for RCHE. The RCHE is recessed from the Fat Kwong Street.

As shown in the section plan, there is an opening along north-south array located between 24.5 mPD and 29 mPD. Furthermore, as shown in the ground floor plan, there is another opening along north-south array at eastern boundary. This opening is part of the run-in-out and carpark. **Annex B1** of **Annex B** shows the approximate dimension of the opening, with about 21m wide opening along Fat Kwong Street and about 6m wide opening along Lee Kung Street. The podium at ground floor is not 100% covering the Subject Site with the eastern portion is open for open car park (see the ground floor plan and first floor plan in **Annex A**). In general, the south-eastern corner of the Subject Site is uncovered. Other than this uncovered portion, there is also a small stepping at the south-western corner of the podium. The location and dimension of the small stepping at this corner is shown in **Annex B2**.

Figure 2 shows the master layout plan of the Proposed Development. Layout plans and sections of the Proposed Development are shown in **Annex A**.

2.0 Site Wind Availability

2.1 Site Wind Availability Data

Based on the recorded wind data from Hong Kong Observatory and the information stated in the AVA for Hung Hom, the easterly wind and north-easterly wind would be dominated in the non-summer period. During the summer period, the easterly, south-easterly, southerly and south-westerly wind would be dominated. The Victoria Harbour is located to the east and south of the Hung Hom area, and therefore the wind from harbor would be the dominate wind of the area. Therefore, throughout the year, the most dominant wind would come from eastern direction as well as southern direction. **Figures 3a** to **3e** show the wind roses extracted from AVA for Hung Hom whereas the Figure 3a and 3b show the wind roses at Location A. The Subject Site is located close to the Location A; and therefore, the wind data at 450m at Location A has been adopted in the current study.

2.2 Prevailing Wind Environment of the Hung Hom Area

Figure 4 shows the topography and building morphology of the area under concern. The Subject Site is located at the inner part of the Hung Hom. Victoria Harbour is located east and south of the Hung Hom. The Home Hom area is generally flatted with clusters of built developments over the area. High rise buildings are commonly found at the harbour front area. Roads and streets are generally aligned from north to south or east to west; and the width of some roads, such as Fat Kwong Street, Chatham Road North and the Hung Hom Road, are usually wide; while most of the streets are narrow.

Annual Condition

Based on the windrose extracted from the EE for Hung Hom at the Location A, the annual prevailing winds are from the north-east and east where Victoria Harbor located. Therefore, generally speaking, the area should be enjoying the sea breeze from these directions. As advised by EE for Hung Hom, the wind from the waterfront can penetrate via the north-south and east-west streets which orientation aligns well with the prevailing wind directions. However, with the present of dense and compact built environment, it is expected that narrows streets are not efficient air paths due to the friction and roughness of buildings along them. For those roads with wider width, such as Hung Hom South Road and Chatham Road North, it is considered to be important air paths for Hung Hom area.

Summer Condition

As mentioned in section 2.1, during the summer period, the prevailing winds are from the east, south-east, south and south-west directions. The wider road, Chatham Road North (align from northeast to southwest) and Hung Hom South Road (align southeast to northwest), would be the major air path of the area in summer direction. Although Hung Hom Road aligns from northeast to southwest, it is considered not to be an efficient air path, due to the building blockage to its south. Similarly, due to the building blockage to the south, it is considered the Gillies Avenue not an efficient air path in view of large surface roughness.

2.3 Wind Environment at the Subject Site

Annual Condition

As mentioned in section 2.1, the annual prevailing winds are from north-east and east.

The Subject Site is located at northwest fringe of the Hung Hom area, i.e. the areas to the north, east and south of the Subject Site are dense and compacted development. For this site with ~ 0.15ha area, it is immediate surrounded by medium to high-rise buildings to the east and north. A row of compact medium rise buildings are sitting along the Ma Tau Wai Road. The Lee Kung Street to the immediate north of the Subject Site is enclosed by these buildings. Fat Kwong Street is located to the south of the Subject Site with a large scale of built development Ka Wai Chuen at the opposite side. The building height of the Ka Wai Chuen is ranging from ~ 51 mPD to ~ 89 mPD (**Figure 4**). These compact built developments would block the annual prevailing winds from north-east and east by reaching the Subject Site. The annual prevailing winds would flow along the streets / roads, such as the Fat Kwong Street which align from east to west. However, it must be noted that the section of the Fat Kwong Street in front of the Subject Site include an elevated flyover with the level of ~ 17 mPD. It is expected that the elevated Fat Kwong Street flyover would reduce the wind speed of the pedestrian level underneath the flyover.

Summer Condition

During summer period, the prevailing winds are from the east, south-east, south and south-west.

It is stated in the AVA for Hung Hom that the wider roads like Chatham Road North and Hung Hom South Road are useful air paths for the southerly prevailing wind of the summer conditions. The Subject Site is located closed to Chatham Road North with an open area in between. The summer wind would therefore flow from Chatham Road North to the area where the Subject Site is located. Although the Gillies Ave Street aligns from southwest to northeast, it is considered that this street is not an efficient air path due to high roughness of the area to its south. The southwestern wind would also flow through the two open spaces next to the junction of the Chatham Road North and the Fat Kwong Street Flyover. However, the elevated Fat Kwong Street flyover would reduce the wind speed of the pedestrian level underneath the flyover.

Similar to the annual wind, the summer prevailing wind from east direction would flow along the elevated Fat Kwong Street flyover to the Subject Site. However, the elevated Fat Kwong Street flyover would reduce the wind speed of the pedestrian level underneath the flyover.

2.4 Discussion on Important Pedestrian Areas

The proposed new building height (H) is at 109.8 mPD. Therefore, the concerned area would be the area within ~ 110m. The concerned area include the area along Lee Kung Street and Tsing Chau Street (i.e. Custom & Excise Service Hung Hom Quarters, Hung Hom Garden and S.H.K. St. Timothy's School), the Ma Tau Wai Road (i.e. Carlton Court, the medium to low rise buildings near junction of the Ma Tau Wai Road and Fat Kwong Street), the area along the Fat Kwong Street Flyover (i.e. the sitting area east of the Hung Hom Fire Station, Ka Wai Chuen), the sitting-out area at Gilles Avenue South, Fat Kwong Street Playground and Fat Kwong Street Garden No. 1 as well as Fat Kwong Street Garden No. 2 and Tsing Chau Street Playground. The location of the identified concern areas is shown on **Figure 4**.

3.0 Expert Evaluation

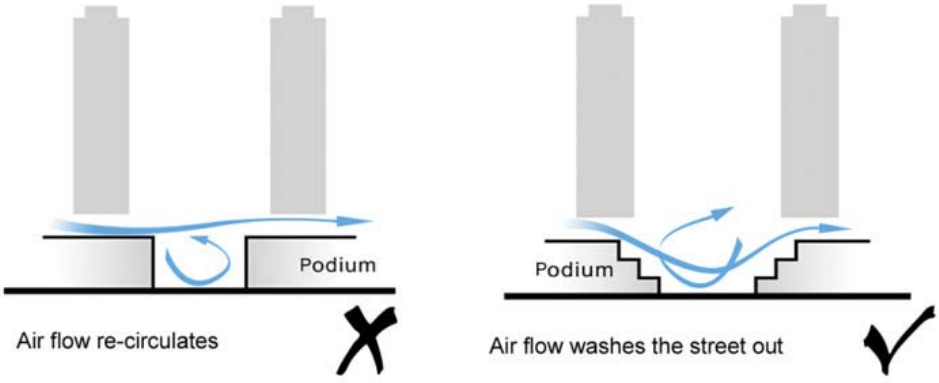
3.1 Annual Wind Condition

As mentioned in section 2.1, the annual prevailing winds are from north-east and east.

North-East Wind

Under the prevailing winds from north-east, the wind would flow along the Ma Tau Wai Road as well as Tsing Chau Street. The Subject Site is located at the downwind area of the Ma Tau Wai Road and Tsing Chau Street. The proposed development would not have any significant impact to the wind performance of these two air paths. Therefore, the air ventilation of the Tsing Chau Street Playground would also not to be affected.

Between the Tsing Chau Street and the Subject Site, there are medium to high rise built developments located in between, i.e. at the upwind position of the Subject Site. These built developments include the Hung Hom Garden, the Custom & Excise Service Hung Hom Quarters, Carlton Court, the low rise buildings near junction of the Ma Tau Wai Road and Fat Kwong Street. Generally speaking, these buildings are aligned together with a narrow gap between the Hung Hom Garden and the Carlton Court, and they already block or reduce the pedestrian wind flow from this direction to the Subject Site as well as the area south of Fat Kwong Street, including the Fat Kwong Street Garden No. 2. Nevertheless, the proposed development with height of 110 mPD would create wake areas to the existing developments located in downstream, including the Blocks 7 and 8 of Ka Wai Chuen under the NE wind. However, the wind from NE direction will be blocked by the above mentioned existing medium to high rise development to the upstream of the Proposed Development; resulting not much wind reaching the downstream area of the Proposed Development. These existing buildings have created a wake area to the downstream; and this wake area may be increased due to the present of the Proposed Development with height of 110 mPD. In order to minimize the possible blockage of the NE wind due to the Proposed Development, mitigation measures have been incorporated in the Proposed Development to minimize the potential impact; and the mitigation measures include: provision of 4.5m high opening between 24.5 mPD and 29 mPD, provision of opening at ground floor along the eastern boundary of the Proposed Development, provision of stepping design, and increase separation between the proposed development and the Ka Wai Chuen by sitting the residential tower to the northern portion. The wind from NE can flow through the 4.5m high opening and follow the stepping podium to the pedestrian level of downstream area.



In addition, the wind can also flow through the Proposed Development via the opening at ground floor (**Figure 8**). The separation between the residential tower of the Proposed Development and the nearest high-rise development Block 7 of Ka Sing Lau of Ka Wai Chuen is maximized to reduce the number of developments following within the possible wake area. Therefore, it is considered that the Proposed Development would not have any significant impact to the wind performance of downwind area of the Subject site, including the area along Fat Kwong Street, the sitting area at Gilles Avenue South, the Fat Kwong Street Garden No. 2 and the Ka Wai Chuen and its inside sitting area, or the possible impact is minimized as much as possible.

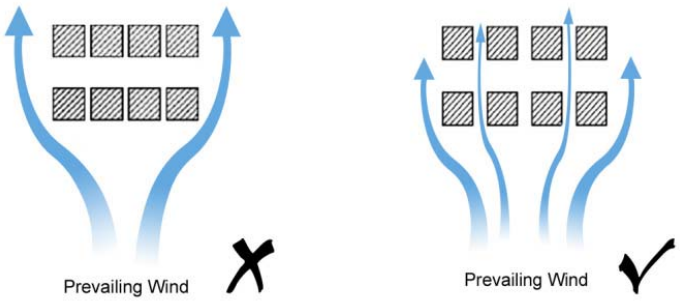
For sitting area east of the Hung Hom Fire Station, it is not located at the downwind area of the Subject Site for this wind direction, the proposed development would not have any significant impact on its air ventilation performance under this wind direction. Similarly, the Subject Site is not located at the upwind of the Fat Kwong Street Playground and Fat Kwong Street Garden No. 1., the proposed development would not have any significant impact on its air ventilation performance under this wind direction.

East Wind

The Subject Site is not located at the upwind of the Tsing Chau Street and Ma Tau Wai Road, the proposed development would not have any significant impact on its air ventilation performance under this wind direction. It is considered that the Tsing Chau Street Playground and the northern part of the Fat Kwong Street Garden No.1 should also not be significantly affected by the proposed development which is not located at the upwind direction of these areas under east wind. Similarly, the air ventilation performance at Ka Wai Chuen, the sitting area within the Ka Wai Chuen and the sitting area at Gilles Avenue South would not be significantly affected as the Subject Site is not located at the upwind direction of these areas. The design of the Proposed Development would not have any significant impact on them.

Since the building height of the existing fire station upstream of the proposed development is around 38.5 mPD which is much lower than that of the proposed development, the proposed development would create a larger wake area in the downstream, including the Fat Kwong Street Garden No. 2 and Fat Kwong Street Playground under east wind. However, stepping design is adopted in the podium of the proposed development which will minimize the potential blocking, but the effectiveness of the stepping would not be significant as the incoming wind is expected not too strong. In this proposed development, 10m tall podium is proposed at G/F and 1/F with the south-eastern corner of the site is uncovered. A small portion of the south-western corner of the podium has 1 storey only. Annex **B2** and **B4** show the stepping design of the podium and section of the podium with the relevant dimension respectively.

Further, the residential tower of the proposed development is sitting from east to west array which follows the easterly wind direction. The axis of building block is parallel to the prevailing wind of east. This would follow the recommendations in the HKPSG on Air Ventilation regarding building disposition (see illustration extracted from Figure 49 of Chapter 11 of Urban Design Guidelines), such that wind can flow around buildings and minimize the wake area.



For the Lee Kung Street and the built development north of the Lee Kung Street as well as the open space east of the Subject Site, a row of existing medium rise developments with the roof level from 20mPD to 88 mPD along the Ma Tau Wai Road already block the pedestrian wind from reaching these areas, the proposed development would not have any significant impact on their air ventilation performance under this wind direction. Similarly, the sitting area east of the Hung Hom Fire Station would also not be affected by the Proposed Development as the easterly wind would be blocked by the medium rise building immediately in front of it. The Proposed Development is located at the downwind area of this sitting area.

For the wind flow along the Fat Kwong Street, the elevated Fat Kwong Street Flyover has reduced the wind speed at pedestrian level. The building footprint of the Hung Hom Fire Station is closed to the Fat Kwong Street, i.e. no setting back from the footpath of the Fat Kwong Street. The existing fire station has already reduced the wind speed for the area of the Fat Kwong Street at downwind area including the Subject Site. Although there is podium in the Proposed Development, it is only two storeys with the first storey is recessed from the Fat Kwong Street. In addition, the recreational facilities and the residential block is also further setting back from the Fat Kwong Street. These mitigation measures would help to minimize the potential impact upon the air ventilation performance along the Fat Kwong Street by reducing the obstruction on the wind flow along the Fat Kwong Street.

Overall review

It is considered that there would not have any significant adverse air ventilation impact upon the surrounding area under Annual Wind Condition due to the Proposed Development.

3.2 Summer Wind Condition

During summer period, the prevailing winds are from the east, south-east, south-west and south.

East Wind

As the east wind is also major wind direction under annual condition, the analysis of the performance under the same wind direction in summer condition is similar to that as under annual condition. The analysis has been presented in the section 3.1 above.

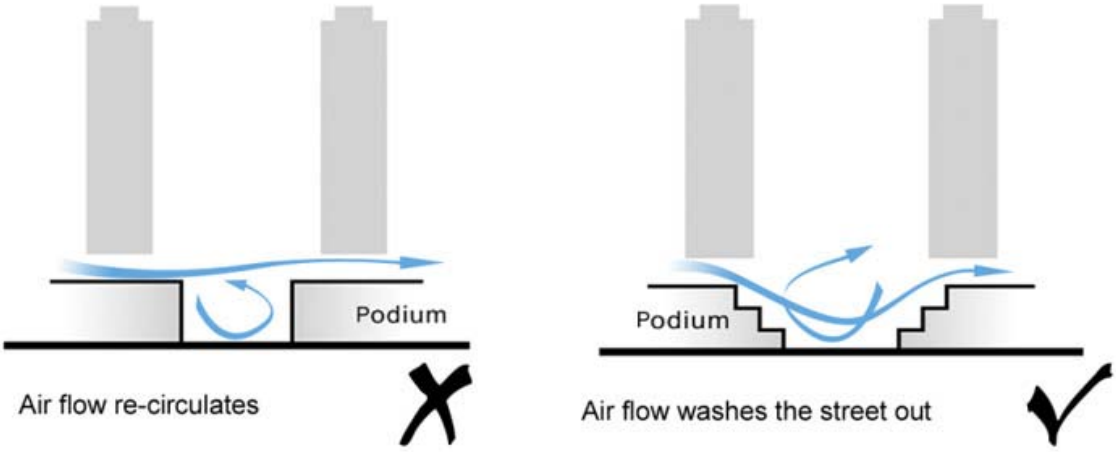
Southwest and South wind

For the wind from southwest and south direction, it is mentioned in both AVA for Hung Hom and AVA for HMT that they will flow along the Chatham Road North. The Subject Site is located further away from the Chatham Road North. Therefore, the proposed development would not have any impact on the air ventilation of this major air path of the area. The major open spaces of the area, including sitting area at Gillies Avenue South, the Fat Kwong Street Playground, Fat Kwong Street Garden No. 1 and the Fat Kwong Street Garden No. 2, are located at the upwind of the Subject Site, the proposed development would not have any impact nor significant impact on their air ventilation performance in this wind direction. Similarly, the proposed development would not have any impact upon the wind performance of the Ka Wai Chuen which is located at the upwind direction.

For the sitting area east of the Hung Hom Fire Station, the Fat Kwong Street Flyover and the fire station in front has already blocked or reduced the wind reaching this sitting area. Also the large bulky Ka Wai Chuen is located at the upwind area of this sitting area. It is considered that the Proposed Development would not have any significant impact upon this sitting area under this wind direction.

For the Lee Kung Street, the existing bulky built development Ka Wai Chuen at upwind direction has already blocked much of the wind from south direction. For the wind from southwest direction, wind can be flow along the Gillies Avenue South to the proposed development although it is not an efficient air path due to the existing buildings at upstream. Nevertheless, the elevated Fat Kwong Street Flyover also reduces the wind speed of the area. The high-rise existing building Ka Wai Chuen is located also at the upwind of the proposed development under the SW and S wind. The Ka Wai Chuen has blocked the wind from SW and S directions; and there is not much wind from reaching the proposed development and the downwind area, including the Lee Kung Street and the existing buildings along. Further, there are mitigations measures incorporated into the proposed development to minimize the potential blockage to the downwind areas including Custom Staff Quarter and Hung Hom Garden. The mitigation measures include 1) stepped podium (Figure 7 and Annex B2), provision of 4.5m tall opening above the podium (Figure 7 and Annex) and opening along the eastern boundary at ground level (Figure 8).

Above the recreational facilities, there is 4.5m high opening which allow the wind passing over (Figure 7). The opening is located between 24.5 mPD and 29 mPD with 4.5m tall. Also, the design of the podium underneath the opening is stepping down. This design has considered that the recommendation in the Air Ventilation of the Chapter 11 of Hong Kong Planning Standards and Guidelines regarding the podium design to minimize the potential impact. The wind will flow along the opening and follow the stepped podium to the pedestrian level. Below is the HKPSG's recommendation for podium design.



It is mentioned in the AVA for Hung Hom that tall buildings increase ground roughness and reduce air ventilation. The Proposed Development may have the impact on the air ventilation at the area north of the Lee Kung Street in this direction. It must be noted that the bulky built development Ka Wai Chun is also a tall building with roof level at 86 mPD; and it is located at the upwind of the Subject Site from south wind direction. The Ka Wai Chun would already block the wind flow to the concern area from southerly wind. For the southwesterly wind, it is inevitably that the Proposed Development would reduce the wind speed for the downwind area, such as the area north of the Lee Kung Street. In order to minimize the impact, the first residential floor is raised to be starting from 31.1 mPD such that there is a 4.5m opening underneath for south-westerly wind pass through the Proposed Development to the downwind area. Furthermore, there is an opening at the ground level (Figure 8). The opening would further alleviate the possible ventilation impact at pedestrian level.

These openings would facilitate wind passing through the proposed development at lower level. It is considered that the proposed development would not have significant impact on blocking the SW and S wind to the downwind area although the building height of the proposed development is 110 mPD.

Southeast wind

For the wind from southeast direction, the bulky existing development, Blocks 2 to 5 of Ka Wai Chuen is located at the upstream area, and these building blocks are continuous with the building height of about 52 mPD. The linear existing building would block the wind from southeast direction, and may divert the wind flow along the Ma Tau Wai Road, i.e. the wind my not reach the subject site and the downstream area. A wake area covering the subject site and the downstream area is therefore created. Since the building height of the proposed development is 110 mPD, the wake area may be increased after the completion of the proposed development. However, some mitigation measures (see the mitigation measures described in south and southwest wind direction above) have been incorporated into the proposed development. It is considered that the potential blockage of the wind from southeast wind direction is minimized.

Overall review

It is considered that there would not have any significant or unacceptable air ventilation impact upon the surrounding area under Summer Wind Condition due to the Proposed Development as mitigation measures in terms of stepping podium, setting back of the residential block provision of 4.5m opening between the first residential floor and the podium and opening at ground floor. These mitigation measures facilities the wind passing through the proposed development and reach the downstream area.

3.3 Mitigation Measures

As discussed in above section, following mitigation measure were adopted in the proposed development in order to enhance air ventilation to surrounding area:

- Openings at 4/F levels (Annex B3 and B4);
- Stepped podium design (Annex B2);
- Opening at ground floor (Annex B1);
- Setback from boundary along the Fat Kwong Street (Annex B3); and
- Alignment of building block in E-W direction

Annex B1 to B4 shows the approximate dimension of the mitigation measures incorporated into the building design.

3.4 Further Study

It is recommended that should the mitigation measures recommended above be not implemented in accordance with the current Proposed Scheme for the future scheme, a quantitative Air Ventilation Assessment will be conducted for the future proposed scheme to ascertain that the future scheme will not perform worse than the current Proposed Scheme.

4.0 Conclusion

An Expert Evaluation on air ventilation assessment has been carried out in accordance with ETWB Technical Circular No. 1/06 AVA and Chapter 11 of the HKPSG, as well as the AVA for Hung Hom and AVA for HMT.

With reference to the wind rose, annual prevailing winds in the area are from the north-east and east. During summer condition, the prevailing winds are from the east, south-west and south.

The Project does not encroach into any air paths of the area. Its location is immediate next to the existing high-rise buildings which have already reduced the wind speed for the annual prevailing winds and one of summer winds from south direction. Mitigation measures in terms of stepping podium, setting back of the residential block, provision of 4.5m opening between the first residential floor and the podium, provision of opening at ground floor have been proposed to minimize the potential impact for the wind from southwest and southeast direction during summer condition. In considering the location of the subject site, the height and scale of the Project plus the provision of the mitigation measures, it is anticipated that no significant air ventilation impact to the local area.

It is recommended that, should the mitigation measures recommended in section 3.3 be not implemented in accordance with the current Proposed Scheme for the future scheme, a quantitative Air Ventilation Assessment will be conducted for the future proposed scheme to ascertain that the future scheme will not perform worse than the current Proposed Scheme.

Figures

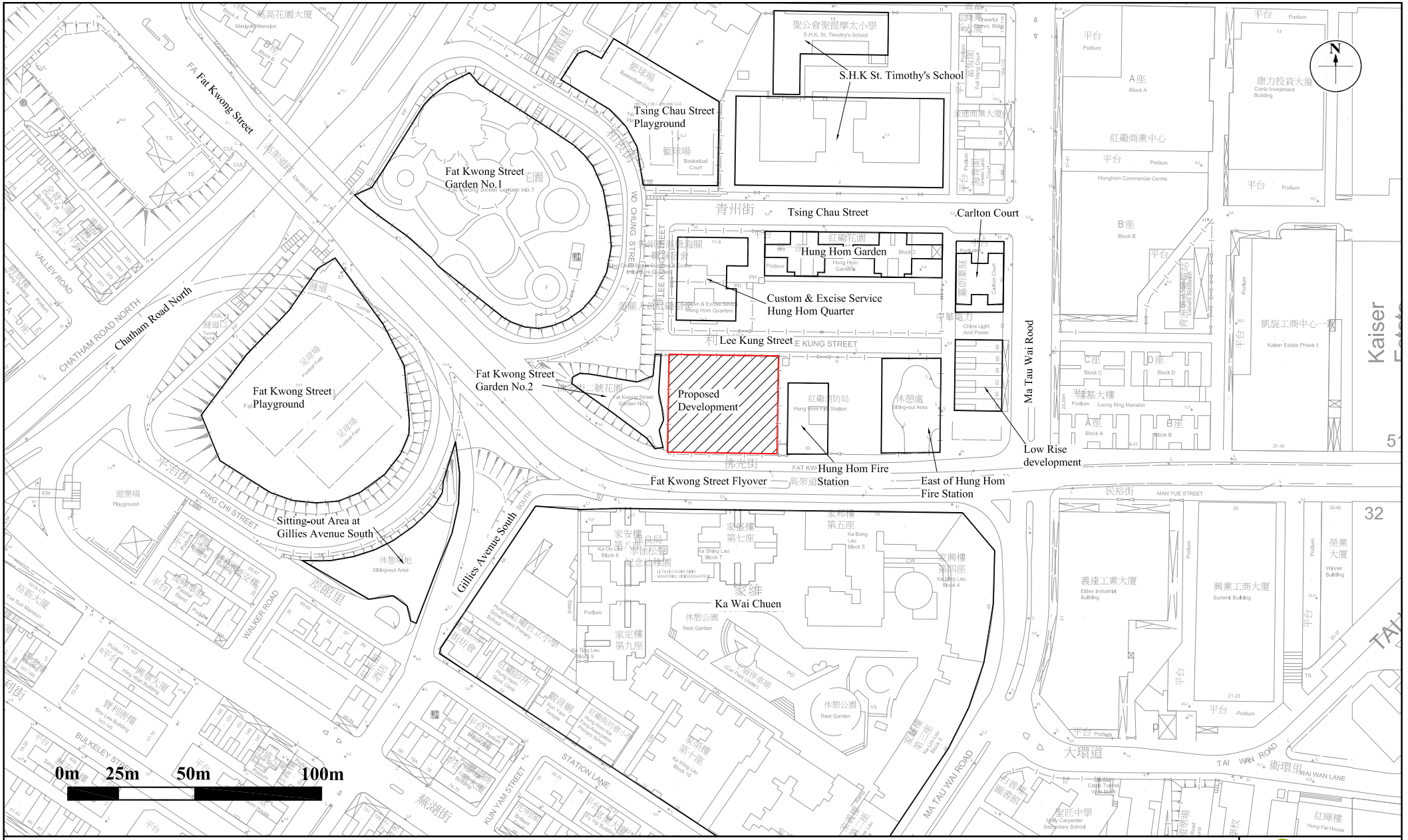


Figure: 1	ENVIRON
Title: Location of the Subject Site and its Environ	Drawn by: EW
	Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2
	Date: June 2015

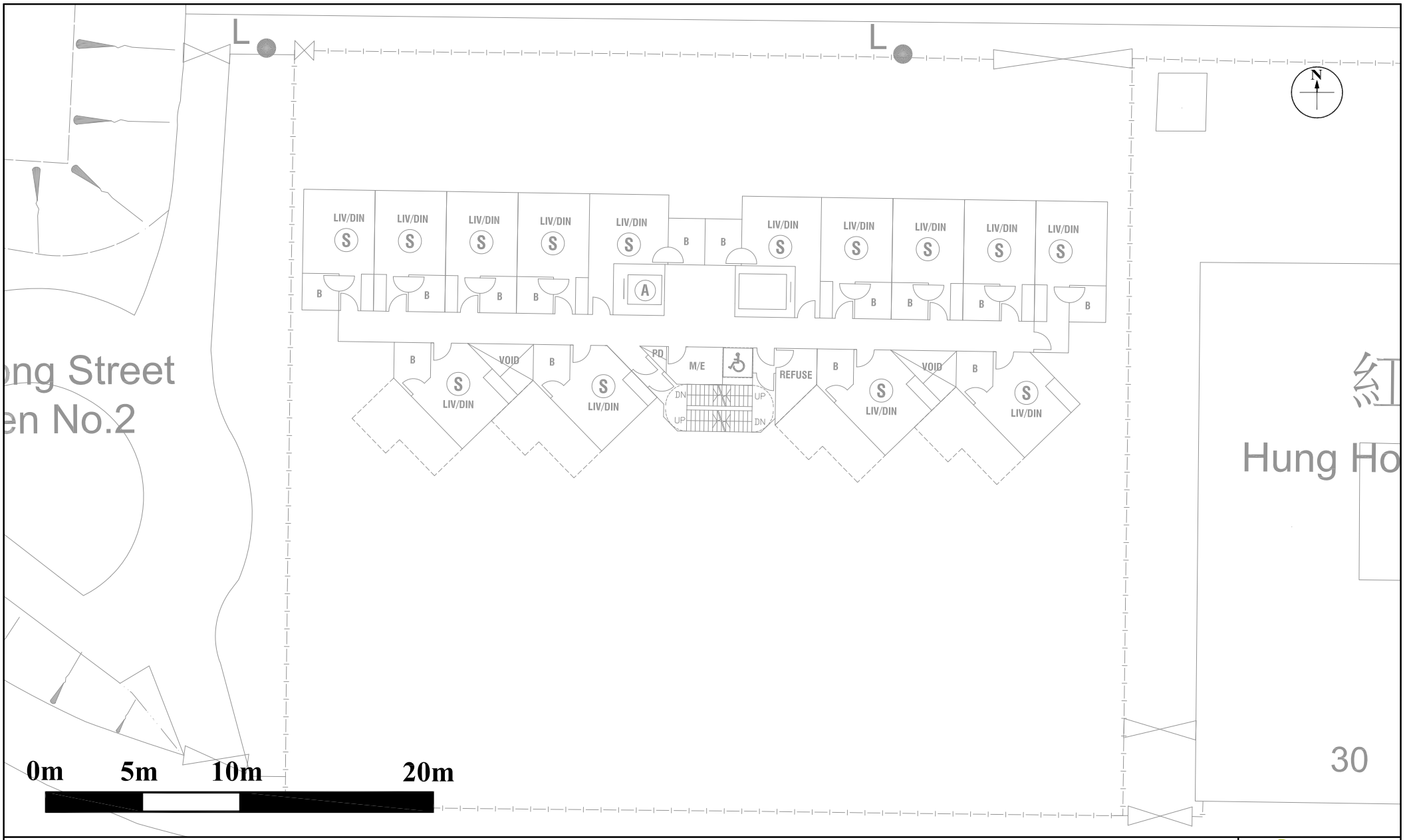


Figure: 2a	ENVIRON
Title: Typical Unit Floor Plan of the Proposed Development	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: June 2015

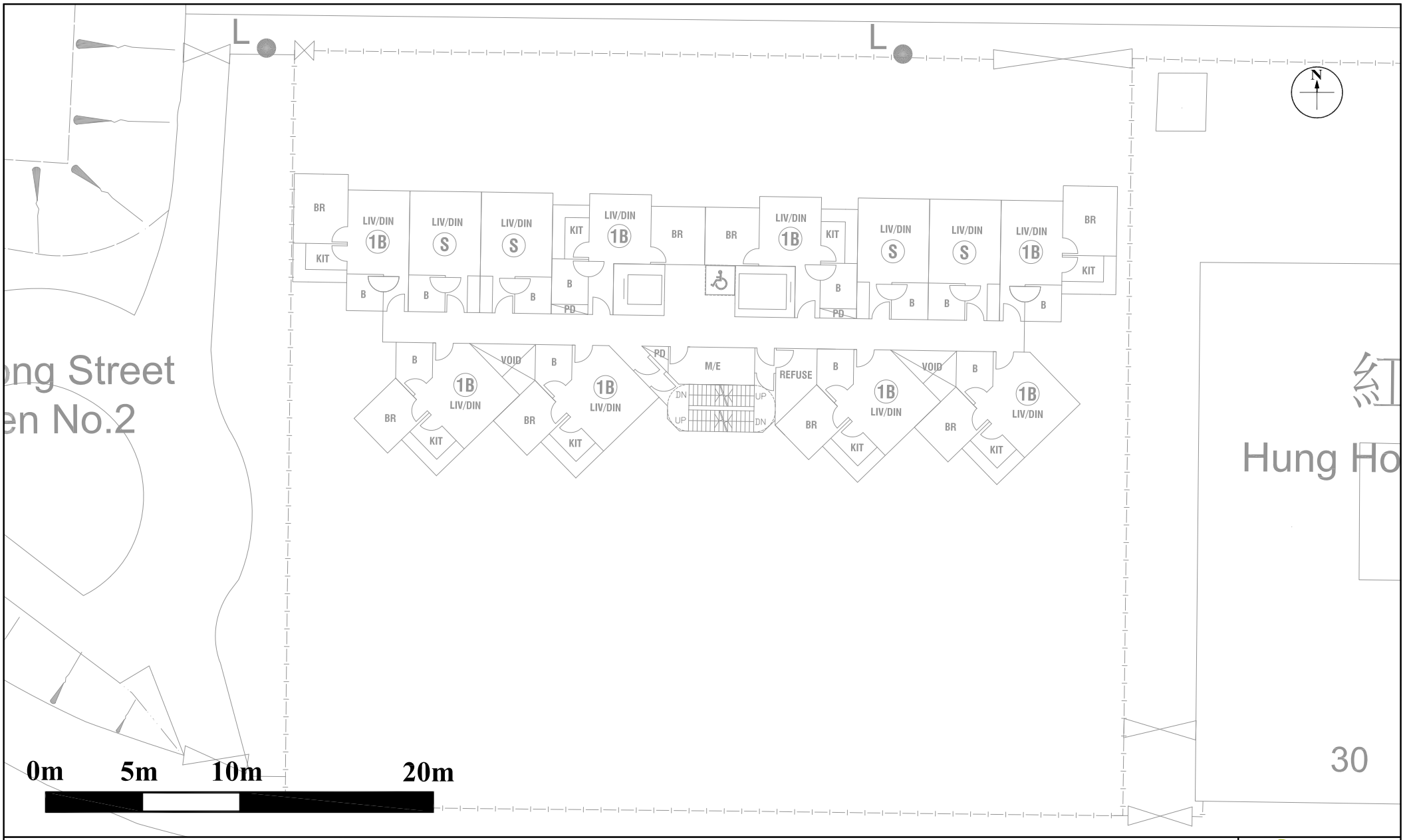
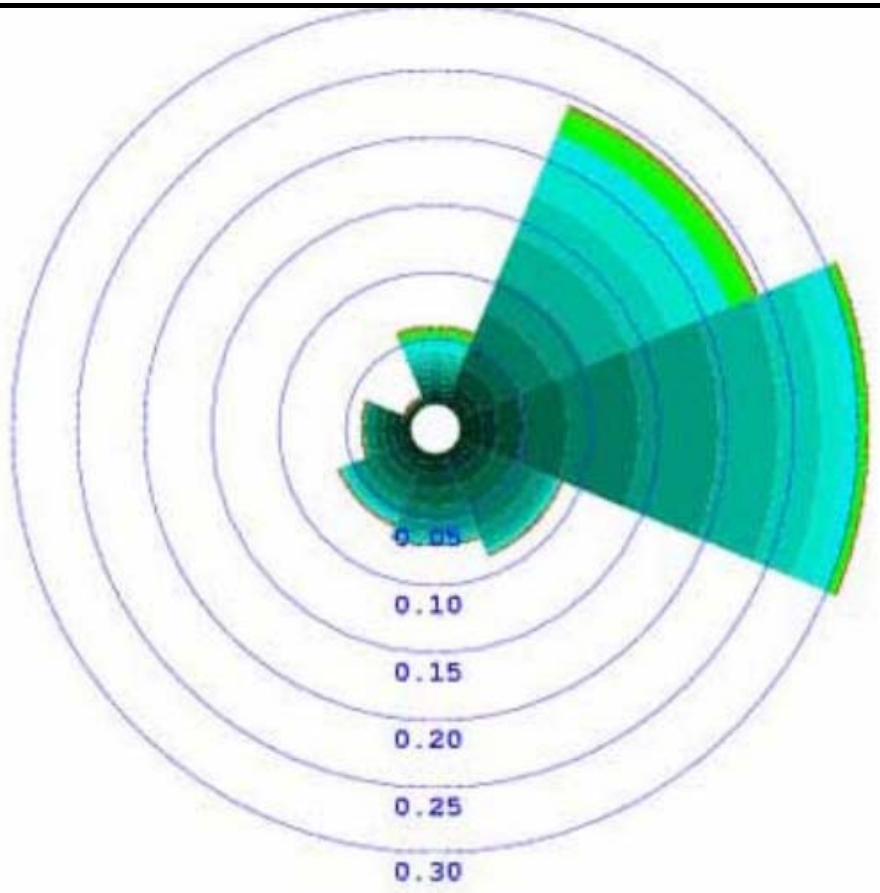
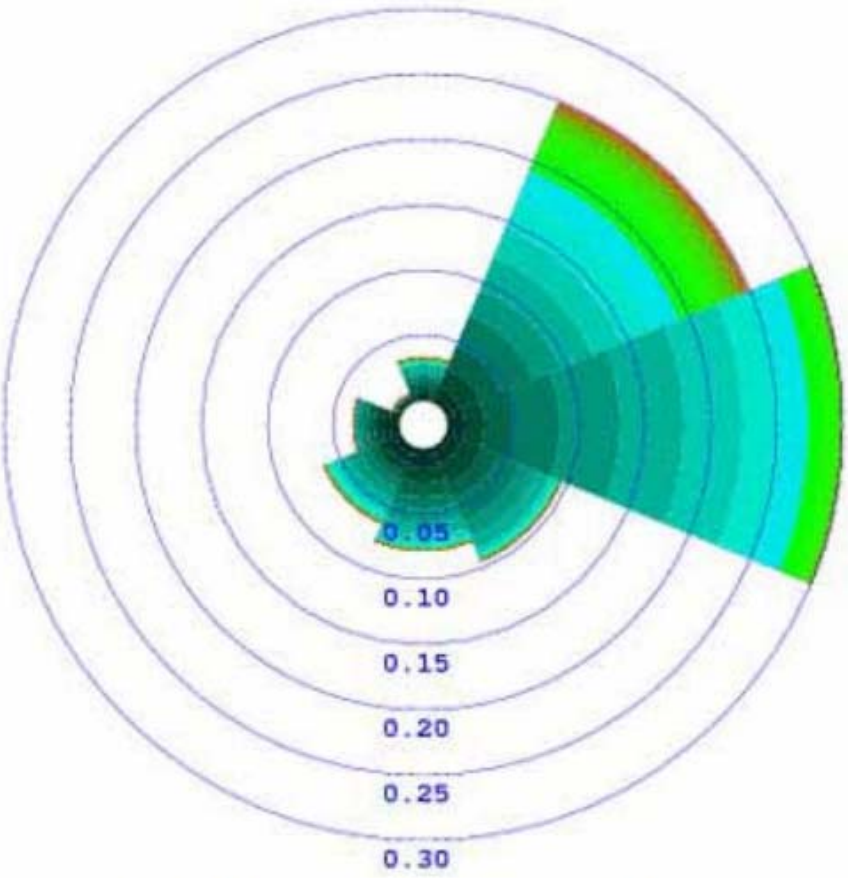


Figure: 2b	ENVIRON
Title: Typical Unit Floor Plan of the Proposed Development	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: June 2015

Figure: 2c	ENVIRON
Title: Special Unit Floor Plan of the Proposed Development	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: June 2015



120m (Annual)



450m (Annual)

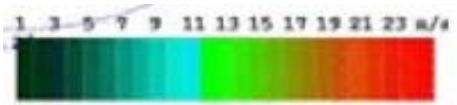
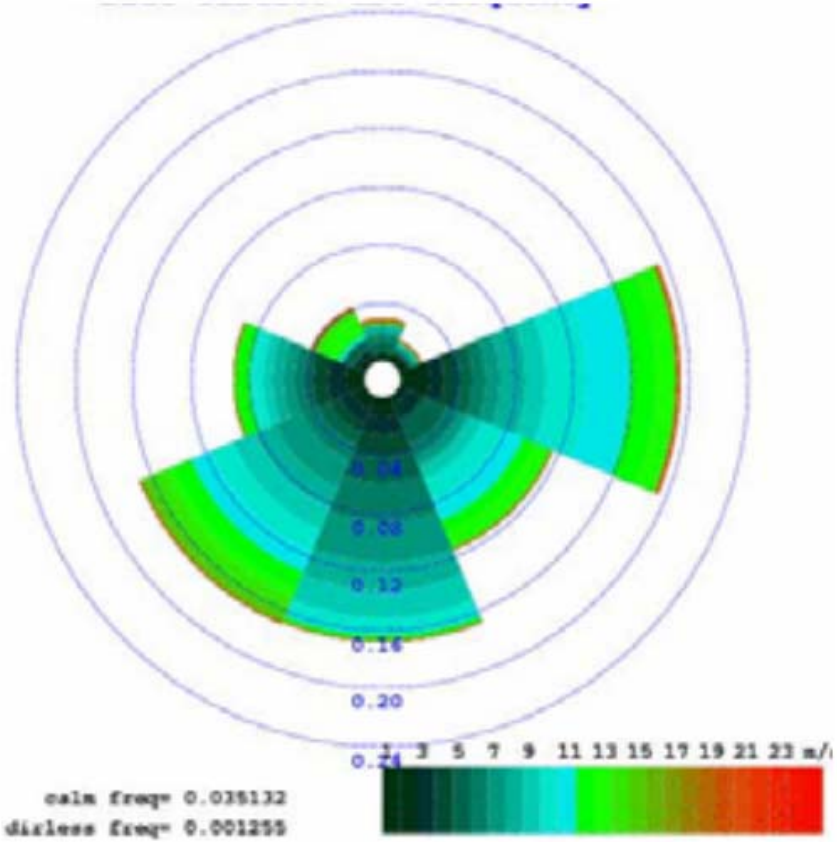
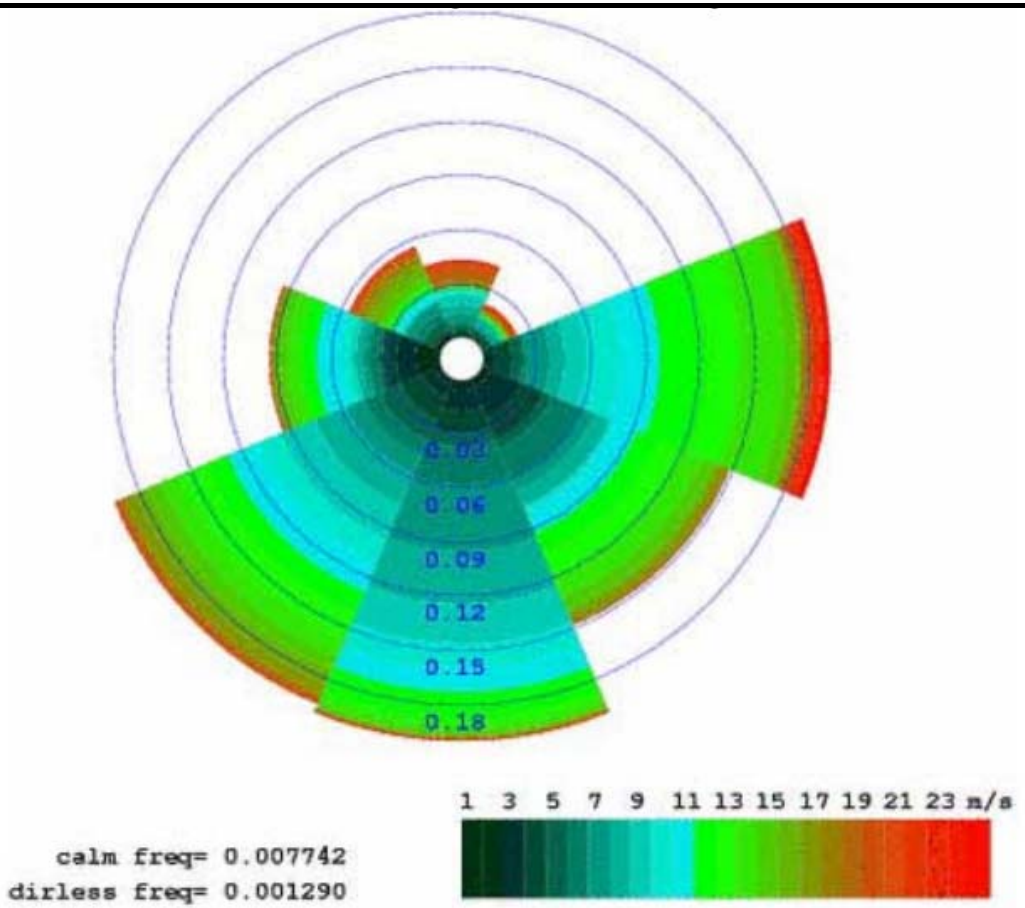


Figure:	**3a**	ENVIRON
Title:	**Windrose Diagram at location A extracted from AVA of Hung Hom**	Drawn by: EW Checked by: TC
Project:	**Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon**	Rev.: 1.2 Date: June 2015



120m (Summer)



450m (Summer)

Figure:	**3b**	ENVIRON
Title:	**Windrose Diagram at location A extracted from AVA Hung Hom**	Drawn by: EW
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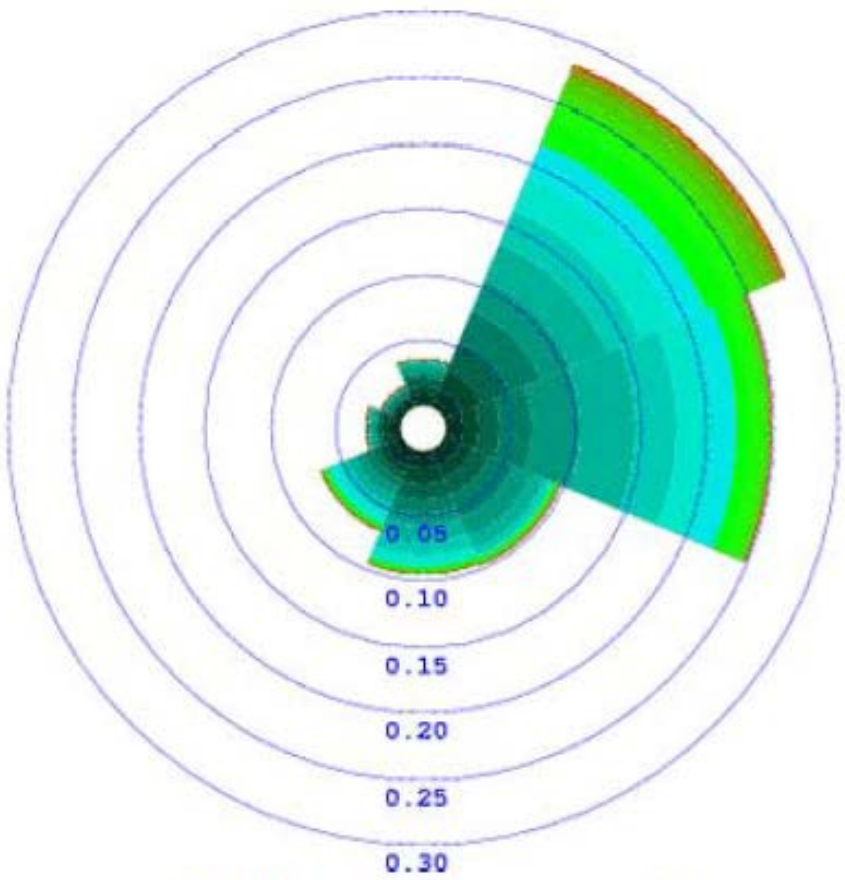
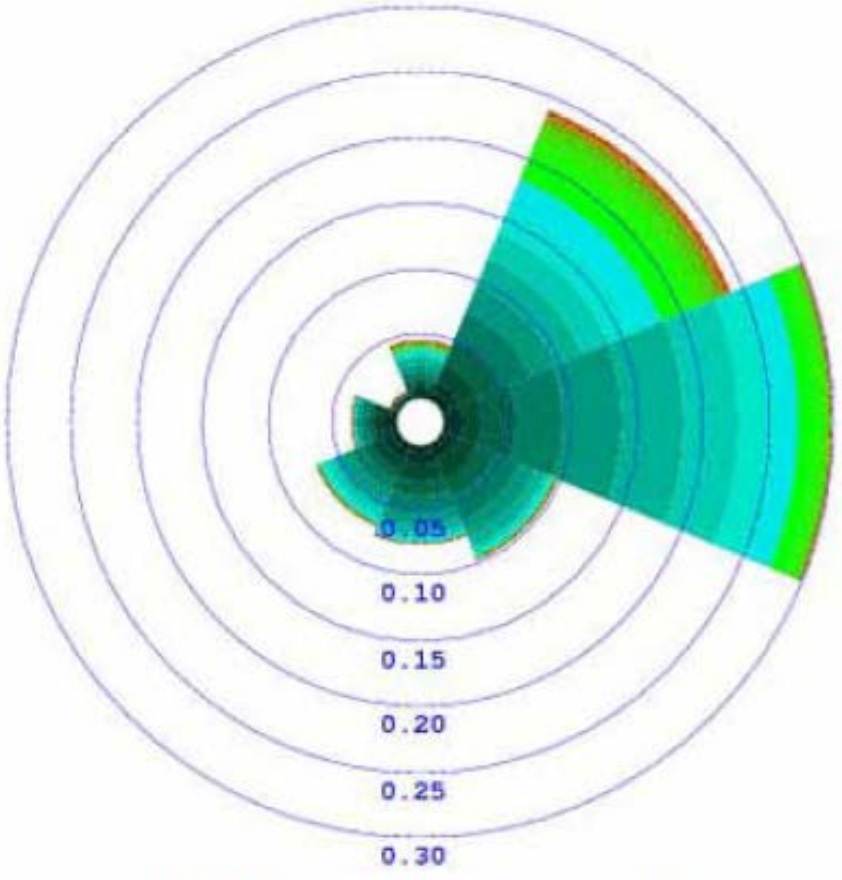
Project:	**Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon**	Rev.: 1.2
		Date: June 2015

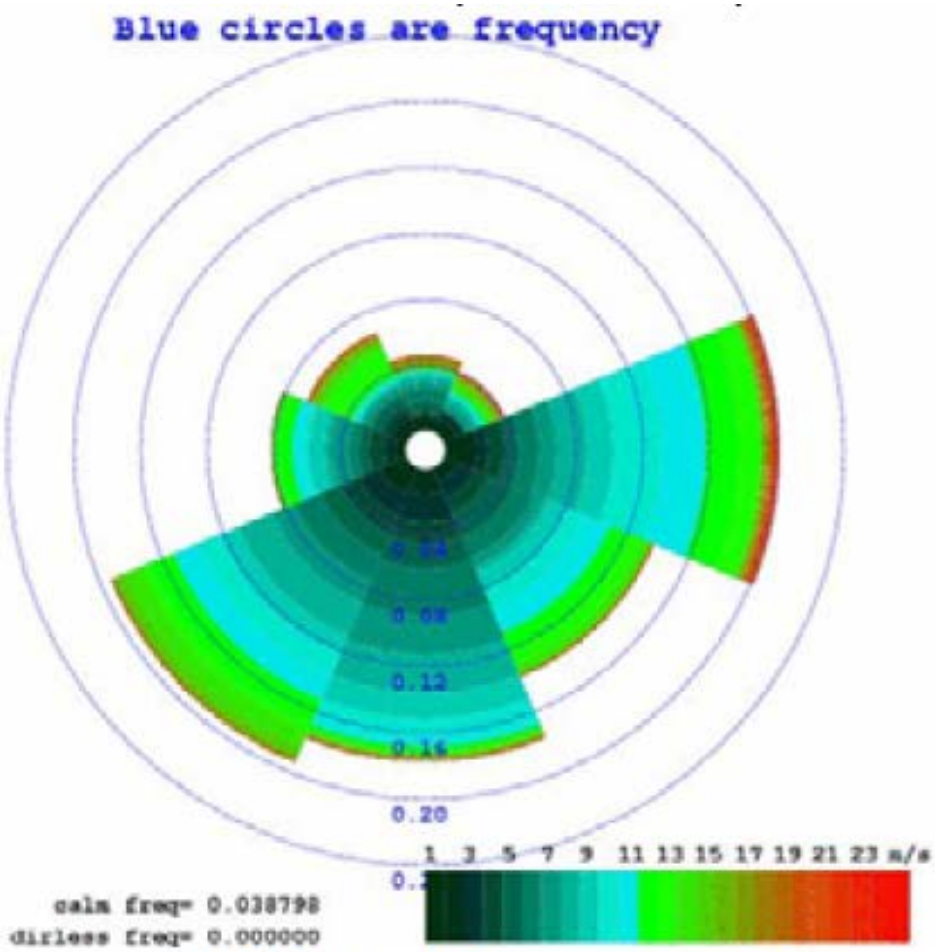


120m (Annual)

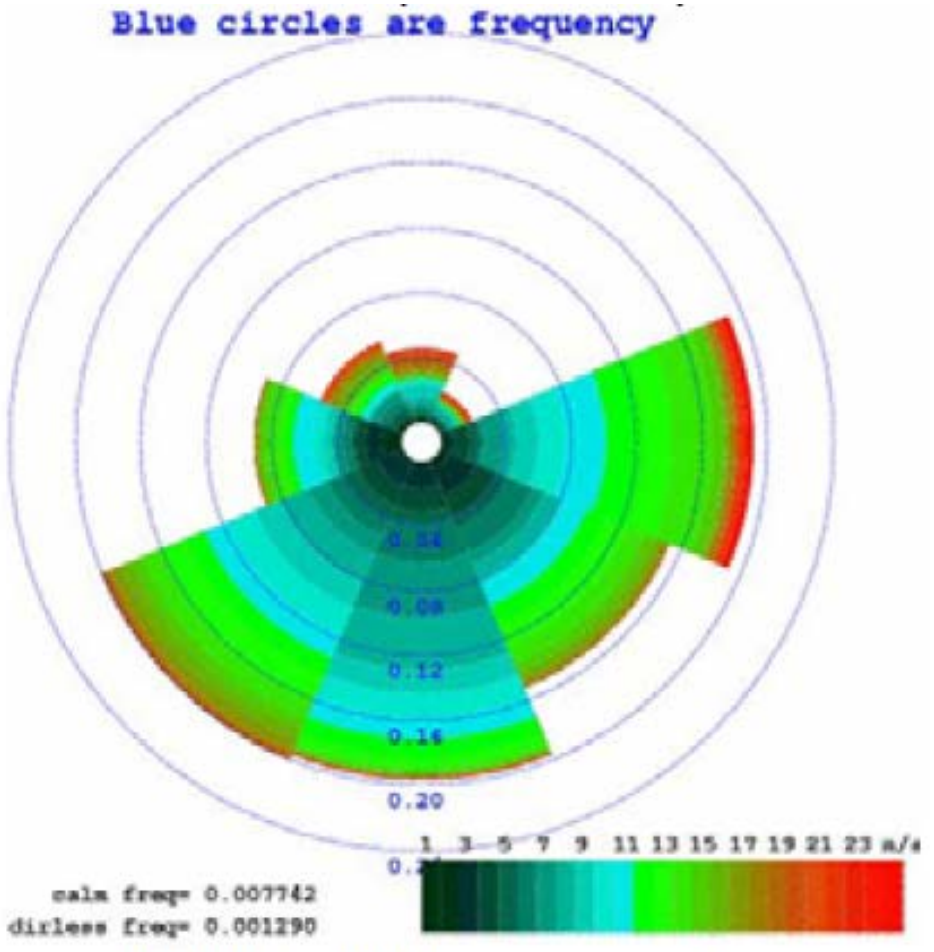


450m (Annual)

Figure: 3c	ENVIRON
Title: Windrose Diagram at location B extracted from AVA of Hung Hom	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: June 2015



120m (Summer)



450m (Summer)

Figure:	**3d**	ENVIRON	
Title:	**Windrose Diagram at location B extracted from AVA of Hung Hom**	Drawn by:	EW
		Checked by:	TC
Project:	**Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon**	Rev.:	1.2
		Date:	June 2015

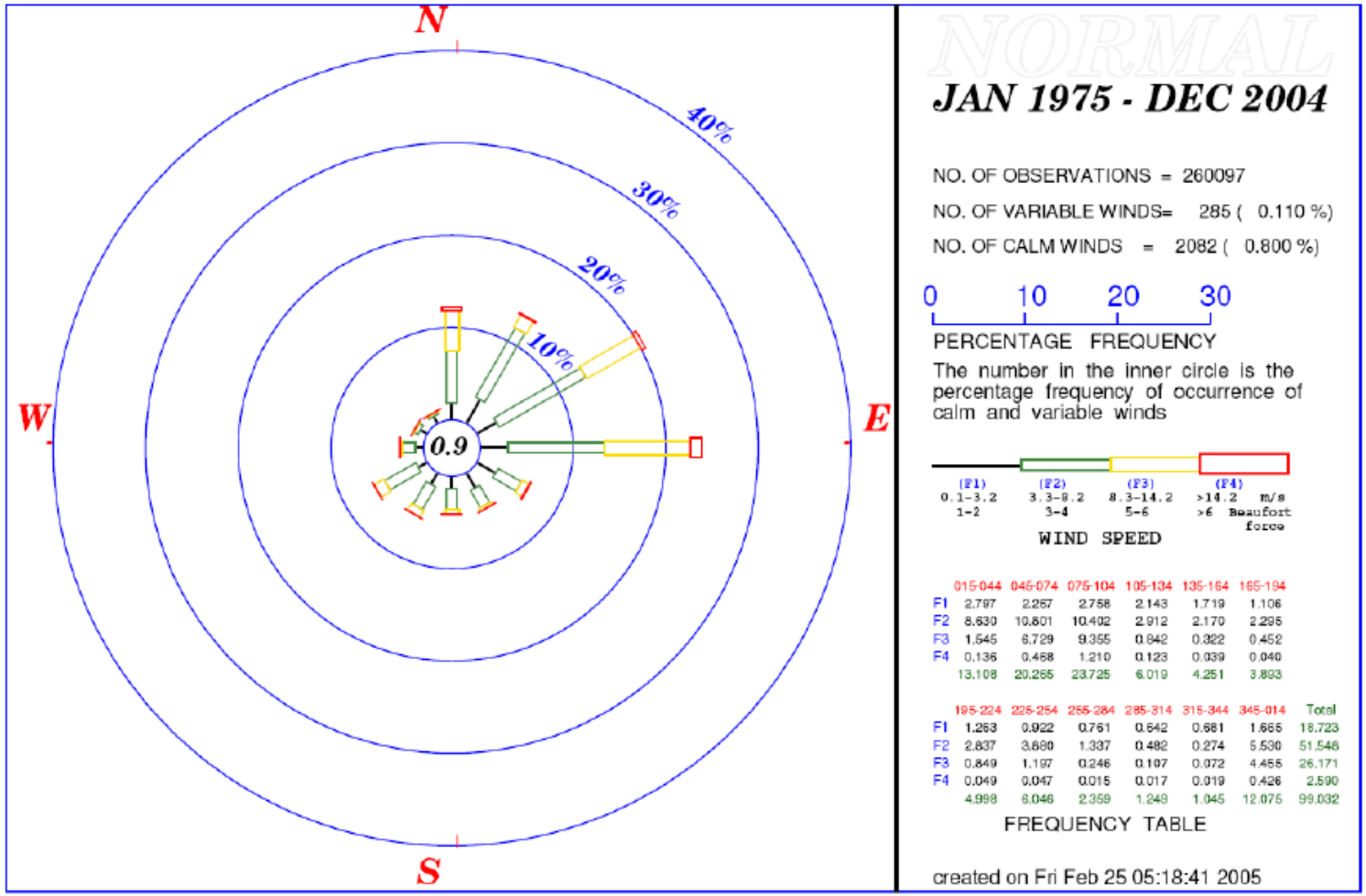


Figure 3.1 Wind rose of WGL 2006 (annual).

Figure:	**3e**	ENVIRON
Title:	**Windrose of WGL 2006 (annual) – Hong Kong Observatory**	Drawn by: EW Checked by: TC
Project:	**Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon**	Rev.: 1.2 Date: June 2015

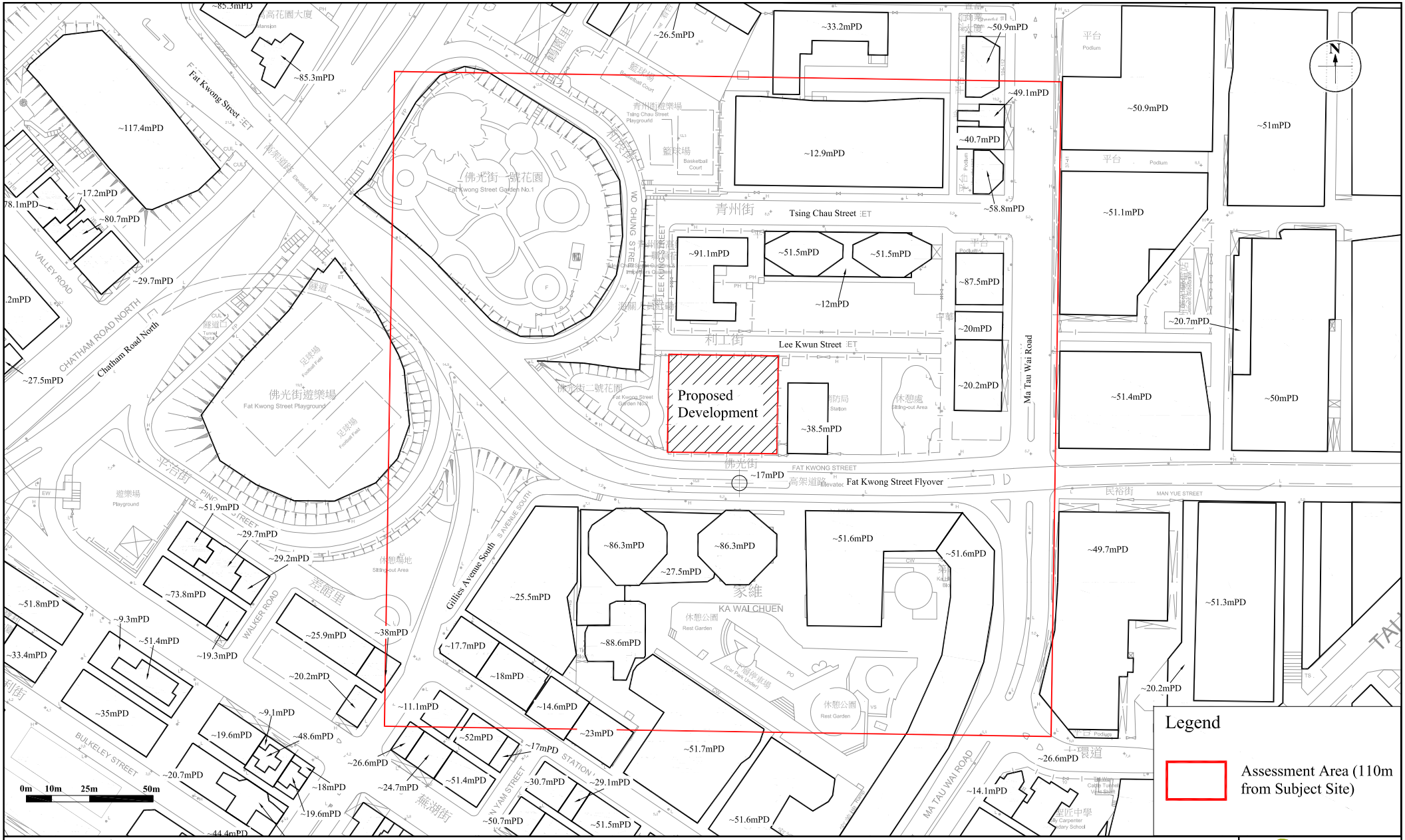


Figure: 4

Title: Topography and Building Morphology of the Area in the Vicinity

Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

ENVIRON

Drawn by:	EW
Checked by:	TC
Rev.:	1.2
Date:	June 2015

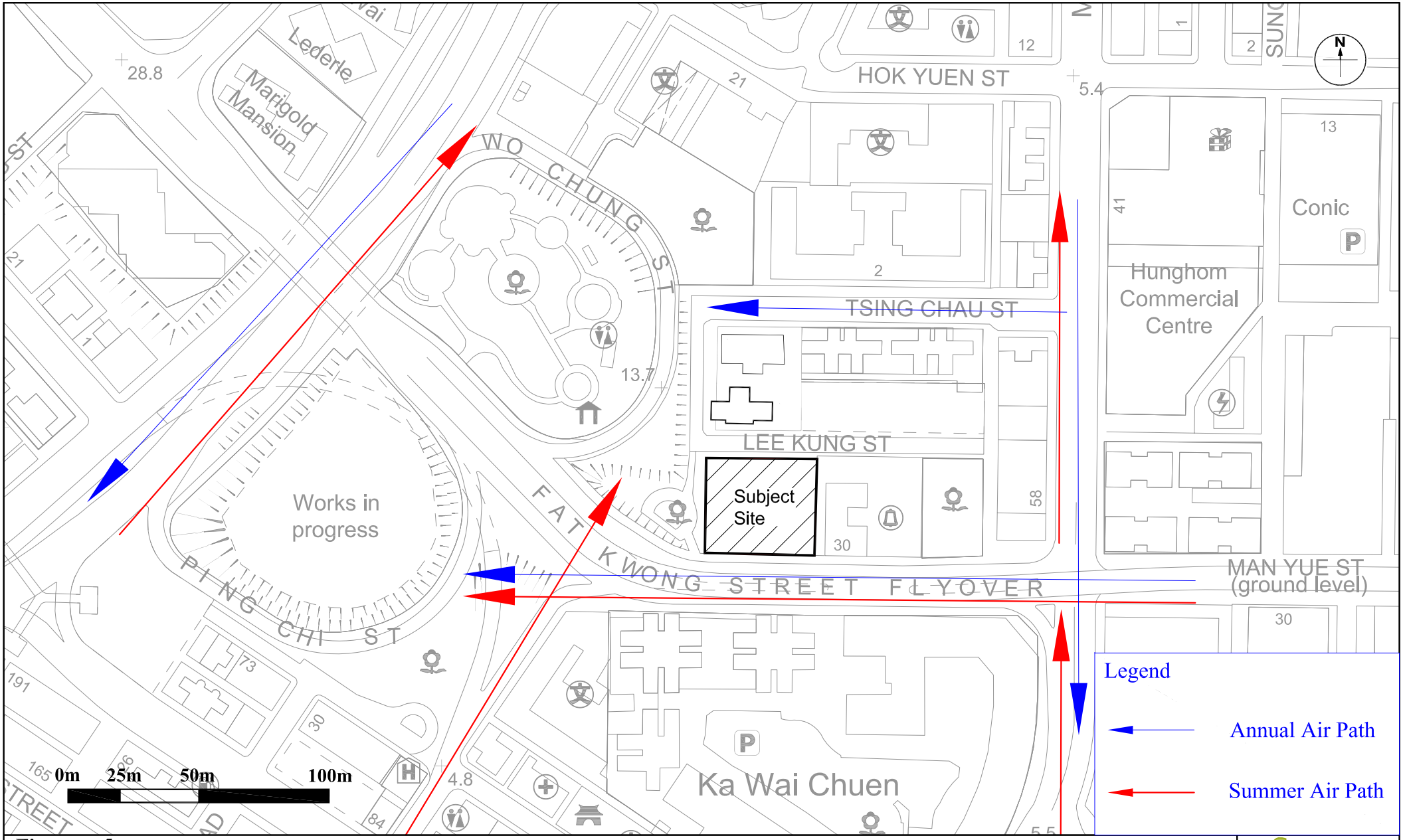


Figure: 5	ENVIRON
Title: Major Air Path around the site	Drawn by: EW
	Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2
	Date: June 2015

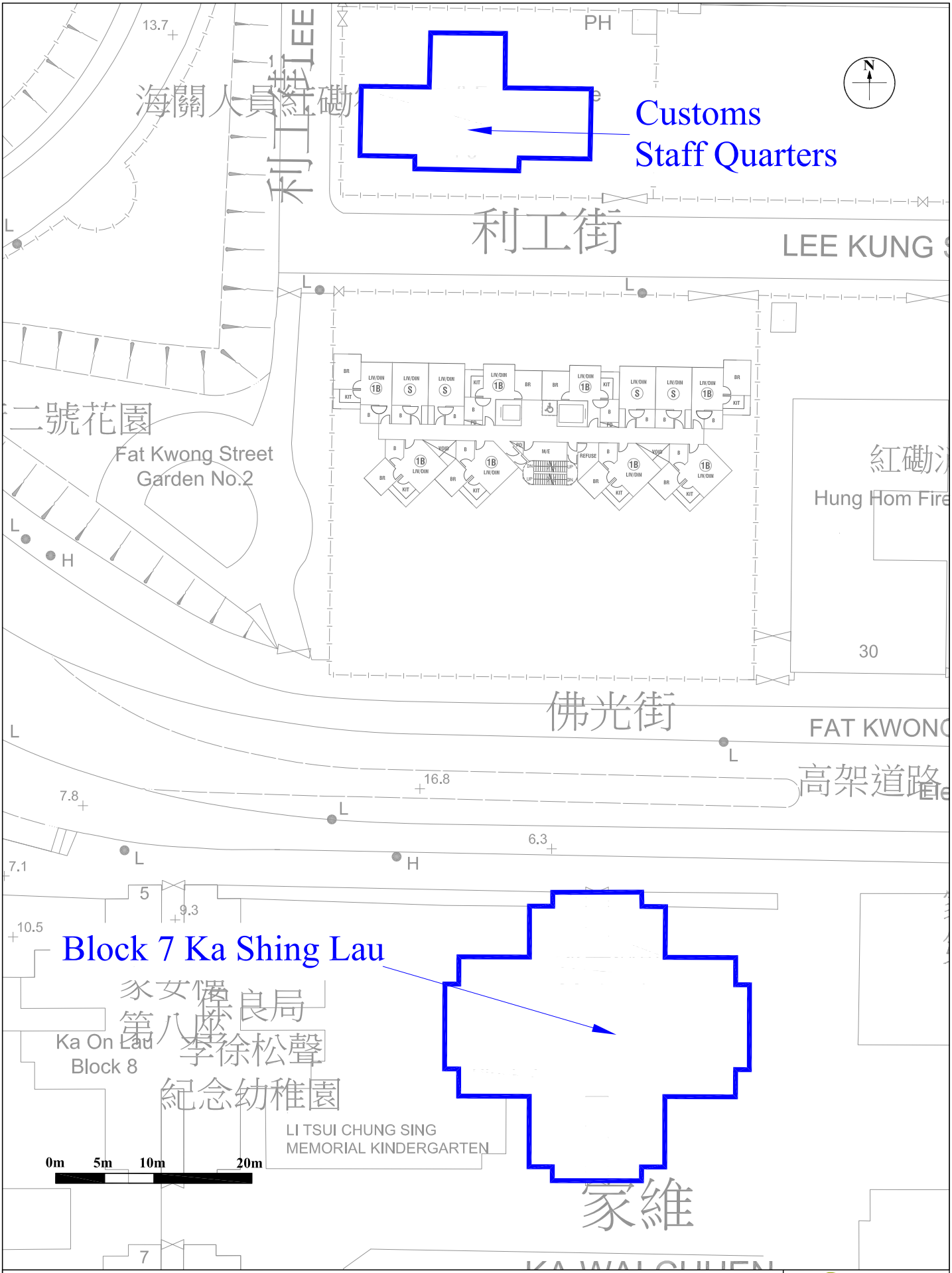


Figure: 6		ENVIRON
Title:	Disposition of Residential Block of Proposed Development and the Nearest Building	Drawn by: EW
		Checked by: TC
Project:	Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2
		Date: June 2015

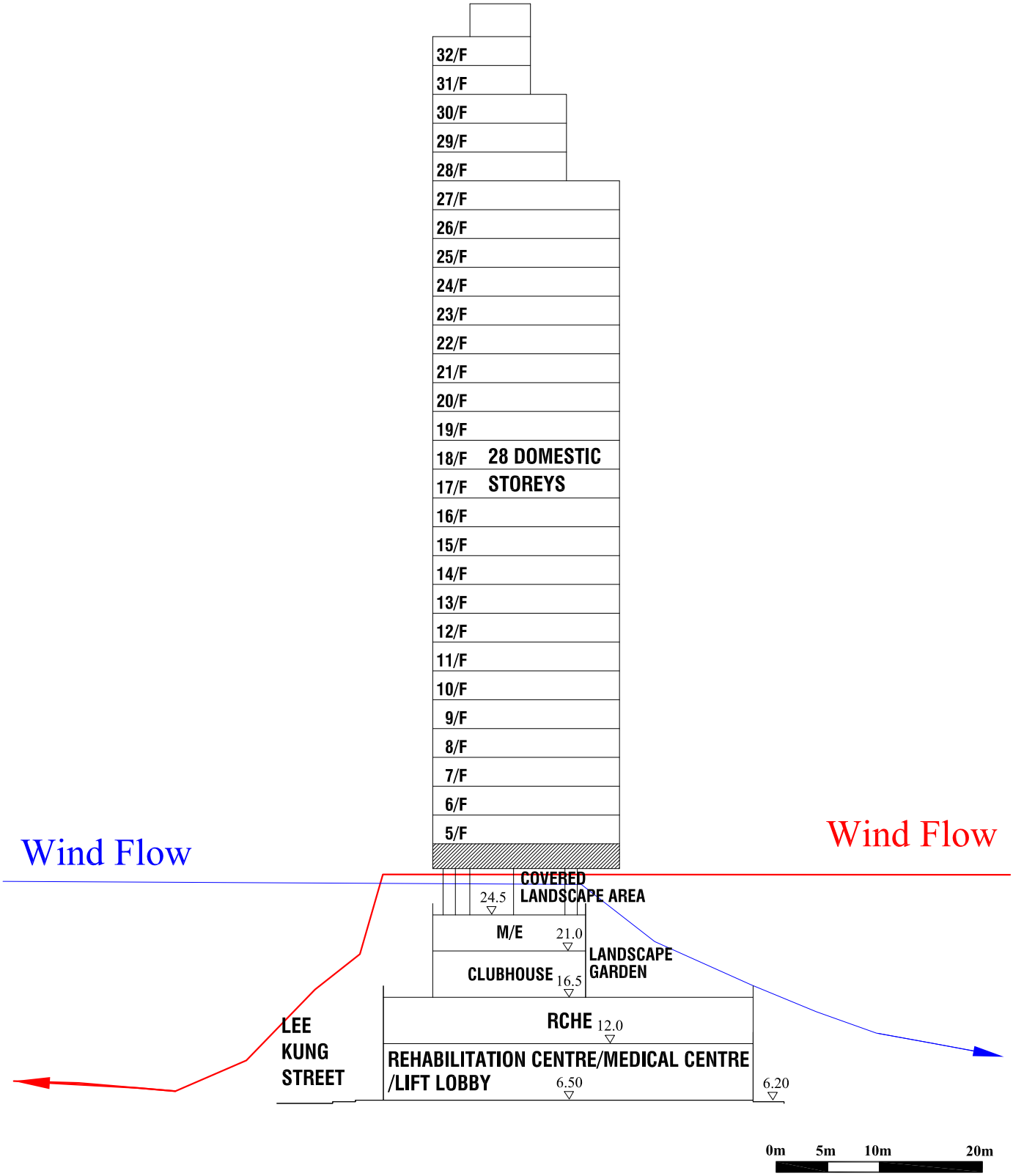


Figure: 7	ENVIRON
Title: Wind Flow Across the Proposed Development	Drawn by: EW
	Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.3
	Date: July 2015

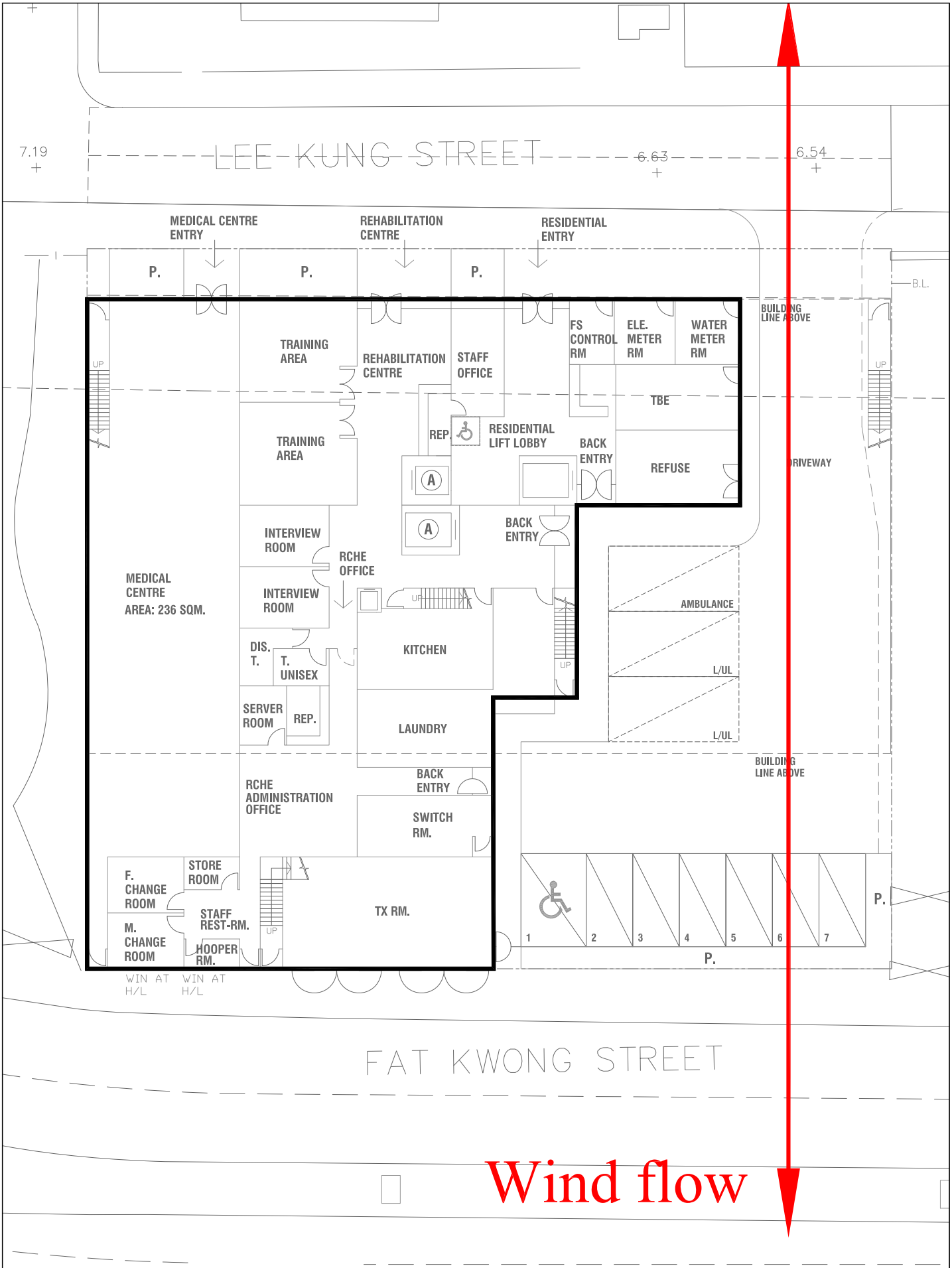


Figure:	8	ENVIRON
Title:	Wind Flow across the Proposed Development at ground level	Drawn by: EW Checked by: TC
Project:	Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.3 Date: July 2015

Annex A:
Layout Plans and Sections of the Proposed Development

DESIGN INTENT DRAWING

(SUBJECT TO REVISIONS PER REQUIREMENTS UNDER STATUTORY CONTROL AND ANY LEASE CONDITIONS)
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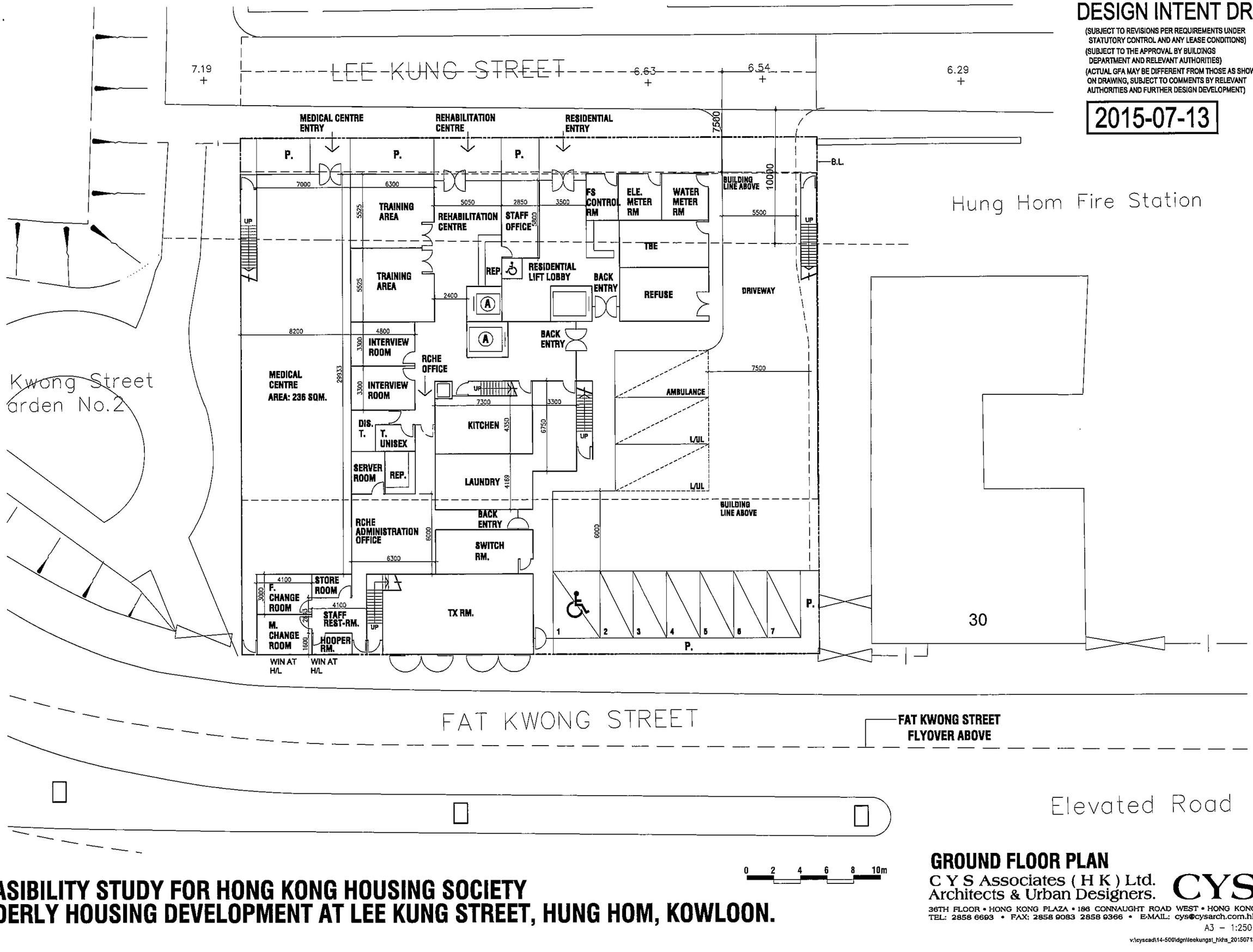
(ACTUAL GFA MAY BE DIFFERENT FROM THOSE AS SHOWN ON DRAWING, SUBJECT TO COMMENTS BY RELEVANT AUTHORITIES AND FURTHER DESIGN DEVELOPMENT)

2015-07-13



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

GROUND FLOOR PLAN

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A3 – 1:250

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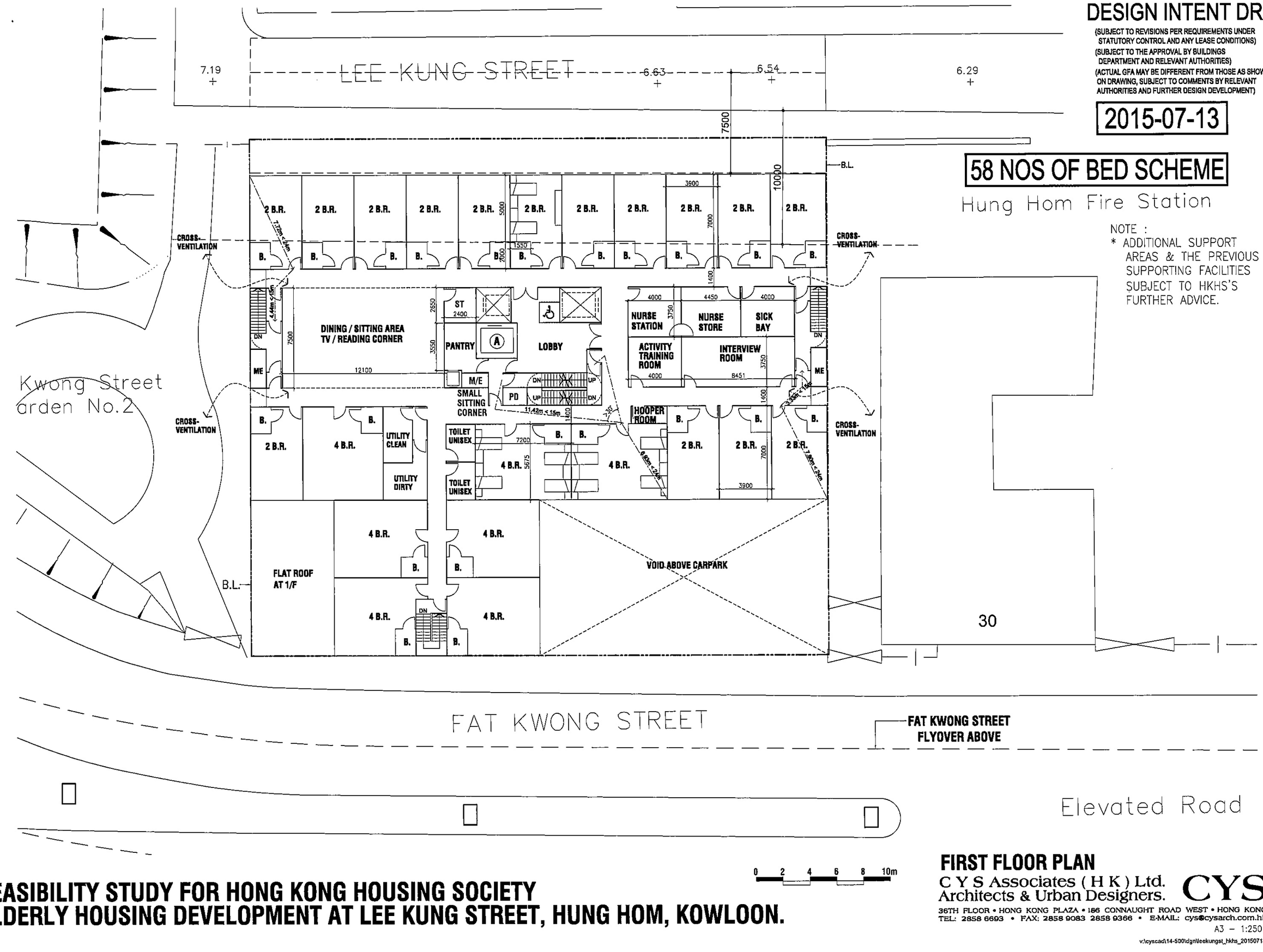
2015-07-13

58 NOS OF BED SCHEME

Hung Hom Fire Station

NOTE :
* ADDITIONAL SUPPORT AREAS & THE PREVIOUS SUPPORTING FACILITIES SUBJECT TO HKHS'S FURTHER ADVICE.



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
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FIRST FLOOR PLAN

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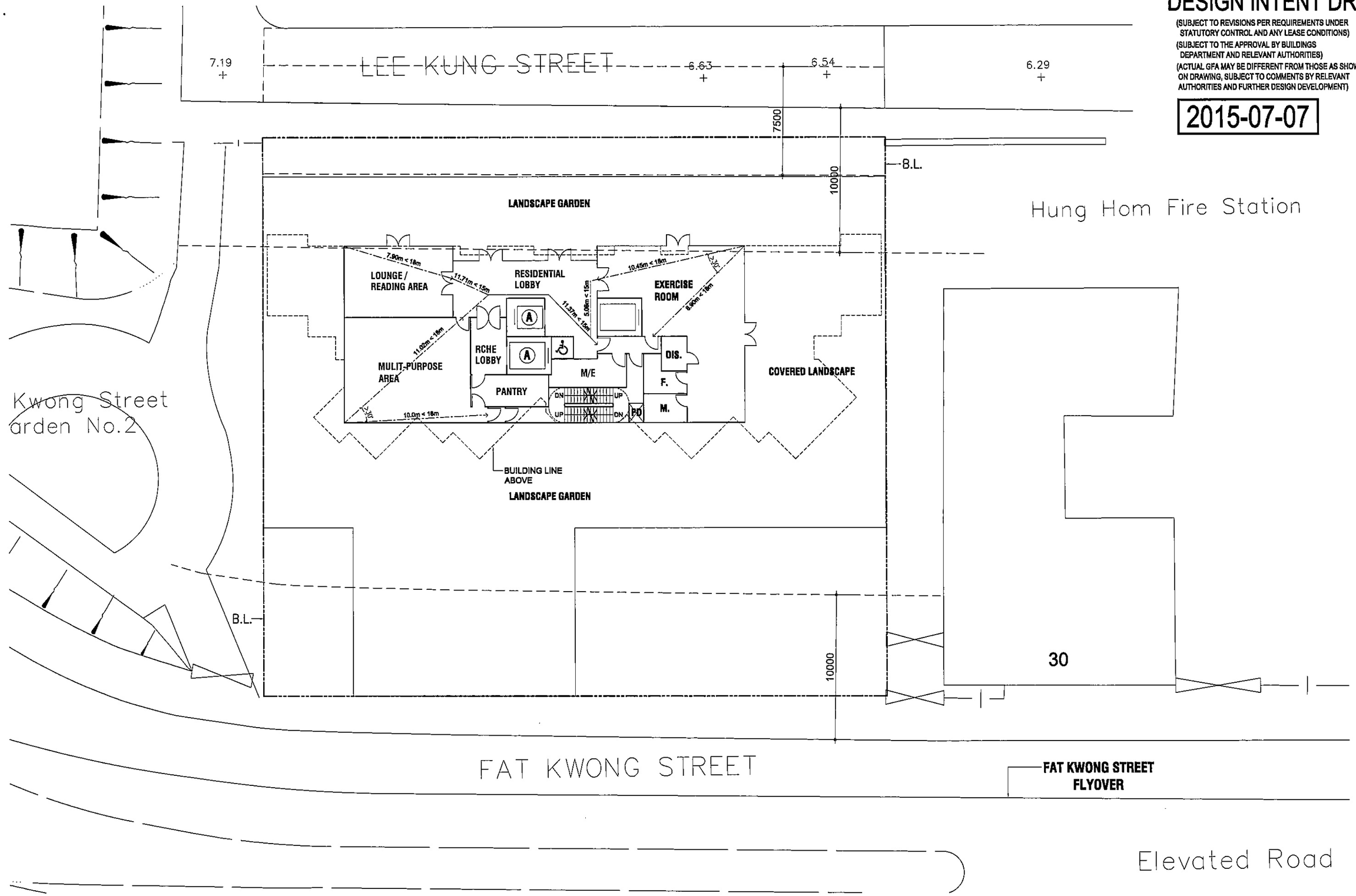
2015-07-07



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SECOND FLOOR PLAN

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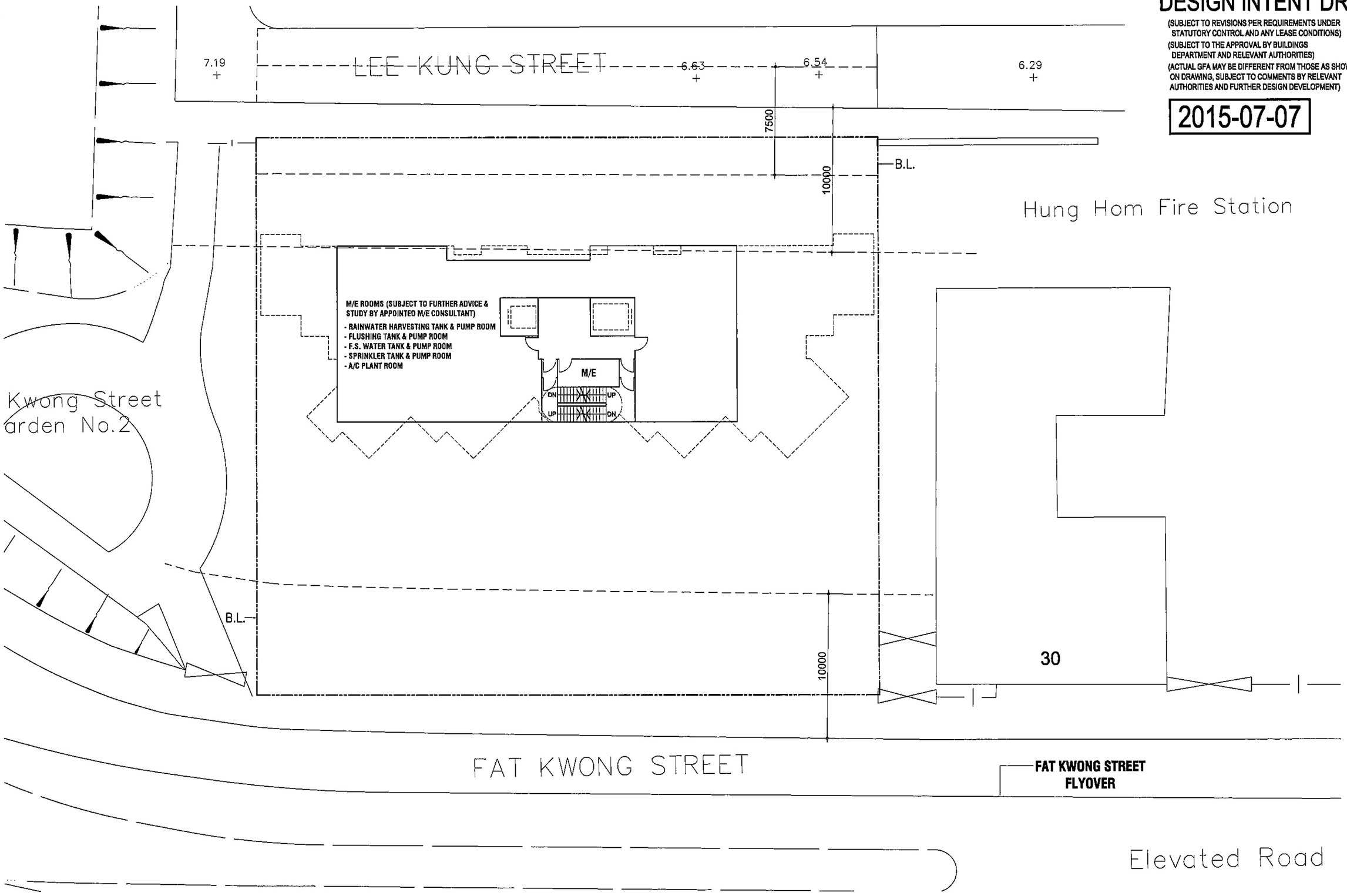

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

THIRD FLOOR PLAN

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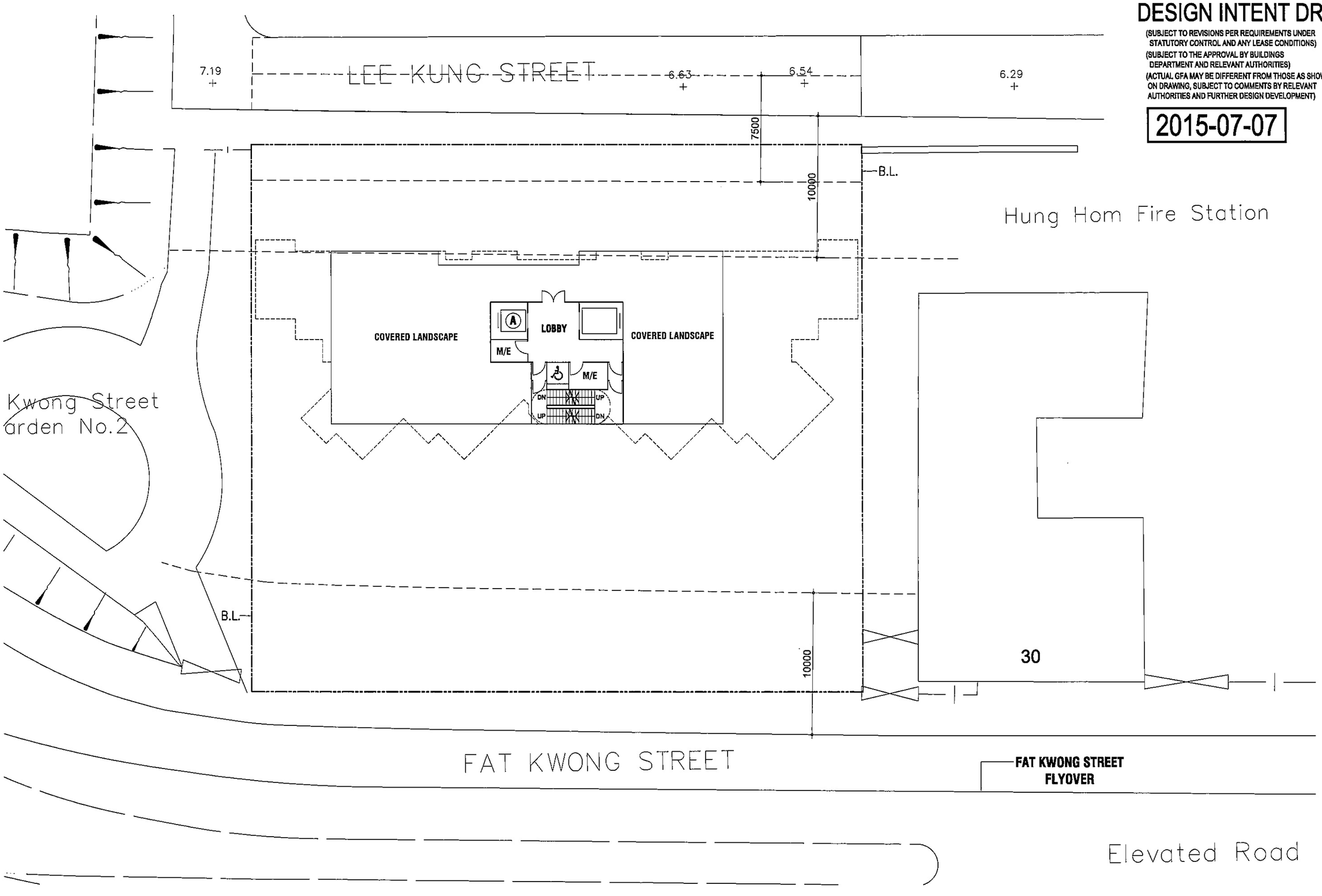

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

4/F PLAN

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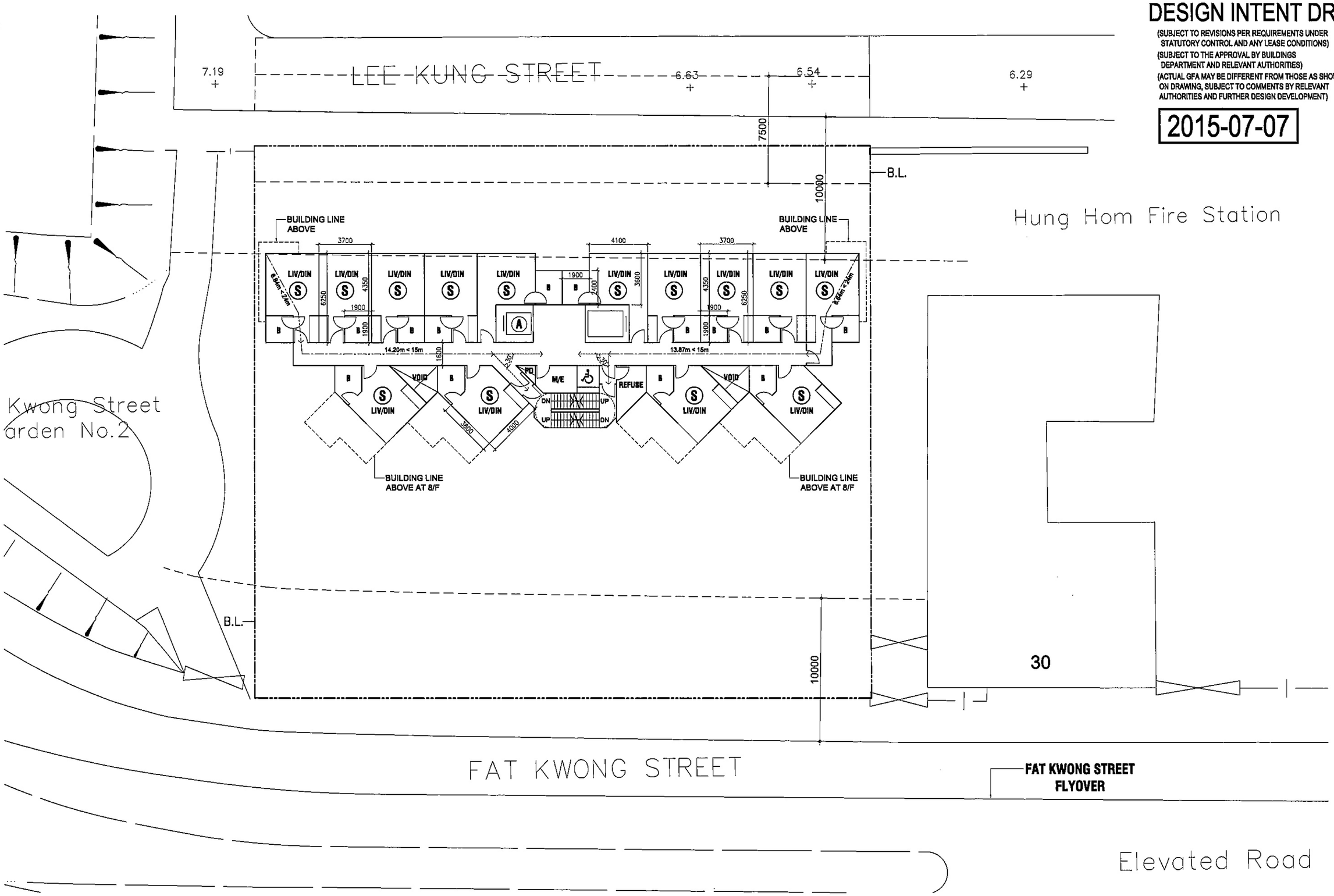

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

PILOT UNIT FLOOR PLAN (5/F-7/F)

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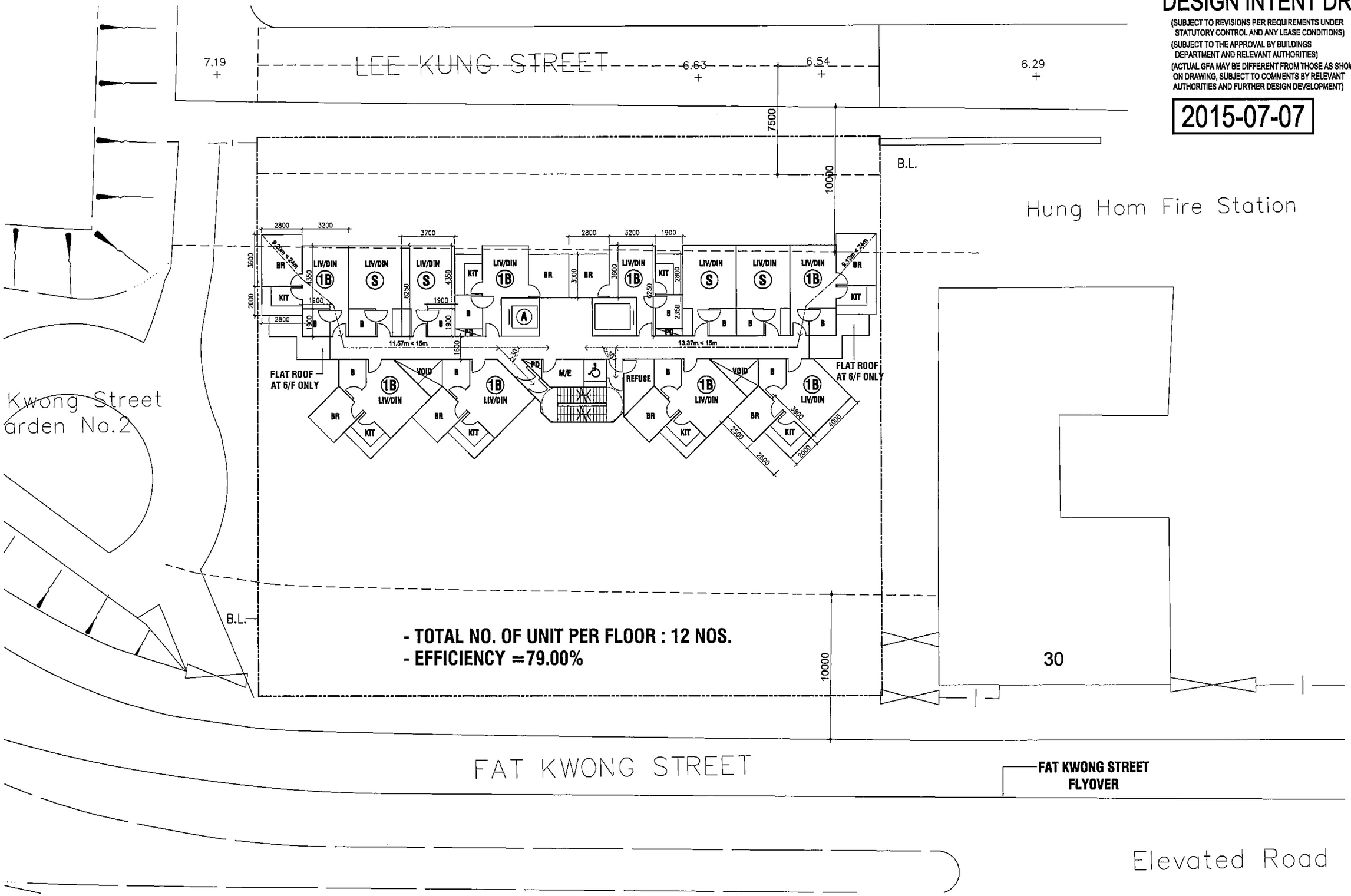

- TOTAL NO. OF UNIT PER FLOOR : 12 NOS.
- EFFICIENCY =79.00%

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

TYPICAL UNIT FLOOR PLAN (8/F-27/F)

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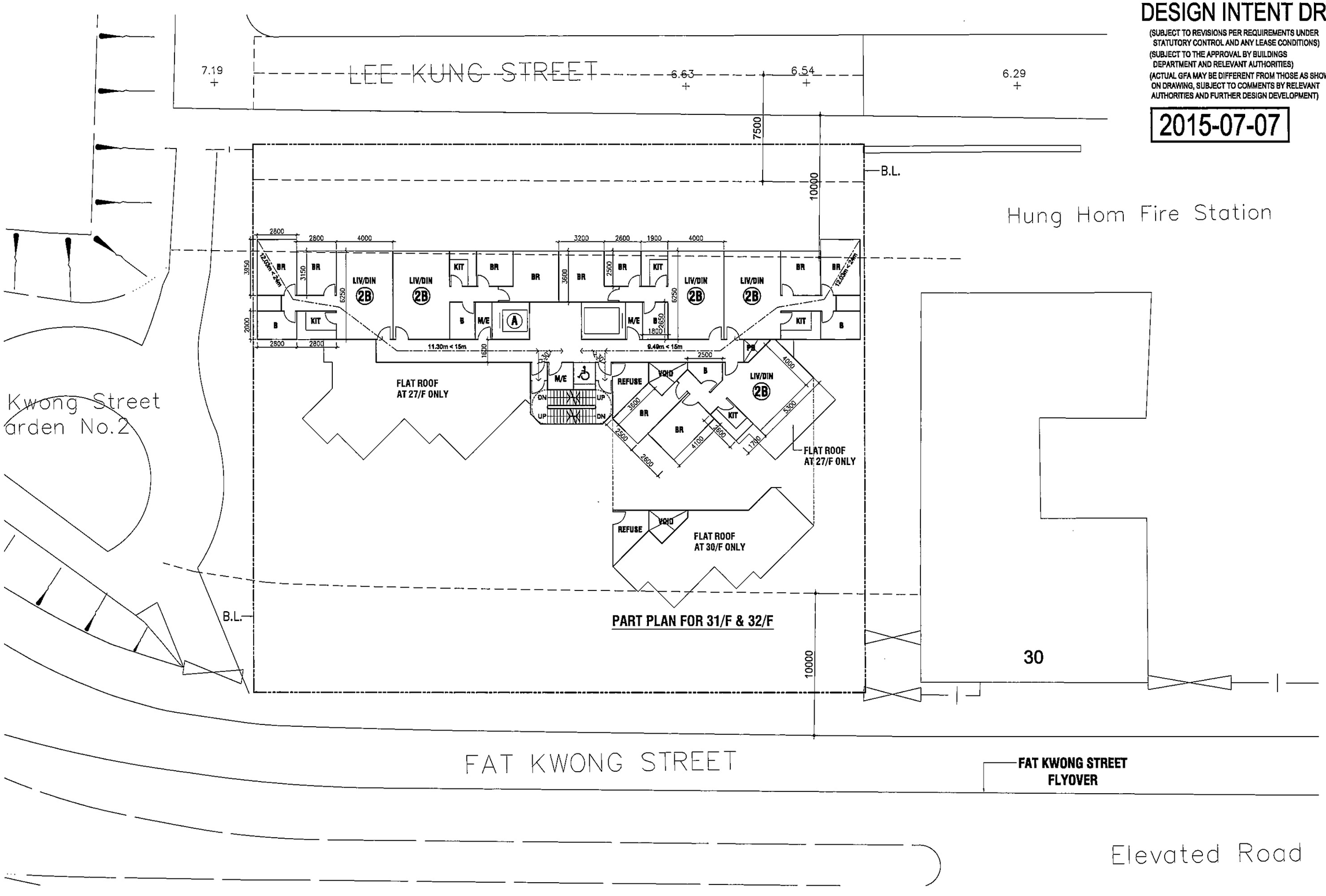

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SPECIAL UNIT FLOOR PLAN (28/F-32/F)

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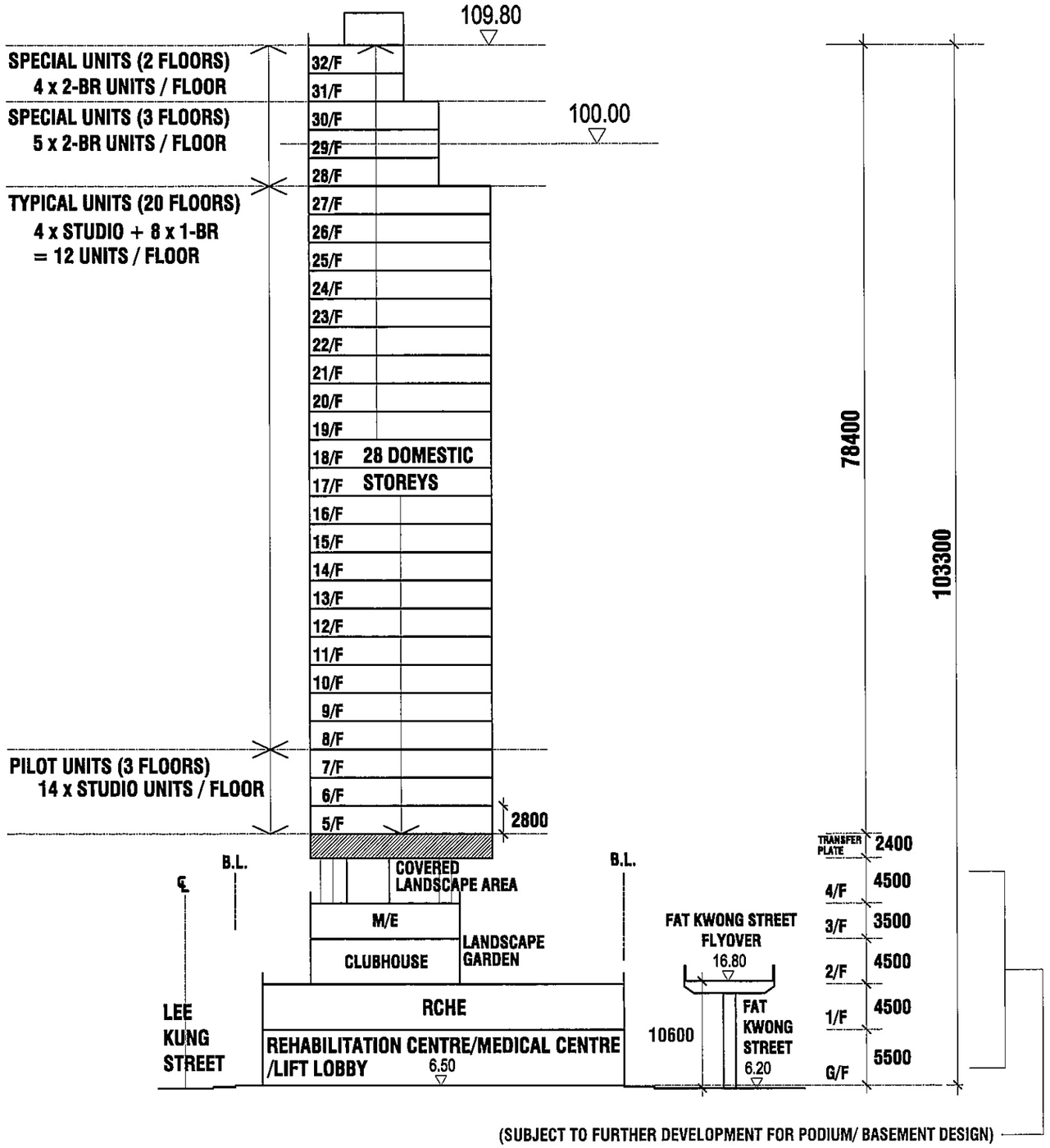
58 NOS OF BED SCHEME



DEVELOPMENT PARAMETER

	PROVIDED
SITE AREA	1,680m²
SITE CLASSIFICATION	-
PLOT RATIO DOMESTIC NON-DOMESTIC	 7.44 1.05
GFA DOMESTIC NON-DOMESTIC CLUBHOUSE	 12499 1764 2.4% / 300m²
SITE COVERAGE	490.911m² < 559.944m² 33.33% / 559.944m² (DOMESTIC > 61M)
MAX. BUILDING HEIGHT	109.80 MPD (2.8M/ FLOOR)
FLAT MIX	NO. %
STUDIO	122 40.0%
1-BEDROOM	160 52.5%
2-BEDROOM	23 7.5%
	305 100%

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SCHEMATIC SECTION

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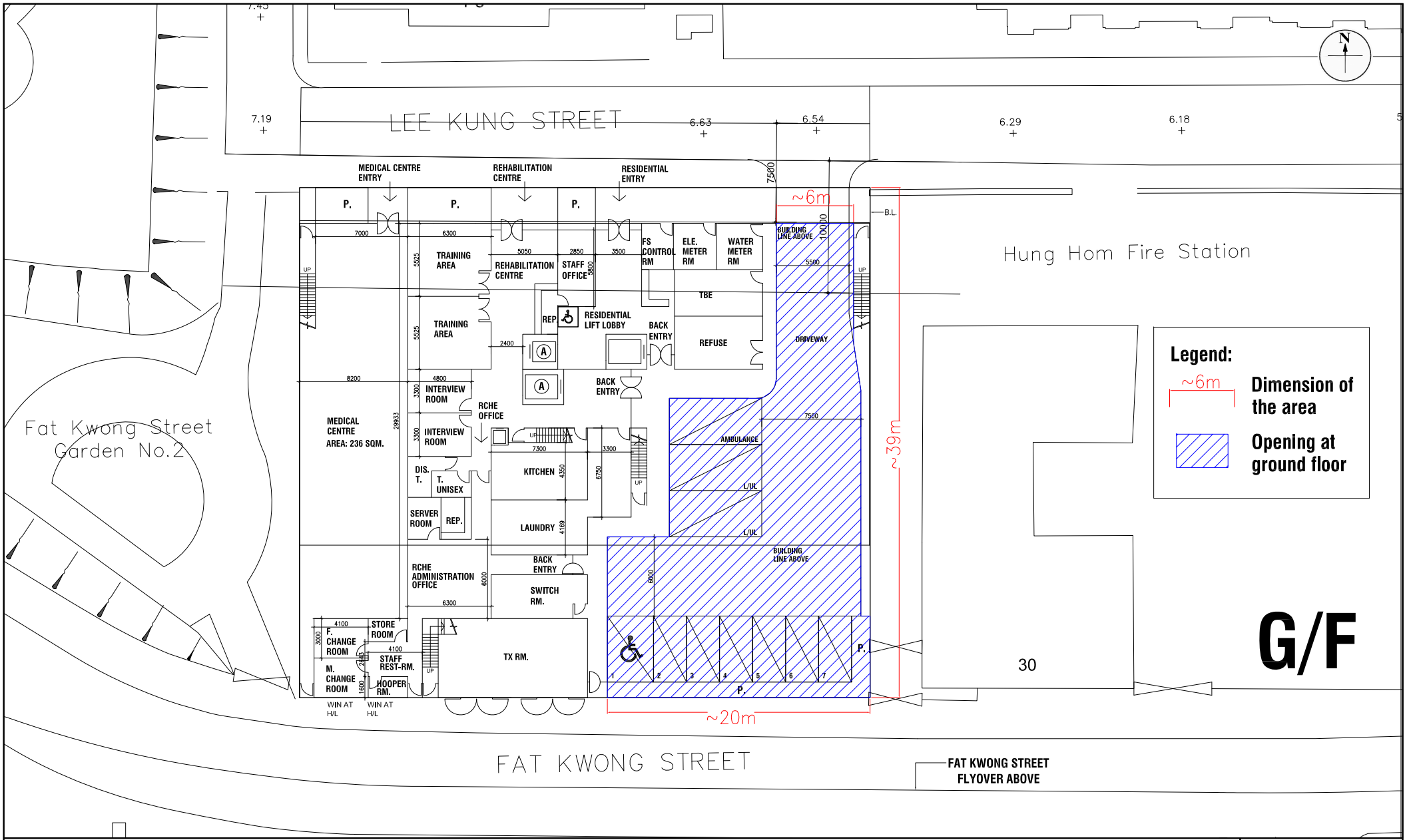
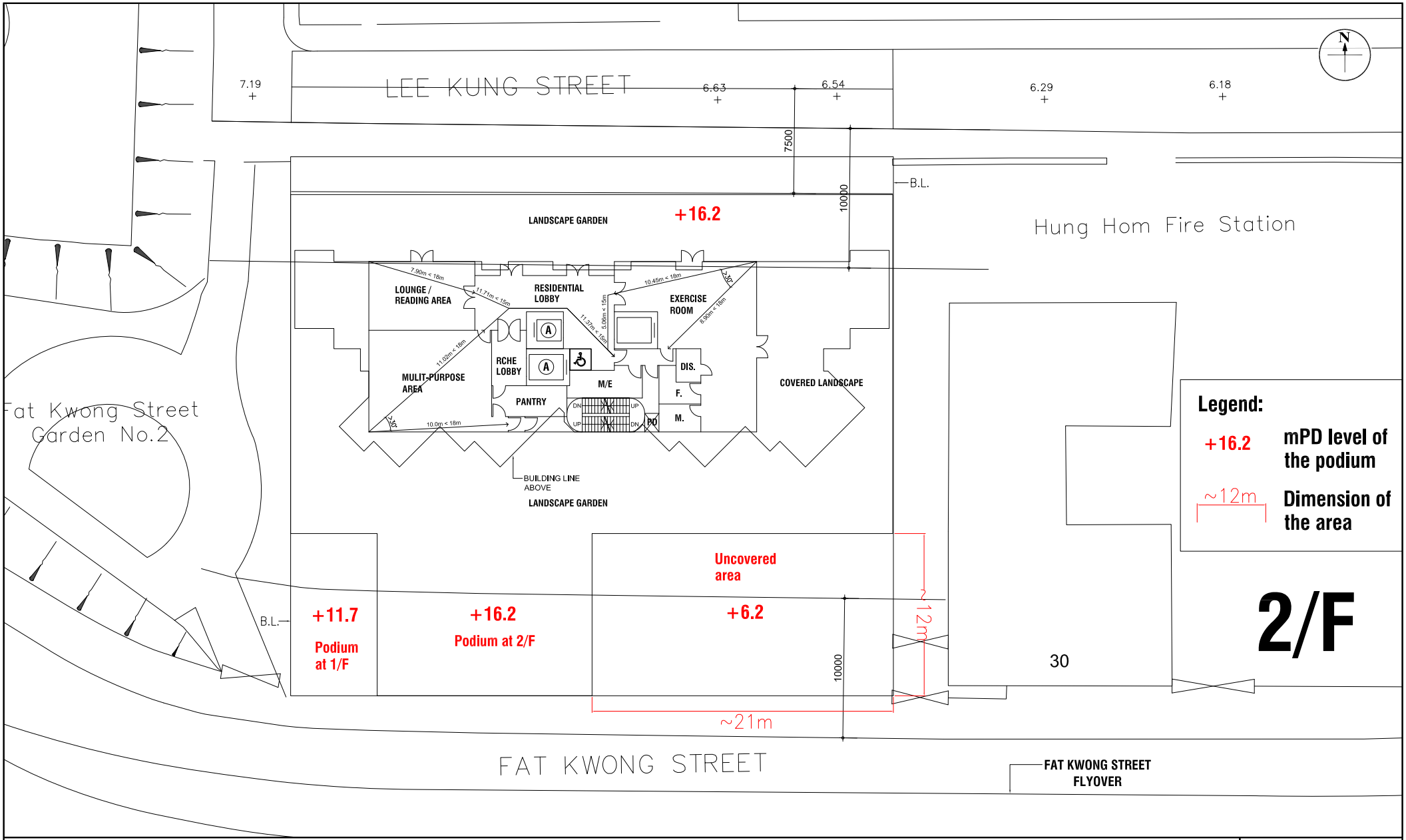
Annex B:
Mitigation Measures proposed for Air Ventilation



Annex: B1	RAMBOLL ENVIRON
Title: Mitigation Measures Dimensions (G/F)	Drawn by: AS
	Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.5
	Date: Feb 2016



Annex: B2	RAMBOLL ENVIRON
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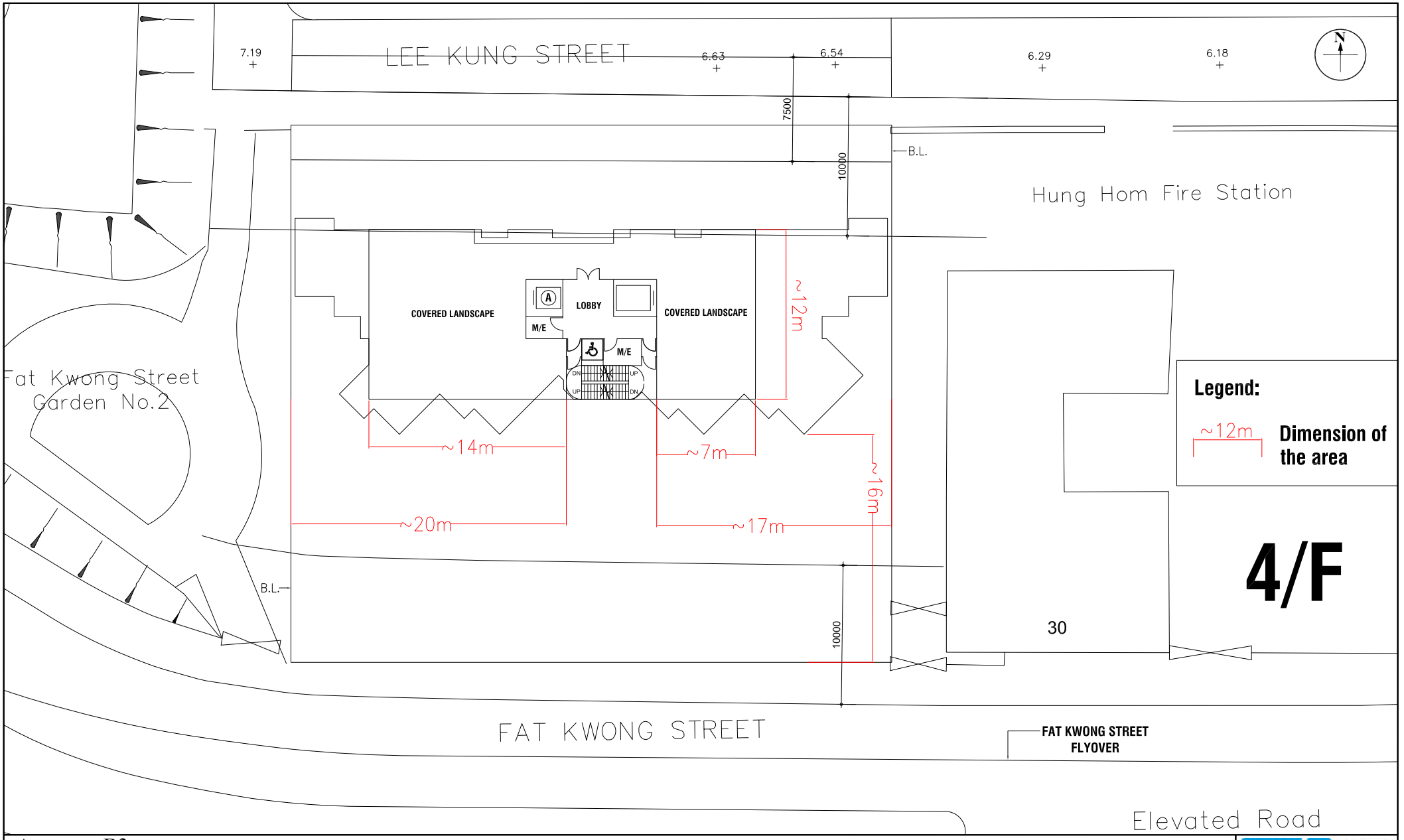
	Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.5
	Date: Feb 2016



Annex: B3	RAMBOLL ENVIRON
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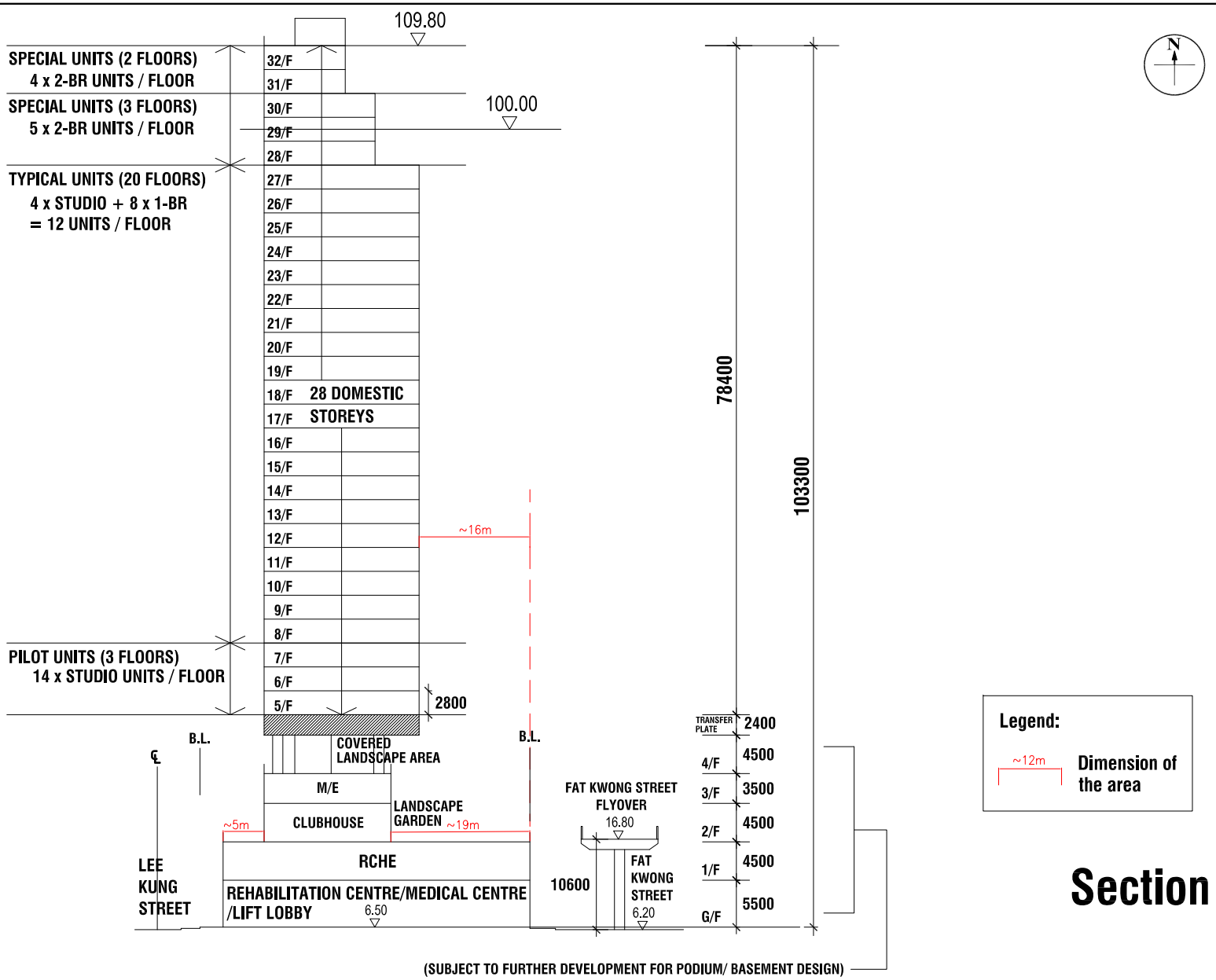
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.5 Date: Feb 2016



Annex: B4	RAMBOLL ENVIRON
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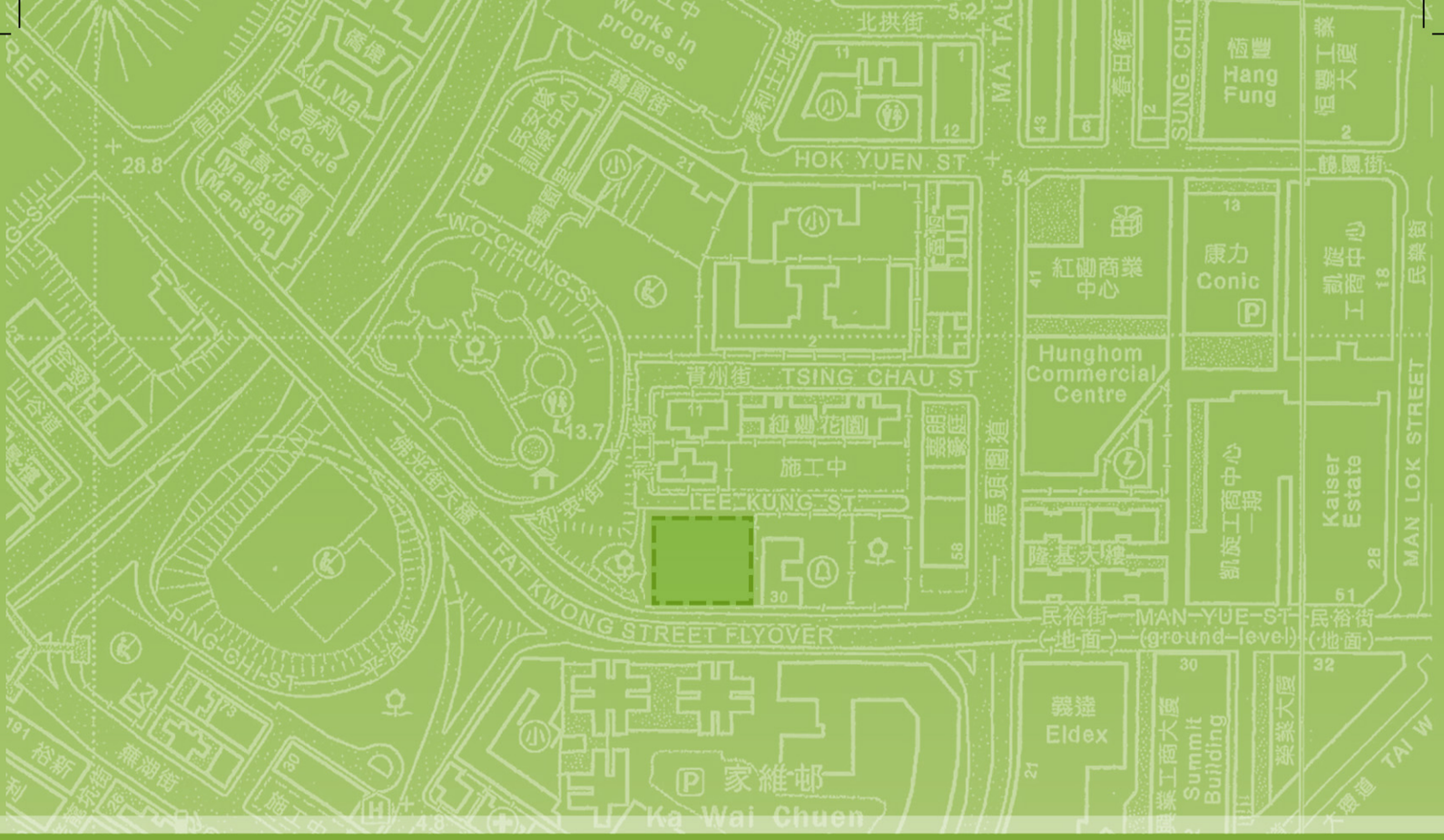
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.5 Date: Feb 2016



Annex **C**

Environmental Assessment Report

Planning Consultancy Services for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Environmental Assessment

Prepared by:
Ramboll Environ Hong Kong Limited

Date:
Jul 2016

Report Number:
R4312_V1.7

Prepared by:

Kitty Wong
Assistant Environmental Consultant

Approved by:

Tony Cheng
Senior Manager

Ramboll Environ Hong Kong Limited
Room 2403, 24/F., Jubilee Centre
18 Fenwick Street, Wan Chai, Hong Kong
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E-mail: hkinfo@environcorp.com

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1.0 Introduction

1.1 Study Background

The Housing Society proposes to develop the Subject Site as a Public Elderly Housing Development with all necessary supporting facilities.

The Subject Site falls within the overall planning context of the urban area of Hung Hom. The Subject Site is bounded by Lee Kung Street to the north and Fat Kwong Street to the south.

Ramboll Environ Hong Kong Limited was commissioned by the Applicant to conduct an Environmental Assessment (EA) on the proposed development in order to demonstrate that the proposed development will be environmentally acceptable. **Figure 1** shows the location of the Subject Site.

The proposed development comprises 305 flats for the people aged 60 or above and supporting care facilities e.g. Residential Care Home for the Elderly (RCHE), M/E and recreational facilities. It must be noted that the RCHE will be equipped with air-conditioning system such that it will not rely on openable window for ventilation. Master layout plan of the residential floor of proposed development is shown in **Figure 2a** to **2c**.

Master Layout Plan and section of the proposed development are shown in **Appendix 1**.

1.2 Environmental Appraisal of the Proposed Development

On-site visit has been conducted in Oct 2014 to identify any active chimneys located within 500m from the Subject Site. Based on the survey, there are 2 active chimneys located within 200m from the Subject Site. In addition, the Subject Site is bounded by Lee Kung Street to the north and Fat Kwong Street to the south. The proposed development may be subject to adverse air quality impact; and mitigation measures may be required. From a qualitative perspective, the buffer distance between the Proposed Development and the kerb side of Fat Kwong Street (District Distributer) is more than 10m, and that of for Lee Kung Street (Local Distributer) is more than 5m (please refer to **Figure 4**). Therefore, Hong Kong Planning Standard and Guideline (HKPSG) recommended buffer distance (Table 3.1 of the Chapter 9 - Environment) for vehicular emission can be complied. Details of the air quality impact assessment are presented quantitatively in **Chapter 2**.

As the Subject Site is close to busy roads such as Fat Kwong Street and Chatham Road North, the proposed development is likely to be subject to severe traffic noise impact. Due to limited buildable area, provision of sufficient setback between residential block and busy roads is not practicable. Therefore, traditional and innovative mitigation measures may be required to reduce traffic noise impact on future residents. Details of the traffic noise impact assessment are presented in **Chapter 3**.

2.0 Air Quality Impact Assessment

2.1 Scope of Work

This assessment is to address the potential air quality impact due to the chimneys within 500m from the Subject Site and the traffic emissions from the surrounding roads. Air quality levels at selected sensitive receivers of Proposed Development will be anticipated by computer modelling. Air pollutants including Nitrogen Dioxide (NO2), Sulphur Dioxide (SO2) and Respirable Suspended Particulate (PM10) as well as Fine Suspended Particulate (PM2.5) are taken into account in this assessment. Site visit was carried out in Oct 2014. The predicted air pollutants concentrations at sensitive receivers will then be compared with the relevant Air Quality Objectives (AQOs). Appropriate mitigation measures, if required, will be recommended if exceedances of AQOs are identified.

2.2 Assessment Criteria

The assessment criteria have been based on the new Hong Kong Air Quality Objectives (AQOs) enacted on 1/1/2014. AQOs are listed in **Table 1** below.

Table 1 Hong Kong Air Quality Objectives

Pollutants	Average Time	Standard ($\mu g/m^3$)	No. of exceedances allowed
Sulphur Dioxide (SO2)	10-min	500	3
	24-hr	125	3
Respirable Suspended Particulates (PM10)	24-hr	100	9
	Annual	50	NA
Fine Suspended Particulates (PM2.5)	24-hr	75	9
	Annual	35	NA
Nitrogen Dioxide (NO2)	1-hr	200	18
	Annual	40	NA
Ozone (O3)	8-hr	160	9
Carbon Monoxide (CO)	1-hr	30,000	0
	8-hr	10,000	0
Lead (Pb)	Annual	0.5	NA

2.3 Air Sensitive Receivers

Representative Air sensitive receivers (ASRs) (9 ASRs) as shown in **Figure 5** were selected at the representative locations at the Proposed Development. Assessment heights for the ASRs scattered around the Proposed Development are taken from ground level including 1.5m breathing zone up to 102.9mPD in which the base elevation of the Proposed Development is 6.2 mPD.

2.4 Industrial Air Quality Impact Assessment Methodology

2.4.1 Computer Modelling

The dispersion of NO2, PM10, PM2.5 and SO2 was studied and modelled using the software AERMOD released by Lakes Environmental Software. The model is based on the principle of Gaussian dispersion and is widely acceptable to Authorities including the Environmental Protection Department (EPD) of the HKSAR. The model is designed to predict both concentration and deposition of pollutants from point and area sources.

2.4.2 Source Description and Emissions Inventory

Chimney Emissions

On-site visit has been conducted in Oct 2014 to identify any active chimneys located within 500m from the Subject Site. Based on the survey, there are 2 active chimneys located within 500m from the Subject Site. Locations and emission details of the active stacks are shown in **Figure 3** and **Appendix 2e** respectively.

Four pollutants were assessed by AERMOD. They are NOx, PM10, PM2.5 and SO2.

For NO2 emission from chimneys, NOx emission factor of 0.0024kg/L of fuel consumption as stated in table 1.3-1 of USEPA AP42 Fifth Edition, which has also been adopted in the EIA report titled: "Agreement No. CE 16/99, Feasibility Study for Housing Development at Whitehead and Lee On in Ma On Shan, Sha Tin" and "Agreement No. CE 10/95, Tin Shui Wai Development Engineering Investigations for Development of Areas 3, 30 & 31 of the Development Zone and the Reserved Zone", was adopted.

For PM10 and PM2.5 emitted from chimney, PM10 emission factor of 1lb/1000gal (i.e. 0.12g/L) and PM2.5 emission factor of 0.25lb/1000gal (i.e. 0.03g/L) as stated in table 1.3-6 of USEPA AP42 Fifth Edition were adopted.

For SO2 emitted from chimney, emission factor is derived based on 0.005% sulphur content.

The dominant or representative land use 1 km upwind of the receptor have been determined using a land use map or land use information in the PATH-2016 system for at least 12 directions. The land use map is shown in **Appendix 8.**

Portal Emissions

A tunnel located immediate to the north of Fat Kwong Street Playground is considered as a portal emission. **Figure 3** shows that location of the tunnel. Air pollutants accumulated inside this tunnel and will be emitted and dispersed via portals, thus would affect the air quality upon the proposed developments.

Three pollutants would be assessed. They are NOx, PM10 and PM2.5.

Portal emission impact from this tunnel was assessed using the software AERMOD released by Lakes Environmental Software. The model is based on the principle of Gaussian dispersion and is widely acceptable to Authorities including the Environmental Protection Department (EPD) of the HKSAR. Air pollutants emissions from the concerned portals will be modelled as volume source. Emission rate is derived based on the running exhaust emission factor using EMFAC-HK model. As the traffic emission factor varies hour-by-hour in a day, the emission rate in AERMOD will also vary by means of using multiplier of different value for each hour of a day. **Appendix 2d** shows the emission factor of portal emissions for various parameters.

Vehicular Emissions from Open Roads

Three pollutants would be assessed. They are NOx, PM10 and PM2.5.

Below section is to assess the air pollutant concentration at the Subject Site due to the emission from the nearby road networks. The emission rate of each road within 500m from the Subject Site is calculated with latest EMFAC-HK issued by EPD. Based on the emission rate of each road, the air pollutant concentration at the Subject Site will be modelled with CALINE 4. The assessment year for EMFAC model run and traffic prediction year are 2021 and 2036, respectively.

2.4.3 Methodology of EMFAC-HK Modeling

Objective

The aim of conducting EMFAC Model is to calculate project-specific vehicle emission factor of criteria air pollutants (e.g. NO2 and RSP) arising from vehicular tailpipe emission on the road carriageways within 500m study area of the Subject Site.

EMFAC-HK Model

The EMFAC-HK Model version 3.1 dated 17 Feb 2016 (the EMFAC-HK Model), which was the latest available version, was adopted.

Guideline and Document

Several guidelines and documents published by the EPD, which are available from the following EPD EMFAC-HK website (the EPD website), are referred for EMFAC-HK Model input:

- http://www.epd.gov.hk/epd/english/environmentinhk/air/guide_ref/emfac-hk.html (the EPD website)
- Guideline on Modelling Vehicle Emissions (Revised on 4.1.2016) (the EPD Guideline)
- 2013 Licensed Vehicle by Age and Technology Group Fractions (the EPD Document)

Traffic Data

Project specific hourly traffic data for 2036 having the maximum traffic data of the concerned roadway network within 15 years from the assumed completion year of the developments is adopted in combination with emission factor based on EMFAC-HK Model (with calendar year set as 2021) to estimate the highest vehicular emission rate for each roadway.

The traffic data predicted by the project traffic consultant, Ozzo Technology Ltd., includes hourly traffic flow with composition of 16 vehicle classes according to "Guideline on Modelling Vehicle Emissions" released by EPD for road carriageways within 500m radius from the boundary of the proposed developments; hourly VKT and number of trips travelled; and speed fraction for road carriageways respectively with speed limit of 50kph and 70kph for 24 hours. A listing of the EMFAC-HK vehicle classes is provided in **Table 2** below. Traffic forecast is included in **Appendix 2a**.

Table 2 EMFAC-HK Vehicle Classes

Vehicle Class Description	Fuel Type	Gross Vehicle Weight (tonnes)	Symbol 1 (in csv output file)	Symbol 2 (in bcd output file & traffic data)
Private Cars (PC)	ALL	ALL	PC	PC
Taxi	ALL	ALL	Taxi	Taxi
Light Goods Vehicles (<=2.5t)	ALL	<=2.5t	LGV<=2.5t	LGV3
Light Goods Vehicles (2.5-3.5t)	ALL	>2.5-3.5t	LGV2.5-3.5t	LGV4
Light Goods Vehicles (3.5-5.5t)	ALL	>3.5-5.5t	LGV>3.5t	LGV6
Medium & Heavy Goods Vehicles (5.5-15t)	ALL	>5.5-15t	HGV<=15t	HGV7
Medium & Heavy Goods Vehicles (>=15t)	ALL	>15t	HGV>15t	HGV8
Public Light Buses	ALL	ALL	PLB	PLB
Private Light Buses (<=3.5t)	ALL	<=3.5t	PrLB<=3.5t	PV4
Private Light Buses (>3.5t)	ALL	>3.5t	PrLB>3.5t	PV5
Non-franchised Buses (<6.4t)	ALL	<=6.36t	NFB<=6.4t	NFB6

Vehicle Class Description	Fuel Type	Gross Vehicle Weight (tonnes)	Symbol 1 (in csv output file)	Symbol 2 (in bcd output file & traffic data)
Non-franchised Buses (6.4-15t)	ALL	>6.36-15t	NFB6.4-15t	NFB7
Non-franchised Buses (>15t)	ALL	>15t	NFB>15t	NFB8
Single Deck Franchised Buses	ALL	ALL	FBSD	FBSD
Double Deck Franchised Buses	ALL	ALL	FBDD	FBDD
Motor Cycles	ALL	ALL	MC	MC

The estimated 16-class distribution as defined in EMFAC-HK was derived by sectoring the relevant classes in the Transport Department's Annual Traffic Census record or vehicle distribution obtained from manual traffic count surveys, in proportion to the recorded distribution in EPD document: "2013 Vehicle Licensed Number by Age and Technology Group Fractions" from the website of EPD.

All concerned roadways shall be characterized into different road groups in accordance with speed limits. It is assumed that speed fraction is applicable for all roads under the same concerned road groups (i.e. with the same speed limit). AM and PM hourly speed fractions for each vehicle class are prepared for each road group.

The roadway network within the 500m study area consists of 161 distinct roadway links. In this study, all concerned roads are characterized into 2 road groups for EMFAC modeling since they contain 2 types of design speed limits. (50 and 70 kilometer per hour, kph, respectively)

Endorsement from Transport Department on the traffic data forecast (including traffic flow & vehicle mix in 24 hours, speed limit) and the assumption that speed fraction is applicable for all roads under same road group will be obtained by the Project Traffic Consultant. Relevant correspondence of the endorsement will be provided separately.

2.4.4 EMFAC-HK Input

Geographical Area

"Hong Kong" is selected as the Geographical Area.

Calendar Year

2021 is chosen as the Calendar Year in EMFAC-HK Model to represent the worst case scenario emissions (because the vehicle fleet will become cleaner over time as the fleet incorporates newer vehicles adhering to more stringent emission standards.

Season or Month

Per the EPD Guideline, "Annual" is selected in this study to evaluate the highest vehicle emission within the Model Year.

Mode and Output

EMFAC-HK Model is run in Emfac mode for calculating area fleet average emissions.

Temperature and Humidity

Referring to 1-year weather data recorded at Hong Kong Observatory, the temperature ranges from 23°C to 27°C; relative humidity (RH) ranges from 61% to 80% (see **Appendix 2b**). For output configuration, temperature is set from 20°C to 30°C with increment of 5°C. RH is set from 60% to 80% with increment of 10%.

Speeds

The speed fraction data provided by project traffic consultant is in sub-class of 0-8kph, 8-16kph, 16-24kph, … To match with the speed fraction data for subsequent calculation, speed is configured from 4kph and in increment of 8kph (i.e. mid-value of each speed fraction sub-class).

Exhaust / Evaporation Technology Fractions

Vehicle classes are grouped with different exhaust and evaporation technology group indexes and technology fractions. Each technology group represents a distinct emission control technologies. Default exhaust and evaporation technology fractions are adopted in this assessment.

Population and Accrual Rate

Default vehicle populations forecast and accrual rate in EMFAC-HK Model is adopted.

Trips and VKT

Default trips and VKT for HK total is adopted.

Detailed impact rates will be generated with respect to each combination of temperature, RH and speed for running exhaust emission, and combination of temperature and duration for cold start emission.

Surface Roughness Height

This parameter is closely related to the land use characteristics of a study area and associated with the roughness element height. As a first approximation, the surface roughness can be estimated as 3 to 10 percent of the average height of physical structures. Typical values used for urban and new development areas are 370 cm and 100 cm, respectively.

2.4.5 Calculation of Emission Factors by EMFAC-HK Model Output

Running Exhaust Emission Rate

To represent the worst case scenario, maximum running exhaust emission rate (g/km) among all combinations of temperature (5°C to 35°C) and humidity (20% to 100%) with respect to each combination of speed and vehicle class will be adopted for NOx.

For each road group (i.e. roads with same speed limit), hourly running exhaust emission rate (NOx/PM10) for each vehicle class is determined by:

Hourly running exhaust emission rate (NOx/PM10) for each vehicle class (g/veh-km) = ∑ [running exhaust emission rate for a particular speed x speed fraction of particular speed]

For each road, hourly composite running exhaust emission rate (NOx/PM10) is determined by:

Hourly composite running exhaust emission rate (NOx/PM10) (g/veh-km) = ∑ [hourly running exhaust emission rate for each vehicle class (determined for the corresponding road group) x % composition of corresponding vehicle class]

Starting Emission Rate

For cold start emission which is applicable to non-trunk road only, maximum starting emission (g/trip) among different durations (from 5min to 720min) is adopted. It is notable that only 8 of 16 vehicle classes would have starting emission.

Reference is made to "Agreement No. CE 45/2008 (CE) Liantang / Heung Yuen Wai Boundary Control Point and Associated Works" (EIA-190/2010) (the Liantang EIAR). In the EIA Report, correlation is

established between number of trips and VMT/VKT. The estimated VMT/VKT for rural and local roads with possible cold start emission amounts to 13% of total VMT/VKT.

In this assessment, the assumption in Liantang EIAR is followed. EMFAC Model is used to generate HK total number of trips and VKT travelled in Year 2039 (the assessment year of the traffic forecast) for each vehicle class. Trip per VKT for rural and local road for each class is determined by:

Trip/VKT (1/veh-km) for each vehicle class = HK total number of trips for each vehicle class ÷ (HK total VKT travelled for each vehicle class x 13%).

Based on the hourly VKT travelled data from project traffic consultant, hourly total cold start emission (gram) for each vehicle class along each road is determined by:

Hourly total cold start emission (g) for each vehicle class = starting emission rate for each vehicle class x Trip/VKT for each vehicle class x VKT travelled for each vehicle class along each road

The hourly total cold start emission rate for each road is the sum of hourly total cold start emission (gram) for each vehicle class along the same road. The hourly composite cold start emission rate is calculated by dividing the value using the hourly traffic flow:

Hourly total cold start emission (g) = ∑ [hourly total cold start emission for each vehicle class]

Hourly composite cold start emission rate (g/veh-km) = hourly total cold start emission ÷ hourly total VKT travelled

2.4.6 NOx to NO2 Conversion

The conversion of NO_X to NO_2 is a result of a series of complex photochemical reactions and determines the prediction of near field impacts of NO_X emissions. To determine motor vehicle impacts, a conservative 28% of tailpipe NO_X can be assumed to be NO_2 (on a mixing ratio basis) for all vehicle types.

2.5 Meteorological Data

The level of emission depends upon the way in which the nature and location of the emission sources interacts with a number of key hourly meteorological elements such as wind speed and direction, temperature, rainfall, Pasquill stability classes, and cloud cover. The information from the WRF data used in the PATH-2016 model of the grid (41, 32) where the proposed development located is used in the assessment. The stability class is also converted from the WRF Data by PCRAMMET.

2.6 Assessment Results

Cumulative air quality impact due to industrial emissions from chimneys, vehicular emission from the surrounding road networks and portal emission from tunnel has been quantitatively assessed separately for pollutants NO_2, PM10 and PM2.5. For SO_2, only industrial emissions from chimneys have been quantitatively assessed.

Predicted results of NO_2, PM10, PM2.5 and SO_2 at all predetermined ASRs are summarized in **Appendix 2c**. Contour plots at the first residential floor, i.e. 32.9mPD (31.4mPD+1.5m breathing zone) and the worst hit level i.e. 8mPD (6.5mPD+1. 5m breathing zone) are also found in the **Appendix 2f and 2g**.

NO_2

Results indicated that there are no exceedances regarding short term NO_2 concentration (i.e. 19th highest 1-hour average) at all selected ASRs; but there are some exceedances of annual NO_2 concentration (long term) from ground level at 8 mPD to the level at 18 mPD. It is also found that the predicted annual NO_2

concentration from the first residential floor, i.e. 32.9 mPD, up to the top floor will comply with the AQO. The future residents at residential units will not be subject to unacceptable air quality impact.

For the area where annual NO_2 concentration exceeds the AQOs, they are used for RCHE, recreational facilities and lift lobby. It must be noted that the short term air pollutant concentration at these locations comply with the standard. To mitigate the potential impact of the annual exceedance, it is recommended that air conditioning system will be provided for the RCHE and recreational facilities with the fresh air intake location at the area above 22.5mPD. With careful location of the fresh air intake, the future occupant at these uses will not be subject to unacceptable air quality impact.

PM10

The predicted results of the 10th highest 24-hours average and annual average PM10 concentration due to vehicular emission, industrial emissions and portal emission for all selected ASRs at all levels are summarized in **Appendix 2c**. PATH-2016's output of PM10 concentrations have be adjusted by adding 10th highest daily PM10 concentration of 37.6 µg/m3 and annual PM10 concentration of 21.9 µg/m3. The results indicated that PM10 concentration at the proposed development can comply with the relevant AQOs.

PM2.5

The predicted results of the 10th highest 24-hours average and annual average PM2.5 concentration due to vehicular emission, industrial emissions and portal emission for all selected ASRs at all levels are summarized in **Appendix 2c**. PATH-2016's output of PM2.5 concentrations have be adjusted by adding 10th highest daily PM2.5 concentration of 28.2 µg/m3 and annual PM2.5 concentration of 15.549 µg/m3. The results indicated that PM2.5 concentration at the proposed development can comply with the relevant AQOs.

SO_2

The predicted results of the 4th highest 10-min average and 4th highest 24-hours average SO_2 concentration due to industrial emissions for all selected ASRs at all levels are summarized in **Appendix 2c**. The results indicated that SO2 concentration at the proposed development can comply with the relevant AQOs.

2.7 Summary

The air pollutant concentrations at the ASRs of the residential use of the proposed development are expected to be within the relevant AQOs. No adverse air quality impacts for the future residents are expected.

With careful location of the fresh air intake at the location where air pollutant concentrations comply with the AQOs, i.e. above 22.5mPD, the occupant of the RCHE and recreational facilities use will not be subject to unacceptable air quality impact.

3.0 Traffic Noise Impact Assessment

3.1 Assessment Criteria

Noise standards are recommended in Chapter 9, "Environment", of the Hong Kong Planning Standards and Guidelines (HKPSG) for planning against possible noise impact from road traffic, railway and aircrafts. According to the guidelines, the maximum allowed road traffic noise level, measured in terms of L10(1-hr.), at typical facades of dwellings like the proposed development is recommended to be 70 dB(A).

3.2 Assessment Methodology

The assessment concerns the prediction of the maximum L10(1-hr) traffic noise level at noise sensitive receivers (NSRs) of the proposed development due to the projected traffic data on the adjacent major road networks for year 2036, which is considered as the worst case scenario within 15 years upon completion of the proposed development in end of 2021. Traffic data was predicted by the project traffic consultant – Ozzo Technology Limited.

The U.K. Department of Transport's procedure "Calculation of Road Traffic Noise" was applied to predict the L10(1-hr) noise level generated from road traffic at selected representative facades (NSRs) of the proposed development. The predicted noise levels were then compared with the HKPSG noise criterion for assessing the impact.

3.3 Road Characteristics

Fat Kwong Street, Lee Kung Street and Chatham Road North are considered to be the dominant sources contributing to traffic noise impact on the NSRs. Other roads within 300m from the Subject Site are also considered in the assessment. The information on traffic volume and percentage of heavy vehicles using these roads was attached in **Appendix 3**. Transport Department has no comment on the traffic forecast used for this Environmental Assessment, and the endorsement is also attached in **Appendix 6**.

3.4 Noise Sensitive Receivers

Noise Sensitive Receivers (NSRs) likely to be subject to adverse traffic noise level have been identified in this assessment. Their locations are shown in **Figure 6a**, **6b** and **6c**. The assessment points are taken at 1.2 m above the floors of the selected storey and 1m away from the facades of openable windows.

3.5 Assessment Results and Proposed Environmental Mitigation Measures

The assessment results are shown in **Appendix 4**. In view of close proximity, the Subject Site will be experiencing adverse traffic noise impact. Therefore, noise mitigation measures will be required to alleviate the potential traffic noise impact.

Below sections describe the noise mitigation measures proposed. In this project both traditional and innovative mitigation measures are proposed.

3.5.1 Traditional Traffic Noise Mitigation Measure considered

Noise Mitigation Measures applied

i) Building Setback

The Subject Site is small with area only about 0.16 hectare. With the limited buildable area, the proposed setback of residential building from busy traffic roads has already been maximized. The setback distance from Fat Kwong Street to the residential building is 17m while that of Lee Kung Street is 9m. Furthermore, the height of the first residential floor is 31.4mPD, which can also increase the buffer distance from the elevated Fat Kwong Street nearby.

ii) Building Layout / Orientation

The sensitive façade at the south of the residential block is designed to be nonparallel to the Fat Kwong Street nearby in order to minimize the angle of view to the road. The sensitive façade is about 45 to 50 degree towards the Fat Kwong Street, such that the noise impact on future residents will be mitigated.

iii) Non noise sensitive use

Non noise sensitive use is applied at some facades facing roads, e.g. the kitchen next to the NSR NT_18 and NT_20.

iv) Noise Tolerant Building

The podium building is noise tolerant in nature and is provided to increase the separation between the dwellings and carriageways as well as to provide shielding effect.

v) End Wall

End wall with blank façade is already provided for end units.

vi) Podium

There will be podium provided at the Subject Site. The podium would increase the buffer distance from the first residential floor to the nearby road networks.

vii) Fins

1.0m vertical fin next to NT-20 at typical unit floor is proposed to reduce the angle of view from the noise sensitive use to the nearby roads. Sound absorptive material will be provided on the surface of the fin where facing towards openable window for minimizing the potential reverberation effect. Example of the sound absorptive material has been included in **Appendix 7**. According to "Guidelines on Design of Noise Barriers" issued by EPD and Highways Department, it is stated that "it is desirable for absorption coefficients to be better than 0.8 at frequencies which are significant in the traffic noise spectrum. In general, the peak traffic noise frequencies lie between 500 - 1500 Hz." Therefore, the absorption coefficient of 0.9 at 500 Hz, which is the dominant frequency for road traffic based on general acoustic principle, is recommended to be adopted in this project. Location and dimension of the vertical fin is shown in **Figure 6b**.

After considering all traditional noise mitigation measures, it is found that noise exceedances still occur at some flat units. **Table 3** below summarizes the assessment results of the proposed development. Detail results are shown in **Appendix 4**.

Table 3 Mtigated Traffic Noise Assessment Results (With traditional mitigation measures)

	A.M. Peak Traffic Flow	P.M. Peak Traffic Flow
Predicted Maximum Noise Level, $L_{10\ (1\ hour)}$ dB(A)	75	75
Total No. of Exceedances	305	305
Total No. of Premises	305	305
Percentage of Compliance, %	0%	0%

3.5.2 Innovative Traffic Noise Mitigation Measure considered

With the consideration of traditional noise mitigation measures, there are quite a large number of units exceeding the traffic noise standard.

To further mitigate the traffic noise impact, innovative mitigation measures in terms of provision of acoustic window system will be provided.

Acoustic Window

Based on the traffic noise assessment results, it is noted that the maximum noise level after applying traditional mitigation measures is 75dB(A), which also means there is about 5dB(A) noise exceedance at some units of the proposed development. To further minimize the potential traffic noise impact, acoustic window with 4 to 5 dB sound attenuation are considered to be implemented to mitigate the noise impact. Under the current practice, there are two type of acoustic window available in the market, including the plenum type acoustic window mentioned in the Buildings Department Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechncial Engineers APP130 for Lighting and Ventilation Requirements (hereafter named as acoustic window (Baffle Type)) or top hung window system (hereafter named as acoustic window (Top Hung Type)).

Type 1: Acoustic Window (Baffle Type)

With reference to the approved planning application at ex-San Po Kong Flatted Factory (TPB planning application number: A/K11/211), acoustic window (Baffle Type) is recommended to mitigate the traffic noise for public housing. In general, acoustic window (Baffle Type) consists of two layers of windows and openings at offset location to reduce noise penetrating into the units. The forms of acoustic windows (Baffle Type) are sliding windows.

The summary of noise attenuation performance of different types of units based listed in the environmental assessment for the public housing at ex-San Po Kong Flatted Factory (TPB planning application number: A/K11/211) is summarized below:

Table 4 Summary of Sound Attenuations Performance of Acoustic Window (Baffle Type) Individual Flats

Types of Acoustic Windows	1/2P	2/3P	1B	2B (LIV+BR1)	2B (BR2)
Sliding window, without sound absorptive material	5.9	6.6	6.6	6.6	3.5
Sliding window, with sound absorptive material	7.1	7.7	8.1	8.1	4.7

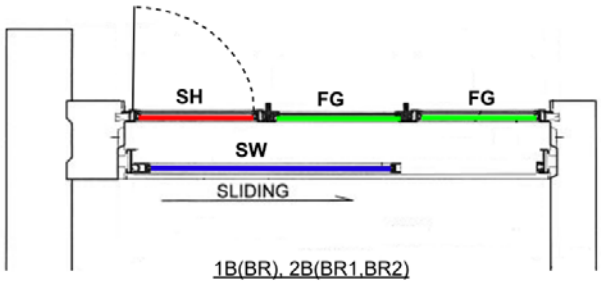
Remark: Unit of the sound attenuation performance is dB.

For those flat units equipped with acoustic window (Baffle Type), the equivalent noise level of the corresponding noise sensitive receivers would be the results of deducting the noise level at 1 m away from façade calculated by CRTN method by the sound attenuation of the acoustic window assessed in this report.

For example, it is assumed that the noise level at 1 m away from façade of a particular 1B flat at 1/F by CRTN is 73.5 dB(A). If acoustic window with sound absorption material is equipped for the flat, the equivalent noise level will be 73.5 dB (A) -6.6 dB = 66.9dB(A), i.e. ~67dB(A). As such, the flat mitigated by installation of acoustic window with sound absorption material becomes complying with HKPSG requirement.

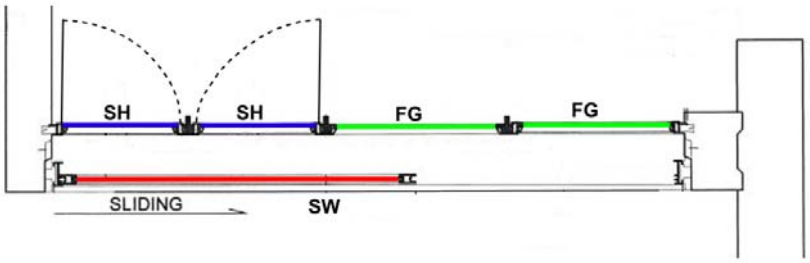
Configuration of Acoustic Window (Baffle Type)

The basic configuration of the acoustic window (Baffle Type) is shown below:



1B(BR), 2B(BR1,BR2)

Note:
SH - Side-Hung Openable Window
SW - Sliding Window
FG - Fixed Glazing



1/2P, 2/3P, 1B(LR), 2B(LR)

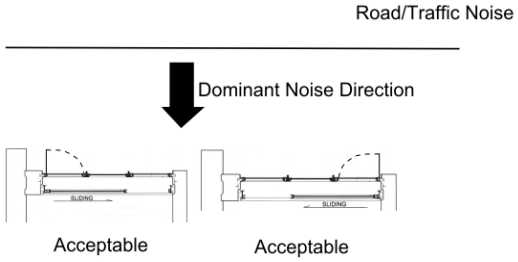
Note:
SH - Side-Hung Openable Window
SW - Sliding Window
FG - Fixed Glazing

Nevertheless, for operation and maintenance purpose, the fixed glazing specified as FG might be equipped with side-hung openable window. For those "FG equipped with side-hung openable window", provision of special window opening device would be considered for incorporation if and when such need is warranted. However, the future resident and management shall be advised of the caution that such window should be closed to achieve the intended sound attenuation and that opening of the windows for purpose of other operation, maintenance or additional ventilation would compromise the indoor noise level in the flat.

Acoustic Window Setting and Orientation

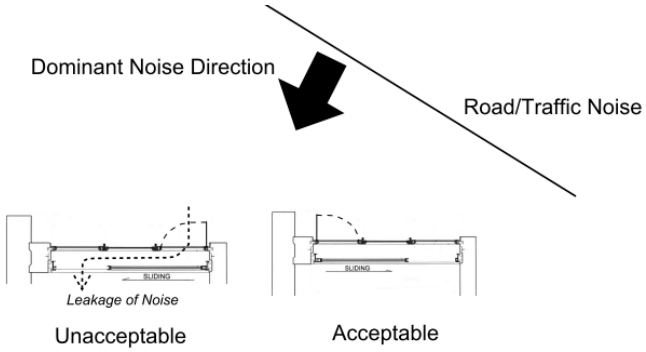
For achieving the sound attenuation assessed in the study, the acoustic window should be set at the intended orientation as described below.

In case a flat is fronting a major noisy road running in parallel with the façade, the left/right settings of the openings of its acoustic window are only mutual images; both of which could achieve the intended sound attenuation in the study.



While window in parallel with traffic noise source, both the left/right setting are applicable.

In case the road, hence the traffic noise propagates at an angle to the façade/flat, the openings of the acoustic window should be set to obstruct direct propagation of noise through the openings and the separation of outer and inner panes should be as follows.



While window NOT in parallel with traffic noise source

Materials Requirement

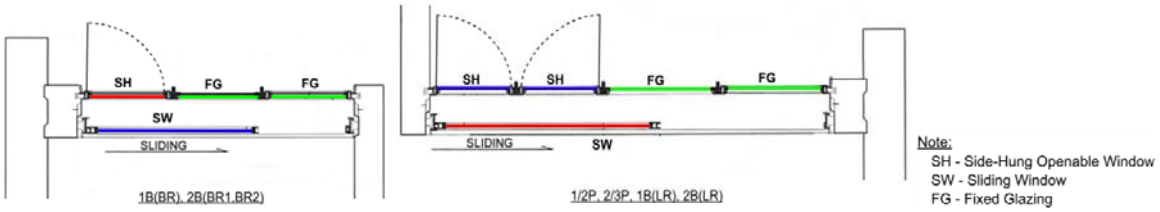
For the acoustic window (sliding window) system, the following materials requirement should be specified: For construction

- Window pane: 6 mm thick
- Sound Absorption Material (where applicable):
  - Thickness: 30 mm
  - NRC: minimum 0.7
  - Location: two sides and top
  - Lining Panel: 2 mm aluminum (or less) with perforation
  - Perforation: 40 % opening
  - Weather-Proof Protection – SAM to be wrapped/sealed by protective sheet of biaxially oriented polyester film

Advisory to Future Residents and Management about Acoustic Window

The sound attenuation achieved by the acoustic window refers to the designated setting of windows. Hence, the future residents and the management in the flats equipped with acoustic windows should be advised of such settings for achieving the intended attenuation, the following may be considered as reference:

"This special window design is for mitigating traffic noise impact. To achieve the intended sound attenuation, the windows should be set as following:



For the acoustic window (Baffle Type), the acoustic performance is likely to have about 3.5 to 8.1 dB noise reduction dependent on the type of units.

Type 2: Acoustic Window (Top Hung Type)

The top hung acoustic window adopted in projects such as Kwun Tong Town Centre Redevelopment and Hong Tsuen Road sets an example of window design that could achieve 4 to 5 dB noise reduction.

The system consists of a top hung window for ventilation purpose with Microperforated Absorber (MPA) panel applied at the inner side, and an acoustic fin is located underneath it. The fin plus sound absorptive material at surface can effectively resist noise from entering domestic premises directly and hence minimize the impact caused to the residents. Other than the above, a fixed window with maintenance opening was implemented below the acoustic fin. The maintenance window has an opening width of 300mm as well as equipped with removable lock; and it is not for prescribed window opening calculation. **Figure 8** shows the indicative section of the proposed top hung acoustic window system.

A laboratory testing for the top hung acoustic window of Hong Tsuen Road project has been carried out. Among the various tested scenarios, the smallest room area is 4.3m^2. With aspect ratio for the height of top hung window to the depth of horizontal acoustic fin is about 1 : 1.37, (620mm window height with 850mm depth of the horizontal acoustic fin), the window can achieve a noise reduction of at least 5.5 dB.

3.5.3 Assessment Result with adoption of Acoustic Window

Since it is still under conceptual design stage, there is no confirmation from Housing Society that which acoustic window will be adopted for this project which is designed for the elderly.

Case 1: If Acoustic Window (Baffle Type) will be adopted

As shown in the above **Table 4**, the minimum noise reduction provided by the window with sound absorptive material is 4.7dB. According to the paper "Full scale field study of sound transmission across plenum windows", the area of the openable portion and the size of the room are two key factors affecting the acoustic performance provided by the acoustic window. It is because the size of the window opening area controls the amount of the direct sound penetrating into the indoor area, while the room size will affect the reverberation component and hence the overall indoor noise. Generally, the noise reduction performance of acoustic window increases with room size because of the longer reverberation time and the lower reverberation effect in a large room.

For this project, the window configurations in different rooms would be same as those in the corresponding rooms in the public housing at ex-San Po Kong Flatted Factory. Meanwhile, the rooms of this project are larger when compared with the corresponding rooms in the public housing at ex-San Po Kong Flatted Factory. (Refer to **Appendix 5**) In addition, the plenum windows would be fixed with a sound absorptive material for all type of flats. Hence, it is considered that the acoustic window (Baffle Type) with sound absorption material can achieve 4.7dB noise reduction.

Case 2: If Acoustic Window (Top Hung Type) will be adopted

As mentioned above, the tested acoustic window (Top Hung Type) of Hong Tsuen Road project with aspect ratio for the height of top hung window to the depth of horizontal acoustic fin about 1 : 1.37 have a noise reduction of at least 5.5 dB.

For the proposed window with a 545mm window height and a 750mm depth of the horizontal acoustic fin, the aspect ratio would be similar. Therefore, it is considered that the proposed acoustic window (Top Hung Type) can also achieve 4.7dB noise reduction."

Overall Result

No matter which type of acoustic window will be adopted in this project, it is assumed that the acoustic window have a noise reduction of 4.7dB. With the implementation of both traditional and innovative noise mitigation measures, the compliance rate of the proposed development could reach 100%. The modelled results at representative NSRs are indicated in **Appendix 4**. The locations of the proposed acoustic window are shown in **Figure 6a to 6c**. The predicted traffic noise assessment results with the application of acoustic windows (4.7dB sound attenuation) are summarized in **Table 5** below:

Table 5 Mitigated Traffic Noise Assessment Results (With Acoustic Windows having 4.7dB sound attenuation)

	A.M. Peak Traffic Flow	P.M. Peak Traffic Flow
Predicted Maximum Noise Level, $L_{10\ (1\ hour)}$ dB(A)	70	70
Total No. of Exceedances	0	0
Total No. of Premises	305	305
Percentage of Compliance, %	100%	100%

Further Study

Regardless on the type of acoustic window would be applied in this project under detailed design stage, test would be carried out in laboratory as well as field test in the future building to verify the noise reduction performance of the acoustic window system. The noise performance of the proposed acoustic window will be tested in the laboratory at subsequent detailed design stage. Further noise mitigation measures will be incorporated to the window as contingency based on laboratory test findings. Upon completion of the development, on-site verification test will be conducted. The noise assessment results of the development in this Environmental Assessment would be updated accordingly upon verification and confirmation of the noise performance of the acoustic window systems.

3.6 Conclusion

With the provision of the proposed traditional and innovative mitigation measures, the compliance rate of the proposed development could reach 100%. Therefore, it is considered that the future residents would not be subject to adverse traffic noise impact.

4.0 Overall Conclusions

The Subject Site is proposed to be developed as Public Elderly Housing Development and this study is to assess the potential environmental impacts upon the proposed development. Air Quality and traffic noise have been quantitatively assessed.

Based on the assessment results, the air quality at the residential floors of the proposed development would comply with the Air Quality Objectives (AQO). However, for the area below the residential floor, i.e. below 32.9mPD, the annual NO2 concentration will exceed the relevant AQOs. It must be noted that there is no exceedance of short term NO2 concentration at these areas. The uses of these areas include RCHE, recreational facilities and transfer plate. In order to mitigate the potential impact, it is recommended to have air conditioning system to be provided at these areas such that they will not rely on the openable window for ventilation. The fresh air intake location of the air conditioning system will be located at the area above 22.5mPD where the air quality would comply with the AQOs. The result indicated that the PM10, PM2.5 and SO2 concentration at all levels of the proposed development can comply with the relevant AQOs.

Traffic noise impacts of the proposed development have been assessed. With the provision of the proposed traditional and innovative mitigation measures, the compliance rate of the proposed development could reach 100%.

The environmental assessment confirms the acceptability of proposed housing development at the Subject Site.

Figures

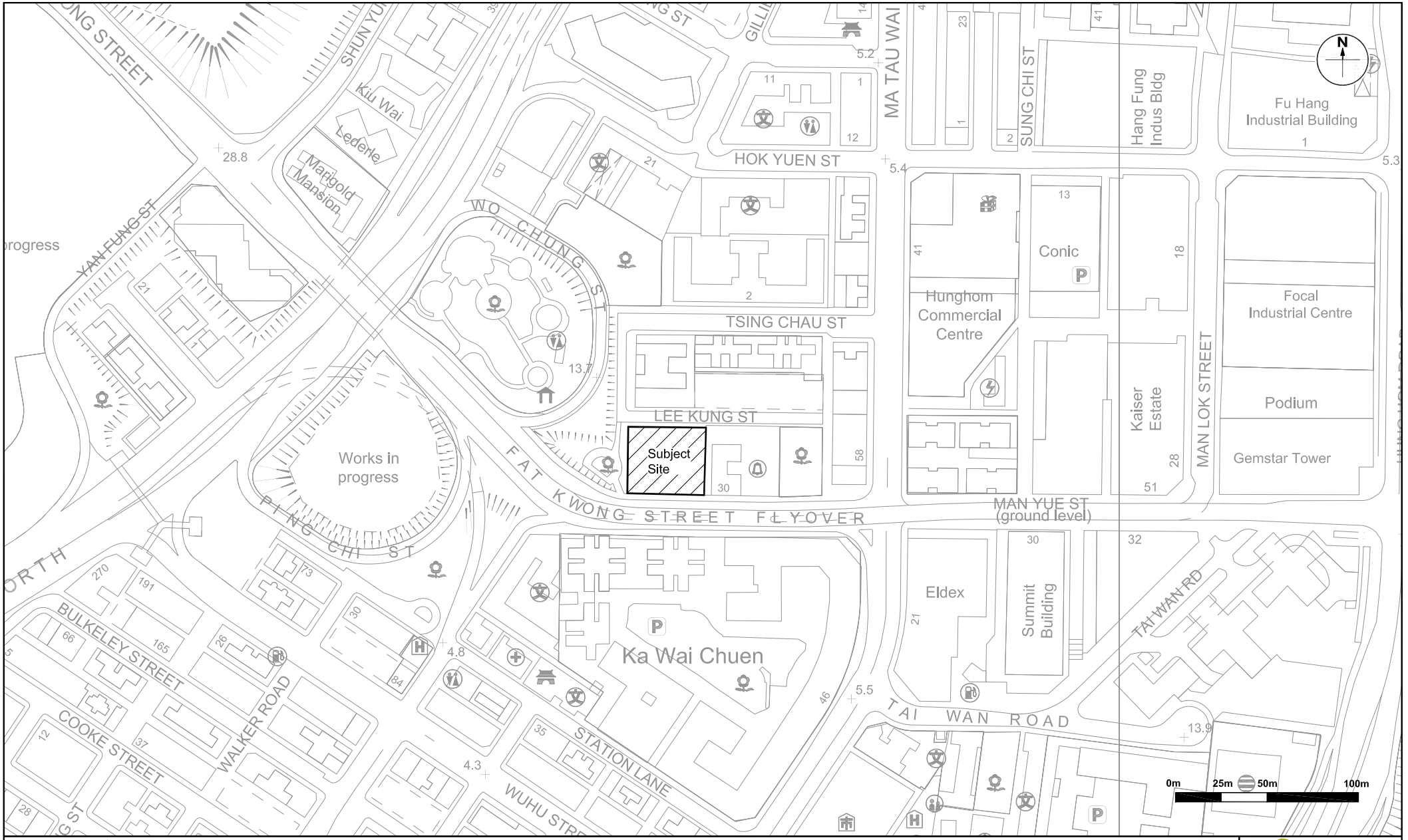


Figure: 1	ENVIRON
Title: Location of the Subject Site and its Environs	Drawn by: KW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.0 Date: Mar 2015

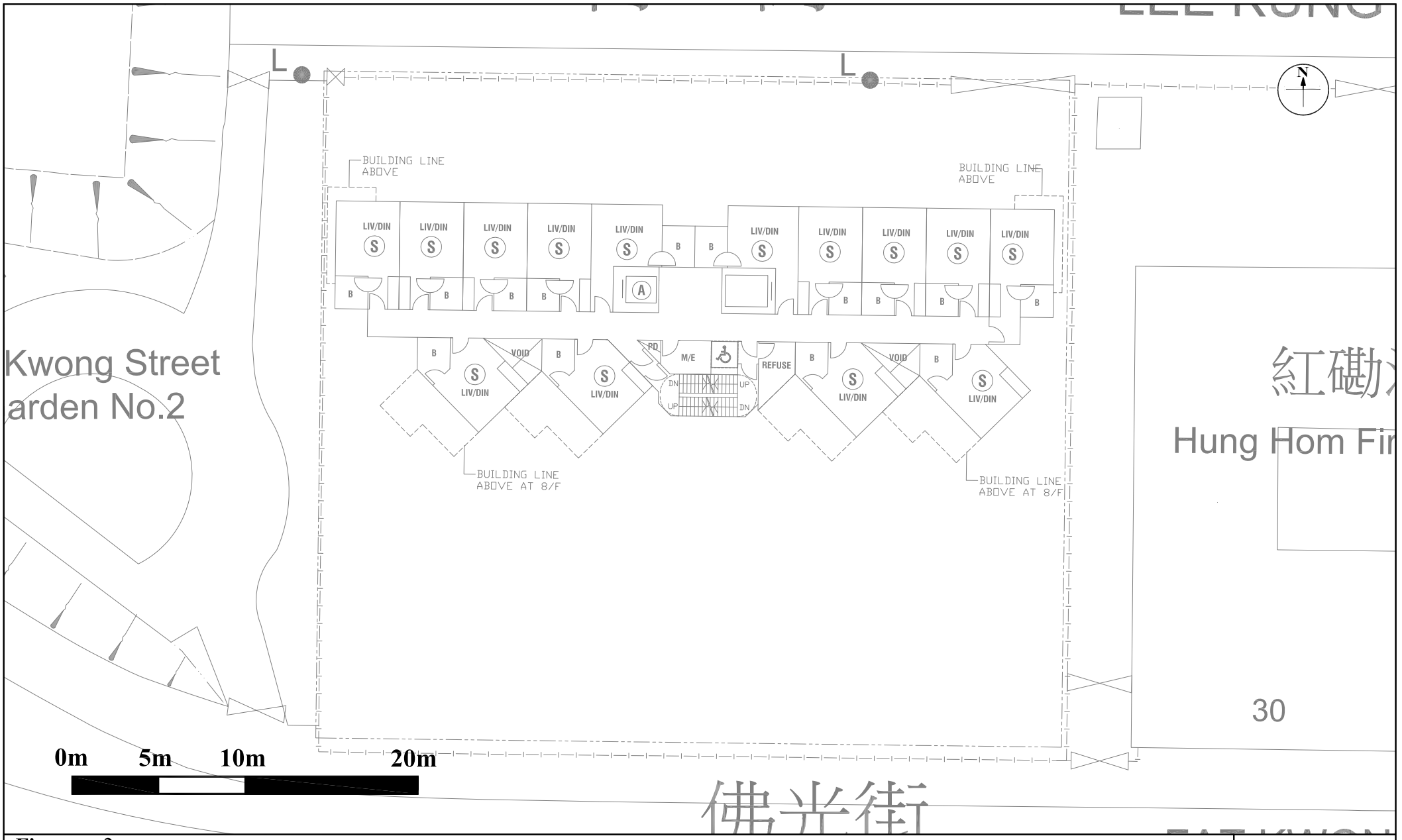


Figure:	2a	RAMBOLL ENVIRON
Title:	Pilot Unit Floor Plan of the Proposed Development	Drawn by: EW
		Checked by: TC
Project:	Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2
		Date: July 2015

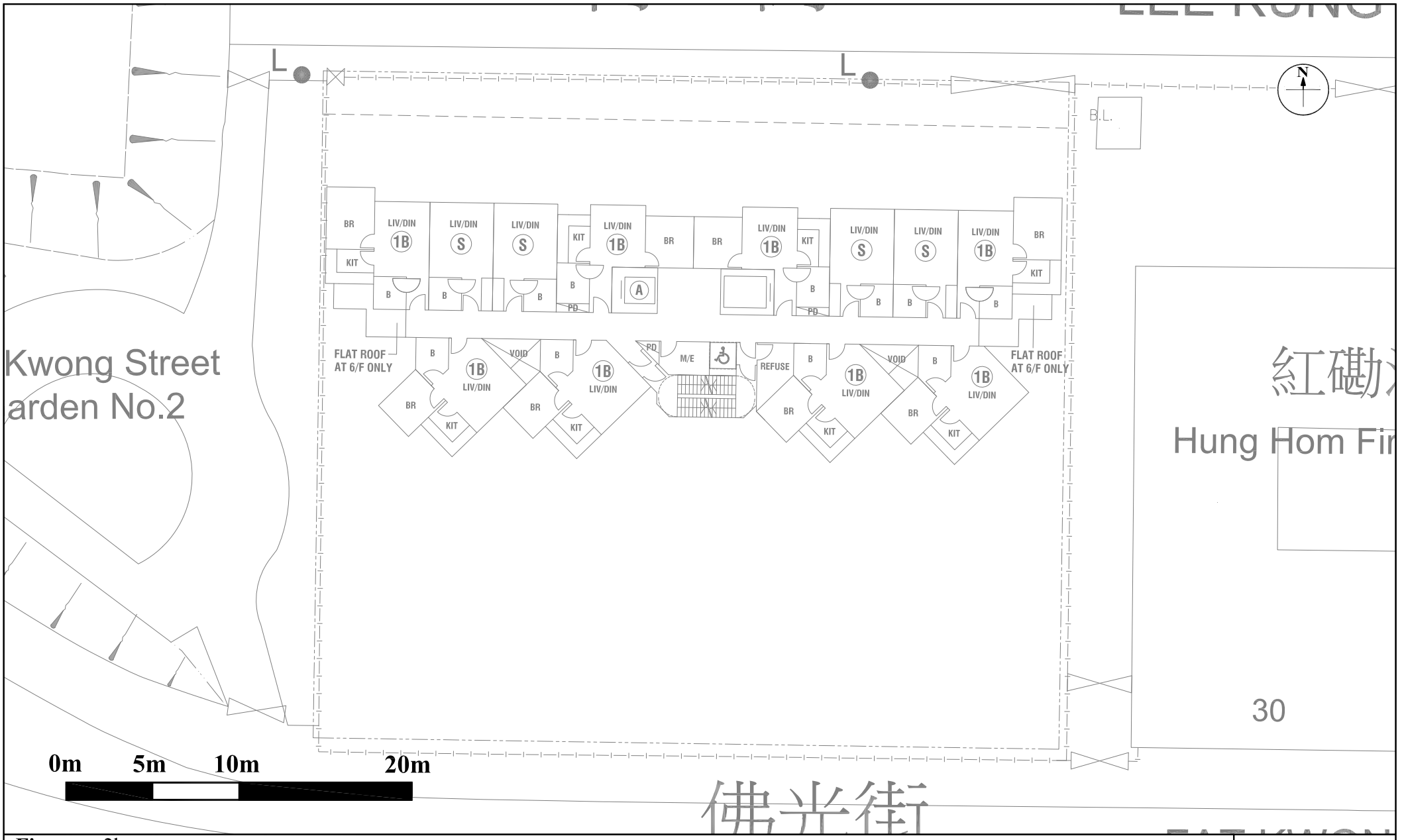


Figure: 2b	RAMBOLL ENVIRON
Title: Typical Unit Floor Plan of the Proposed Development	Drawn by: EW
	Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2
	Date: July 2015

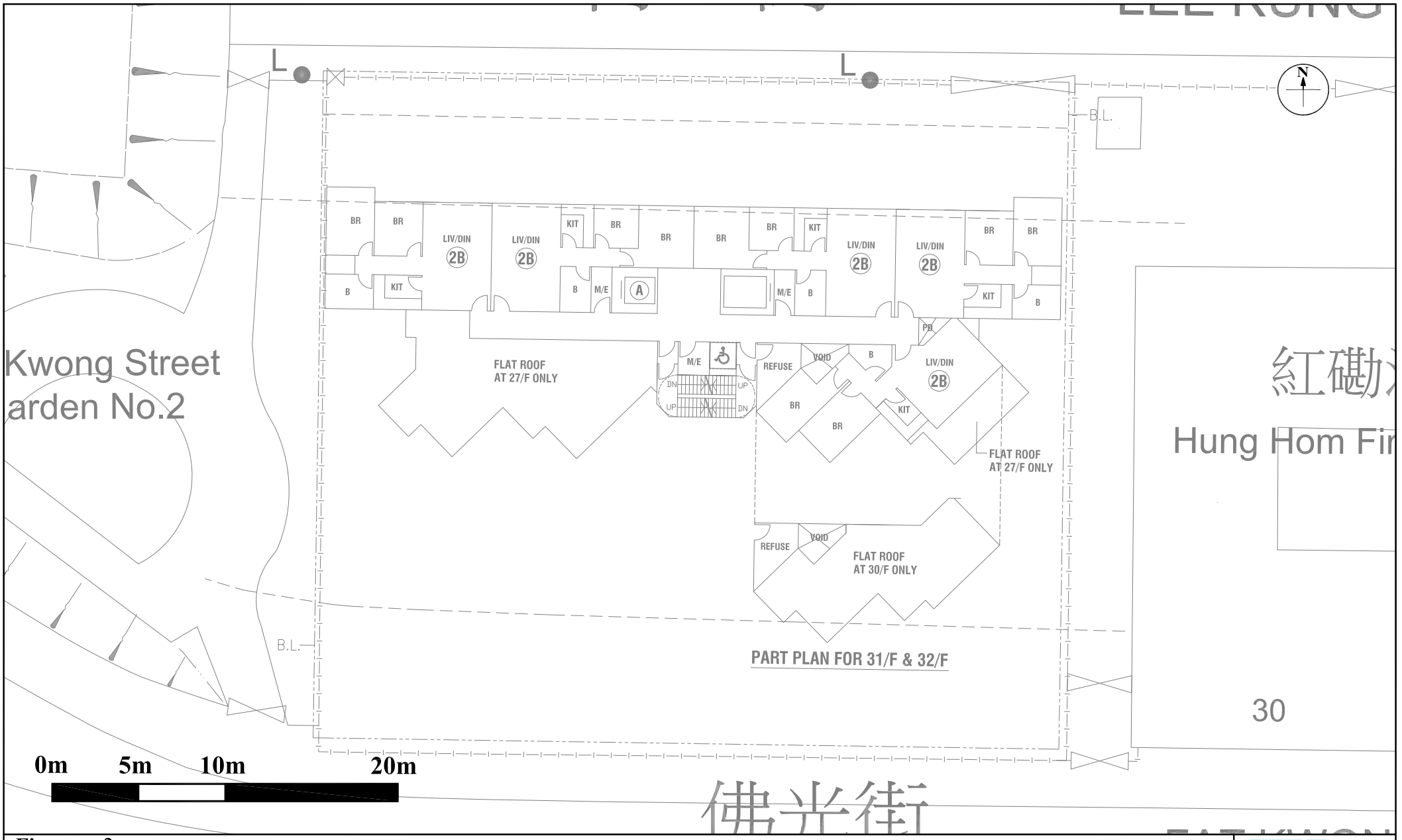


Figure: 2c	RAMBOLL ENVIRON
Title: Special Unit Floor Plan of the Proposed Development	Drawn by: EW
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Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2
	Date: July 2015

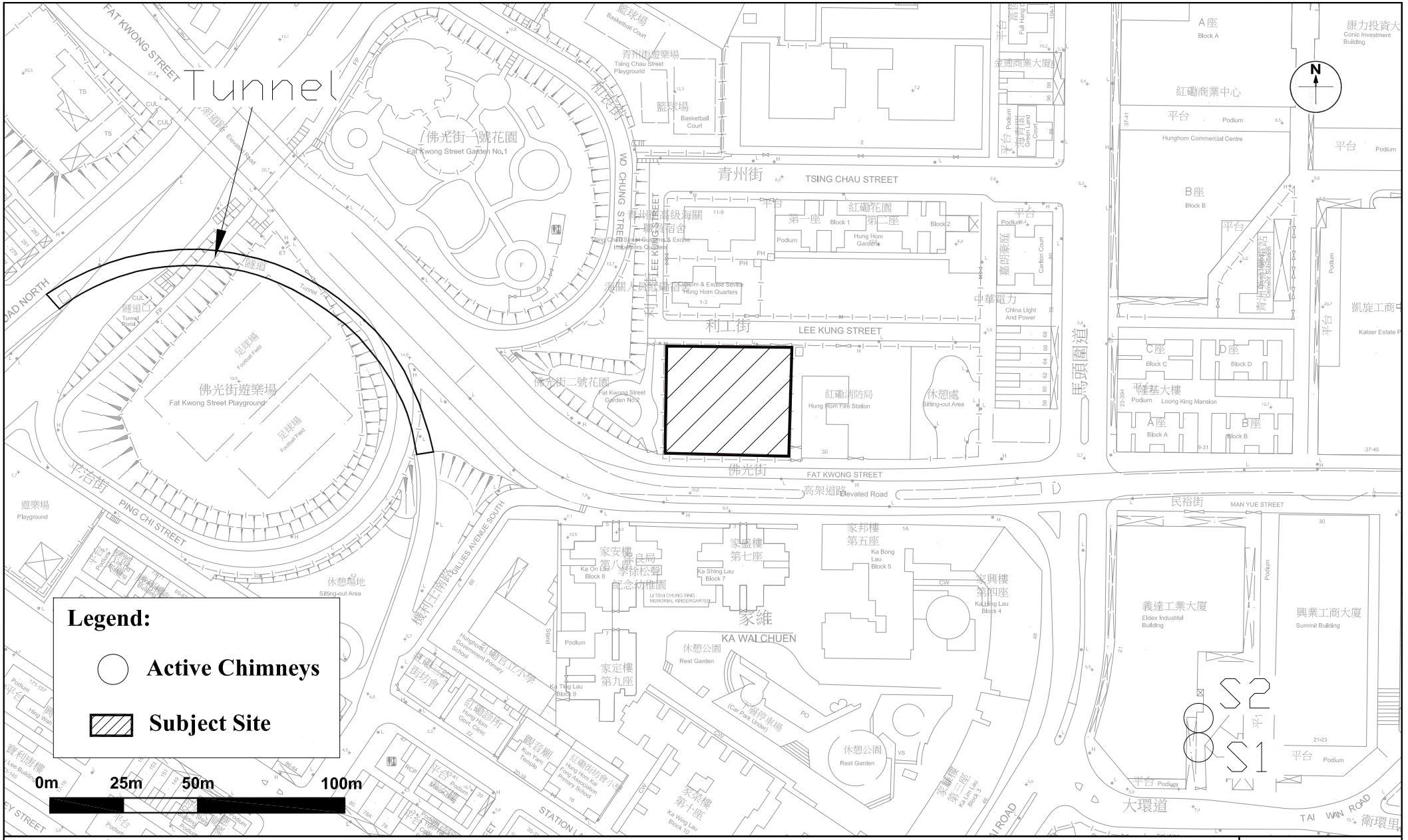


Figure: 3	RAMBOLL ENVIRON
Title: Locations of the Active Chimneys and Tunnel within 500m from the Subject Site	Drawn by: KW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.0 Date: Mar 2015

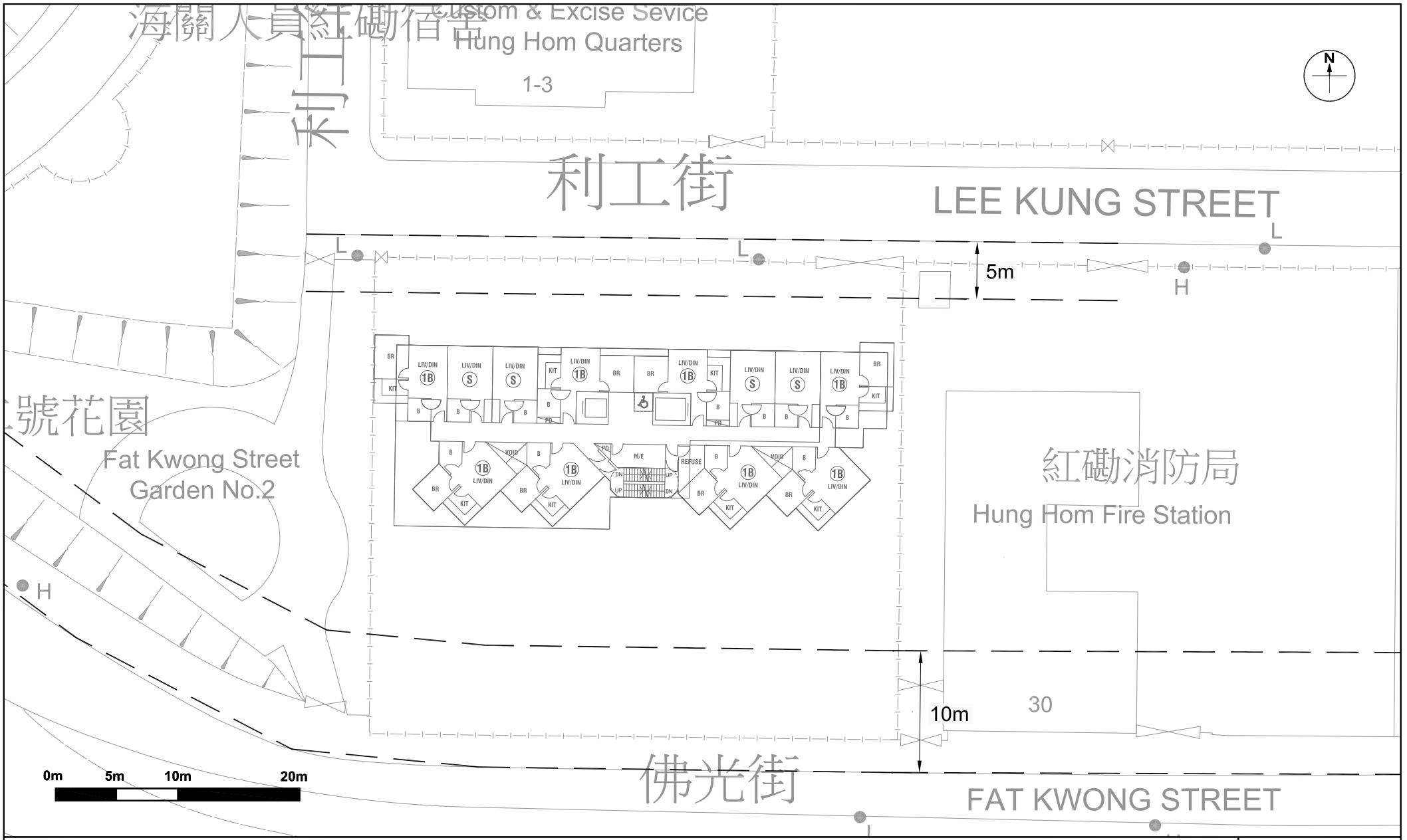


Figure: 4	RAMBOLL ENVIRON
Title: HKPSG recommended buffer distance between the Subject Site and Kerb Side of the Nearby Carriages	Drawn by: KW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.0 Date: Mar 2015

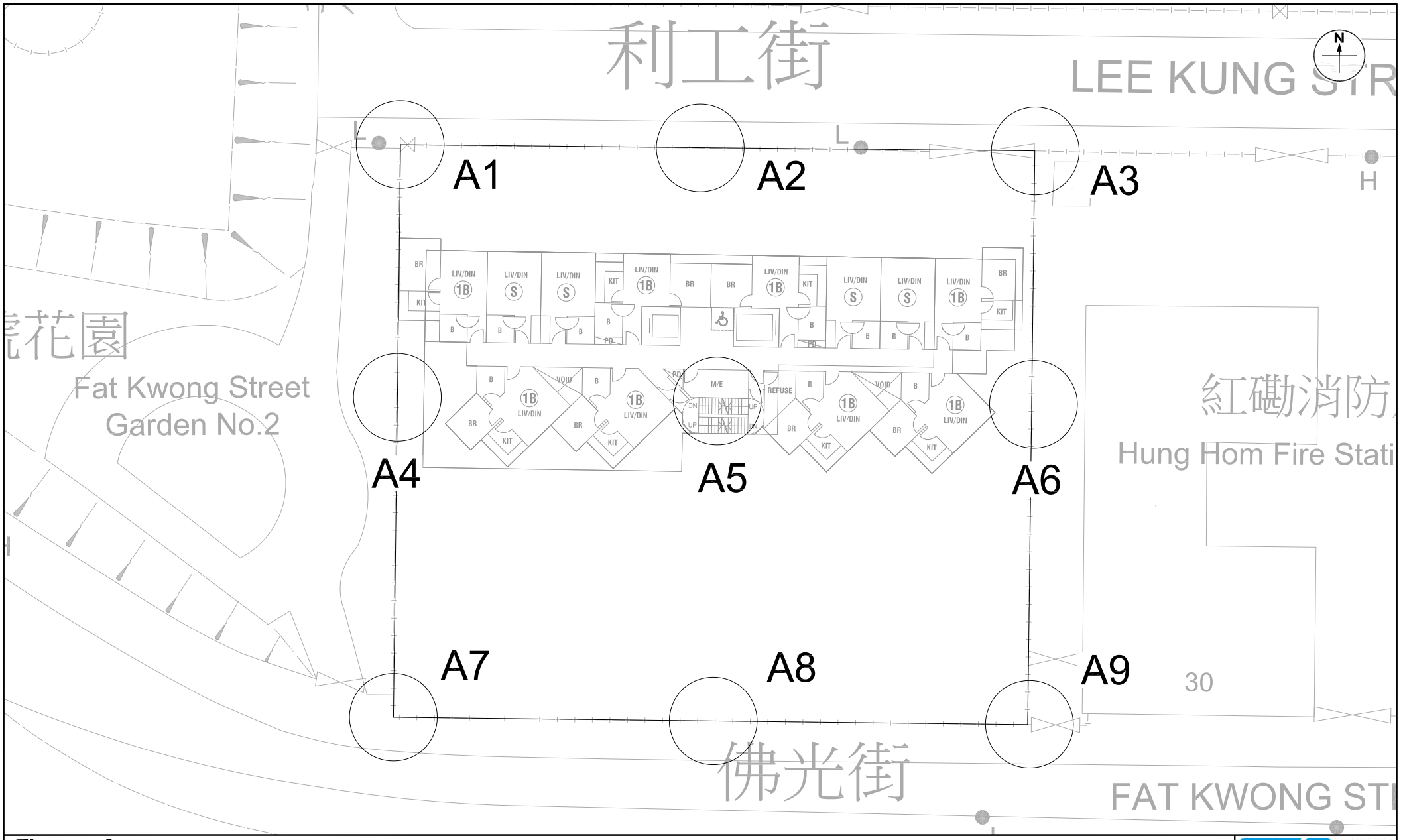


Figure: 5	RAMBOLL ENVIRON
Title: Location of the Representative Air Sensitive Receives in the Subject Site	Drawn by: WT Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

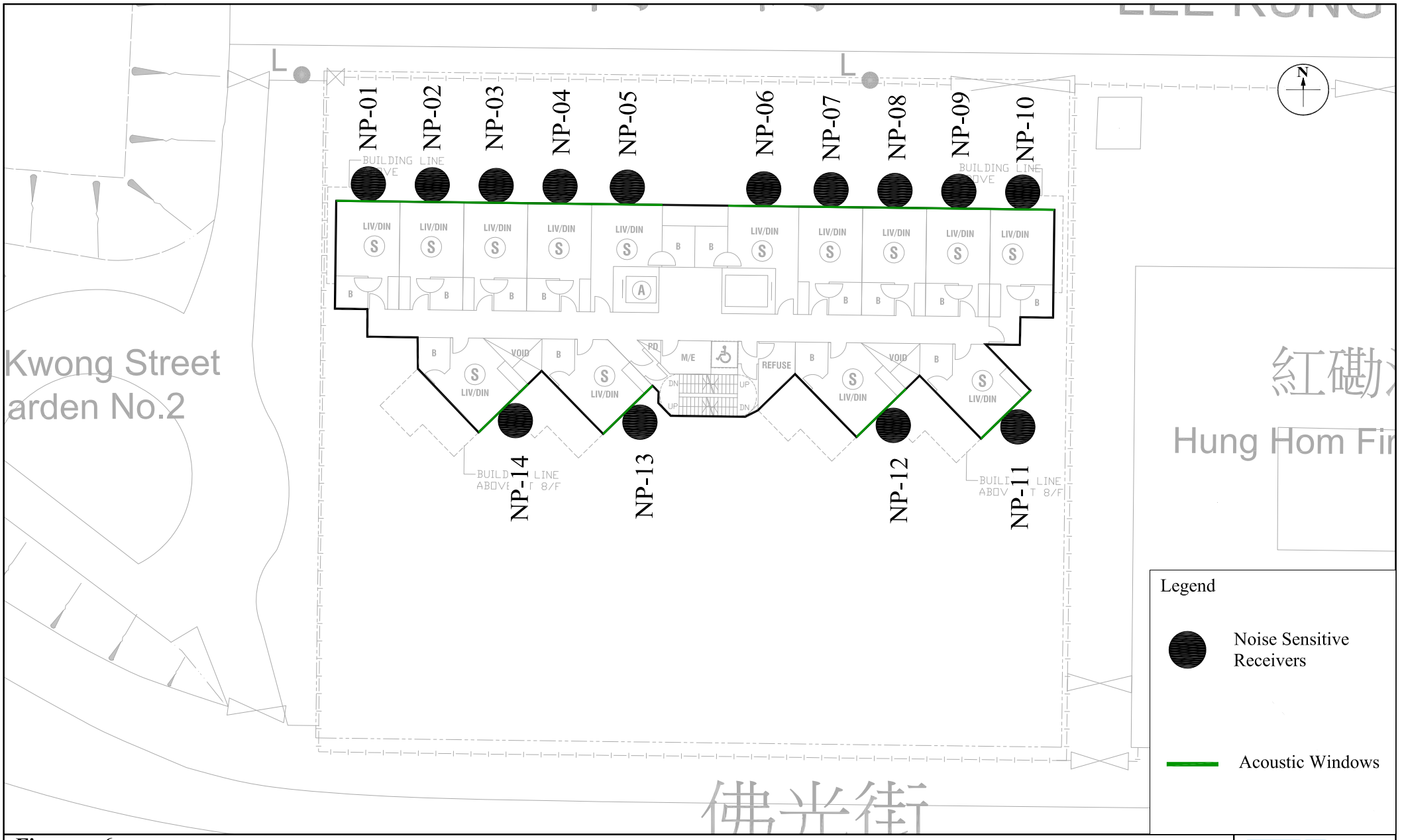


Figure: 6a	RAMBOLL ENVIRON
Title: Locations of the Representative Noise Sensitive Receivers of Pilot Unit Floor Plan and Proposed Mitigation Measures for Traffic Noise Impact Assessment	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: July 2015

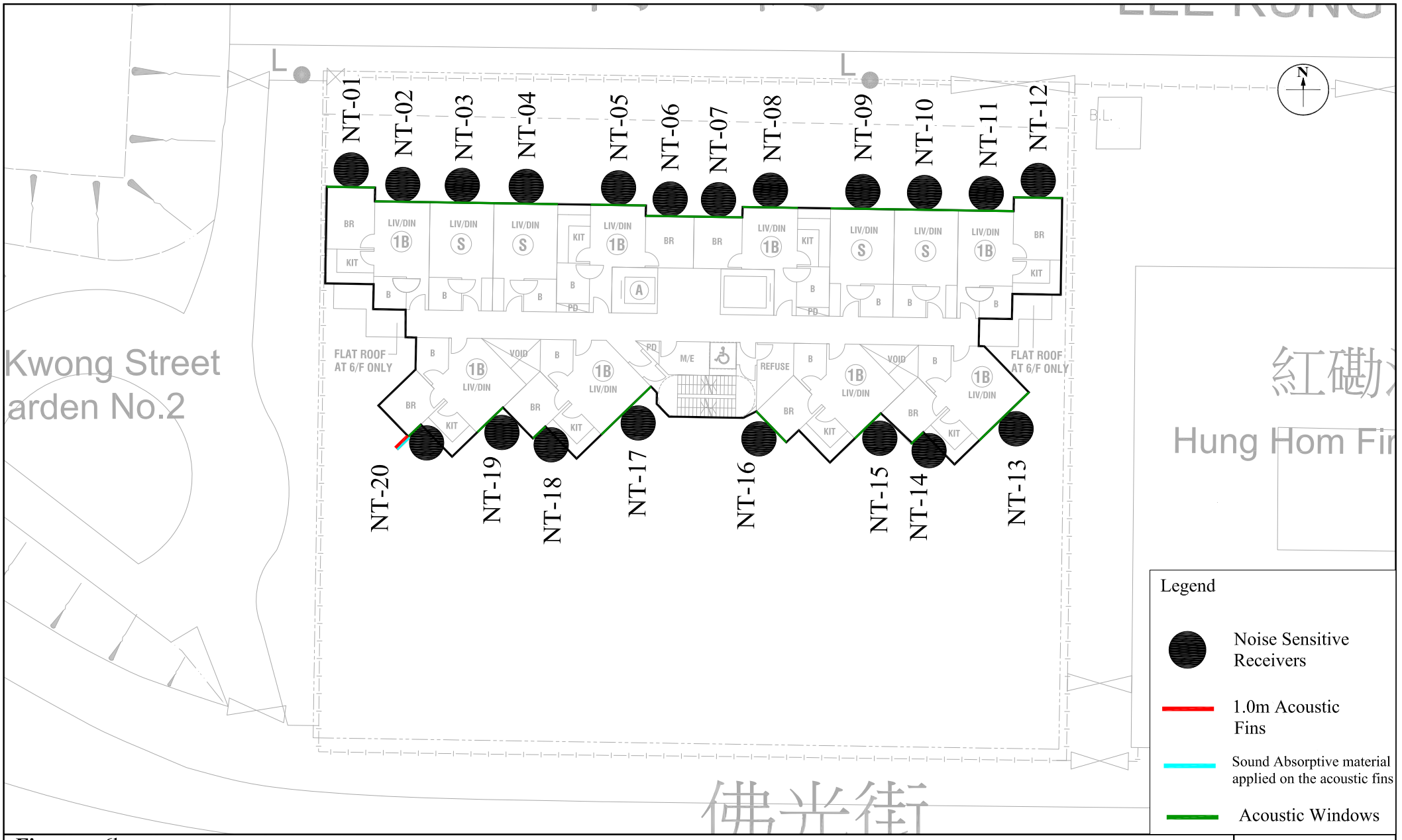


Figure: 6b	RAMBOLL ENVIRON
Title: Locations of the Representative Noise Sensitive Receivers of Typical Unit Floor Plan and Proposed Mitigation Measures for Traffic Noise Impact Assessment	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: July 2015

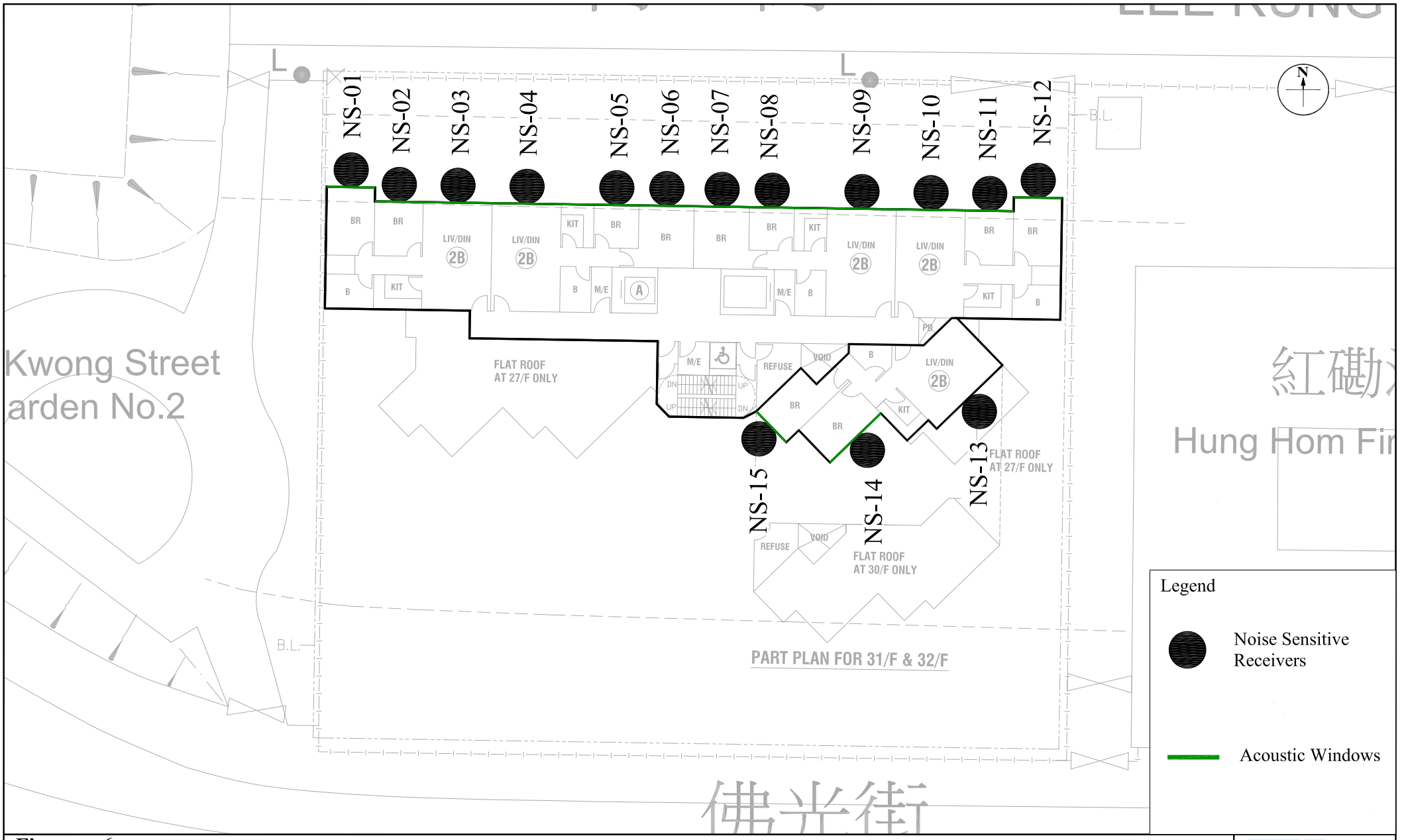
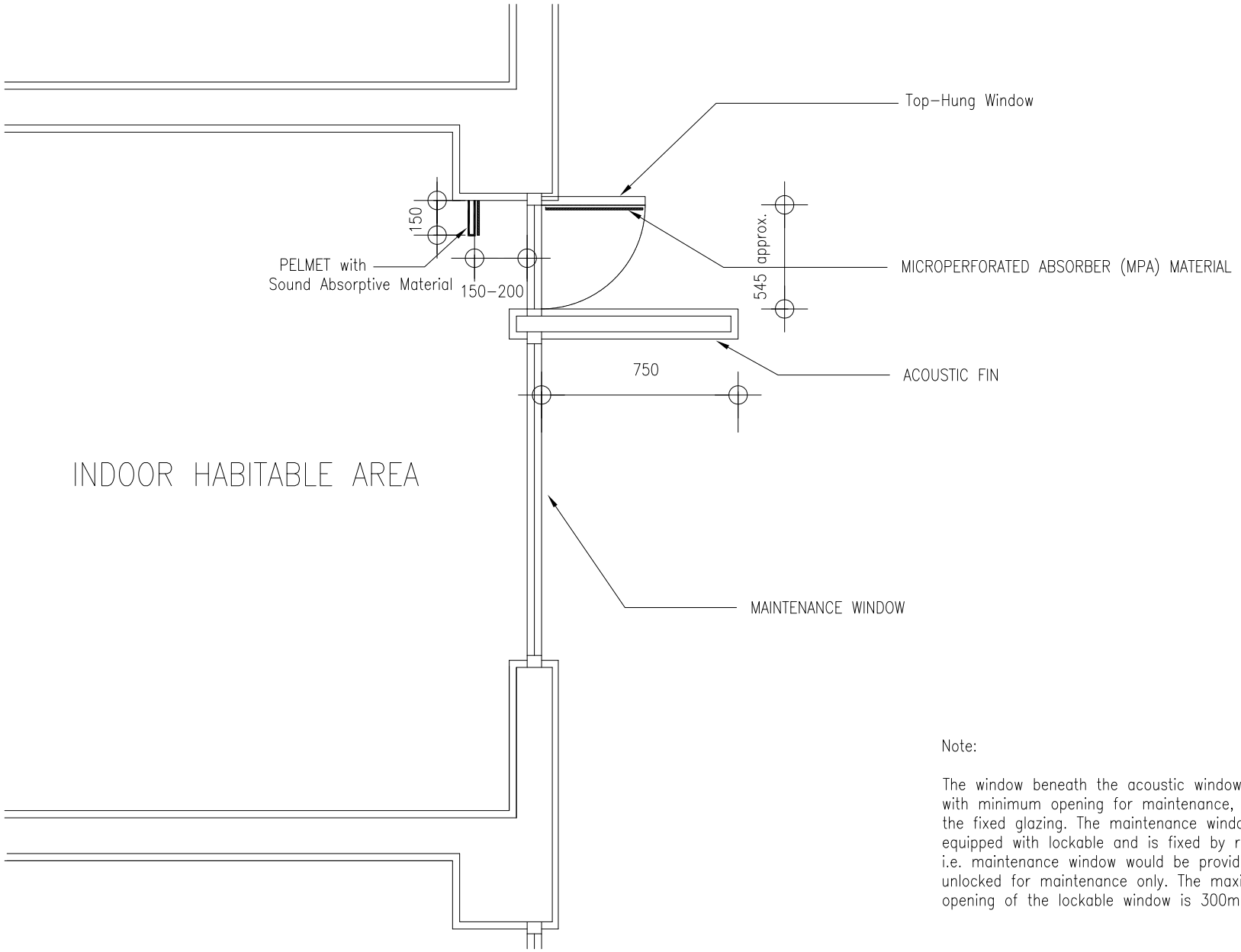


Figure: 6c	RAMBOLL ENVIRON
Title: Locations of the Representative Noise Sensitive Receivers of Special Unit Floor Plan and Proposed Mitigation Measures for Traffic Noise Impact Assessment	Drawn by: EW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.2 Date: July 2015



Note:

The window beneath the acoustic window is fixed glazing with minimum opening for maintenance, i.e. cleaning of the fixed glazing. The maintenance window will be equipped with lockable and is fixed by removable handle, i.e. maintenance window would be provided. It will be unlocked for maintenance only. The maximum clear opening of the lockable window is 300mm wide.

Figure: 8	RAMBOLL ENVIRON
Title: Indicative Design of Acoustic Window (Top Hung Window Design)	Drawn by: KW Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.1 Date: Nov 2015

Appendix 1:
Master Layout Plan

DESIGN INTENT DRAWING

(SUBJECT TO REVISIONS PER REQUIREMENTS UNDER STATUTORY CONTROL AND ANY LEASE CONDITIONS)
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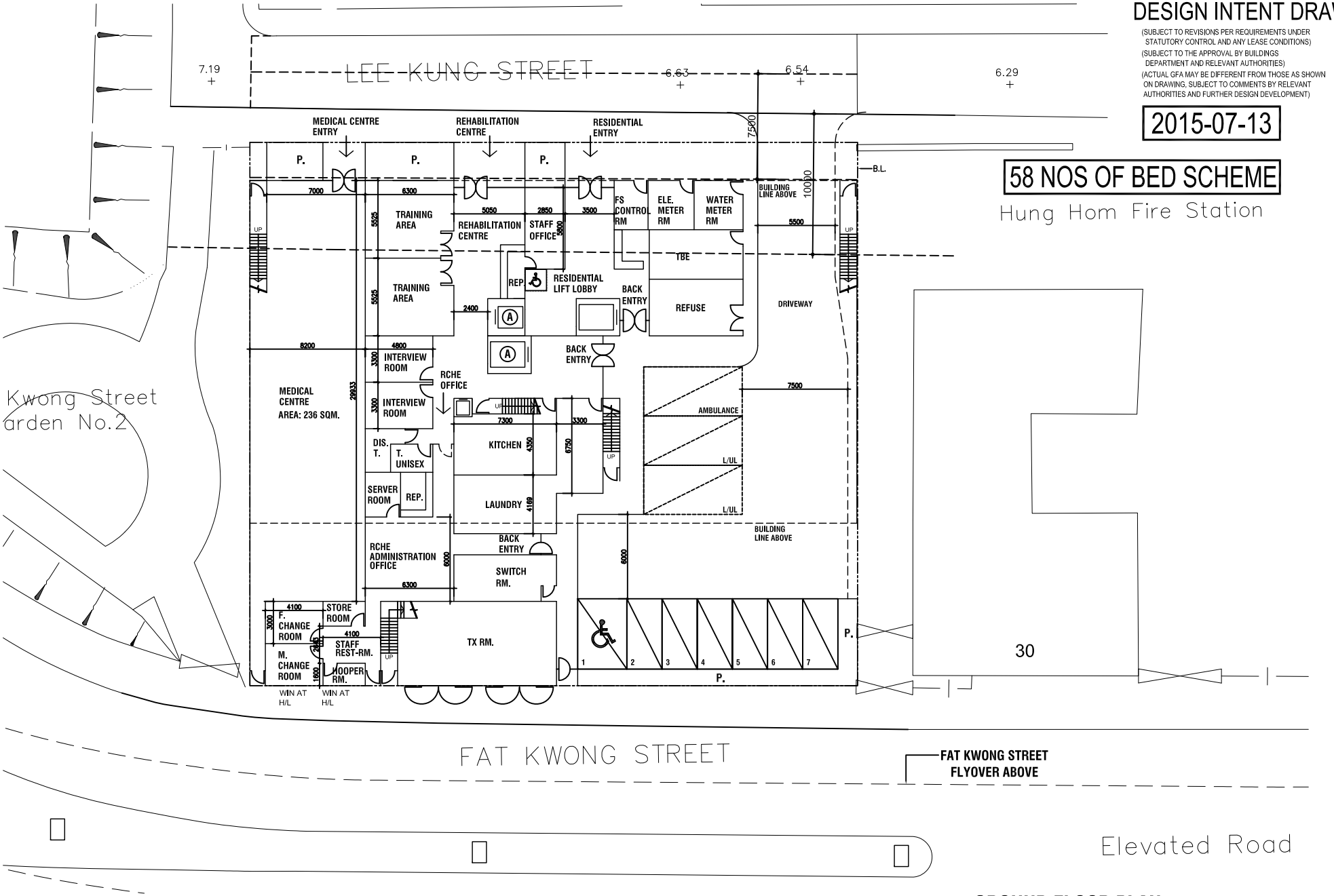
(ACTUAL GFA MAY BE DIFFERENT FROM THOSE AS SHOWN ON DRAWING, SUBJECT TO COMMENTS BY RELEVANT AUTHORITIES AND FURTHER DESIGN DEVELOPMENT)

2015-07-13

58 NOS OF BED SCHEME

Hung Hom Fire Station



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

GROUND FLOOR PLAN

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A3 – 1:250

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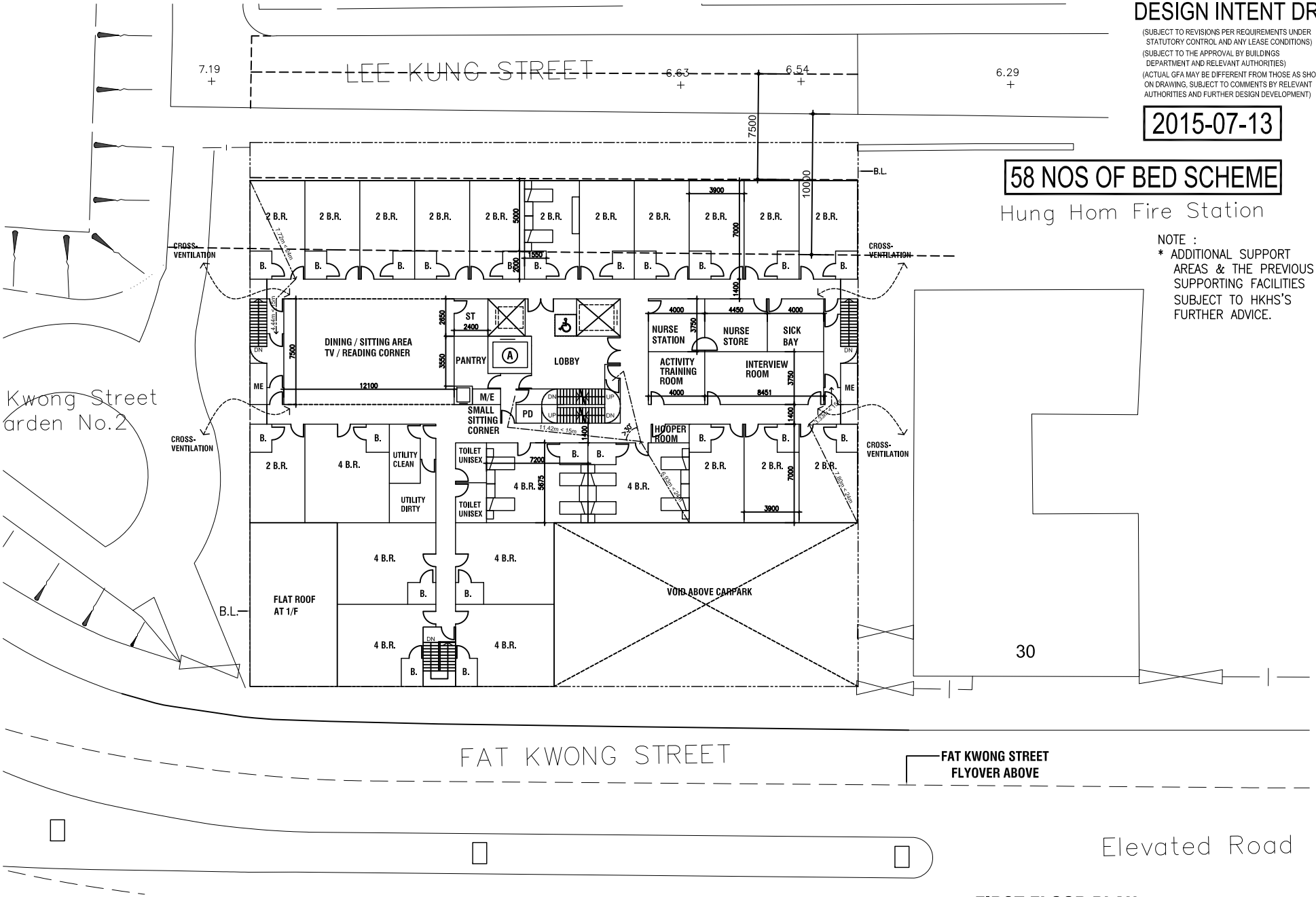
2015-07-13

58 NOS OF BED SCHEME

Hung Hom Fire Station

NOTE :
* ADDITIONAL SUPPORT AREAS & THE PREVIOUS SUPPORTING FACILITIES SUBJECT TO HKHS'S FURTHER ADVICE.



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
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FIRST FLOOR PLAN

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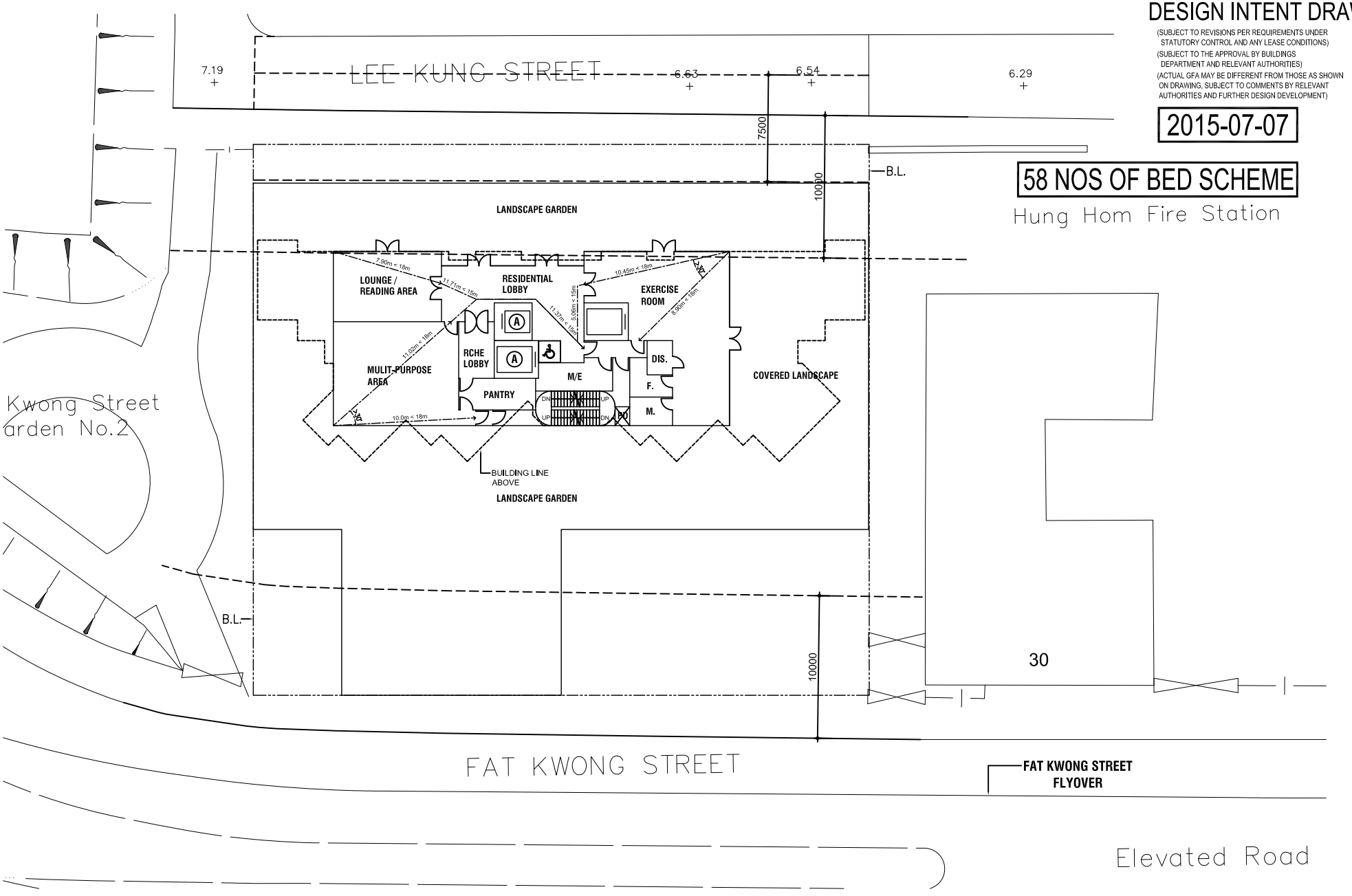
2015-07-07

58 NOS OF BED SCHEME

Hung Hom Fire Station



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SECOND FLOOR PLAN

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
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2015-07-07

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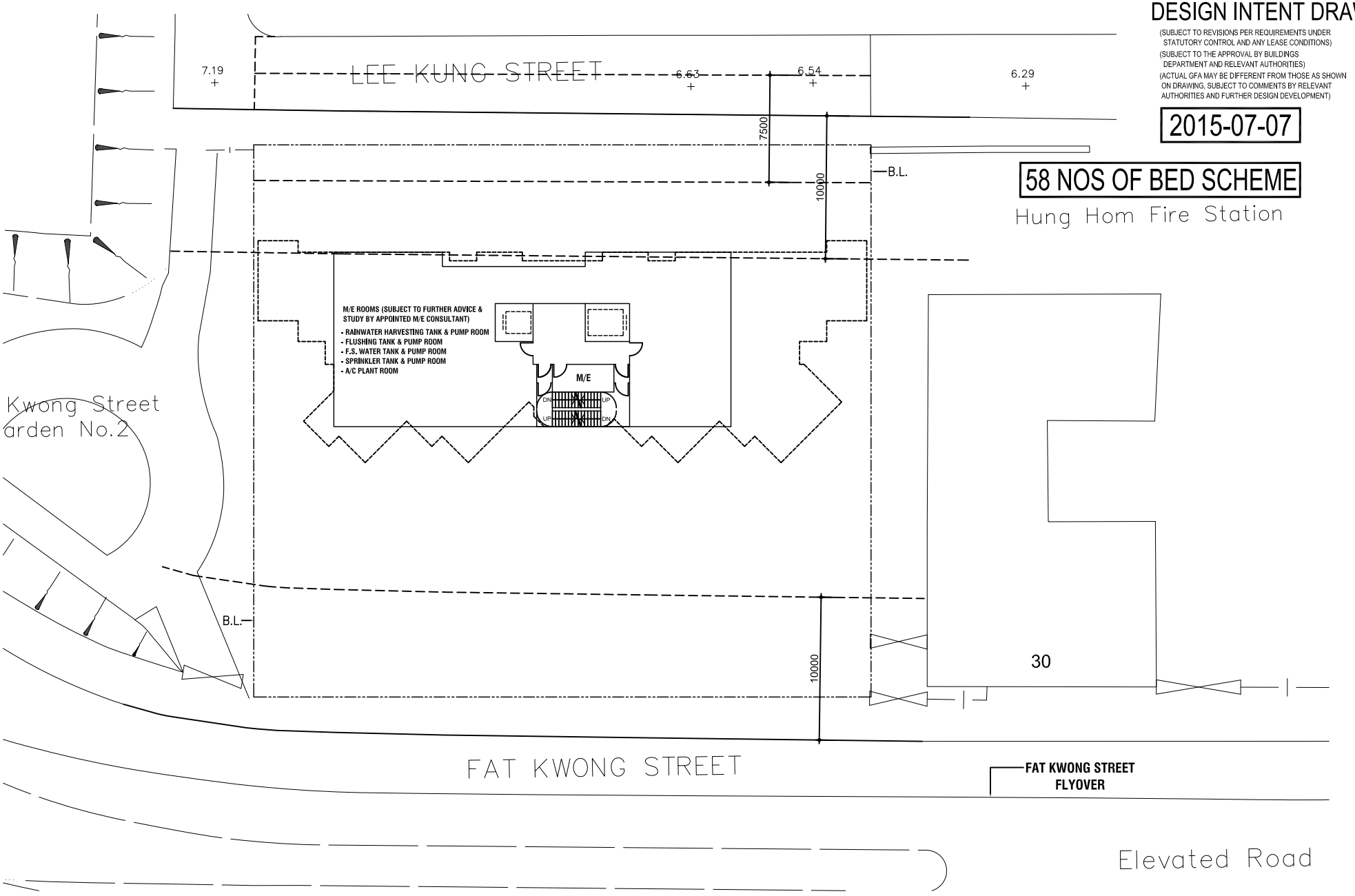
Hung Hom Fire Station



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

THIRD FLOOR PLAN

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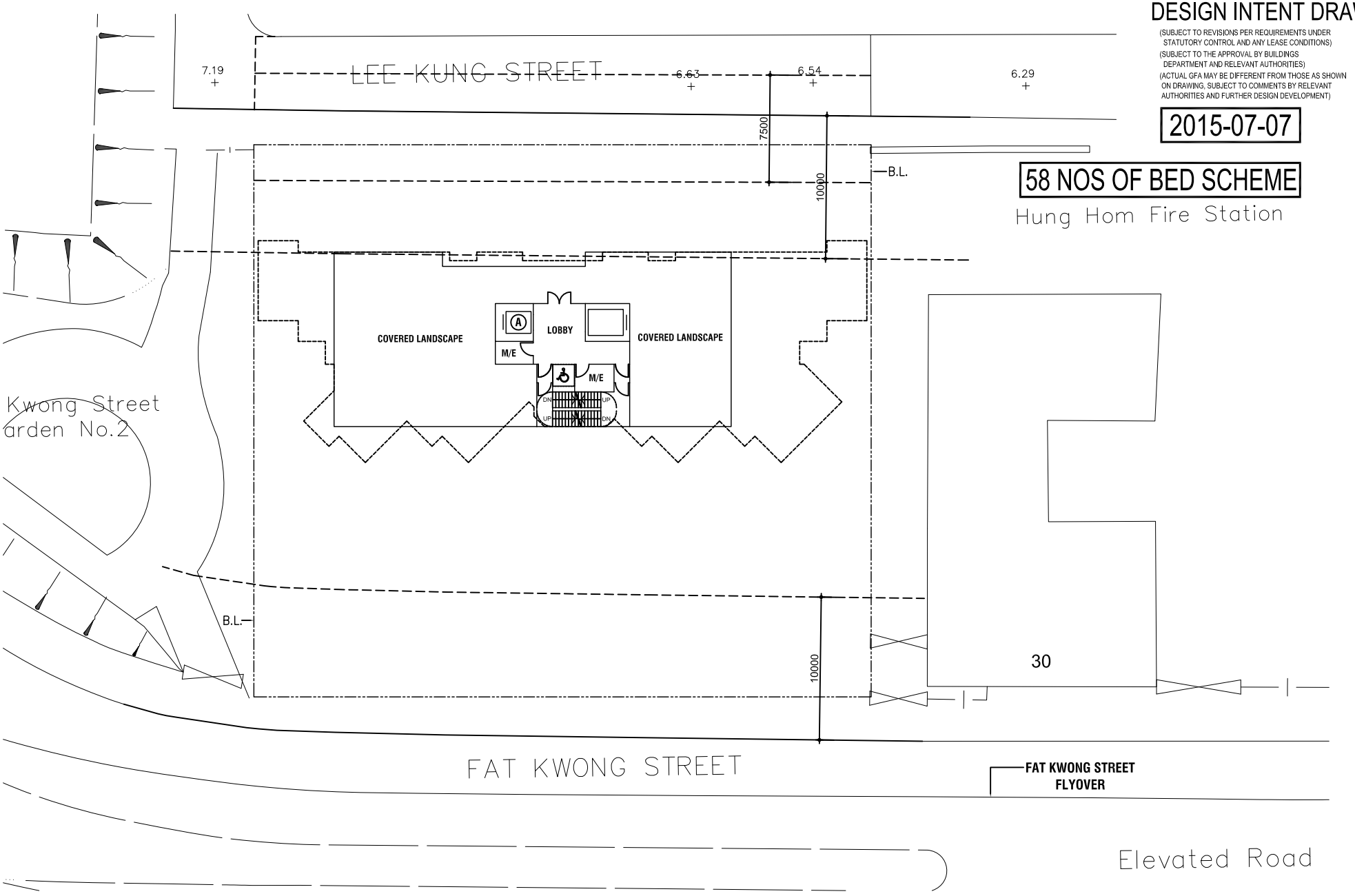
Hung Hom Fire Station



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

4/F PLAN

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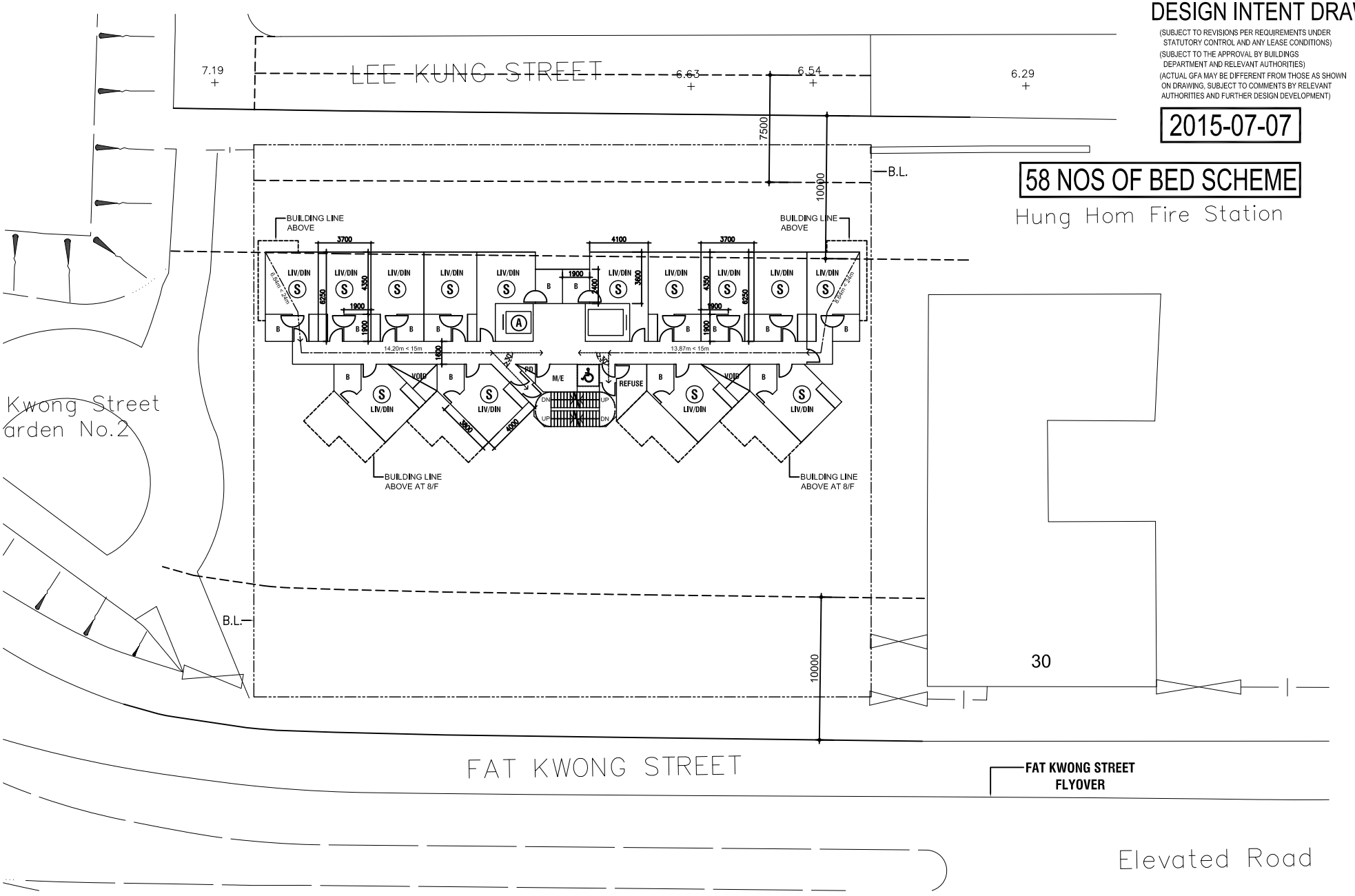
58 NOS OF BED SCHEME

Hung Hom Fire Station



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

PILOT UNIT FLOOR PLAN (5/F-7/F)

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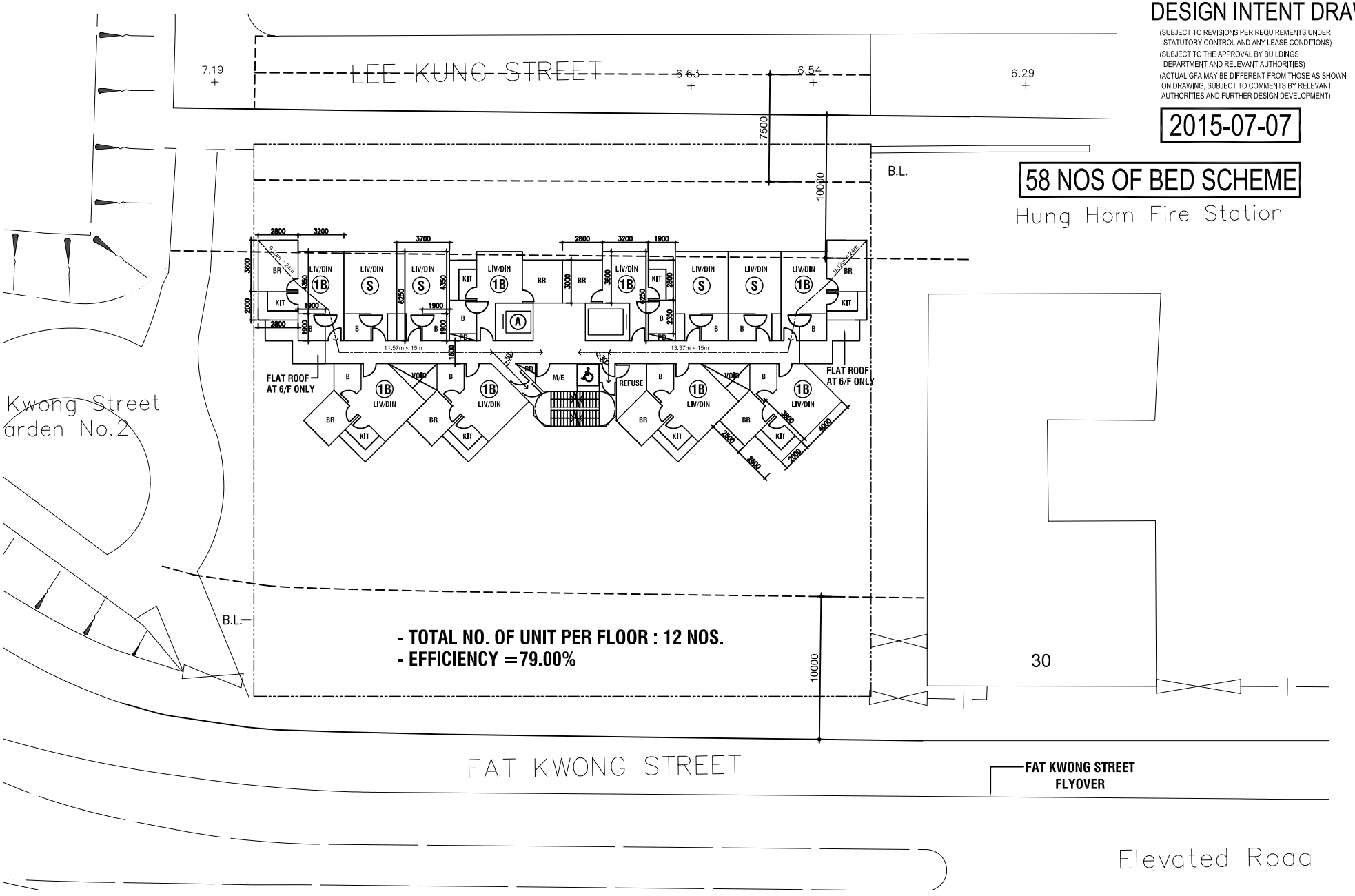
58 NOS OF BED SCHEME

Hung Hom Fire Station



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TYPICAL UNIT FLOOR PLAN (8/F-27/F)

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

DESIGN INTENT DRAWING

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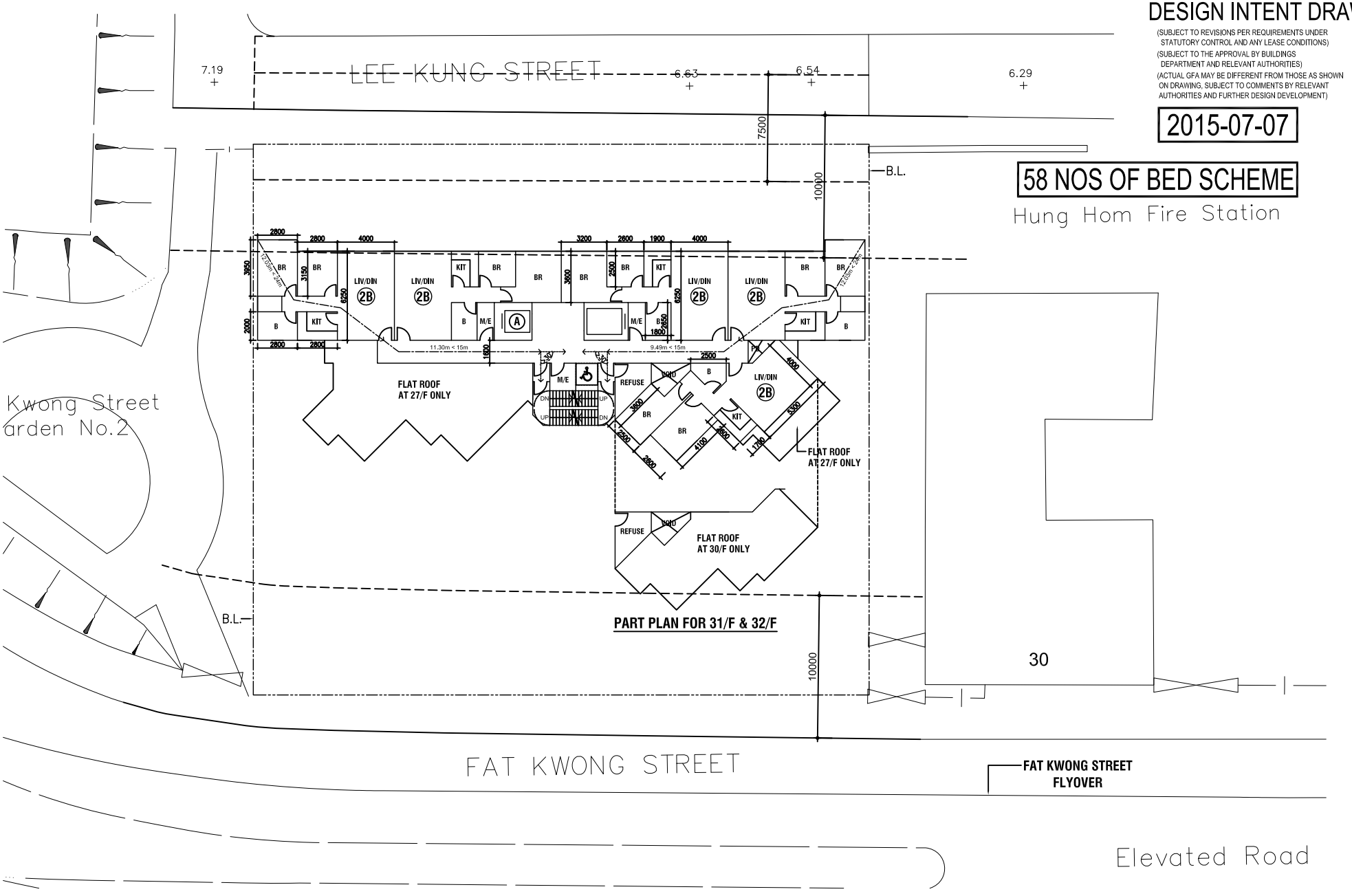
58 NOS OF BED SCHEME

Hung Hom Fire Station



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SPECIAL UNIT FLOOR PLAN (28/F-32/F)

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2015-07-07

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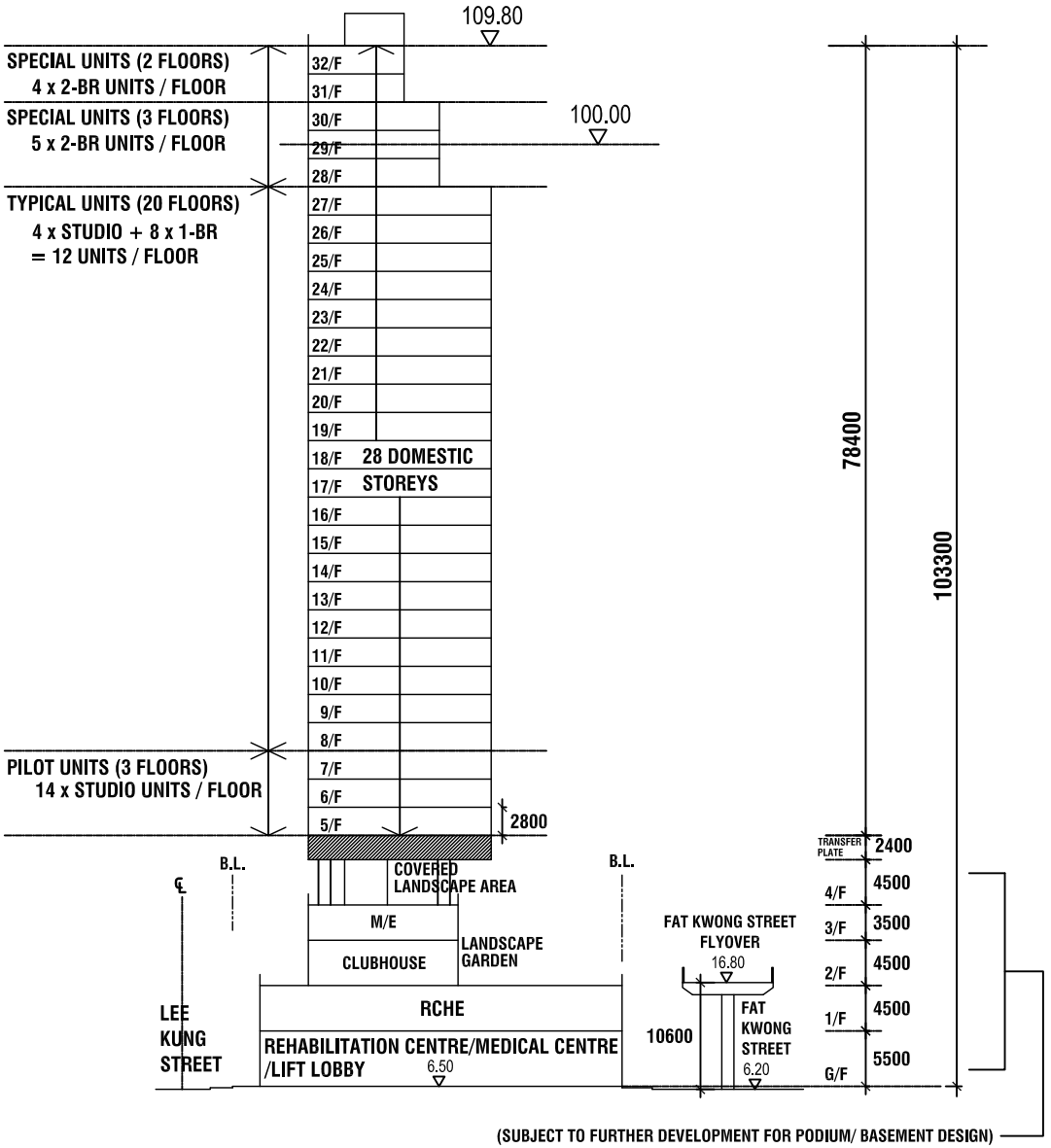

DEVELOPMENT PARAMETER

	PROVIDED
SITE AREA	1,680m²
SITE CLASSIFICATION	-
PLOT RATIO	
DOMESTIC	7.44
NON-DOMESTIC	1.05
GFA	
DOMESTIC	12499
NON-DOMESTIC	1764
CLUBHOUSE	2.4% / 300m²
SITE COVERAGE	490.911m² < 559.944m² 33.33% / 559.944m² (DOMESTIC > 61M)
MAX. BUILDING HEIGHT	109.80 MPD (2.8M/ FLOOR)
FLAT MIX	NO. %
STUDIO	122 40.0%
1-BEDROOM	160 52.5%
2-BEDROOM	23 7.5%
	305 100%

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SCHEMATIC SECTION

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Appendix 2a:
Traffic Forecast for EMFAC
(Refer to CD Rom)

Appendix 2b:
EMFAC Information
(Refer to CD Rom)

Appendix 2c:
Air Quality Impact Assessment Results

				Cumulative Emission = Vehicular Emission + Industrial Emission + Portal Emission						Industrial Emission	
				NO2		PM10		PM25		SO2	
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	19th Hourly Average Conc.	Annual Average Conc.	10th Hourly Average Conc.	Annual Average Conc.	10th Hourly Average Conc.	Annual Average Conc.	4th Highest 10mins Average Conc.	4th Highest 24 Hrs Average Conc.
Lift Lobby	A1	6.5	8	176.0	47.0	91.6	41.8	67.2	29.7	130.0	26.0
	A2	6.5	8	173.0	46.0	91.6	41.8	67.2	29.7	130.0	26.0
	A3	6.5	8	172.0	46.0	91.6	41.8	67.2	29.7	130.0	26.0
	A4	6.5	8	176.0	47.0	91.6	41.8	67.2	29.8	130.0	26.0
	A5	6.5	8	173.0	47.0	91.6	41.8	67.2	29.7	130.0	26.0
	A6	6.5	8	172.0	47.0	91.6	41.8	67.2	29.7	130.0	26.0
	A7	6.5	8	176.0	49.0	91.6	41.8	67.2	29.8	130.0	26.0
	A8	6.5	8	176.0	48.0	91.6	41.8	67.2	29.8	130.0	26.0
	A9	6.5	8	175.0	48.0	91.6	41.8	67.2	29.8	130.0	26.0
RCHE	A1	12	13.5	171.0	44.0	91.6	41.7	67.2	29.7	130.0	26.0
	A2	12	13.5	170.0	43.0	91.6	41.7	67.2	29.7	130.0	26.0
	A3	12	13.5	169.0	43.0	91.6	41.7	67.2	29.7	130.0	26.0
	A4	12	13.5	170.0	44.0	91.6	41.7	67.2	29.7	130.0	26.0
	A5	12	13.5	169.0	44.0	91.6	41.7	67.2	29.7	130.0	26.0
	A6	12	13.5	169.0	43.0	91.6	41.7	67.2	29.7	130.0	26.0
	A7	12	13.5	172.0	45.0	91.6	41.7	67.2	29.7	130.0	26.0
	A8	12	13.5	171.0	45.0	91.6	41.7	67.2	29.7	130.0	26.0
	A9	12	13.5	169.0	44.0	91.6	41.7	67.2	29.7	130.0	26.0
Recreation Centre	A1	16.5	18	166.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
	A2	16.5	18	166.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
	A3	16.5	18	167.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
	A4	16.5	18	166.0	42.0	91.6	41.6	67.2	29.6	130.0	26.0
	A5	16.5	18	166.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
	A6	16.5	18	166.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
	A7	16.5	18	166.0	42.0	91.6	41.7	67.2	29.6	130.0	26.0
	A8	16.5	18	166.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
	A9	16.5	18	166.0	41.0	91.6	41.6	67.2	29.6	130.0	26.0
M/E	A1	21	22.5	161.0	39.0	91.6	41.6	67.2	29.6	130.0	26.0
	A2	21	22.5	162.0	39.0	91.6	41.6	67.2	29.6	130.0	26.0
	A3	21	22.5	161.0	38.0	91.6	41.6	67.2	29.6	130.0	26.0
	A4	21	22.5	162.0	39.0	91.6	41.6	67.2	29.6	130.0	26.0
	A5	21	22.5	162.0	39.0	91.6	41.6	67.2	29.6	130.0	26.0
	A6	21	22.5	161.0	38.0	91.6	41.6	67.2	29.5	130.0	26.0
	A7	21	22.5	162.0	39.0	91.6	41.6	67.2	29.6	130.0	26.0
	A8	21	22.5	161.0	39.0	91.6	41.6	67.2	29.6	130.0	26.0
	A9	21	22.5	160.0	38.0	91.6	41.6	67.2	29.5	130.0	26.0
Covered Landscape Area	A1	25	26.5	159.0	38.0	91.6	41.6	67.2	29.5	130.0	26.0
	A2	25	26.5	158.0	37.0	91.6	41.5	67.2	29.5	130.0	26.0
	A3	25	26.5	158.0	37.0	91.6	41.5	67.2	29.5	130.0	26.0
	A4	25	26.5	159.0	38.0	91.6	41.6	67.2	29.5	130.0	26.0
	A5	25	26.5	158.0	37.0	91.6	41.5	67.2	29.5	130.0	26.0
	A6	25	26.5	158.0	37.0	91.6	41.5	67.2	29.5	130.0	26.0
	A7	25	26.5	157.0	38.0	91.6	41.6	67.2	29.5	130.0	26.0
	A8	25	26.5	157.0	37.0	91.6	41.5	67.2	29.5	130.0	26.0
	A9	25	26.5	157.0	37.0	91.6	41.5	67.2	29.5	130.0	26.0
Transfer Plate	A1	29	30.5	156.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A2	29	30.5	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A3	29	30.5	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A4	29	30.5	156.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A5	29	30.5	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A6	29	30.5	156.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A7	29	30.5	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A8	29	30.5	154.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A9	29	30.5	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
1F	A1	31.4	32.9	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A2	31.4	32.9	155.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A3	31.4	32.9	154.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A4	31.4	32.9	155.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A5	31.4	32.9	155.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A6	31.4	32.9	154.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A7	31.4	32.9	153.0	36.0	91.6	41.5	67.2	29.5	130.0	26.0
	A8	31.4	32.9	153.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A9	31.4	32.9	153.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
2F	A1	34.2	35.7	152.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A2	34.2	35.7	154.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A3	34.2	35.7	154.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A4	34.2	35.7	152.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A5	34.2	35.7	152.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A6	34.2	35.7	153.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A7	34.2	35.7	152.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A8	34.2	35.7	152.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
	A9	34.2	35.7	152.0	35.0	91.6	41.5	67.2	29.5	130.0	26.0
3F	A1	37	38.5	151.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A2	37	38.5	152.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A3	37	38.5	152.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A4	37	38.5	151.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A5	37	38.5	152.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A6	37	38.5	152.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A7	37	38.5	151.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A8	37	38.5	152.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
	A9	37	38.5	151.0	34.0	91.6	41.5	67.2	29.5	130.0	26.0
4F	A1	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A2	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A3	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A4	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A5	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A6	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A7	39.8	41.3	150.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A8	39.8	41.3	151.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A9	39.8	41.3	151.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
5F	A1	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A2	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A3	42.6	44.1	150.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A4	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A5	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A6	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A7	42.6	44.1	149.0	34.0	91.6	41.5	67.2	29.4	130.0	26.0
	A8	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A9	42.6	44.1	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0

				Cumulative Emission = Vehicular Emission + Industrial Emission + Portal Emission						Industrial Emission	
				NO2		PM10		PM25		SO2	
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	19th Hourly Average Conc.	Annual Average Conc.	10th Hourly Average Conc.	Annual Average Conc.	10th Hourly Average Conc.	Annual Average Conc.	4th Highest 10mins Average Conc.	4th Highest 24 Hrs Average Conc.
6F	A1	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A2	45.4	46.9	149.0	33.0	91.6	41.4	67.2	29.4	130.0	26.0
	A3	45.4	46.9	149.0	33.0	91.6	41.4	67.2	29.4	130.0	26.0
	A4	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A5	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A6	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A7	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A8	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A9	45.4	46.9	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
8F	A1	51	52.5	147.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A2	51	52.5	148.0	32.0	90.6	41.5	67.2	29.4	130.0	26.0
	A3	51	52.5	149.0	32.0	90.6	41.5	67.2	29.4	130.0	26.0
	A4	51	52.5	148.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A5	51	52.5	148.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A6	51	52.5	149.0	33.0	90.6	41.5	67.2	29.4	130.0	26.0
	A7	51	52.5	149.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A8	51	52.5	148.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A9	51	52.5	148.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
10F	A1	56.6	58.1	145.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	56.6	58.1	144.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	56.6	58.1	145.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	56.6	58.1	146.0	32.0	91.6	41.5	67.2	29.4	130.0	26.0
	A5	56.6	58.1	145.0	32.0	90.6	41.5	67.2	29.4	130.0	26.0
	A6	56.6	58.1	145.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	56.6	58.1	148.0	33.0	91.6	41.5	67.2	29.4	130.0	26.0
	A8	56.6	58.1	148.0	32.0	91.6	41.5	67.2	29.4	130.0	26.0
	A9	56.6	58.1	147.0	32.0	91.6	41.5	67.2	29.4	130.0	26.0
12F	A1	62.2	63.7	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	62.2	63.7	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	62.2	63.7	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	62.2	63.7	144.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	62.2	63.7	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	62.2	63.7	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	62.2	63.7	144.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	62.2	63.7	144.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	62.2	63.7	144.0	32.0	90.6	41.4	67.2	29.4	130.0	26.0
14F	A1	67.8	69.3	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	67.8	69.3	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	67.8	69.3	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	67.8	69.3	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	67.8	69.3	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	67.8	69.3	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	67.8	69.3	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	67.8	69.3	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	67.8	69.3	144.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
16F	A1	73.4	74.9	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	73.4	74.9	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	73.4	74.9	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	73.4	74.9	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	73.4	74.9	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	73.4	74.9	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	73.4	74.9	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	73.4	74.9	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	73.4	74.9	143.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
18F	A1	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	79	80.5	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
20F	A1	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	84.6	86.1	141.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	84.6	86.1	142.0	31.0	90.6	41.4	67.2	29.4	130.0	26.0
23F	A1	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	93	94.5	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
26F	A1	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A2	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A3	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A4	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A5	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A6	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A7	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A8	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
	A9	101.4	102.9	141.0	30.0	90.6	41.4	67.2	29.4	130.0	26.0
Max				176.0	49.0	91.6	41.8	67.2	29.8	130.0	26.0
AQO				200	40	100	50	75	35	500	125

Note:
Cell in Grey means exceedance

				Concentration (µg/m³)																
				NO_2																
				Vehicles Emission			Tunnel Portal			Chinmeys			Background			Total				
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual		
Lift Lobby	A1	6.5	8	8.2	0	1.34	19.4	0	0.399	3.4	0	0.19	218.1	2	30.0	276.0	6	47.0		
	A2	6.5	8	7.9	0	1.31	17.1	0	0.315	3.7	0	0.16	218.1	2	30.0	274.8	6	46.0		
	A3	6.5	8	7.9	0	1.30	14.2	0	0.248	4.1	0	0.14	218.1	2	30.0	273.9	6	46.0		
	A4	6.5	8	8.4	0	1.37	23.4	0	0.470	3.9	0	0.22	218.1	2	30.0	276.1	6	47.0		
	A5	6.5	8	8.5	0	1.35	18.3	0	0.351	3.8	0	0.18	218.1	2	30.0	275.0	7	47.0		
	A6	6.5	8	8.5	0	1.35	14.2	0	0.273	4.2	0	0.15	218.1	2	30.0	274.1	7	47.0		
	A7	6.5	8	10.1	0	1.49	23.4	0	0.560	4.4	0	0.25	218.1	2	30.0	277.0	8	49.0		
	A8	6.5	8	10.2	0	1.47	16.6	0	0.399	4.2	0	0.21	218.1	2	30.0	276.2	9	48.0		
	A9	6.5	8	10.3	0	1.47	12.1	0	0.301	4.1	0	0.17	218.1	2	30.0	275.9	7	48.0		
RCHE	A1	12	13.5	7.2	0	1.08	21.4	0	0.296	3.4	0	0.19	218.1	2	30.0	273.4	6	44.0		
	A2	12	13.5	7.0	0	1.05	22.9	0	0.245	3.8	0	0.16	218.1	2	30.0	273.0	6	43.0		
	A3	12	13.5	6.9	0	1.02	21.1	0	0.202	4.1	0	0.14	218.1	2	30.0	271.6	6	43.0		
	A4	12	13.5	7.3	0	1.10	26.8	0	0.355	3.9	0	0.22	218.1	2	30.0	274.0	6	44.0		
	A5	12	13.5	7.5	0	1.07	23.1	0	0.278	3.8	0	0.19	218.1	2	30.0	273.5	6	44.0		
	A6	12	13.5	7.6	0	1.04	18.3	0	0.224	4.2	0	0.15	218.1	2	30.0	272.8	6	43.0		
	A7	12	13.5	8.7	0	1.16	22.3	0	0.416	4.4	0	0.26	218.1	2	30.0	275.5	6	45.0		
	A8	12	13.5	8.7	0	1.13	17.8	0	0.310	4.3	0	0.22	218.1	2	30.0	274.4	6	45.0		
	A9	12	13.5	8.7	0	1.11	15.7	0	0.241	4.3	0	0.18	218.1	2	30.0	273.7	6	44.0		
Recreation Centre	A1	16.5	18	6.6	0	0.88	8.7	0	0.200	3.5	0	0.19	218.1	2	30.0	265.5	5	41.0		
	A2	16.5	18	6.2	0	0.85	10.1	0	0.169	3.8	0	0.17	218.1	2	30.0	264.7	5	41.0		
	A3	16.5	18	6.1	0	0.81	10.5	0	0.143	4.1	0	0.14	218.1	2	30.0	263.9	5	41.0		
	A4	16.5	18	6.5	0	0.89	10.1	0	0.234	3.9	0	0.23	218.1	2	30.0	266.7	5	42.0		
	A5	16.5	18	6.6	0	0.85	10.0	0	0.190	3.8	0	0.20	218.1	2	30.0	266.1	5	41.0		
	A6	16.5	18	6.8	0	0.82	8.7	0	0.157	4.2	0	0.17	218.1	2	30.0	265.0	5	41.0		
	A7	16.5	18	7.5	0	0.89	8.2	0	0.264	4.5	0	0.28	218.1	2	30.0	267.5	5	42.0		
	A8	16.5	18	7.5	0	0.86	7.1	0	0.206	4.5	0	0.25	218.1	2	30.0	266.6	5	41.0		
	A9	16.5	18	7.6	0	0.83	6.6	0	0.165	4.4	0	0.20	218.1	2	30.0	265.2	5	41.0		
M/E	A1	21	22.5	5.9	0	0.71	4.9	0	0.135	3.6	0	0.20	218.1	2	30.0	256.4	3	39.0		
	A2	21	22.5	5.6	0	0.68	4.2	0	0.116	3.8	0	0.18	218.1	2	30.0	256.0	4	39.0		
	A3	21	22.5	5.4	0	0.64	4.2	0	0.099	4.2	0	0.16	218.1	2	30.0	255.8	4	38.0		
	A4	21	22.5	5.6	0	0.70	5.1	0	0.152	4.0	0	0.24	218.1	2	30.0	256.6	4	39.0		
	A5	21	22.5	5.8	0	0.67	4.6	0	0.127	3.8	0	0.22	218.1	2	30.0	256.6	4	39.0		
	A6	21	22.5	6.0	0	0.64	4.2	0	0.106	4.3	0	0.19	218.1	2	30.0	256.1	4	38.0		
	A7	21	22.5	6.5	0	0.69	4.3	0	0.164	4.6	0	0.30	218.1	2	30.0	254.8	4	39.0		
	A8	21	22.5	6.5	0	0.66	3.9	0	0.133	4.6	0	0.28	218.1	2	30.0	254.9	4	39.0		
	A9	21	22.5	6.6	0	0.63	3.6	0	0.109	4.5	0	0.24	218.1	2	30.0	254.5	4	38.0		
Covered Landscape Area	A1	25	26.5	5.4	0	0.57	4.2	0	0.100	3.7	0	0.21	218.1	2	30.0	249.2	3	38.0		
	A2	25	26.5	5.1	0	0.55	3.6	0	0.089	3.8	0	0.19	218.1	2	30.0	249.1	3	37.0		
	A3	25	26.5	4.9	0	0.52	3.0	0	0.076	4.2	0	0.17	218.1	2	30.0	249.2	3	37.0		
	A4	25	26.5	5.0	0	0.57	4.2	0	0.109	4.4	0	0.26	218.1	2	30.0	249.0	3	38.0		
	A5	25	26.5	5.1	0	0.54	3.3	0	0.094	4.1	0	0.24	218.1	2	30.0	249.0	4	37.0		
	A6	25	26.5	5.3	0	0.52	2.9	0	0.081	4.4	0	0.21	218.1	2	30.0	248.9	4	37.0		
	A7	25	26.5	5.7	0	0.55	3.3	0	0.113	4.9	0	0.33	218.1	2	30.0	246.6	4	38.0		
	A8	25	26.5	5.7	0	0.53	2.6	0	0.097	4.8	0	0.31	218.1	2	30.0	246.5	4	37.0		
	A9	25	26.5	5.8	0	0.51	2.2	0	0.081	4.7	0	0.28	218.1	2	30.0	246.4	4	37.0		
Transfer Plate	A1	29	30.5	4.9	0	0.46	3.4	0	0.075	4.8	0	0.22	218.1	2	30.0	242.8	3	36.0		
	A2	29	30.5	4.6	0	0.44	3.1	0	0.070	4.4	0	0.21	218.1	2	30.0	243.0	3	36.0		
	A3	29	30.5	4.4	0	0.42	2.5	0	0.061	4.3	0	0.18	218.1	2	30.0	243.2	3	36.0		
	A4	29	30.5	4.5	0	0.46	3.3	0	0.080	5.1	0	0.28	218.1	2	30.0	242.8	3	36.0		
	A5	29	30.5	4.5	0	0.44	2.8	0	0.073	4.8	0	0.26	218.1	2	30.0	242.8	3	36.0		
	A6	29	30.5	4.6	0	0.42	2.2	0	0.064	4.5	0	0.23	218.1	2	30.0	242.8	3	36.0		
	A7	29	30.5	5.0	0	0.45	2.4	0	0.080	5.7	0	0.36	218.1	2	30.0	240.6	3	36.0		
	A8	29	30.5	5.0	0	0.43	2.1	0	0.073	5.7	0	0.35	218.1	2	30.0	240.2	3	36.0		
	A9	29	30.5	5.0	0	0.41	1.8	0	0.063	5.3	0	0.32	218.1	2	30.0	239.9	3	36.0		
1F	A1	31.4	32.9	4.5	0	0.41	2.9	0	0.064	5.6	0	0.23	218.1	2	30.0	239.3	3	36.0		
	A2	31.4	32.9	4.4	0	0.39	2.8	0	0.060	5.3	0	0.22	218.1	2	30.0	239.6	3	35.0		
	A3	31.4	32.9	4.2	0	0.38	2.3	0	0.054	4.4	0	0.19	218.1	2	30.0	240.0	3	35.0		
	A4	31.4	32.9	4.1	0	0.40	2.7	0	0.066	6.1	0	0.29	218.1	2	30.0	239.5	3	36.0		
	A5	31.4	32.9	4.1	0	0.39	2.4	0	0.062	5.9	0	0.27	218.1	2	30.0	239.5	3	35.0		
	A6	31.4	32.9	4.3	0	0.37	2.0	0	0.056	5.3	0	0.25	218.1	2	30.0	239.4	3	35.0		
	A7	31.4	32.9	4.6	0	0.39	2.0	0	0.065	6.2	0	0.38	218.1	2	30.0	237.4	3	36.0		
	A8	31.4	32.9	4.6	0	0.38	1.9	0	0.062	6.4	0	0.37	218.1	2	30.0	237.1	3	35.0		
	A9	31.4	32.9	4.6	0	0.36	1.7	0	0.055	5.9	0	0.35	218.1	2	30.0	237.3	3	35.0		
2F	A1	34.2	35.7	4.2	0	0.35	2.3	0	0.052	6.6	0	0.25	218.1	2	30.0	235.6	3	35.0		
	A2	34.2	35.7	4.0	0	0.34	2.4	0	0.051	6.4	0	0.23	218.1	2	30.0	236.0	3	35.0		
	A3	34.2	35.7	3.9	0	0.33	2.1	0	0.047	5.2	0	0.21	218.1	2	30.0	236.5	3	35.0		
	A4	34.2	35.7	3.8	0	0.34	2.1	0	0.053	7.5	0	0.31	218.1	2	30.0	235.9	3	35.0		
	A5	34.2	35.7	3.7	0	0.33	2.1	0	0.052	7.3	0	0.29	218.1	2	30.0	236.0	3	35.0		
	A6	34.2	35.7	3.9	0	0.32	1.7	0	0.048	6.8	0	0.27	218.1	2	30.0	235.9	3	35.0		
	A7	34.2	35.7	4.1	0	0.34	1.7	0	0.051	7.6	0	0.41	218.1	2	30.0	235.7	3	35.0		
	A8	34.2	35.7	4.2	0	0.32	1.7	0	0.051	8.1	0	0.40	218.1	2	30.0	236.0	3	35.0		
	A9	34.2	35.7	4.2	0	0.31	1.6	0	0.047	7.8	0	0.38	218.1	2	30.0	236.3	3	35.0		
3F	A1	37	38.5	3.8	0	0.30	1.8	0	0.042	7.7	0	0.27	218.1	2	30.0	232.0	3	34.0		
	A2	37	38.5	3.7	0	0.29	2.0	0	0.043	7.9	0	0.25	218.1	2	30.0	232.7	3	34.0		
	A3	37	38.5	3.6	0	0.28	1.8	0	0.041	7.2	0	0.22	218.1	2	30.0	233.5	3	34.0		
	A4	37	38.5	3.4	0	0.30	1.6	0	0.042	9.1	0	0.33	218.1	2	30.0	232.6	3	34.0		
	A5	37	38.5	3.4	0	0.29	1.7	0	0.043	8.8	0	0.32	218.1	2	30.0	233.4	3	34.0		
	A6	37	38.5	3.5	0	0.28	1.5	0	0.041	8.5	0	0.29	218.1	2	30.0	234.7	3	34.0		
	A7	37	38.5	3.7	0	0.29	1.4	0	0.040	10.5	0	0.45	218.1	2	30.0	234.5	3	34.0		
	A8	37	38.5	3.8	0	0.28	1.5	0	0.042	10.3	0	0.44	218.1	2	30.0	235.2	3	34.0		
	A9	37	38.5	3.8	0	0.27	1.4	0	0.040	10.2	0	0.43	218.1	2	30.0	235.5	3	34.0		
4F	A1	39.8	41.3	3.5	0	0.26	1.6	0	0.034	9.5	0	0.29	218.1	2	30.0	228.9	3	34.0		
	A2	39.8	41.3	3.4	0	0.25	1.6	0	0.036	10.8	0	0.28	218.1	2	30.0	229.6	3	34.0		
	A3	39.8	41.3	3.3	0	0.25	1.6	0	0.035	10.3	0	0.25	218.1	2	30.0	230.9	3	34.0		
	A4	39.8	41.3	3.1	0	0.25	1.2	0	0.034	10.7	0	0.37	218.1	2	30.0	229.5	3	34.0		
	A5	39.8	41.3	3.1	0	0.25	1.4	0	0.036	10.6	0	0.35	218.1	2	30.0	230.8	3	34.0		
	A6	39.8	41.3	3.1	0	0.24	1.3	0	0.036	11.6	0	0.33	218.1	2	30.0	232.1	3	34.0		
	A7	39.8	41.3	3.3	0	0.25	1.2	0	0.031	14.1	0	0.50	218.1	2	30.0	231.9	3	34.0		
	A8	39.8	41.3	3.4	0	0.24	1.3	0	0.034	12.8	0	0.49	218.1	2	30.0	233.0	3	34.0		
	A9	39.8	41.3	3.4	0	0.23	1.3	0	0.034	13.3	0	0.48	218.1	2	30.0	234.1	3	34.0		
5F	A1	42.6	44.1	3.2	0	0.22	1.3	0	0.028	13.1	0	0.33	218.1	2	30.0	226.1	2	33.0		
	A2	42.6	44.1	3.1	0	0.22	1.3	0	0.030	14.6	0	0.31	218.1	2	30.0	227.4	2	33.0		
	A3	42.6	44.1	3.0	0	0.21	1.4	0	0.031	14.1	0	0.28	218.1	2	30.0	228.6	3	33.0		
	A4	42.6	44.1	2.8	0	0.22	1.0	0	0.027	14.7	0	0.42	218.1	2	30.0	227.5	3	33.0		
	A5	42.6	44.1	2.8	0	0.21	1.1	0	0.030	14.0	0	0.40	218.1	2	30.0	228.6	3	33.0		
	A6	42.6	44.1	2.8	0	0.21	1.1	0	0.030	16.4	0	0.38	218.1	2	30.0	229.8	3	33.0		
	A7	42.6	44.1	2.9	0	0.21	1.0	0	0.024	18.1	0	0.58	218.1	2	30.0	229.6	3	34.0		
	A8	42.6	44.1	3.0	0	0.21	1.1	0	0.028	17.1	0	0.57	218.1	2	30.0	230.6	3	33.0		
	A9	42.6	44.1	3.1	0	0.20	1.2	0	0.029	16.5	0	0.55	218.1	2	30.0	231.7	3	33.0		
6F	A1	45.4	46.9	2.9	0	0.19	1.2	0	0.023	22.4	0	0.40	218.1	2	30.0	224.5	2	33.0		
	A2	45.4	46.9	2.8	0	0.19	1.0	0	0.025	25.0	0	0.38	218.1	2	30.0	225.6	2	33.0		
	A3	45.4	46.9	2.7	0	0.18	1.1	0	0.026	24.6	0	0.33	218.1	2	30.0	226.7	2	33.0		
	A4	45.4	46.9	2.6	0	0.19	0.8	0	0.021	24.3	0	0.50	218.1	2	30.0	225.7	2	33.0		
	A5	45.4	46.9	2.5	0	0.18	1.0	0	0.025	23.5	0	0.48	218.1	2	30.0	226.8	3	33.0		
	A6	45.4	46.9	2.5	0	0.18	1.0	0	0.026	26.2	0	0.45	218.1	2	30.0	227.9	3	33.0		
	A7	45.4	46.9	2.6	0	0.18	0.8	0	0.019	22.8	0	0.72	218.1	2	30.0	227.5	3	33.0		
	A8	45.4	46.9	2.7	0	0.18	1.0	0	0.023	25.7	0	0.69	218.1	2	30.0	228.6	3	33.0		
	A9	45.4	46.9	2.7	0	0.18	1.1	0	0.025	25.3	0	0.66	218.1	2	30.0	229.6	3	33.0		
8F	A1	51	52.5	2.3	0	0.14	0.8	0	0.015	145.8	0	0.89	218.1	2	30.0	222.1	2	33.0		
	A2	51	52.5	2.3	0	0.14	0.7	0	0.018	157.0	0	0.93	218.1	2	30.0	222.9	2	32.0		
	A3	51	52.5	2.3	0	0.14	0.8	0	0.020	181.5	0	0.87	218.1	2	30.0	223.8	2	32.0		
	A4	51	52.5	2.1	0	0.14	0.6	0	0.014	160.2	0	1.22	218.1	2	30.0	223.0	2	33.0		
	A5	51	52.5	2.0	0	0.14	0.8	0	0.017	166.0	0	1.10	218.1	2	30.0	223.8	2	33.0		
	A6	51	52.5	2.0	0	0.14	0.8	0	0.019	188.4	0	1.15	218.1	2	30.0	224.8	2	33.0		
	A7	51	52.5	2.0	0	0.14	0.6	0	0.012	210.5	2	2.31	218.1	2	30.0	224.4	2	33.0		
	A8	51	52.5	2.1	0	0.13	0.7	0	0.016	210.4	1	1.92	218.1	2	30.0	225.4	2	33.0		
	A9	51	52.5	2.1	0	0.13	0.8	0	0.018	207.5	1	1.55	218.1	2	30.0	226.2	3	33.0		
10F	A1	56.6	58.1	1.8	0	0.11	0.6	0	0.010	114.5	0	0.75	218.1	2	30.0	220.4	2	32.0		
	A2	56.6	58.1	1.8	0	0.10	0.5	0	0.013	155.6	0	0.75	218.1	2	30.0	221.1	2	32.0		
	A3	56.6	58.1	1.8	0	0.10	0.7	0	0.015	152.8	0	0.70	218.1	2	30.0	221.8	2	32.0		
	A4	56.6	58.1	1.6	0	0.10	0.4	0	0.009	126.2	0	1.06	218.1	2	30.0	221.1	2	32.0		
	A5	56.6	58.1	1.6	0	0.10	0.6	0	0.012	130.4	0	0.92	218.1	2	30.0	221.8	2	32.0		
	A6	56.6	58.1	1.6	0	0.10	0.7	0	0.014	179.2	0	0.90	218.1	2	30.0	222.5	2	32.0		
	A7	56.6	58.1	1.4	0	0.10	0.4	0	0.008	175.4	0	1.71	218.1	2	30.0	222.2	2	33.0		
	A8	56.6	58.1	1.6	0	0.10	0.6	0	0.011	198.3	0	1.57	218.1	2	30.0	222.9	2	32.0		
	A9	56.6	58.1	1.7	0	0.10	0.6	0	0.013	168.0	0	1.33	218.1	2	30.0	223.5	2	32.0		
12F	A1	62.2	63.7	1.4	0	0.08	0.4	0	0.007	17.1	0	0.32	218.1	2	30.0	219.4	2	31.0		
	A2	62.2	63.7	1.4	0	0.08	0.4	0	0.009	21.9	0	0.30	218.1	2	30.0	219.8	2	31.0		
	A3	62.2	63.7	1.5	0	0.08	0.5	0	0.011	18.9	0	0.26	218.1	2	30.0	220.4	2	31.0		
	A4	62.2	63.7	1.3	0	0.08	0.3	0	0.006	21.9	0	0.40	218.1	2	30.0	219.8	2	32.0		
	A5	62.2	63.7	1.3	0	0.08	0.4	0	0.008	18.6	0	0.39	218.1	2	30.0	220.4	2	31.0		
	A6	62.2	63.7	1.3	0	0.08	0.5	0	0.010	23.1	0	0.36	218.1	2	30.0	220.9	2	31.0		
	A7	62.2	63.7	1.2	0	0.08	0.3	0	0.005	23.4	0	0.56	218.1	2	30.0	220.7	2	32.0		
	A8	62.2	63.7	1.2	0	0.07	0.5	0	0.007	23.1	0	0.55	218.1	2	30.0	221.2	2	32.0		
	A9	62.2	63.7	1.3	0	0.07	0.5	0	0.009	22.9	0	0.54	218.1	2	30.0	221.8	2	32.0		
14F	A1	67.8	69.3	1.2	0	0.06	0.3	0	0.005	9.4	0	0.23	218.1	2	30.0	218.9	2	31.0		
	A2	67.8	69.3	1.2	0	0.06	0.3	0	0.006	8.9	0	0.21	218.1	2	30.0	219.2	2	31.0		
	A3	67.8	69.3	1.2	0	0.06	0.4	0	0.008	7.2	0	0.19	218.1	2	30.0	219.4	2	31.0		
	A4	67.8	69.3	1.1	0	0.06	0.3	0	0.004	11.4	0	0.29	218.1	2	30.0	219.2	2	31.0		
	A5	67.8	69.3	1.1	0	0.06	0.3	0	0.006	11.1	0	0.28	218.1	2	30.0	219.4	2	31.0		
	A6	67.8	69.3	1.2	0	0.06	0.4	0	0.008	10.2	0	0.26	218.1	2	30.0	219.8	2	31.0		
	A7	67.8	69.3	1.0	0	0.06	0.2	0	0.003	17.7	0	0.40	218.1	2	30.0	219.7	2	31.0		
	A8	67.8	69.3	1.1	0	0.06	0.4	0	0.005	14.8	0	0.40	218.1	2	30.0	220.0	2	31.0		
	A9	67.8	69.3	1.1	0	0.06	0.4	0	0.007	14.2	0	0.39	218.1	2	30.0	220.5	2	31.0		

				Concentration (µg/m³)															
				NO_2															
				Vehicles Emission			Tunnel Portal			Chinmeys			Background			Total		
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual	Hourly	Exceedance	Annual
16F	A1	73.4	74.9	1.0	0	0.04	0.3	0	0.004	6.8	0	0.18	218.1	2	30.0	218.5	2	31.0
	A2	73.4	74.9	1.0	0	0.04	0.3	0	0.005	6.9	0	0.17	218.1	2	30.0	218.6	2	31.0
	A3	73.4	74.9	1.0	0	0.04	0.3	0	0.006	6.5	0	0.15	218.1	2	30.0	218.9	2	31.0
	A4	73.4	74.9	0.9	0	0.04	0.2	0	0.003	9.1	0	0.24	218.1	2	30.0	218.6	2	31.0
	A5	73.4	74.9	1.0	0	0.04	0.3	0	0.004	8.8	0	0.23	218.1	2	30.0	218.9	2	31.0
	A6	73.4	74.9	1.0	0	0.04	0.3	0	0.006	8.7	0	0.21	218.1	2	30.0	219.2	2	31.0
	A7	73.4	74.9	0.9	0	0.04	0.2	0	0.002	17.3	0	0.33	218.1	2	30.0	219.0	2	31.0
	A8	73.4	74.9	0.9	0	0.04	0.3	0	0.004	14.0	0	0.33	218.1	2	30.0	219.3	2	31.0
	A9	73.4	74.9	1.0	0	0.04	0.4	0	0.005	13.1	0	0.32	218.1	2	30.0	219.6	2	31.0
18F	A1	79	80.5	0.8	0	0.03	0.2	0	0.003	6.3	0	0.16	218.1	2	30.0	218.3	2	31.0
	A2	79	80.5	0.9	0	0.03	0.2	0	0.003	6.2	0	0.15	218.1	2	30.0	218.3	2	31.0
	A3	79	80.5	0.9	0	0.03	0.3	0	0.005	5.6	0	0.13	218.1	2	30.0	218.5	2	31.0
	A4	79	80.5	0.8	0	0.03	0.2	0	0.002	8.5	0	0.21	218.1	2	30.0	218.3	2	31.0
	A5	79	80.5	0.8	0	0.03	0.2	0	0.003	8.1	0	0.20	218.1	2	30.0	218.6	2	31.0
	A6	79	80.5	0.9	0	0.03	0.3	0	0.004	7.4	0	0.18	218.1	2	30.0	218.7	2	31.0
	A7	79	80.5	0.8	0	0.03	0.1	0	0.002	15.4	0	0.29	218.1	2	30.0	218.6	2	31.0
	A8	79	80.5	0.8	0	0.03	0.2	0	0.003	11.8	0	0.29	218.1	2	30.0	218.7	2	31.0
	A9	79	80.5	0.9	0	0.03	0.3	0	0.004	11.5	0	0.27	218.1	2	30.0	219.0	2	31.0
20F	A1	84.6	86.1	0.7	0	0.02	0.2	0	0.002	5.7	0	0.14	218.1	2	30.0	218.2	2	31.0
	A2	84.6	86.1	0.7	0	0.02	0.2	0	0.003	5.3	0	0.13	218.1	2	30.0	218.2	2	31.0
	A3	84.6	86.1	0.8	0	0.02	0.2	0	0.004	4.6	0	0.11	218.1	2	30.0	218.3	2	31.0
	A4	84.6	86.1	0.7	0	0.02	0.1	0	0.001	7.6	0	0.18	218.1	2	30.0	218.2	2	31.0
	A5	84.6	86.1	0.7	0	0.02	0.2	0	0.002	7.1	0	0.17	218.1	2	30.0	218.3	2	31.0
	A6	84.6	86.1	0.8	0	0.02	0.2	0	0.003	5.9	0	0.15	218.1	2	30.0	218.5	2	31.0
	A7	84.6	86.1	0.7	0	0.02	0.1	0	0.001	12.3	0	0.25	218.1	2	30.0	218.3	2	31.0
	A8	84.6	86.1	0.7	0	0.02	0.1	0	0.002	9.8	0	0.24	218.1	2	30.0	218.5	2	31.0
	A9	84.6	86.1	0.8	0	0.02	0.2	0	0.003	9.5	0	0.23	218.1	2	30.0	218.6	2	31.0
23F	A1	93	94.5	0.6	0	0.02	0.1	0	0.001	4.7	0	0.12	218.1	2	30.0	218.1	2	30.0
	A2	93	94.5	0.6	0	0.02	0.2	0	0.002	3.7	0	0.11	218.1	2	30.0	218.1	2	30.0
	A3	93	94.5	0.6	0	0.02	0.2	0	0.002	4.2	0	0.09	218.1	2	30.0	218.2	2	30.0
	A4	93	94.5	0.6	0	0.02	0.1	0	0.001	6.1	0	0.15	218.1	2	30.0	218.1	2	30.0
	A5	93	94.5	0.6	0	0.02	0.1	0	0.001	5.4	0	0.14	218.1	2	30.0	218.2	2	30.0
	A6	93	94.5	0.6	0	0.02	0.2	0	0.002	4.4	0	0.12	218.1	2	30.0	218.2	2	30.0
	A7	93	94.5	0.5	0	0.01	0.1	0	0.001	7.1	0	0.20	218.1	2	30.0	218.2	2	30.0
	A8	93	94.5	0.6	0	0.01	0.1	0	0.001	7.3	0	0.19	218.1	2	30.0	218.2	2	30.0
	A9	93	94.5	0.6	0	0.02	0.2	0	0.002	6.5	0	0.17	218.1	2	30.0	218.3	2	30.0
26F	A1	101.4	102.9	0.4	0	0.01	0.1	0	0.001	3.5	0	0.10	218.1	2	30.0	218.1	2	30.0
	A2	101.4	102.9	0.5	0	0.01	0.1	0	0.001	3.2	0	0.09	218.1	2	30.0	218.1	2	30.0
	A3	101.4	102.9	0.5	0	0.01	0.1	0	0.002	3.6	0	0.07	218.1	2	30.0	218.1	2	30.0
	A4	101.4	102.9	0.4	0	0.01	0.1	0	0.001	4.5	0	0.12	218.1	2	30.0	218.1	2	30.0
	A5	101.4	102.9	0.5	0	0.01	0.1	0	0.001	3.8	0	0.11	218.1	2	30.0	218.1	2	30.0
	A6	101.4	102.9	0.5	0	0.01	0.1	0	0.001	3.8	0	0.09	218.1	2	30.0	218.1	2	30.0
	A7	101.4	102.9	0.4	0	0.01	0.1	0	0.000	5.2	0	0.16	218.1	2	30.0	218.1	2	30.0
	A8	101.4	102.9	0.5	0	0.01	0.1	0	0.001	4.9	0	0.15	218.1	2	30.0	218.2	2	30.0
	A9	101.4	102.9	0.5	0	0.01	0.1	0	0.001	4.1	0	0.13	218.1	2	30.0	218.2	2	30.0
Max				10.3	0	1.5	26.8	0	0.6	210.5	2	2.3	218.1	2	30.0	277.0	9	49.0
															Standard	200.0	18.0	40.0

Note:
Cell in Grey means exceedance

				Concentration (µg/m³)																
				RSP																
				Vehicles Emission			Tunnel Portal			Chinmeys			Background			Total				
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual		
Lift Lobby	A1	6.5	8	0.931	0	0.387	0.0421	0	0.00840	0.037	0	0.009	117.74	2	41.37	118.07	2	41.78		
	A2	6.5	8	0.890	0	0.382	0.0339	0	0.00662	0.035	0	0.008	117.74	2	41.37	118.06	2	41.77		
	A3	6.5	8	0.856	0	0.381	0.0286	0	0.00520	0.034	0	0.007	117.74	2	41.37	118.05	2	41.77		
	A4	6.5	8	0.926	0	0.396	0.0481	0	0.00989	0.039	0	0.011	117.74	2	41.37	118.07	3	41.79		
	A5	6.5	8	0.885	0	0.390	0.0402	0	0.00738	0.036	0	0.009	117.74	2	41.37	118.06	2	41.78		
	A6	6.5	8	0.853	0	0.390	0.0338	0	0.00573	0.034	0	0.007	117.74	2	41.37	118.06	2	41.78		
	A7	6.5	8	0.936	0	0.423	0.0624	0	0.01177	0.045	0	0.013	117.74	2	41.37	118.07	3	41.82		
	A8	6.5	8	0.895	0	0.418	0.0482	0	0.00838	0.038	0	0.011	117.74	2	41.37	118.05	2	41.81		
	A9	6.5	8	0.865	0	0.418	0.0384	0	0.00632	0.033	0	0.008	117.74	2	41.37	118.05	2	41.81		
RCHE	A1	12	13.5	0.815	0	0.315	0.0557	0	0.00628	0.037	0	0.009	117.74	2	41.37	118.02	2	41.71		
	A2	12	13.5	0.780	0	0.306	0.0524	0	0.00518	0.035	0	0.008	117.74	2	41.37	118.01	2	41.69		
	A3	12	13.5	0.749	0	0.297	0.0453	0	0.00425	0.033	0	0.007	117.74	2	41.37	118.00	2	41.68		
	A4	12	13.5	0.804	0	0.318	0.0691	0	0.00752	0.041	0	0.011	117.74	2	41.37	118.02	2	41.71		
	A5	12	13.5	0.768	0	0.309	0.0570	0	0.00587	0.038	0	0.009	117.74	2	41.37	118.00	2	41.70		
	A6	12	13.5	0.738	0	0.301	0.0461	0	0.00472	0.034	0	0.008	117.74	2	41.37	118.00	2	41.69		
	A7	12	13.5	0.794	0	0.331	0.0775	0	0.00880	0.046	0	0.013	117.74	2	41.37	118.01	2	41.73		
	A8	12	13.5	0.758	0	0.323	0.0679	0	0.00653	0.040	0	0.011	117.74	2	41.37	118.00	2	41.72		
	A9	12	13.5	0.734	0	0.315	0.0602	0	0.00507	0.035	0	0.009	117.74	2	41.37	118.00	2	41.70		
Recreation Centre	A1	16.5	18	0.710	0	0.257	0.0317	0	0.00429	0.038	0	0.010	117.74	2	41.37	117.98	2	41.65		
	A2	16.5	18	0.683	0	0.248	0.0326	0	0.00363	0.036	0	0.008	117.74	2	41.37	117.96	2	41.63		
	A3	16.5	18	0.655	0	0.236	0.0303	0	0.00304	0.034	0	0.007	117.74	2	41.37	117.95	2	41.62		
	A4	16.5	18	0.698	0	0.257	0.0399	0	0.00503	0.044	0	0.011	117.74	2	41.37	117.98	2	41.65		
	A5	16.5	18	0.669	0	0.247	0.0360	0	0.00406	0.040	0	0.010	117.74	2	41.37	117.96	2	41.64		
	A6	16.5	18	0.641	0	0.236	0.0311	0	0.00334	0.036	0	0.008	117.74	2	41.37	117.95	2	41.62		
	A7	16.5	18	0.678	0	0.257	0.0421	0	0.00568	0.051	0	0.014	117.74	2	41.37	117.97	2	41.65		
	A8	16.5	18	0.649	0	0.248	0.0394	0	0.00440	0.044	0	0.012	117.74	2	41.37	117.96	2	41.64		
	A9	16.5	18	0.628	0	0.237	0.0367	0	0.00352	0.040	0	0.010	117.74	2	41.37	117.95	2	41.63		
M/E	A1	21	22.5	0.606	0	0.206	0.0219	0	0.00293	0.041	0	0.010	117.74	2	41.37	117.94	2	41.59		
	A2	21	22.5	0.585	0	0.197	0.0196	0	0.00252	0.038	0	0.009	117.74	2	41.37	117.92	2	41.58		
	A3	21	22.5	0.563	0	0.186	0.0177	0	0.00213	0.036	0	0.008	117.74	2	41.37	117.91	2	41.57		
	A4	21	22.5	0.595	0	0.204	0.0240	0	0.00331	0.049	0	0.012	117.74	2	41.37	117.94	2	41.59		
	A5	21	22.5	0.574	0	0.195	0.0217	0	0.00275	0.042	0	0.011	117.74	2	41.37	117.92	2	41.58		
	A6	21	22.5	0.551	0	0.185	0.0184	0	0.00229	0.040	0	0.009	117.74	2	41.37	117.91	2	41.57		
	A7	21	22.5	0.575	0	0.201	0.0248	0	0.00357	0.058	0	0.015	117.74	2	41.37	117.94	2	41.59		
	A8	21	22.5	0.551	0	0.192	0.0206	0	0.00289	0.053	0	0.014	117.74	2	41.37	117.92	2	41.58		
	A9	21	22.5	0.536	0	0.182	0.0188	0	0.00237	0.045	0	0.012	117.74	2	41.37	117.91	2	41.57		
Covered Landscape Area	A1	25	26.5	0.519	0	0.167	0.0163	0	0.00219	0.047	0	0.011	117.74	2	41.37	117.91	2	41.55		
	A2	25	26.5	0.505	0	0.159	0.0151	0	0.00194	0.045	0	0.010	117.74	2	41.37	117.89	2	41.55		
	A3	25	26.5	0.487	0	0.150	0.0141	0	0.00166	0.040	0	0.008	117.74	2	41.37	117.88	2	41.54		
	A4	25	26.5	0.510	0	0.165	0.0159	0	0.00240	0.054	0	0.013	117.74	2	41.37	117.91	2	41.55		
	A5	25	26.5	0.494	0	0.157	0.0162	0	0.00207	0.048	0	0.012	117.74	2	41.37	117.89	2	41.55		
	A6	25	26.5	0.476	0	0.149	0.0148	0	0.00176	0.045	0	0.010	117.74	2	41.37	117.88	2	41.54		
	A7	25	26.5	0.491	0	0.161	0.0164	0	0.00249	0.065	0	0.016	117.74	2	41.37	117.91	2	41.55		
	A8	25	26.5	0.474	0	0.154	0.0154	0	0.00212	0.062	0	0.015	117.74	2	41.37	117.89	2	41.55		
	A9	25	26.5	0.461	0	0.146	0.0133	0	0.00178	0.055	0	0.014	117.74	2	41.37	117.88	2	41.54		
Transfer Plate	A1	29	30.5	0.439	0	0.134	0.0109	0	0.00166	0.058	0	0.011	117.74	2	41.37	117.88	2	41.52		
	A2	29	30.5	0.430	0	0.129	0.0112	0	0.00153	0.055	0	0.010	117.74	2	41.37	117.87	2	41.52		
	A3	29	30.5	0.418	0	0.122	0.0108	0	0.00135	0.049	0	0.009	117.74	2	41.37	117.85	2	41.51		
	A4	29	30.5	0.431	0	0.132	0.0103	0	0.00176	0.063	0	0.014	117.74	2	41.37	117.88	2	41.52		
	A5	29	30.5	0.422	0	0.127	0.0114	0	0.00160	0.062	0	0.013	117.74	2	41.37	117.86	2	41.52		
	A6	29	30.5	0.409	0	0.121	0.0113	0	0.00141	0.058	0	0.012	117.74	2	41.37	117.85	2	41.51		
	A7	29	30.5	0.416	0	0.129	0.0101	0	0.00177	0.072	0	0.018	117.74	2	41.37	117.88	2	41.52		
	A8	29	30.5	0.405	0	0.124	0.0108	0	0.00161	0.072	0	0.017	117.74	2	41.37	117.86	2	41.52		
	A9	29	30.5	0.394	0	0.118	0.0101	0	0.00140	0.067	0	0.016	117.74	2	41.37	117.85	2	41.51		
1F	A1	31.4	32.9	0.394	0	0.118	0.0083	0	0.00140	0.065	0	0.012	117.74	2	41.37	117.86	2	41.51		
	A2	31.4	32.9	0.389	0	0.114	0.0090	0	0.00133	0.063	0	0.011	117.74	2	41.37	117.85	2	41.50		
	A3	31.4	32.9	0.380	0	0.108	0.0090	0	0.00120	0.056	0	0.010	117.74	2	41.37	117.84	2	41.49		
	A4	31.4	32.9	0.390	0	0.116	0.0081	0	0.00146	0.073	0	0.014	117.74	2	41.37	117.86	2	41.51		
	A5	31.4	32.9	0.382	0	0.111	0.0091	0	0.00138	0.072	0	0.014	117.74	2	41.37	117.85	2	41.50		
	A6	31.4	32.9	0.371	0	0.107	0.0095	0	0.00123	0.069	0	0.012	117.74	2	41.37	117.84	2	41.49		
	A7	31.4	32.9	0.377	0	0.113	0.0081	0	0.00144	0.079	0	0.019	117.74	2	41.37	117.86	2	41.51		
	A8	31.4	32.9	0.366	0	0.109	0.0086	0	0.00136	0.080	0	0.018	117.74	2	41.37	117.85	2	41.50		
	A9	31.4	32.9	0.358	0	0.104	0.0084	0	0.00122	0.080	0	0.017	117.74	2	41.37	117.84	2	41.50		
2F	A1	34.2	35.7	0.346	0	0.102	0.0065	0	0.00115	0.075	0	0.012	117.74	2	41.37	117.85	2	41.49		
	A2	34.2	35.7	0.345	0	0.098	0.0068	0	0.00112	0.072	0	0.012	117.74	2	41.37	117.83	2	41.49		
	A3	34.2	35.7	0.339	0	0.094	0.0073	0	0.00104	0.066	0	0.010	117.74	2	41.37	117.82	2	41.48		
	A4	34.2	35.7	0.344	0	0.100	0.0064	0	0.00117	0.085	0	0.015	117.74	2	41.37	117.85	2	41.49		
	A5	34.2	35.7	0.339	0	0.096	0.0068	0	0.00115	0.086	0	0.015	117.74	2	41.37	117.83	2	41.49		
	A6	34.2	35.7	0.331	0	0.093	0.0076	0	0.00106	0.083	0	0.013	117.74	2	41.37	117.82	2	41.48		
	A7	34.2	35.7	0.333	0	0.097	0.0066	0	0.00113	0.094	0	0.020	117.74	2	41.37	117.85	2	41.49		
	A8	34.2	35.7	0.326	0	0.094	0.0071	0	0.00112	0.099	0	0.020	117.74	2	41.37	117.84	2	41.49		
	A9	34.2	35.7	0.319	0	0.090	0.0071	0	0.00104	0.101	0	0.019	117.74	2	41.37	117.82	2	41.48		
3F	A1	37	38.5	0.305	0	0.087	0.0052	0	0.00094	0.089	0	0.013	117.74	2	41.37	117.83	2	41.48		
	A2	37	38.5	0.305	0	0.085	0.0055	0	0.00095	0.089	0	0.012	117.74	2	41.37	117.82	2	41.47		
	A3	37	38.5	0.302	0	0.082	0.0058	0	0.00090	0.086	0	0.011	117.74	2	41.37	117.81	2	41.47		
	A4	37	38.5	0.302	0	0.086	0.0051	0	0.00093	0.102	0	0.017	117.74	2	41.37	117.83	2	41.48		
	A5	37	38.5	0.301	0	0.083	0.0054	0	0.00096	0.101	0	0.016	117.74	2	41.37	117.82	2	41.47		
	A6	37	38.5	0.295	0	0.080	0.0059	0	0.00091	0.098	0	0.015	117.74	2	41.37	117.81	2	41.47		
	A7	37	38.5	0.294	0	0.084	0.0054	0	0.00088	0.113	0	0.022	117.74	2	41.37	117.83	2	41.48		
	A8	37	38.5	0.289	0	0.081	0.0057	0	0.00093	0.121	0	0.022	117.74	2	41.37	117.82	2	41.48		
	A9	37	38.5	0.285	0	0.078	0.0060	0	0.00089	0.125	0	0.021	117.74	2	41.37	117.81	2	41.47		
4F	A1	39.8	41.3	0.266	0	0.075	0.0042	0	0.00076	0.109	0	0.015	117.74	2	41.37	117.82	2	41.47		
	A2	39.8	41.3	0.268	0	0.073	0.0045	0	0.00080	0.118	0	0.014	117.74	2	41.37	117.81	2	41.46		
	A3	39.8	41.3	0.267	0	0.071	0.0047	0	0.00078	0.115	0	0.012	117.74	2	41.37	117.80	2	41.46		
	A4	39.8	41.3	0.265	0	0.074	0.0041	0	0.00074	0.132	0	0.018	117.74	2	41.37	117.82	2	41.47		
	A5	39.8	41.3	0.265	0	0.072	0.0047	0	0.00080	0.125	0	0.018	117.74	2	41.37	117.81	2	41.46		
	A6	39.8	41.3	0.263	0	0.070	0.0049	0	0.00079	0.128	0	0.016	117.74	2	41.37	117.80	2	41.46		
	A7	39.8	41.3	0.258	0	0.072	0.0044	0	0.00069	0.147	0	0.025	117.74	2	41.37	117.82	2	41.47		
	A8	39.8	41.3	0.256	0	0.070	0.0049	0	0.00076	0.152	0	0.025	117.74	2	41.37	117.81	2	41.47		
	A9	39.8	41.3	0.255	0	0.068	0.0051	0	0.00076	0.153	0	0.024	117.74	2	41.37	117.80	2	41.47		
5F	A1	42.6	44.1	0.231	0	0.065	0.0037	0	0.00062	0.137	0	0.017	117.74	2	41.37	117.81	2	41.46		
	A2	42.6	44.1	0.235	0	0.063	0.0038	0	0.00067	0.157	0	0.016	117.74	2	41.37	117.80	2	41.45		
	A3	42.6	44.1	0.236	0	0.062	0.0039	0	0.00068	0.155	0	0.014	117.74	2	41.37	117.79	2	41.45		
	A4	42.6	44.1	0.232	0	0.064	0.0035	0	0.00059	0.178	0	0.021	117.74	2	41.37	117.81	2	41.46		
	A5	42.6	44.1	0.233	0	0.062	0.0041	0	0.00066	0.159	0	0.020	117.74	2	41.37	117.80	2	41.46		
	A6	42.6	44.1	0.233	0	0.060	0.0043	0	0.00067	0.178	0	0.019	117.74	2	41.37	117.79	2	41.45		
	A7	42.6	44.1	0.227	0	0.062	0.0035	0	0.00054	0.222	0	0.029	117.74	2	41.37	117.81	2	41.47		
	A8	42.6	44.1	0.228	0	0.060	0.0042	0	0.00063	0.219	0	0.028	117.74	2	41.37	117.80	2	41.46		
	A9	42.6	44.1	0.226	0	0.059	0.0043	0	0.00064	0.206	0	0.028	117.74	2	41.37	117.79	2	41.46		
6F	A1	45.4	46.9	0.202	0	0.056	0.0033	0	0.00050	0.173	0	0.020	117.74	2	41.37	117.80	2	41.45		
	A2	45.4	46.9	0.206	0	0.055	0.0032	0	0.00056	0.205	0	0.019	117.74	2	41.37	117.79	2	41.45		
	A3	45.4	46.9	0.210	0	0.053	0.0035	0	0.00058	0.206	0	0.017	117.74	2	41.37	117.78	2	41.45		
	A4	45.4	46.9	0.202	0	0.055	0.0030	0	0.00047	0.248	0	0.025	117.74	2	41.37	117.80	2	41.45		
	A5	45.4	46.9	0.206	0	0.053	0.0036	0	0.00055	0.205	0	0.024	117.74	2	41.37	117.79	2	41.45		
	A6	45.4	46.9	0.208	0	0.052	0.0038	0	0.00058	0.245	0	0.023	117.74	2	41.37	117.78	2	41.45		
	A7	45.4	46.9	0.199	0	0.053	0.0028	0	0.00042	0.348	0	0.036	117.74	2	41.37	117.80	2	41.46		
	A8	45.4	46.9	0.200	0	0.052	0.0036	0	0.00051	0.332	0	0.034	117.74	2	41.37	117.79	2	41.46		
	A9	45.4	46.9	0.202	0	0.051	0.0038	0	0.00055	0.288	0	0.033	117.74	2	41.37	117.79	2	41.46		
8F	A1	51	52.5	0.164	0	0.041	0.0025	0	0.00033	0.446	0	0.044	117.74	2	41.37	117.78	2	41.46		
	A2	51	52.5	0.164	0	0.041	0.0026	0	0.00039	0.582	0	0.047	117.74	2	41.37	117.78	2	41.46		
	A3	51	52.5	0.163	0	0.040	0.0028	0	0.00043	0.928	0	0.043	117.74	2	41.37	117.77	2	41.46		
	A4	51	52.5	0.152	0	0.041	0.0022	0	0.00030	0.874	0	0.061	117.74	2	41.37	117.78	2	41.48		
	A5	51	52.5	0.158	0	0.040	0.0026	0	0.00038	0.547	0	0.055	117.74	2	41.37	117.78	2	41.47		
	A6	51	52.5	0.162	0	0.039	0.0030	0	0.00042	0.745	0	0.057	117.74	2	41.37	117.77	2	41.47		
	A7	51	52.5	0.151	0	0.039	0.0019	0	0.00026	2.030	0	0.116	117.74	2	41.37	117.79	2	41.53		
	A8	51	52.5	0.156	0	0.039	0.0025	0	0.00035	1.062	0	0.096	117.74	2	41.37	117.78	2	41.51		
	A9	51	52.5	0.158	0	0.038	0.0030	0	0.00040	0.900	0	0.078	117.74	2	41.37	117.77	2	41.49		
10F	A1	56.6	58.1	0.135	0	0.031	0.0019	0	0.00023	0.427	0	0.037	117.74	2	41.37	117.77	2	41.44		
	A2	56.6	58.1	0.135	0	0.030	0.0021	0	0.00028	0.384	0	0.037	117.74	2	41.37	117.76	2	41.44		
	A3	56.6	58.1	0.135	0	0.030	0.0022	0	0.00032	0.513	0	0.035	117.74	2	41.37	117.76	2	41.44		
	A4	56.6	58.1	0.124	0	0.030	0.0016	0	0.00020	0.714	0	0.053	117.74	2	41.37	117.77	2	41.46		
	A5	56.6	58.1	0.125	0	0.030	0.0019	0	0.00026	0.552	0	0.046	117.74	2	41.37	117.77	2	41.45		
	A6	56.6	58.1	0.124	0	0.030	0.0023	0	0.00031	0.428	0	0.045	117.74	2	41.37	117.76	2	41.45		
	A7	56.6	58.1	0.116	0	0.029	0.0013	0	0.00017	1.138	0	0.085	117.74	2	41.37	117.77	2	41.49		
	A8	56.6	58.1	0.120	0	0.029	0.0018	0	0.00024	0.876	0	0.079	117.74	2	41.37	117.77	2	41.48		
	A9	56.6	58.1	0.124	0	0.029	0.0022	0	0.00029	0.842	0	0.066	117.74	2	41.37	117.76	2	41.47		
12F	A1	62.2	63.7	0.110	0	0.023	0.0014	0	0.00016	0.142	0	0.016	117.74	2	41.37	117.76	2	41.41		
	A2	62.2	63.7	0.112	0	0.023	0.0016	0	0.00020	0.164	0	0.015	117.74	2	41.37	117.76	2	41.41		
	A3	62.2	63.7	0.113	0	0.023	0.0017	0	0.00024	0.161	0	0.013	117.74	2	41.37	117.75	2	41.41		
	A4	62.2	63.7	0.102	0	0.022	0.0011	0	0.00013	0.196	0	0.020	117.74	2	41.37	117.76	2	41.42		
	A5	62.2	63.7	0.103	0	0.022	0.0015	0	0.00018	0.170	0	0.019	117.74	2	41.37	117.76	2	41.42		
	A6	62.2	63.7	0.104	0	0.022	0.0018	0	0.00023	0.187	0	0.018	117.74	2	41.37	117.75	2	41.42		
	A7	62.2	63.7	0.089	0	0.022	0.0009	0	0.00011	0.248	0	0.028	117.74	2	41.37	117.76	2	41.42		
	A8	62.2	63.7	0.093	0	0.022	0.0013	0	0.00016	0.244	0	0.027	117.74	2	41.37	117.76	2	41.42		
	A9	62.2	63.7	0.097	0	0.021	0.0017	0	0.00021	0.224	0	0.027	117.74	2	41.37	117.76	2	41.42		
14F	A1	67.8	69.3	0.091	0	0.017	0.0010	0	0.00011	0.083	0	0.011	117.74	2	41.37	117.75	2	41.40		
	A2	67.8	69.3	0.093	0	0.017	0.0013	0	0.00014	0.076	0	0.011	117.74	2	41.37	117.75	2	41.40		
	A3	67.8	69.3	0.093	0	0.017	0.0014	0	0.00018	0.073	0	0.009	117.74	2	41.37	117.75	2	41.40		
	A4	67.8	69.3	0.084	0	0.017	0.0008	0	0.00009	0.096	0	0.014	117.74	2	41.37	117.75	2	41.41		
	A5	67.8	69.3	0.084	0	0.017	0.0011	0	0.00013	0.094	0	0.014	117.74	2	41.37	117.75	2	41.41		
	A6	67.8	69.3	0.085	0	0.016	0.0013	0	0.00017	0.086	0	0.013	117.74	2	41.37	117.75	2	41.40		
	A7	67.8	69.3	0.073	0	0.016	0.0006	0	0.00007	0.099	0	0.020	117.74	2	41.37	117.76	2	41.41		
	A8	67.8	69.3	0.073	0	0.016	0.0009	0	0.00011	0.103	0	0.020	117.74	2	41.37	117.75	2	41.41		
	A9	67.8	69.3	0.075	0	0.016	0.0012	0	0.00015	0.108	0	0.020	117.74	2	41.37	117.75	2	41.41		

				Concentration (µg/m³)															
				RSP															
				Vehicles Emission			Tunnel Portal			Chinmeys			Background			Total			
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual
16F	A1	73.4	74.9	0.073	0	0.013	0.0008	0	0.00008	0.055	0	0.009	117.74	2	41.37	117.75	2	41.40
	A2	73.4	74.9	0.075	0	0.013	0.0010	0	0.00010	0.053	0	0.009	117.74	2	41.37	117.74	2	41.40
	A3	73.4	74.9	0.078	0	0.013	0.0011	0	0.00013	0.047	0	0.008	117.74	2	41.37	117.74	2	41.40
	A4	73.4	74.9	0.067	0	0.012	0.0006	0	0.00006	0.060	0	0.012	117.74	2	41.37	117.75	2	41.40
	A5	73.4	74.9	0.070	0	0.012	0.0009	0	0.00009	0.061	0	0.011	117.74	2	41.37	117.75	2	41.40
	A6	73.4	74.9	0.072	0	0.012	0.0010	0	0.00012	0.059	0	0.010	117.74	2	41.37	117.74	2	41.40
	A7	73.4	74.9	0.058	0	0.012	0.0005	0	0.00005	0.075	0	0.017	117.74	2	41.37	117.75	2	41.40
	A8	73.4	74.9	0.060	0	0.012	0.0007	0	0.00008	0.079	0	0.017	117.74	2	41.37	117.75	2	41.40
	A9	73.4	74.9	0.061	0	0.012	0.0009	0	0.00011	0.076	0	0.016	117.74	2	41.37	117.75	2	41.40
18F	A1	79	80.5	0.059	0	0.009	0.0005	0	0.00006	0.039	0	0.008	117.74	2	41.37	117.74	2	41.39
	A2	79	80.5	0.061	0	0.009	0.0007	0	0.00008	0.038	0	0.007	117.74	2	41.37	117.74	2	41.39
	A3	79	80.5	0.063	0	0.010	0.0009	0	0.00010	0.036	0	0.007	117.74	2	41.37	117.74	2	41.39
	A4	79	80.5	0.055	0	0.009	0.0005	0	0.00004	0.048	0	0.010	117.74	2	41.37	117.74	2	41.39
	A5	79	80.5	0.056	0	0.009	0.0006	0	0.00007	0.043	0	0.010	117.74	2	41.37	117.74	2	41.39
	A6	79	80.5	0.058	0	0.009	0.0008	0	0.00009	0.041	0	0.009	117.74	2	41.37	117.74	2	41.39
	A7	79	80.5	0.048	0	0.009	0.0004	0	0.00003	0.061	0	0.014	117.74	2	41.37	117.74	2	41.40
	A8	79	80.5	0.049	0	0.009	0.0005	0	0.00006	0.062	0	0.014	117.74	2	41.37	117.74	2	41.40
	A9	79	80.5	0.051	0	0.009	0.0007	0	0.00008	0.058	0	0.014	117.74	2	41.37	117.74	2	41.40
20F	A1	84.6	86.1	0.048	0	0.007	0.0004	0	0.00004	0.030	0	0.007	117.74	2	41.37	117.74	2	41.39
	A2	84.6	86.1	0.050	0	0.007	0.0006	0	0.00006	0.030	0	0.006	117.74	2	41.37	117.74	2	41.39
	A3	84.6	86.1	0.052	0	0.007	0.0007	0	0.00008	0.031	0	0.006	117.74	2	41.37	117.74	2	41.39
	A4	84.6	86.1	0.044	0	0.007	0.0004	0	0.00003	0.039	0	0.009	117.74	2	41.37	117.74	2	41.39
	A5	84.6	86.1	0.046	0	0.007	0.0005	0	0.00005	0.036	0	0.008	117.74	2	41.37	117.74	2	41.39
	A6	84.6	86.1	0.048	0	0.007	0.0007	0	0.00007	0.036	0	0.008	117.74	2	41.37	117.74	2	41.39
	A7	84.6	86.1	0.038	0	0.007	0.0003	0	0.00002	0.050	0	0.012	117.74	2	41.37	117.74	2	41.39
	A8	84.6	86.1	0.040	0	0.007	0.0004	0	0.00004	0.049	0	0.012	117.74	2	41.37	117.74	2	41.39
	A9	84.6	86.1	0.041	0	0.007	0.0005	0	0.00006	0.048	0	0.011	117.74	2	41.37	117.74	2	41.39
23F	A1	93	94.5	0.034	0	0.004	0.0003	0	0.00003	0.026	0	0.006	117.74	2	41.37	117.74	2	41.38
	A2	93	94.5	0.037	0	0.004	0.0004	0	0.00004	0.025	0	0.005	117.74	2	41.37	117.74	2	41.38
	A3	93	94.5	0.038	0	0.005	0.0005	0	0.00005	0.026	0	0.005	117.74	2	41.37	117.74	2	41.38
	A4	93	94.5	0.031	0	0.004	0.0003	0	0.00002	0.030	0	0.007	117.74	2	41.37	117.74	2	41.39
	A5	93	94.5	0.033	0	0.004	0.0003	0	0.00003	0.031	0	0.007	117.74	2	41.37	117.74	2	41.39
	A6	93	94.5	0.035	0	0.004	0.0005	0	0.00005	0.030	0	0.006	117.74	2	41.37	117.74	2	41.39
	A7	93	94.5	0.028	0	0.004	0.0002	0	0.00001	0.038	0	0.010	117.74	2	41.37	117.74	2	41.39
	A8	93	94.5	0.029	0	0.004	0.0003	0	0.00003	0.037	0	0.010	117.74	2	41.37	117.74	2	41.39
	A9	93	94.5	0.030	0	0.004	0.0004	0	0.00004	0.039	0	0.009	117.74	2	41.37	117.74	2	41.39
26F	A1	101.4	102.9	0.025	0	0.003	0.0002	0	0.00002	0.022	0	0.005	117.74	2	41.37	117.74	2	41.38
	A2	101.4	102.9	0.025	0	0.003	0.0003	0	0.00003	0.021	0	0.004	117.74	2	41.37	117.74	2	41.38
	A3	101.4	102.9	0.029	0	0.003	0.0004	0	0.00004	0.021	0	0.004	117.74	2	41.37	117.74	2	41.38
	A4	101.4	102.9	0.023	0	0.003	0.0002	0	0.00001	0.026	0	0.006	117.74	2	41.37	117.74	2	41.38
	A5	101.4	102.9	0.024	0	0.003	0.0002	0	0.00002	0.026	0	0.005	117.74	2	41.37	117.74	2	41.38
	A6	101.4	102.9	0.025	0	0.003	0.0003	0	0.00003	0.024	0	0.005	117.74	2	41.37	117.74	2	41.38
	A7	101.4	102.9	0.020	0	0.002	0.0001	0	0.00001	0.030	0	0.008	117.74	2	41.37	117.74	2	41.39
	A8	101.4	102.9	0.020	0	0.003	0.0002	0	0.00002	0.031	0	0.007	117.74	2	41.37	117.74	2	41.38
	A9	101.4	102.9	0.023	0	0.003	0.0003	0	0.00003	0.031	0	0.006	117.74	2	41.37	117.74	2	41.38
Max				0.94	0	0.42	0.08	0	0.01	2.03	0	0.12	117.74	2	41.37	118.07	3	41.82
															Standard	100	9	50

Note:
Cell in Grey means exceedance

				Concentration (µg/m³)																
				FSP																
				Vehicles Emission			Tunnel Portal			Chinmeys			Background			Total				
Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual		
Lift Lobby	A1	6.5	8	0.856	0	0.356	0.0382	0	0.00763	0.009	0	0.002	92.20	0	29.38	92.81	0	29.74		
	A2	6.5	8	0.817	0	0.350	0.0308	0	0.00601	0.009	0	0.002	92.20	0	29.38	92.80	0	29.73		
	A3	6.5	8	0.787	0	0.349	0.0260	0	0.00473	0.008	0	0.002	92.20	0	29.38	92.79	0	29.73		
	A4	6.5	8	0.854	0	0.364	0.0437	0	0.00899	0.010	0	0.003	92.20	0	29.38	92.82	0	29.75		
	A5	6.5	8	0.813	0	0.359	0.0365	0	0.00670	0.009	0	0.002	92.20	0	29.38	92.80	0	29.74		
	A6	6.5	8	0.783	0	0.358	0.0307	0	0.00521	0.009	0	0.002	92.20	0	29.38	92.80	0	29.74		
	A7	6.5	8	0.861	0	0.389	0.0566	0	0.01070	0.011	0	0.003	92.20	0	29.38	92.81	0	29.78		
	A8	6.5	8	0.816	0	0.384	0.0437	0	0.00761	0.010	0	0.003	92.20	0	29.38	92.79	0	29.77		
	A9	6.5	8	0.789	0	0.385	0.0348	0	0.00574	0.008	0	0.002	92.20	0	29.38	92.79	0	29.77		
RCHE	A1	12	13.5	0.749	0	0.289	0.0506	0	0.00571	0.009	0	0.002	92.20	0	29.38	92.77	0	29.67		
	A2	12	13.5	0.715	0	0.281	0.0476	0	0.00471	0.009	0	0.002	92.20	0	29.38	92.75	0	29.66		
	A3	12	13.5	0.687	0	0.273	0.0411	0	0.00386	0.008	0	0.002	92.20	0	29.38	92.74	0	29.65		
	A4	12	13.5	0.738	0	0.292	0.0627	0	0.00684	0.010	0	0.003	92.20	0	29.38	92.76	0	29.68		
	A5	12	13.5	0.705	0	0.284	0.0517	0	0.00534	0.009	0	0.002	92.20	0	29.38	92.75	0	29.67		
	A6	12	13.5	0.678	0	0.276	0.0418	0	0.00429	0.009	0	0.002	92.20	0	29.38	92.74	0	29.66		
	A7	12	13.5	0.732	0	0.304	0.0704	0	0.00800	0.011	0	0.003	92.20	0	29.38	92.76	0	29.69		
	A8	12	13.5	0.696	0	0.297	0.0617	0	0.00593	0.010	0	0.003	92.20	0	29.38	92.75	0	29.68		
	A9	12	13.5	0.669	0	0.289	0.0546	0	0.00461	0.009	0	0.002	92.20	0	29.38	92.74	0	29.67		
Recreation Centre	A1	16.5	18	0.653	0	0.236	0.0288	0	0.00391	0.009	0	0.002	92.20	0	29.38	92.73	0	29.62		
	A2	16.5	18	0.626	0	0.227	0.0296	0	0.00330	0.009	0	0.002	92.20	0	29.38	92.71	0	29.61		
	A3	16.5	18	0.601	0	0.216	0.0275	0	0.00277	0.009	0	0.002	92.20	0	29.38	92.70	0	29.60		
	A4	16.5	18	0.642	0	0.236	0.0362	0	0.00457	0.011	0	0.003	92.20	0	29.38	92.72	0	29.62		
	A5	16.5	18	0.615	0	0.227	0.0327	0	0.00369	0.010	0	0.002	92.20	0	29.38	92.71	0	29.61		
	A6	16.5	18	0.588	0	0.217	0.0282	0	0.00304	0.009	0	0.002	92.20	0	29.38	92.70	0	29.60		
	A7	16.5	18	0.625	0	0.236	0.0383	0	0.00517	0.013	0	0.003	92.20	0	29.38	92.72	0	29.62		
	A8	16.5	18	0.598	0	0.228	0.0358	0	0.00400	0.011	0	0.003	92.20	0	29.38	92.71	0	29.61		
	A9	16.5	18	0.575	0	0.218	0.0333	0	0.00320	0.010	0	0.003	92.20	0	29.38	92.70	0	29.60		
M/E	A1	21	22.5	0.557	0	0.189	0.0199	0	0.00267	0.010	0	0.003	92.20	0	29.38	92.69	0	29.57		
	A2	21	22.5	0.538	0	0.181	0.0178	0	0.00230	0.009	0	0.002	92.20	0	29.38	92.68	0	29.56		
	A3	21	22.5	0.517	0	0.170	0.0161	0	0.00194	0.009	0	0.002	92.20	0	29.38	92.66	0	29.55		
	A4	21	22.5	0.547	0	0.187	0.0218	0	0.00301	0.012	0	0.003	92.20	0	29.38	92.69	0	29.57		
	A5	21	22.5	0.526	0	0.179	0.0197	0	0.00250	0.011	0	0.003	92.20	0	29.38	92.67	0	29.56		
	A6	21	22.5	0.506	0	0.169	0.0167	0	0.00209	0.010	0	0.002	92.20	0	29.38	92.66	0	29.55		
	A7	21	22.5	0.530	0	0.184	0.0226	0	0.00325	0.014	0	0.004	92.20	0	29.38	92.69	0	29.57		
	A8	21	22.5	0.507	0	0.176	0.0187	0	0.00263	0.013	0	0.003	92.20	0	29.38	92.67	0	29.56		
	A9	21	22.5	0.488	0	0.167	0.0171	0	0.00215	0.011	0	0.003	92.20	0	29.38	92.66	0	29.55		
ered Landscape A	A1	25	26.5	0.478	0	0.153	0.0148	0	0.00200	0.012	0	0.003	92.20	0	29.38	92.66	0	29.53		
	A2	25	26.5	0.464	0	0.146	0.0137	0	0.00177	0.011	0	0.002	92.20	0	29.38	92.65	0	29.53		
	A3	25	26.5	0.448	0	0.138	0.0128	0	0.00152	0.010	0	0.002	92.20	0	29.38	92.63	0	29.52		
	A4	25	26.5	0.467	0	0.151	0.0145	0	0.00218	0.014	0	0.003	92.20	0	29.38	92.66	0	29.53		
	A5	25	26.5	0.455	0	0.144	0.0147	0	0.00189	0.012	0	0.003	92.20	0	29.38	92.64	0	29.53		
	A6	25	26.5	0.436	0	0.137	0.0135	0	0.00160	0.011	0	0.003	92.20	0	29.38	92.63	0	29.52		
	A7	25	26.5	0.453	0	0.148	0.0149	0	0.00227	0.016	0	0.004	92.20	0	29.38	92.66	0	29.53		
	A8	25	26.5	0.436	0	0.141	0.0140	0	0.00193	0.016	0	0.004	92.20	0	29.38	92.64	0	29.52		
	A9	25	26.5	0.421	0	0.134	0.0121	0	0.00162	0.014	0	0.003	92.20	0	29.38	92.63	0	29.51		
Transfer Plate	A1	29	30.5	0.403	0	0.124	0.0099	0	0.00151	0.014	0	0.003	92.20	0	29.38	92.63	0	29.50		
	A2	29	30.5	0.395	0	0.119	0.0102	0	0.00140	0.014	0	0.003	92.20	0	29.38	92.62	0	29.50		
	A3	29	30.5	0.385	0	0.113	0.0098	0	0.00123	0.012	0	0.002	92.20	0	29.38	92.61	0	29.49		
	A4	29	30.5	0.398	0	0.122	0.0094	0	0.00160	0.016	0	0.003	92.20	0	29.38	92.63	0	29.50		
	A5	29	30.5	0.387	0	0.116	0.0104	0	0.00146	0.016	0	0.003	92.20	0	29.38	92.62	0	29.50		
	A6	29	30.5	0.376	0	0.111	0.0103	0	0.00128	0.015	0	0.003	92.20	0	29.38	92.61	0	29.49		
	A7	29	30.5	0.384	0	0.119	0.0092	0	0.00161	0.018	0	0.004	92.20	0	29.38	92.63	0	29.50		
	A8	29	30.5	0.373	0	0.114	0.0098	0	0.00146	0.018	0	0.004	92.20	0	29.38	92.62	0	29.50		
	A9	29	30.5	0.362	0	0.108	0.0092	0	0.00127	0.017	0	0.004	92.20	0	29.38	92.61	0	29.49		
1F	A1	31.4	32.9	0.363	0	0.109	0.0075	0	0.00128	0.016	0	0.003	92.20	0	29.38	92.62	0	29.49		
	A2	31.4	32.9	0.358	0	0.104	0.0082	0	0.00121	0.016	0	0.003	92.20	0	29.38	92.61	0	29.48		
	A3	31.4	32.9	0.349	0	0.100	0.0082	0	0.00109	0.014	0	0.002	92.20	0	29.38	92.59	0	29.48		
	A4	31.4	32.9	0.359	0	0.107	0.0074	0	0.00133	0.018	0	0.004	92.20	0	29.38	92.62	0	29.49		
	A5	31.4	32.9	0.352	0	0.102	0.0082	0	0.00125	0.018	0	0.003	92.20	0	29.38	92.61	0	29.48		
	A6	31.4	32.9	0.342	0	0.098	0.0086	0	0.00112	0.017	0	0.003	92.20	0	29.38	92.59	0	29.48		
	A7	31.4	32.9	0.348	0	0.104	0.0074	0	0.00131	0.020	0	0.005	92.20	0	29.38	92.62	0	29.49		
	A8	31.4	32.9	0.339	0	0.100	0.0079	0	0.00124	0.020	0	0.005	92.20	0	29.38	92.61	0	29.48		
	A9	31.4	32.9	0.330	0	0.096	0.0077	0	0.00111	0.020	0	0.004	92.20	0	29.38	92.60	0	29.48		
2F	A1	34.2	35.7	0.320	0	0.093	0.0059	0	0.00105	0.019	0	0.003	92.20	0	29.38	92.60	0	29.47		
	A2	34.2	35.7	0.317	0	0.090	0.0062	0	0.00102	0.018	0	0.003	92.20	0	29.38	92.59	0	29.47		
	A3	34.2	35.7	0.312	0	0.087	0.0066	0	0.00095	0.017	0	0.003	92.20	0	29.38	92.58	0	29.47		
	A4	34.2	35.7	0.317	0	0.092	0.0058	0	0.00106	0.021	0	0.004	92.20	0	29.38	92.60	0	29.47		
	A5	34.2	35.7	0.313	0	0.088	0.0062	0	0.00105	0.021	0	0.004	92.20	0	29.38	92.59	0	29.47		
	A6	34.2	35.7	0.305	0	0.085	0.0069	0	0.00097	0.021	0	0.003	92.20	0	29.38	92.58	0	29.47		
	A7	34.2	35.7	0.308	0	0.089	0.0060	0	0.00103	0.023	0	0.005	92.20	0	29.38	92.61	0	29.47		
	A8	34.2	35.7	0.302	0	0.086	0.0064	0	0.00102	0.025	0	0.005	92.20	0	29.38	92.59	0	29.47		
	A9	34.2	35.7	0.295	0	0.083	0.0064	0	0.00094	0.025	0	0.005	92.20	0	29.38	92.58	0	29.46		
3F	A1	37	38.5	0.281	0	0.080	0.0048	0	0.00085	0.022	0	0.003	92.20	0	29.38	92.59	0	29.46		
	A2	37	38.5	0.281	0	0.078	0.0050	0	0.00086	0.022	0	0.003	92.20	0	29.38	92.58	0	29.46		
	A3	37	38.5	0.278	0	0.075	0.0052	0	0.00082	0.021	0	0.003	92.20	0	29.38	92.57	0	29.45		
	A4	37	38.5	0.278	0	0.079	0.0046	0	0.00085	0.025	0	0.004	92.20	0	29.38	92.59	0	29.46		
	A5	37	38.5	0.278	0	0.076	0.0049	0	0.00087	0.025	0	0.004	92.20	0	29.38	92.58	0	29.46		
	A6	37	38.5	0.273	0	0.074	0.0054	0	0.00083	0.024	0	0.004	92.20	0	29.38	92.57	0	29.45		
	A7	37	38.5	0.272	0	0.077	0.0049	0	0.00080	0.028	0	0.006	92.20	0	29.38	92.59	0	29.46		
	A8	37	38.5	0.269	0	0.074	0.0052	0	0.00084	0.030	0	0.006	92.20	0	29.38	92.58	0	29.46		
	A9	37	38.5	0.263	0	0.072	0.0055	0	0.00081	0.031	0	0.005	92.20	0	29.38	92.57	0	29.45		
4F	A1	39.8	41.3	0.244	0	0.069	0.0038	0	0.00069	0.027	0	0.004	92.20	0	29.38	92.58	0	29.45		
	A2	39.8	41.3	0.247	0	0.067	0.0041	0	0.00073	0.029	0	0.003	92.20	0	29.38	92.57	0	29.45		
	A3	39.8	41.3	0.246	0	0.065	0.0043	0	0.00071	0.029	0	0.003	92.20	0	29.38	92.56	0	29.45		
	A4	39.8	41.3	0.244	0	0.068	0.0038	0	0.00068	0.033	0	0.005	92.20	0	29.38	92.58	0	29.45		
	A5	39.8	41.3	0.245	0	0.066	0.0043	0	0.00073	0.031	0	0.004	92.20	0	29.38	92.57	0	29.45		
	A6	39.8	41.3	0.243	0	0.064	0.0044	0	0.00072	0.032	0	0.004	92.20	0	29.38	92.56	0	29.44		
	A7	39.8	41.3	0.240	0	0.066	0.0040	0	0.00063	0.037	0	0.006	92.20	0	29.38	92.58	0	29.45		
	A8	39.8	41.3	0.239	0	0.064	0.0045	0	0.00069	0.038	0	0.006	92.20	0	29.38	92.57	0	29.45		
	A9	39.8	41.3	0.235	0	0.062	0.0046	0	0.00069	0.038	0	0.006	92.20	0	29.38	92.56	0	29.44		
5F	A1	42.6	44.1	0.214	0	0.060	0.0034	0	0.00056	0.034	0	0.004	92.20	0	29.38	92.57	0	29.44		
	A2	42.6	44.1	0.218	0	0.058	0.0034	0	0.00061	0.039	0	0.004	92.20	0	29.38	92.56	0	29.44		
	A3	42.6	44.1	0.219	0	0.057	0.0036	0	0.00062	0.039	0	0.003	92.20	0	29.38	92.55	0	29.44		
	A4	42.6	44.1	0.213	0	0.059	0.0032	0	0.00054	0.044	0	0.005	92.20	0	29.38	92.57	0	29.44		
	A5	42.6	44.1	0.216	0	0.057	0.0038	0	0.00060	0.040	0	0.005	92.20	0	29.38	92.56	0	29.44		
	A6	42.6	44.1	0.215	0	0.056	0.0039	0	0.00061	0.044	0	0.005	92.20	0	29.38	92.55	0	29.44		
	A7	42.6	44.1	0.211	0	0.057	0.0032	0	0.00049	0.056	0	0.007	92.20	0	29.38	92.57	0	29.44		
	A8	42.6	44.1	0.210	0	0.055	0.0039	0	0.00057	0.055	0	0.007	92.20	0	29.38	92.56	0	29.44		
	A9	42.6	44.1	0.210	0	0.054	0.0039	0	0.00059	0.051	0	0.007	92.20	0	29.38	92.55	0	29.44		
6F	A1	45.4	46.9	0.186	0	0.051	0.0030	0	0.00046	0.043	0	0.005	92.20	0	29.38	92.56	0	29.43		
	A2	45.4	46.9	0.192	0	0.050	0.0029	0	0.00051	0.051	0	0.005	92.20	0	29.38	92.55	0	29.43		
	A3	45.4	46.9	0.193	0	0.049	0.0032	0	0.00053	0.051	0	0.004	92.20	0	29.38	92.54	0	29.43		
	A4	45.4	46.9	0.187	0	0.050	0.0028	0	0.00043	0.062	0	0.006	92.20	0	29.38	92.56	0	29.43		
	A5	45.4	46.9	0.190	0	0.049	0.0032	0	0.00050	0.051	0	0.006	92.20	0	29.38	92.55	0	29.43		
	A6	45.4	46.9	0.192	0	0.048	0.0035	0	0.00053	0.061	0	0.006	92.20	0	29.38	92.54	0	29.43		
	A7	45.4	46.9	0.186	0	0.049	0.0025	0	0.00038	0.087	0	0.009	92.20	0	29.38	92.56	0	29.43		
	A8	45.4	46.9	0.187	0	0.048	0.0033	0	0.00047	0.083	0	0.009	92.20	0	29.38	92.55	0	29.43		
	A9	45.4	46.9	0.188	0	0.047	0.0035	0	0.00050	0.072	0	0.008	92.20	0	29.38	92.55	0	29.43		
8F	A1	51	52.5	0.151	0	0.038	0.0023	0	0.00031	0.111	0	0.011	92.20	0	29.38	92.54	0	29.43		
	A2	51	52.5	0.152	0	0.038	0.0024	0	0.00036	0.145	0	0.012	92.20	0	29.38	92.54	0	29.43		
	A3	51	52.5	0.151	0	0.037	0.0026	0	0.00040	0.232	0	0.011	92.20	0	29.38	92.53	0	29.42		
	A4	51	52.5	0.142	0	0.037	0.0020	0	0.00028	0.218	0	0.015	92.20	0	29.38	92.54	0	29.43		
	A5	51	52.5	0.146	0	0.037	0.0024	0	0.00034	0.137	0	0.014	92.20	0	29.38	92.54	0	29.43		
	A6	51	52.5	0.149	0	0.036	0.0028	0	0.00038	0.186	0	0.014	92.20	0	29.38	92.53	0	29.43		
	A7	51	52.5	0.142	0	0.036	0.0017	0	0.00024	0.507	0	0.029	92.20	0	29.38	92.54	0	29.44		
	A8	51	52.5	0.145	0	0.036	0.0023	0	0.00032	0.265	0	0.024	92.20	0	29.38	92.54	0	29.44		
	A9	51	52.5	0.148	0	0.035	0.0027	0	0.00036	0.225	0	0.019	92.20	0	29.38	92.54	0	29.43		
10F	A1	56.6	58.1	0.123	0	0.028	0.0017	0	0.00021	0.107	0	0.009	92.20	0	29.38	92.53	0	29.41		
	A2	56.6	58.1	0.124	0	0.028	0.0019	0	0.00025	0.096	0	0.009	92.20	0	29.38	92.53	0	29.41		
	A3	56.6	58.1	0.123	0	0.028	0.0020	0	0.00029	0.128	0	0.009	92.20	0	29.38	92.52	0	29.41		
	A4	56.6	58.1	0.115	0	0.028	0.0015	0	0.00018	0.178	0	0.013	92.20	0	29.38	92.53	0	29.42		
	A5	56.6	58.1	0.115	0	0.028	0.0017	0	0.00024	0.138	0	0.011	92.20	0	29.38	92.53	0	29.42		
	A6	56.6	58.1	0.116	0	0.027	0.0021	0	0.00028	0.107	0	0.011	92.20	0	29.38	92.52	0	29.41		
	A7	56.6	58.1	0.108	0	0.027	0.0012	0	0.00015	0.284	0	0.021	92.20	0	29.38	92.53	0	29.42		
	A8	56.6	58.1	0.113	0	0.027	0.0016	0	0.00022	0.219	0	0.020	92.20	0	29.38	92.53	0	29.42		
	A9	56.6	58.1	0.116	0	0.026	0.0020	0	0.00026	0.210	0	0.017	92.20	0	29.38	92.53	0	29.42		
12F	A1	62.2	63.7	0.102	0	0.021	0.0013	0	0.00014	0.036	0	0.004	92.20	0	29.38	92.52	0	29.40		
	A2	62.2	63.7	0.103	0	0.021	0.0015	0	0.00018	0.041	0	0.004	92.20	0	29.38	92.52	0	29.40		
	A3	62.2	63.7	0.104	0	0.021	0.0016	0	0.00022	0.040	0	0.003	92.20	0	29.38	92.52	0	29.40		
	A4	62.2	63.7	0.093	0	0.021	0.0010	0	0.00012	0.049	0	0.005	92.20	0	29.38	92.52	0	29.40		
	A5	62.2	63.7	0.093	0	0.021	0.0013	0	0.00017	0.042	0	0.005	92.20	0	29.38	92.52	0	29.40		
	A6	62.2	63.7	0.095	0	0.020	0.0016	0	0.00021	0.047	0	0.005	92.20	0	29.38	92.52	0	29.40		
	A7	62.2	63.7	0.082	0	0.020	0.0008	0	0.00010	0.062	0	0.007	92.20	0	29.38	92.52	0	29.40		
	A8	62.2	63.7	0.086	0	0.020	0.0011	0	0.00015	0.061	0	0.007	92.20	0	29.38	92.52	0	29.40		
	A9	62.2	63.7	0.090	0	0.020	0.0015	0	0.00019	0.056	0	0.007	92.20	0	29.38	92.52	0	29.40		
14F	A1	67.8	69.3	0.084	0	0.016	0.0009	0	0.00010	0.021	0	0.003	92.20	0	29.38	92.52	0	29.39		
	A2	67.8	69.3	0.084	0	0.016	0.0011	0	0.00013	0.019	0	0.003	92.20	0	29.38	92.51	0	29.39		
	A3	67.8	69.3	0.085	0	0.016	0.0013	0	0.00016	0.018	0	0.002	92.20	0	29.38	92.51	0	29.39		
	A4	67.8	69.3	0.076	0	0.015	0.0007	0	0.00008	0.024	0	0.004	92.20	0	29.38	92.52	0	29.40		
	A5	67.8	69.3	0.077	0	0.015	0.0010	0	0.00012	0.023	0	0.003	92.20	0	29.38	92.52	0	29.39		
	A6	67.8	69.3	0.078	0	0.015	0.0012	0	0.00015	0.022	0	0.003	92.20	0	29.38	92.51	0	29.39		
	A7	67.8	69.3	0.066	0	0.015	0.0006	0	0.00007	0.025	0	0.005	92.20	0	29.38	92.52	0	29.40		
	A8	67.8	69.3	0.068	0	0.015	0.0009	0	0.00010	0.026	0	0.005	92.20	0	29.38	92.52	0	29.40		
	A9	67.8	69.3	0.071	0	0.015	0.0011	0	0.00014	0.027	0	0.005	92.20	0	29.38	92.51	0	29.40		

Floor	ASR	Height (mPD)	Height (mPD) + 1.5m	Concentration (µg/m³) FSP – Vehicles Emission			Tunnel Portal			Chinmeys			Background			Total		
				Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual	Daily	Exceedance	Annual
16F	A1	73.4	74.9	0.067	0	0.012	0.0007	0	0.00007	0.014	0	0.002	92.20	0	29.38	92.51	0	29.39
	A2	73.4	74.9	0.070	0	0.012	0.0009	0	0.00009	0.013	0	0.002	92.20	0	29.38	92.51	0	29.39
	A3	73.4	74.9	0.072	0	0.012	0.0010	0	0.00012	0.012	0	0.002	92.20	0	29.38	92.51	0	29.39
	A4	73.4	74.9	0.061	0	0.011	0.0005	0	0.00006	0.015	0	0.003	92.20	0	29.38	92.51	0	29.39
	A5	73.4	74.9	0.065	0	0.011	0.0008	0	0.00008	0.015	0	0.003	92.20	0	29.38	92.51	0	29.39
	A6	73.4	74.9	0.065	0	0.011	0.0010	0	0.00011	0.015	0	0.003	92.20	0	29.38	92.51	0	29.39
	A7	73.4	74.9	0.053	0	0.011	0.0004	0	0.00004	0.019	0	0.004	92.20	0	29.38	92.51	0	29.39
	A8	73.4	74.9	0.055	0	0.011	0.0006	0	0.00007	0.020	0	0.004	92.20	0	29.38	92.51	0	29.39
	A9	73.4	74.9	0.058	0	0.011	0.0008	0	0.00010	0.019	0	0.004	92.20	0	29.38	92.51	0	29.39
18F	A1	79	80.5	0.054	0	0.009	0.0005	0	0.00005	0.010	0	0.002	92.20	0	29.38	92.51	0	29.39
	A2	79	80.5	0.057	0	0.009	0.0007	0	0.00007	0.009	0	0.002	92.20	0	29.38	92.51	0	29.39
	A3	79	80.5	0.059	0	0.009	0.0008	0	0.00009	0.009	0	0.002	92.20	0	29.38	92.51	0	29.39
	A4	79	80.5	0.050	0	0.008	0.0004	0	0.00004	0.012	0	0.003	92.20	0	29.38	92.51	0	29.39
	A5	79	80.5	0.052	0	0.008	0.0006	0	0.00006	0.011	0	0.002	92.20	0	29.38	92.51	0	29.39
	A6	79	80.5	0.053	0	0.009	0.0008	0	0.00008	0.010	0	0.002	92.20	0	29.38	92.51	0	29.39
	A7	79	80.5	0.044	0	0.008	0.0003	0	0.00003	0.015	0	0.004	92.20	0	29.38	92.51	0	29.39
	A8	79	80.5	0.045	0	0.008	0.0005	0	0.00005	0.015	0	0.004	92.20	0	29.38	92.51	0	29.39
	A9	79	80.5	0.047	0	0.008	0.0006	0	0.00008	0.014	0	0.003	92.20	0	29.38	92.51	0	29.39
20F	A1	84.6	86.1	0.044	0	0.006	0.0004	0	0.00004	0.007	0	0.002	92.20	0	29.38	92.51	0	29.38
	A2	84.6	86.1	0.045	0	0.006	0.0005	0	0.00005	0.007	0	0.002	92.20	0	29.38	92.51	0	29.38
	A3	84.6	86.1	0.048	0	0.006	0.0007	0	0.00007	0.008	0	0.001	92.20	0	29.38	92.50	0	29.38
	A4	84.6	86.1	0.041	0	0.006	0.0003	0	0.00003	0.010	0	0.002	92.20	0	29.38	92.51	0	29.38
	A5	84.6	86.1	0.043	0	0.006	0.0004	0	0.00005	0.009	0	0.002	92.20	0	29.38	92.51	0	29.38
	A6	84.6	86.1	0.043	0	0.006	0.0006	0	0.00006	0.009	0	0.002	92.20	0	29.38	92.50	0	29.38
	A7	84.6	86.1	0.035	0	0.006	0.0003	0	0.00002	0.013	0	0.003	92.20	0	29.38	92.51	0	29.39
	A8	84.6	86.1	0.037	0	0.006	0.0003	0	0.00004	0.012	0	0.003	92.20	0	29.38	92.51	0	29.39
	A9	84.6	86.1	0.038	0	0.006	0.0005	0	0.00006	0.012	0	0.003	92.20	0	29.38	92.50	0	29.38
23F	A1	93	94.5	0.031	0	0.004	0.0003	0	0.00002	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A2	93	94.5	0.034	0	0.004	0.0003	0	0.00003	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A3	93	94.5	0.035	0	0.004	0.0005	0	0.00005	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A4	93	94.5	0.029	0	0.004	0.0002	0	0.00002	0.007	0	0.002	92.20	0	29.38	92.50	0	29.38
	A5	93	94.5	0.030	0	0.004	0.0003	0	0.00003	0.008	0	0.002	92.20	0	29.38	92.50	0	29.38
	A6	93	94.5	0.033	0	0.004	0.0004	0	0.00004	0.007	0	0.002	92.20	0	29.38	92.50	0	29.38
	A7	93	94.5	0.025	0	0.004	0.0002	0	0.00001	0.009	0	0.002	92.20	0	29.38	92.50	0	29.38
	A8	93	94.5	0.027	0	0.004	0.0002	0	0.00002	0.009	0	0.002	92.20	0	29.38	92.50	0	29.38
	A9	93	94.5	0.028	0	0.004	0.0003	0	0.00004	0.010	0	0.002	92.20	0	29.38	92.50	0	29.38
26F	A1	101.4	102.9	0.022	0	0.002	0.0002	0	0.00002	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A2	101.4	102.9	0.023	0	0.003	0.0002	0	0.00002	0.005	0	0.001	92.20	0	29.38	92.50	0	29.38
	A3	101.4	102.9	0.026	0	0.003	0.0003	0	0.00003	0.005	0	0.001	92.20	0	29.38	92.50	0	29.38
	A4	101.4	102.9	0.020	0	0.002	0.0002	0	0.00001	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A5	101.4	102.9	0.022	0	0.002	0.0002	0	0.00002	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A6	101.4	102.9	0.024	0	0.003	0.0003	0	0.00003	0.006	0	0.001	92.20	0	29.38	92.50	0	29.38
	A7	101.4	102.9	0.018	0	0.002	0.0001	0	0.00001	0.007	0	0.002	92.20	0	29.38	92.50	0	29.38
	A8	101.4	102.9	0.019	0	0.002	0.0002	0	0.00002	0.008	0	0.002	92.20	0	29.38	92.50	0	29.38
	A9	101.4	102.9	0.020	0	0.002	0.0002	0	0.00003	0.008	0	0.002	92.20	0	29.38	92.50	0	29.38
Max				0.86	0	0.39	0.07	0	0.01	0.51	0	0.03	92.20	0	29.38	92.82	0	29.78
														Standard		75.00	9	35.00

Note:
Cell in Grey means exceedance

Appendix 2d:
Emission Rate Calculation for Portal Emission

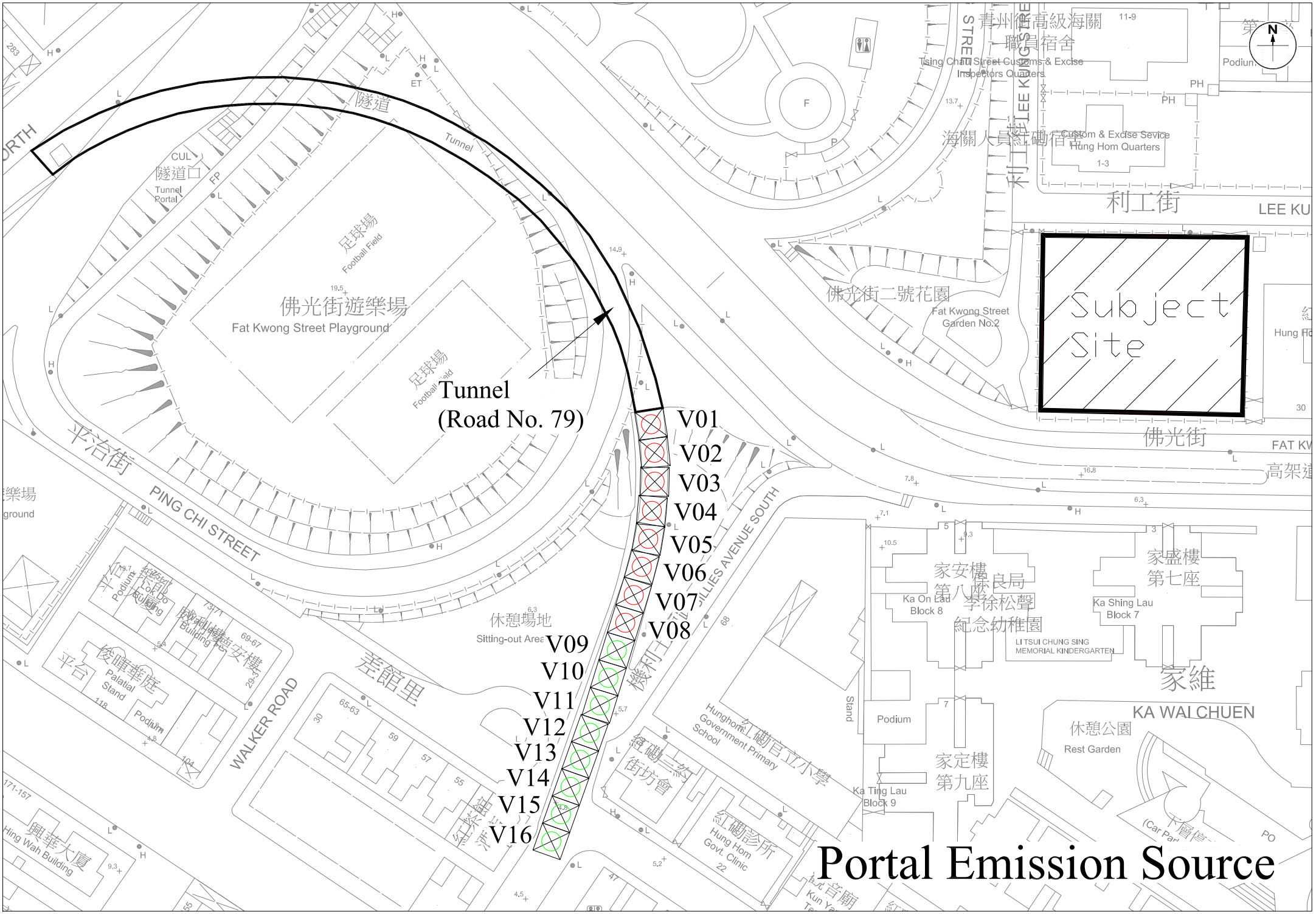

Tunnel
(Road No. 79)
V01
V02
V03
V04
V05
V06
V07
V08
V09
V10
V11
V12
V13
V14
V15
V16
Subject Site
Portal Emission Source
隧道
Tunnel
Tunnel Portal
隧道口
佛光街遊樂場
Fat Kwong Street Playground
足球場
Football Field
佛光街二號花園
Fat Kwong Street Garden No.2
利工街
LEE KUNG STREET
佛光街
FAT KWONG STREET
平治街
PING CHI STREET
WALKER ROAD
差館里
JILLIES AVENUE SOUTH
休憩場地
Sitting-out Area
青洲街高級海關職員宿舍
Tsing Chau Street Customs & Excise Inspectors Quarters
海關人員宿舍
Custom & Excise Sevice Hung Hom Quarters
家安樓
第八座
Ka On Lau Block 8
家良局
李徐松聲紀念幼稚園
LI TSUI CHUNG SING MEMORIAL KINDERGARTEN
家盛樓
第七座
Ka Shing Lau Block 7
家維
KA WAI CHUEN
家定樓
第九座
Ka Ting Lau Block 9
休憩公園
Rest Garden
Hunghom Government Primary School
紅磡官立小學
紅磡診所
Hung Hom Govt. Clinic
興華大廈
Hing Wah Building
俊暉華庭
Palatial Stand
Podium
Stand
Car Park
PO

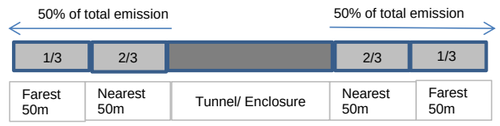
Table 1

Road No.	Hour	Length (km)	Total Vehicle (veh/hr)	NOx emission rate generated from EMFACHK HK(g/veh/mile)	NOx emission rate generated from EMFACHK (g/veh/km)	Calculated NOx emission rate (g/s) ^	No2 (g/s)	% of the maximum emission rate $	NOx (g/s) : nearest 50m - 2/3 of the total emission rate (for V01 - V08)	NOx (g/s) : farest 50m - 1/3 of the total emission rate (for V09 - V16)	PM10 emission rate generated from EMFAC (g/veh/mile)	PM10 emission rate generated from EMFAC (g/veh/km)	Calculated PM10 emission rate (g/s) ^	% of the maximum emission rate $	PM10 (g/s) : nearest 50m - 2/3 of the total emission rate (for V01 - V08)	PM10 (g/s) : farest 50m - 1/3 of the total emission rate (for V09 - V16)	PM2.5 emission rate generated from EMFAC (g/veh/mile)	PM2.5 emission rate generated from EMFAC (g/veh/km)	Calculated PM2.5 emission rate (g/s) ^	% of the maximum emission rate $	PM2.5 (g/s) : nearest 50m - 2/3 of the total emission rate (for V01 - V08)	PM2.5 (g/s) : farest 50m - 1/3 of the total emission rate (for V09 - V16)
79	00:00-01:00	0.163	757	0.92368751	0.5740	0.010	0.002	34%	0.0008	0.0004	0.0171	0.0107	1.83E-04	29%	1.52E-05	7.61E-06	0.0156	0.0097	1.66E-04	29%	1.38E-05	6.91E-06
79	01:00-02:00	0.163	616	0.84167149	0.5230	0.007	0.001	25%	0.0006	0.0003	0.0136	0.0084	1.18E-04	19%	9.82E-06	4.91E-06	0.0123	0.0076	1.06E-04	19%	8.87E-06	4.44E-06
79	02:00-03:00	0.163	523	0.86732037	0.5389	0.006	0.001	22%	0.0005	0.0003	0.0147	0.0091	1.08E-04	17%	9.00E-06	4.50E-06	0.0133	0.0083	9.78E-05	17%	8.15E-06	4.07E-06
79	03:00-04:00	0.163	457	0.88587973	0.5505	0.006	0.001	19%	0.0005	0.0002	0.0156	0.0097	1.00E-04	16%	8.36E-06	4.18E-06	0.0142	0.0088	9.12E-05	16%	7.60E-06	3.80E-06
79	04:00-05:00	0.163	475	0.91089966	0.5660	0.006	0.001	21%	0.0005	0.0003	0.0169	0.0105	1.13E-04	18%	9.43E-06	4.71E-06	0.0153	0.0095	1.03E-04	18%	8.54E-06	4.27E-06
79	05:00-06:00	0.163	411	1.19497065	0.7425	0.007	0.001	24%	0.0006	0.0003	0.0303	0.0188	1.75E-04	28%	1.46E-05	7.30E-06	0.0276	0.0172	1.60E-04	28%	1.33E-05	6.66E-06
79	06:00-07:00	0.163	715	1.16076495	0.7213	0.012	0.002	40%	0.0010	0.0005	0.0280	0.0174	2.82E-04	45%	2.35E-05	1.17E-05	0.0256	0.0159	2.57E-04	45%	2.14E-05	1.07E-05
79	07:00-08:00	0.163	908	1.30763704	0.8125	0.017	0.003	57%	0.0014	0.0007	0.0310	0.0193	3.96E-04	63%	3.30E-05	1.65E-05	0.0284	0.0176	3.63E-04	64%	3.02E-05	1.51E-05
79	08:00-09:00	0.163	1177	1.30136969	0.8086	0.022	0.004	74%	0.0018	0.0009	0.0284	0.0177	4.71E-04	75%	3.92E-05	1.96E-05	0.0259	0.0161	4.28E-04	76%	3.57E-05	1.78E-05
79	09:00-10:00	0.163	1023	1.37568985	0.8548	0.020	0.004	68%	0.0017	0.0008	0.0291	0.0181	4.19E-04	67%	3.49E-05	1.75E-05	0.0266	0.0165	3.83E-04	68%	3.19E-05	1.59E-05
79	10:00-11:00	0.163	1051	1.22847115	0.7633	0.018	0.004	62%	0.0015	0.0008	0.0265	0.0165	3.92E-04	63%	3.26E-05	1.63E-05	0.0242	0.0150	3.57E-04	63%	2.98E-05	1.49E-05
79	11:00-12:00	0.163	1234	1.32675024	0.8244	0.023	0.005	79%	0.0019	0.0010	0.0277	0.0172	4.80E-04	77%	4.00E-05	2.00E-05	0.0252	0.0157	4.38E-04	77%	3.65E-05	1.83E-05
79	12:00-13:00	0.163	1111	1.30453423	0.8106	0.020	0.004	70%	0.0017	0.0008	0.0272	0.0169	4.26E-04	68%	3.55E-05	1.77E-05	0.0249	0.0154	3.89E-04	69%	3.24E-05	1.62E-05
79	13:00-14:00	0.163	1264	1.39246952	0.8652	0.025	0.005	85%	0.0021	0.0010	0.0322	0.0200	5.72E-04	92%	4.77E-05	2.38E-05	0.0294	0.0183	5.23E-04	92%	4.36E-05	2.18E-05
79	14:00-15:00	0.163	1394	1.29132399	0.8024	0.025	0.005	86%	0.0021	0.0011	0.0299	0.0186	5.87E-04	94%	4.89E-05	2.45E-05	0.0273	0.0170	5.36E-04	94%	4.46E-05	2.23E-05
79	15:00-16:00	0.163	1375	1.43984145	0.8947	0.028	0.006	95%	0.0023	0.0012	0.0305	0.0190	5.90E-04	94%	4.92E-05	2.46E-05	0.0279	0.0173	5.39E-04	95%	4.49E-05	2.25E-05
79	16:00-17:00	0.163	1422	1.40097713	0.8705	0.028	0.006	96%	0.0023	0.0012	0.0304	0.0189	6.08E-04	97%	5.07E-05	2.54E-05	0.0276	0.0171	5.52E-04	97%	4.60E-05	2.30E-05
79	17:00-18:00	0.163	1511	1.37752069	0.8560	**0.029**	**0.006**	**100%**	**0.0024***	**0.0012***	0.0294	0.0183	**6.25E-04**	**100%**	**5.21E-05***	**2.61E-05***	0.0267	0.0166	**5.67E-04**	**100%**	**4.73E-05***	**2.36E-05***
79	18:00-19:00	0.163	1648	1.19261709	0.7411	0.028	0.006	94%	0.0023	0.0012	0.0252	0.0156	5.84E-04	93%	4.87E-05	2.43E-05	0.0227	0.0141	5.26E-04	93%	4.38E-05	2.19E-05
79	19:00-20:00	0.163	1423	1.04065054	0.6466	0.021	0.004	71%	0.0017	0.0009	0.0225	0.0140	4.50E-04	72%	3.75E-05	1.88E-05	0.0203	0.0126	4.07E-04	72%	3.39E-05	1.70E-05
79	20:00-21:00	0.163	1371	1.01351772	0.6298	0.020	0.004	67%	0.0016	0.0008	0.0208	0.0129	4.01E-04	64%	3.34E-05	1.67E-05	0.0188	0.0117	3.62E-04	64%	3.02E-05	1.51E-05
79	21:00-22:00	0.163	1206	0.84403005	0.5245	0.014	0.003	49%	0.0012	0.0006	0.0166	0.0103	2.81E-04	45%	2.34E-05	1.17E-05	0.0149	0.0093	2.54E-04	45%	2.11E-05	1.06E-05
79	22:00-23:00	0.163	1109	0.86866583	0.5398	0.014	0.003	46%	0.0011	0.0006	0.0157	0.0098	2.46E-04	39%	2.05E-05	1.02E-05	0.0142	0.0088	2.21E-04	39%	1.84E-05	9.22E-06
79	23:00-24:00	0.163	869	0.85483862	0.5312	0.010	0.002	36%	0.0009	0.0004	0.0174	0.0108	2.12E-04	34%	1.77E-05	8.85E-06	0.0157	0.0098	1.92E-04	34%	1.60E-05	7.99E-06

Note:
* Maximum emission rate inputted in the ISCST model.
$ For the emission rate other than the maximum emission rate, % of the maximum emission rate inputted in the ISCST model.
^ According to PIARC 91, it is assumed each portal of the tunnel would emit 1/2 of the total emission.

Dimension of the tunnel:

Length of Tunnel =	0.163	km
Width of Tunnel =	6	m
Height of Tunnel =	8	m



Portal Emission at each Side:

Assuming that :

1. Distance of influence, m = **100**
2. % of pollutants emitted from the portal = **100%**
3. Pollutants emitted as VOLUME source from the portal of the Decking-over
4. It is assumed that **2/3 of the emissions** is to accumulate in the **nearest 50 meters** from the portal, and the concentrations of pollutants are distributed uniformly.
5. It is assumed that **1/3 of the emissions** is to accumulate in the **farest 50 meters** from the portal, and the concentrations of pollutants are distributed uniformly.

Calculated ISCST input data:

Release Height, m =	4	= "Height of Tunnel" / 2
Initial Lateral Dimension, m =	2.7907	= "Width of tunnel" / 2.15
Initial Vertical Dimension, m =	3.7209	= "Height of tunnel" / 2.15

Emissions from portals were predicted assuming the emissions behave a volume sources in accordance with the recommendations in the 1991 Permanent International Association of Road Congress Report (1991 PIARC Report) as adopted in Route 3 Tai Lam Tunnel & Yuen Long Approach Northern Section - Volume 1 Detailed Environmental Impact Assessment - Final Report

Table 2
Emission Rate Calculation for Portal Emission

ID	X	Y	Elevation	Height	X-D	Y-D	Nox	PM10	PM2.5
							Emission Rate		
V01	837149.7	818887.1	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V02	837150.4	818881.1	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V03	837150.4	818875.1	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V04	837149.8	818869.0	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V05	837149.1	818863.2	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V06	837147.7	818857.4	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V07	837146.1	818851.5	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V08	837144.3	818845.7	5.7	4	2.7907	3.7209	0.0024	5.21E-05	4.73E-05
V09	837142.5	818840.0	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V10	837140.8	818834.2	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V11	837139.0	818828.5	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V12	837136.9	818822.8	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V13	837134.9	818817.1	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V14	837132.9	818811.5	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V15	837130.9	818805.8	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05
V16	837128.9	818800.2	5.7	4	2.7907	3.7209	0.0012	2.61E-05	2.36E-05

Appendix 2e:
Emission Rate Calculation for Chimneys

Emission Rate Calculation for Chimneys

NUM	CHIM_GX	CHIM_GY	GroundPD	HEIGHTAG(m)	TOPDIA (mm)	GTEMP_EXIT (K)	GO_MRATE (L/hr)	Dia (m)	Exit vel (m/s)	NO2 Emission Rate(g/s)	PM10 Emission Rate(g/s)	FSP Emission Rate(g/s)	SO2 Emission Rate(g/s)
S1	837412	818790	6	46.3	330	326	135.6	0.33	4.3	9.04E-02	4.52E-03	1.13E-03	3.16E-03
S2	837412	818800	6	46.3	460	308	132.4	0.46	9.1	8.83E-02	4.41E-03	1.10E-03	3.09E-03

NO2 Emission rate = Fuel Consumption Rate * Emission Factor
Emission factor of NOx = 2.4g/L, which is made reference to AP42 Chapter 1.3 Table 1.3.1

PM10 Emission rate = Fuel Consumption Rate * Emission Factor
Emission factor of PM10 = 1lb/1000gal = 0.12g/L, which is made reference to AP42 Chapter 1.3 Table 1.3-6

FSP Emission rate = Fuel Consumption Rate * Emission Factor
Emission factor of FSP = 0.25lb/1000gal = 0.03g/L, which is made reference to AP42 Chapter 1.3 Table 1.3-6

SO2 Emission rate = Fuel Consumption Rate * sulphur content /molar mass of S * molar mass of SO2 (as a conservative approach, 0.005% sulphur content is assumed)
According to the latest Air Pollution (Fuel Restriction) Regulation, the sulphur content of liquid fuel is not allowed to exceed 0.005% or a viscosity of more than 6 centistokes at 40oC

Appendix 2f:
Predicted Air Quality Concentration Contour Plot
at 32.9mPD (31.4mPD+1.5m)

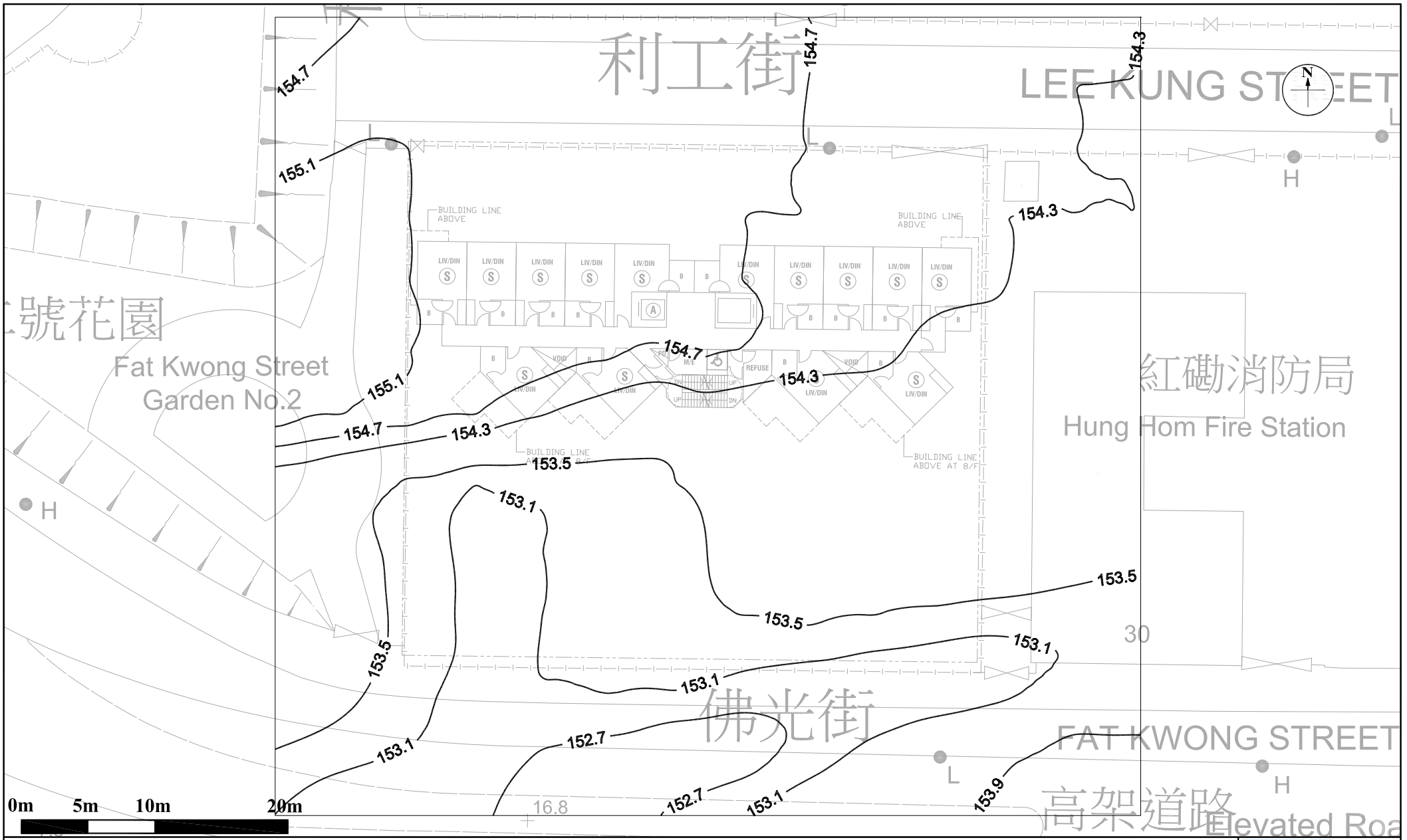


Figure: C1	RAMBOLL ENVIRON
Title: Predicted Cumulative 19th Hourly NO_2 Pollutant Contour at 32.9mPD (31.4mPD+1.5m) (Criteria : 200 µg/m³)	Drawn by: CC Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

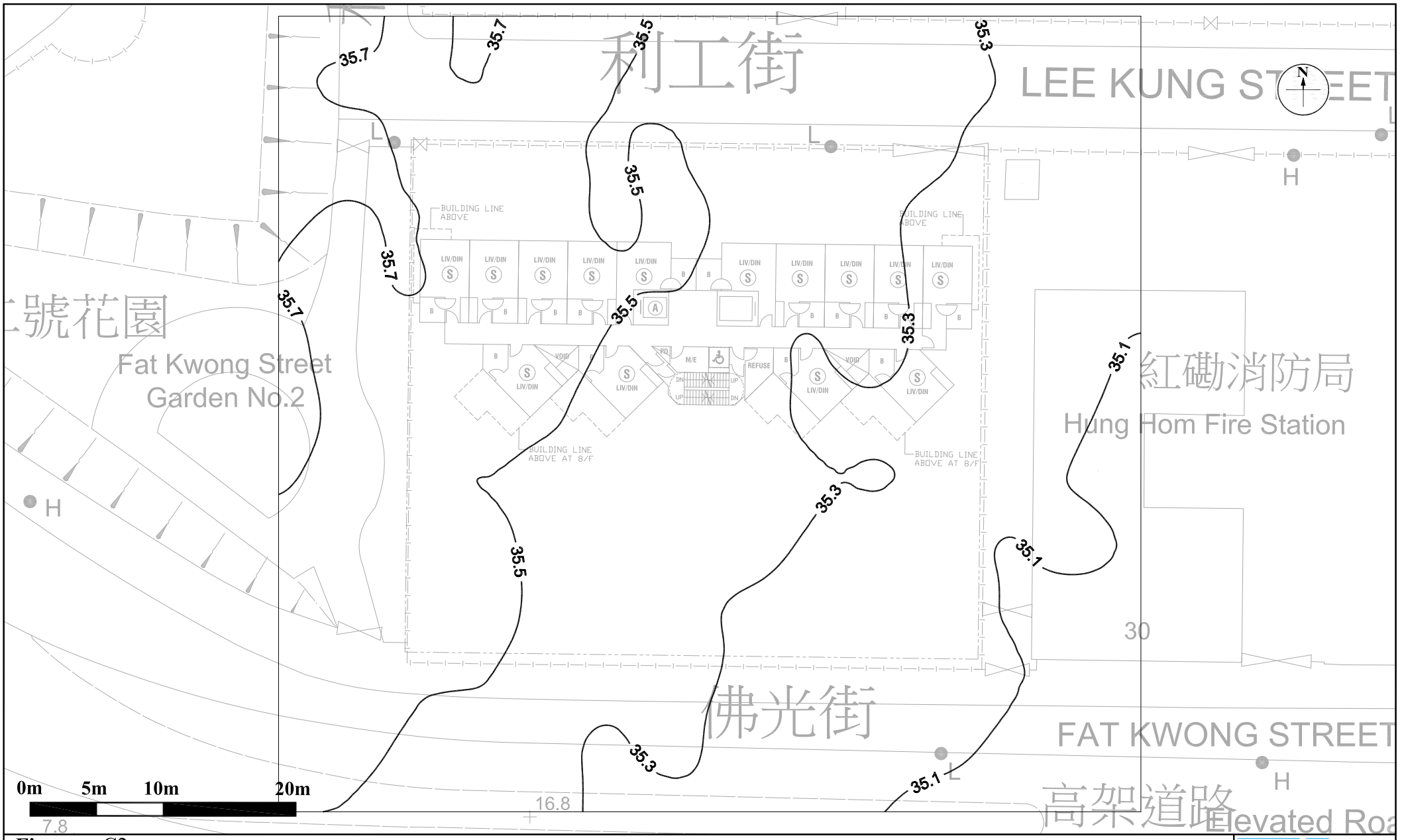


Figure: C2	RAMBOLL ENVIRON
Title: Predicted Cumulative Annual NO_2 Pollutant Contour at 32.9mPD (31.4mPD+1.5m) (Criteria : 40 µg/m³)	Drawn by: CC Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

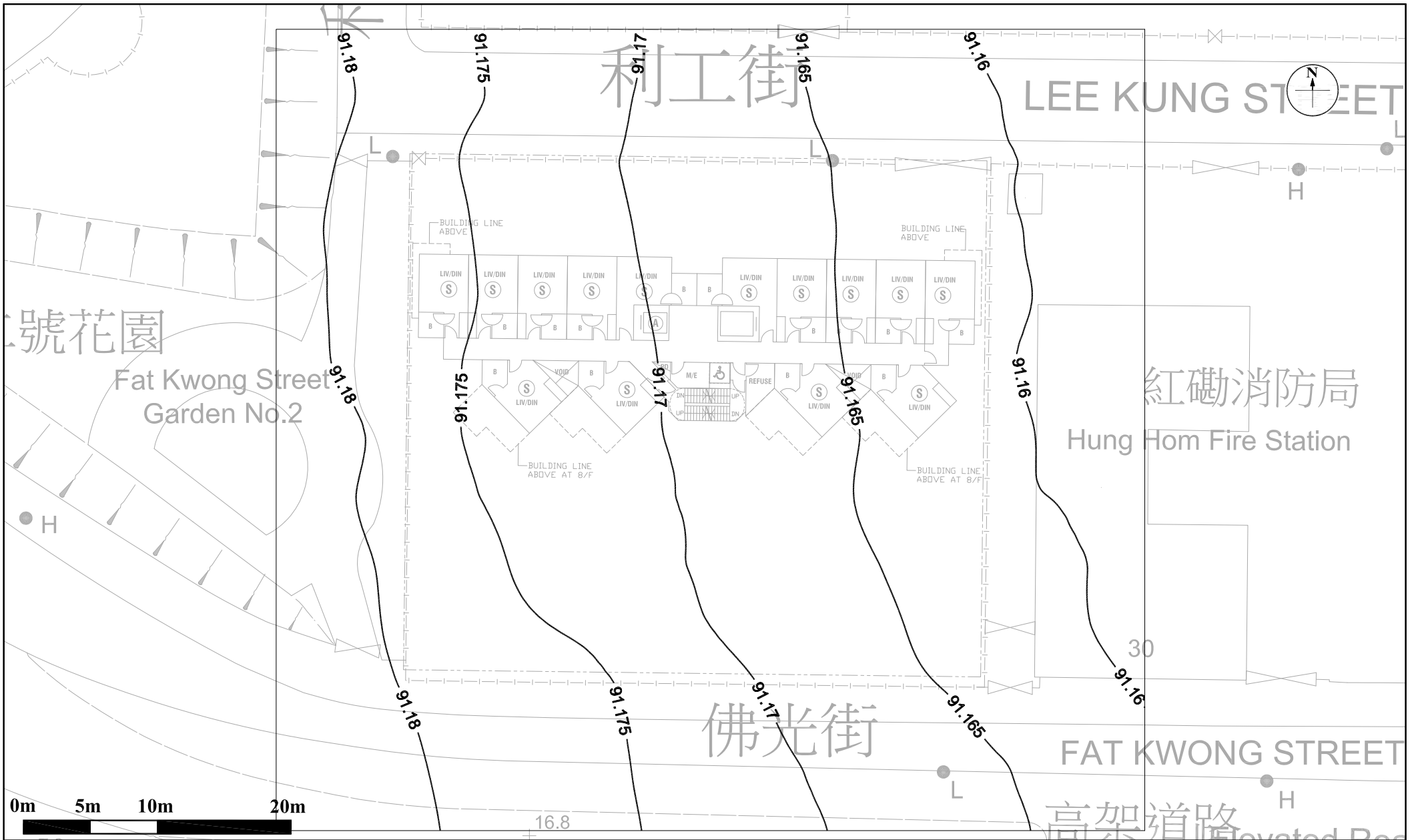


Figure: C3	RAMBOLL ENVIRON
Title: Predicted Cumulative 10th Daily PM10 Pollutant Contour at 32.9mPD (31.4mPD+1.5m) (Criteria : 100 µg/m³)	Drawn by: CC Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

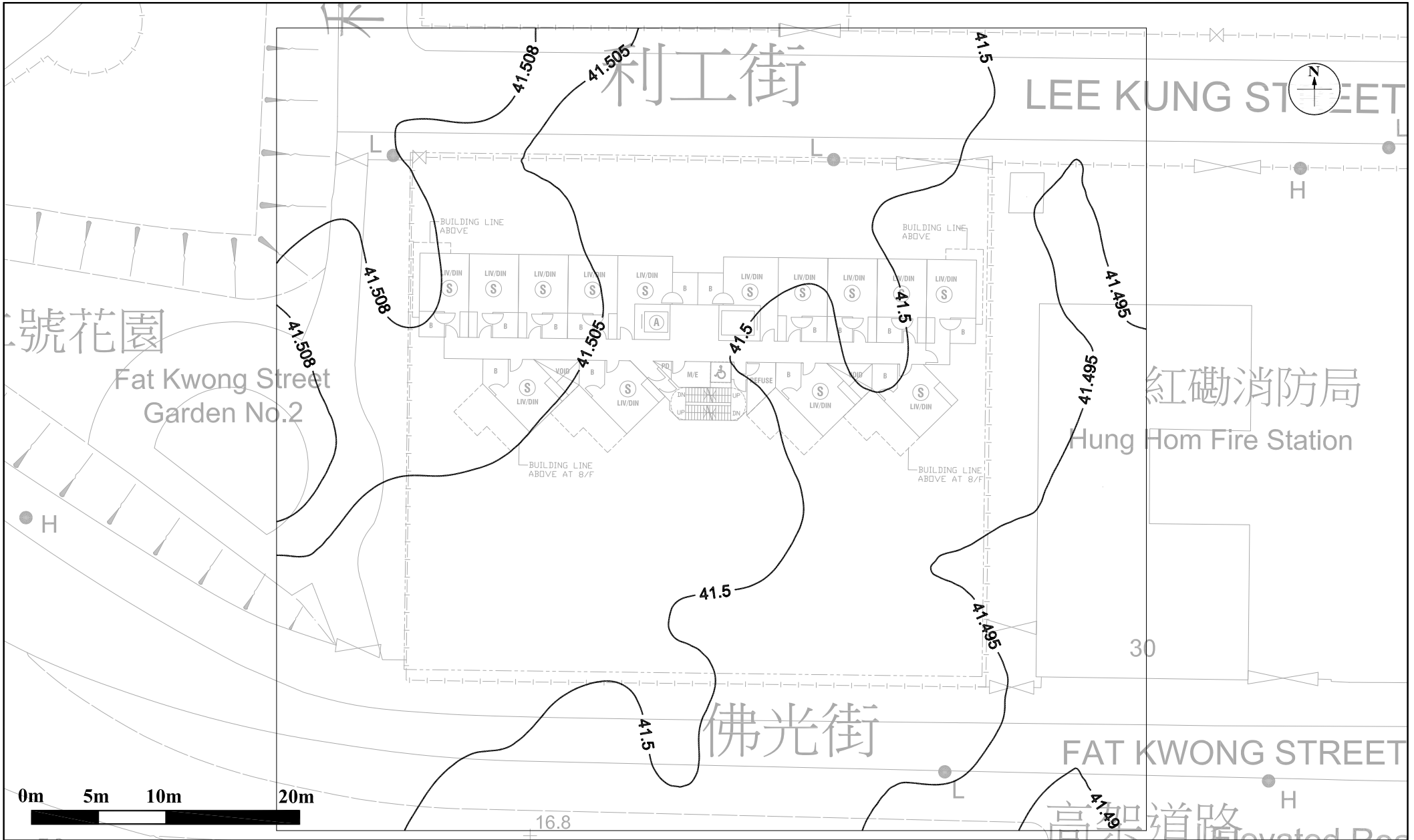


Figure: C4	RAMBOLL ENVIRON
Title: Predicted Cumulative Annual PM10 Pollutant Contour at 32.9mPD (31.4mPD+1.5m) (Criteria : 50 µg/m³)	Drawn by: CC Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

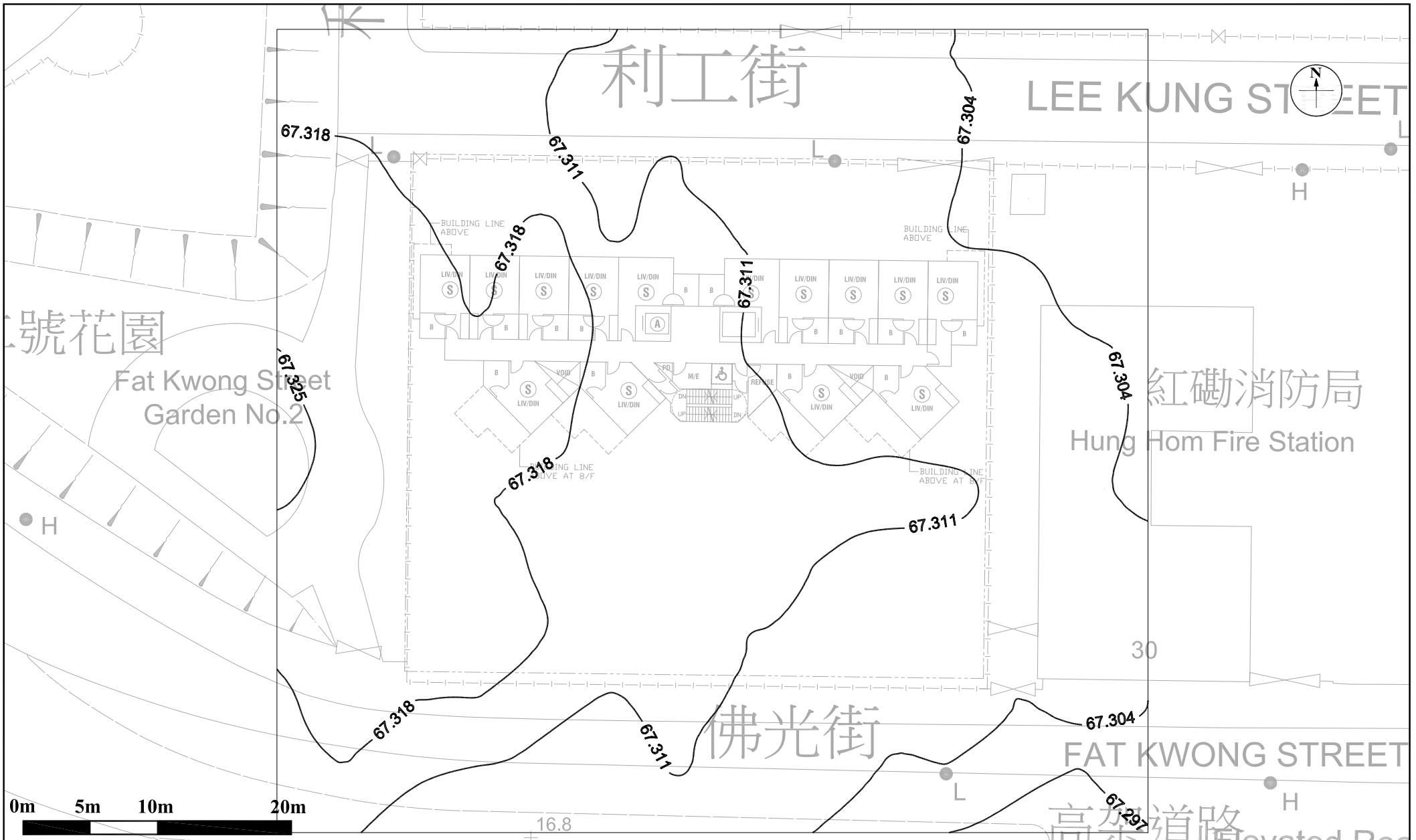


Figure: C5	RAMBOLL ENVIRON
Title: Predicted Cumulative 10th Daily PM2.5 Pollutant Contour at 32.9mPD (31.4mPD+1.5m) (Criteria : 75 µg/m³)	Drawn by: CC Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

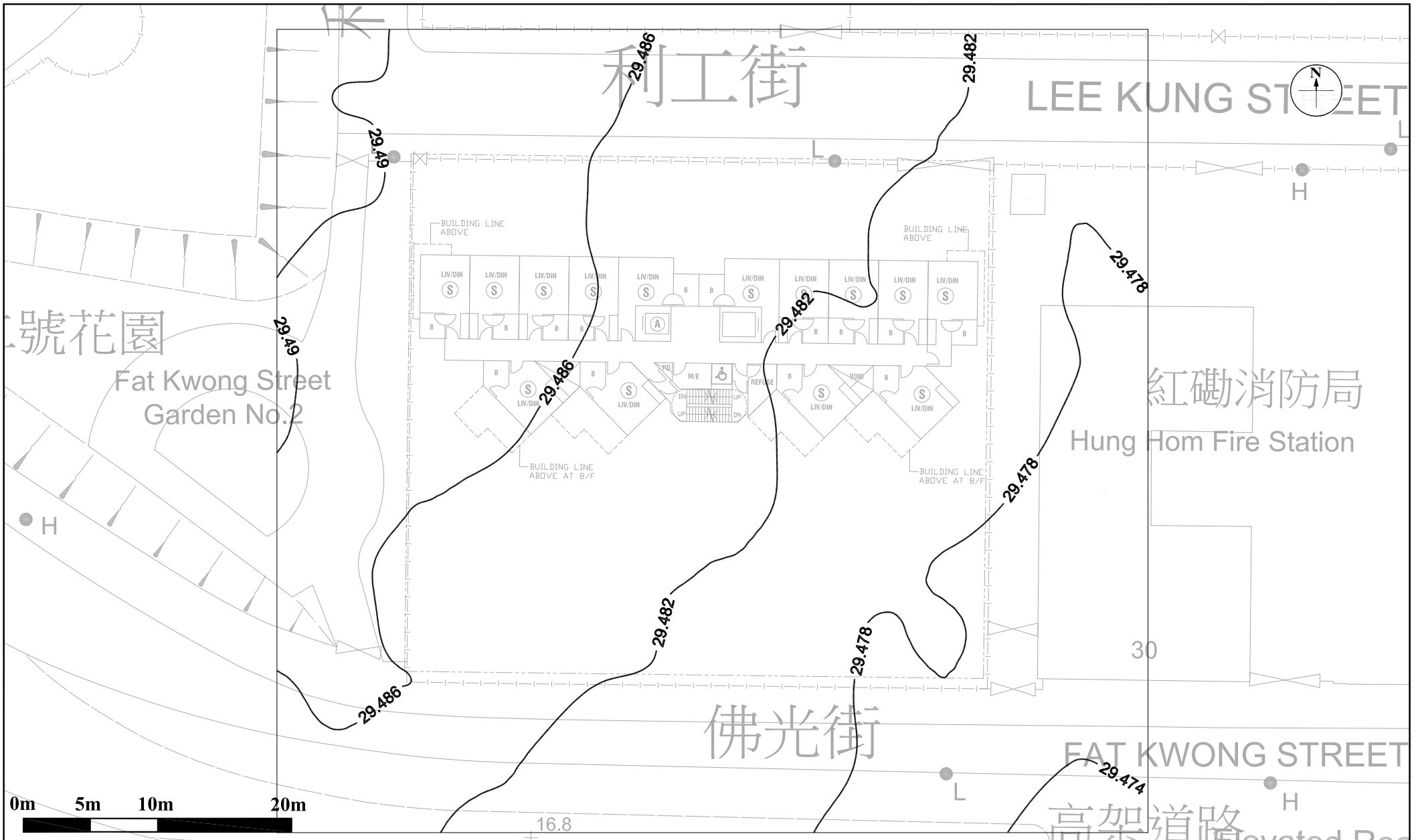


Figure: C6	RAMBOLL ENVIRON
Title: Predicted Cumulative Annual PM2.5 Pollutant Contour at 32.9mPD (31.4mPD+1.5m) (Criteria : 35 µg/m³)	Drawn by: CC Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

Appendix 2g:
Predicted Air Quality Concentration Contour Plot
at 8mPD (6.5mPD+1.5m)

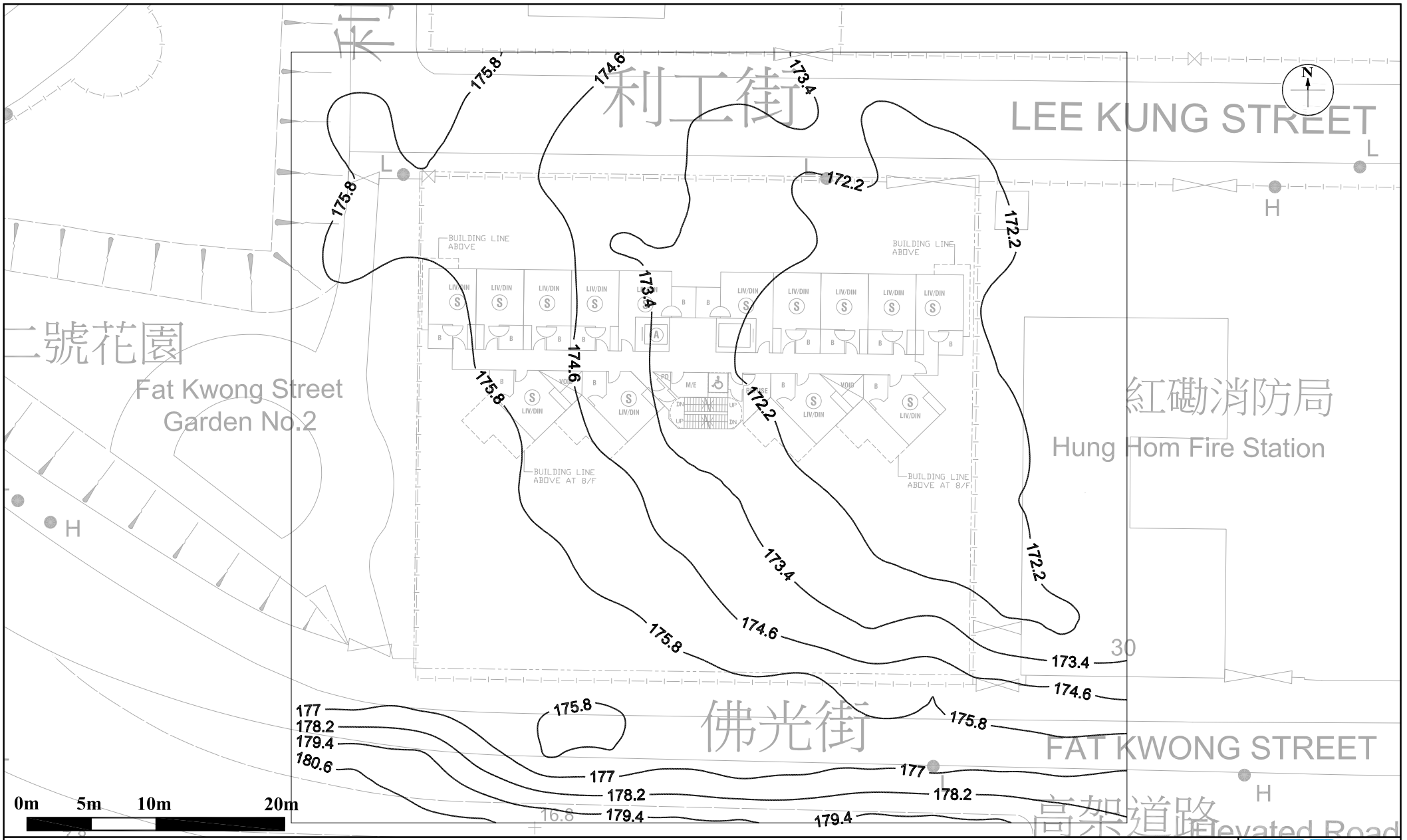


Figure: C7

Title: Predicted Cumulative 19th Hourly NO_2 Pollutant Contour at 8mPD (6.5mPD+1.5m) (Criteria : 200 µg/m³)

Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

RAMBOLL ENVIRON

Drawn by:	WT
Checked by:	TC
Rev.:	1.7
Date:	Jul 2016

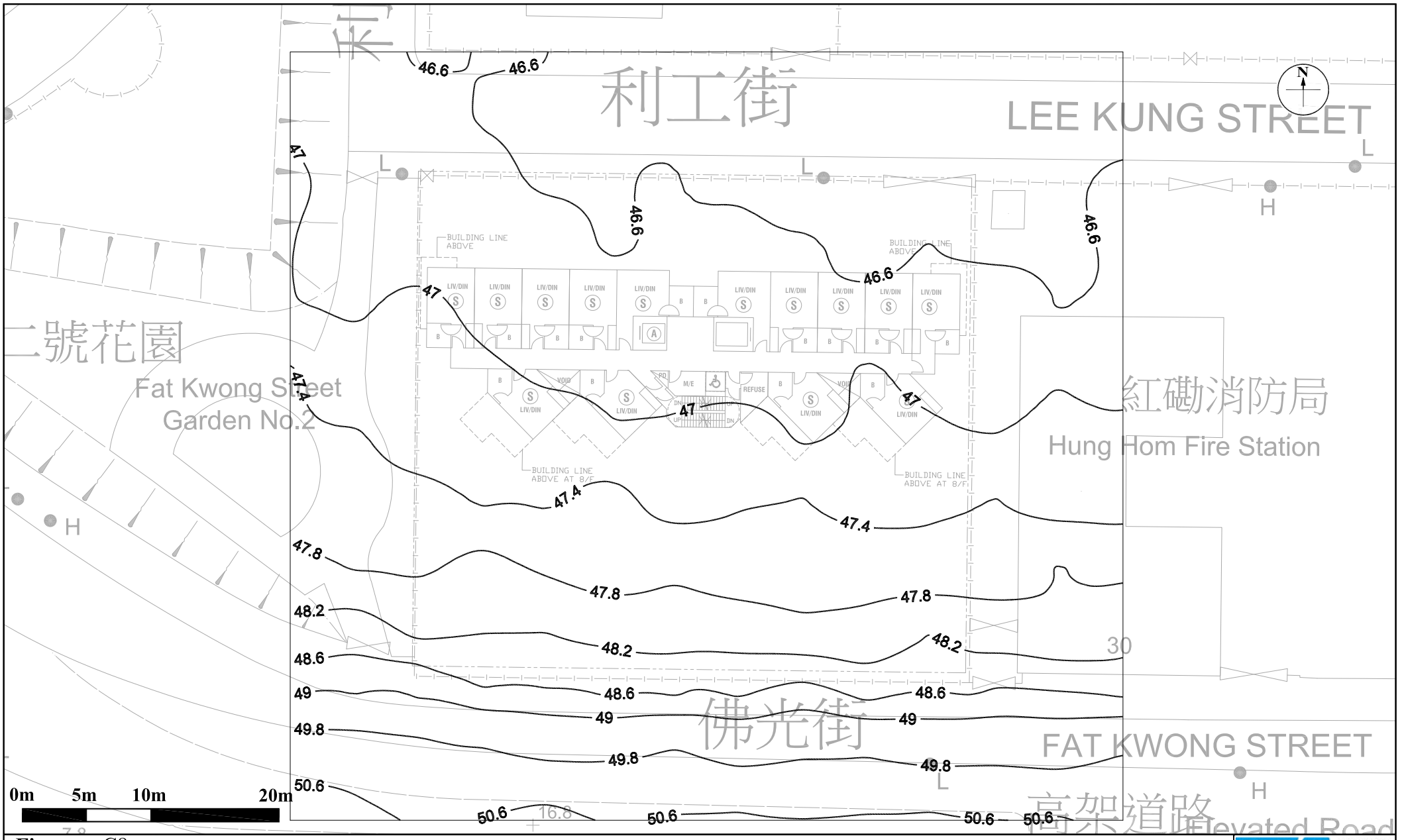


Figure: C8	RAMBOLL ENVIRON
Title: Predicted Cumulative Annual NO_2 Pollutant Contour at 8mPD (6.5mPD+1.5m) (Criteria : 40 µg/m³)	Drawn by: WT Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

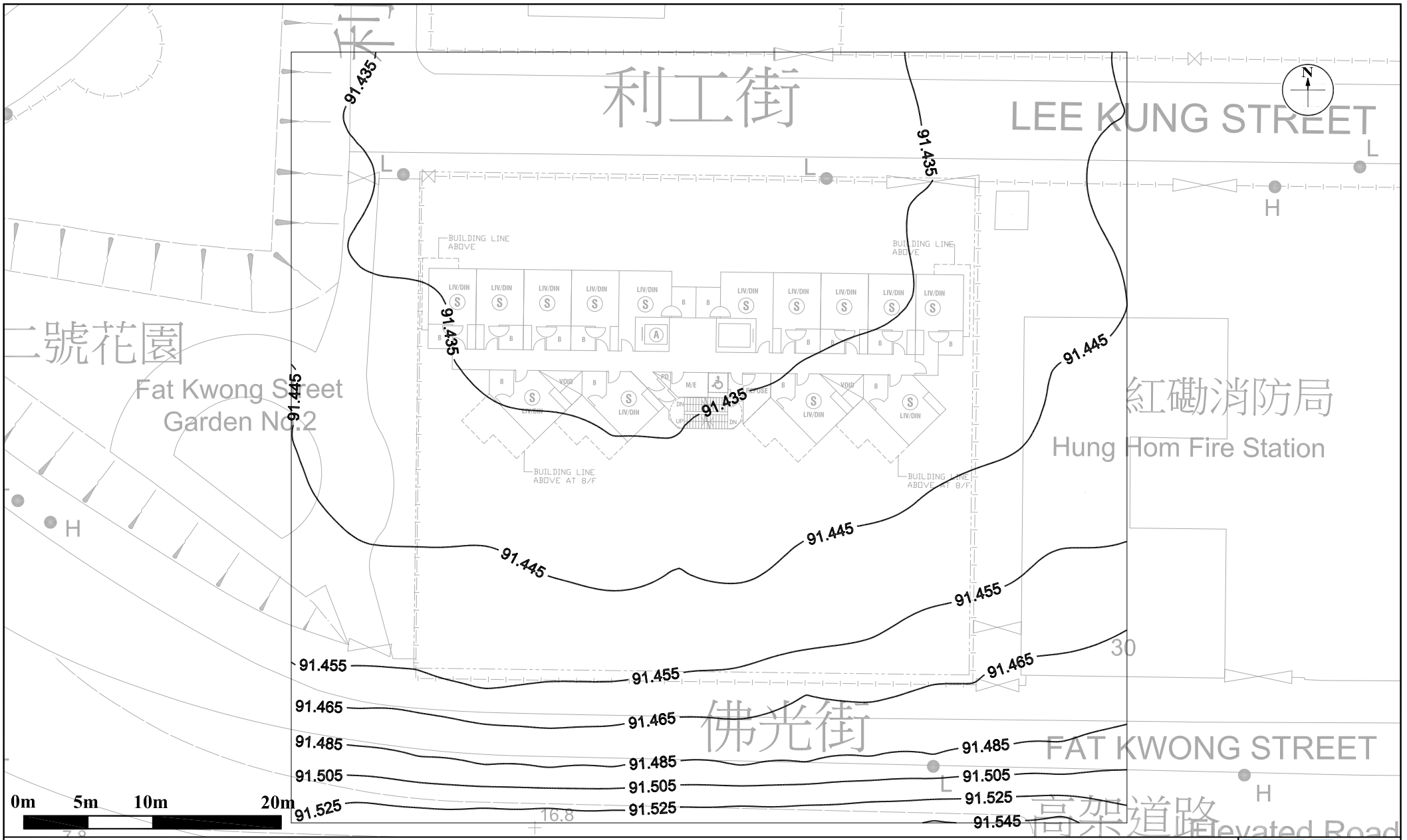


Figure: C9	RAMBOLL ENVIRON
Title: Predicted Cumulative 10th Daily PM10 Pollutant Contour at 8mPD (6.5mPD+1.5m) (Criteria : 100 µg/m³)	Drawn by: WT Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

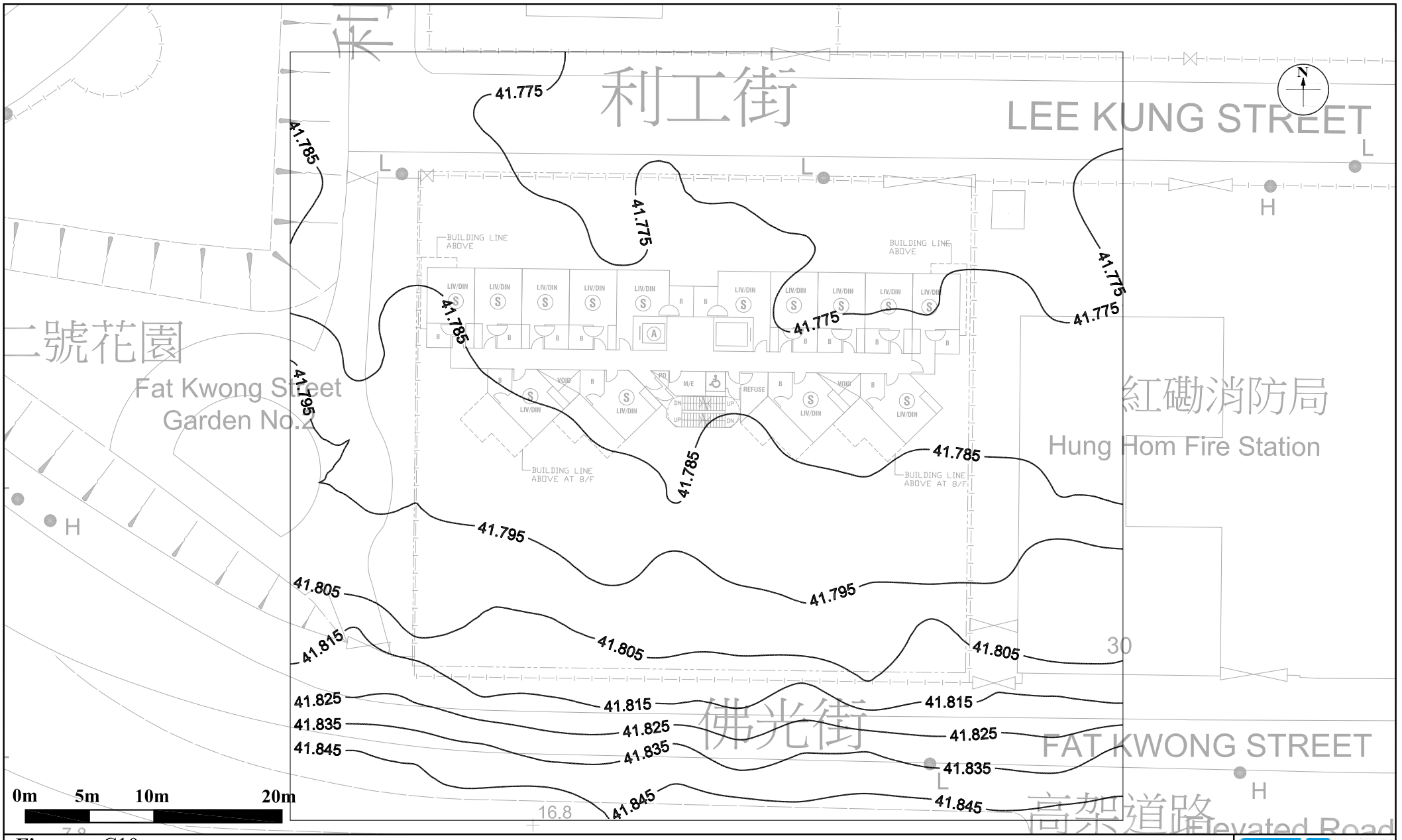


Figure: C10		RAMBOLL ENVIRON
Title: Predicted Cumulative Annual PM10 Pollutant Contour at 8mPD (6.5mPD+1.5m) (Criteria : 50 µg/m³)		Drawn by: WT
		Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon		Rev.: 1.7
		Date: Jul 2016

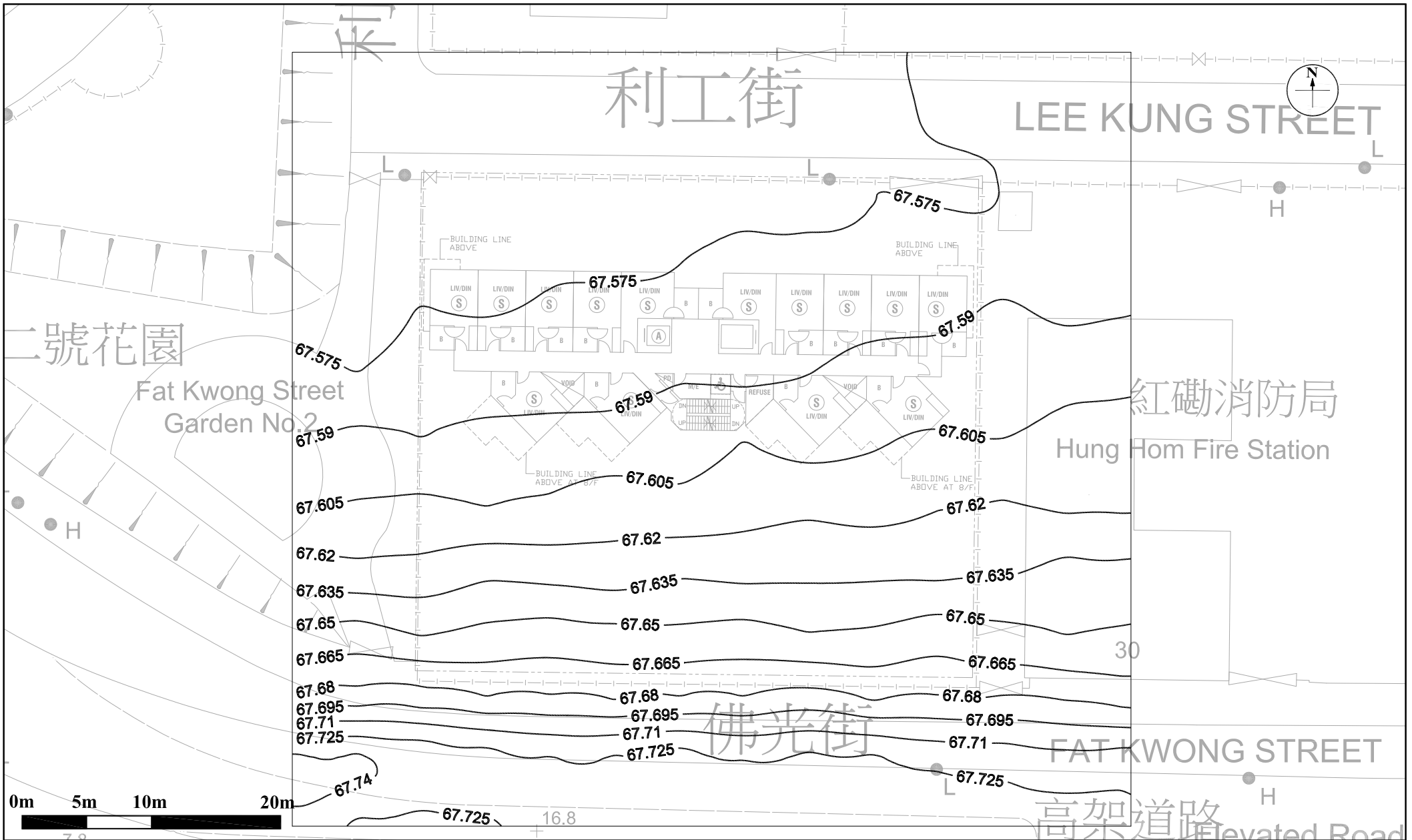


Figure: C11	RAMBOLL ENVIRON
Title: Predicted Cumulative 10th Daily PM2.5 Pollutant Contour at 8mPD (6.5mPD+1.5m) (Criteria : 75 µg/m³)	Drawn by: WT Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

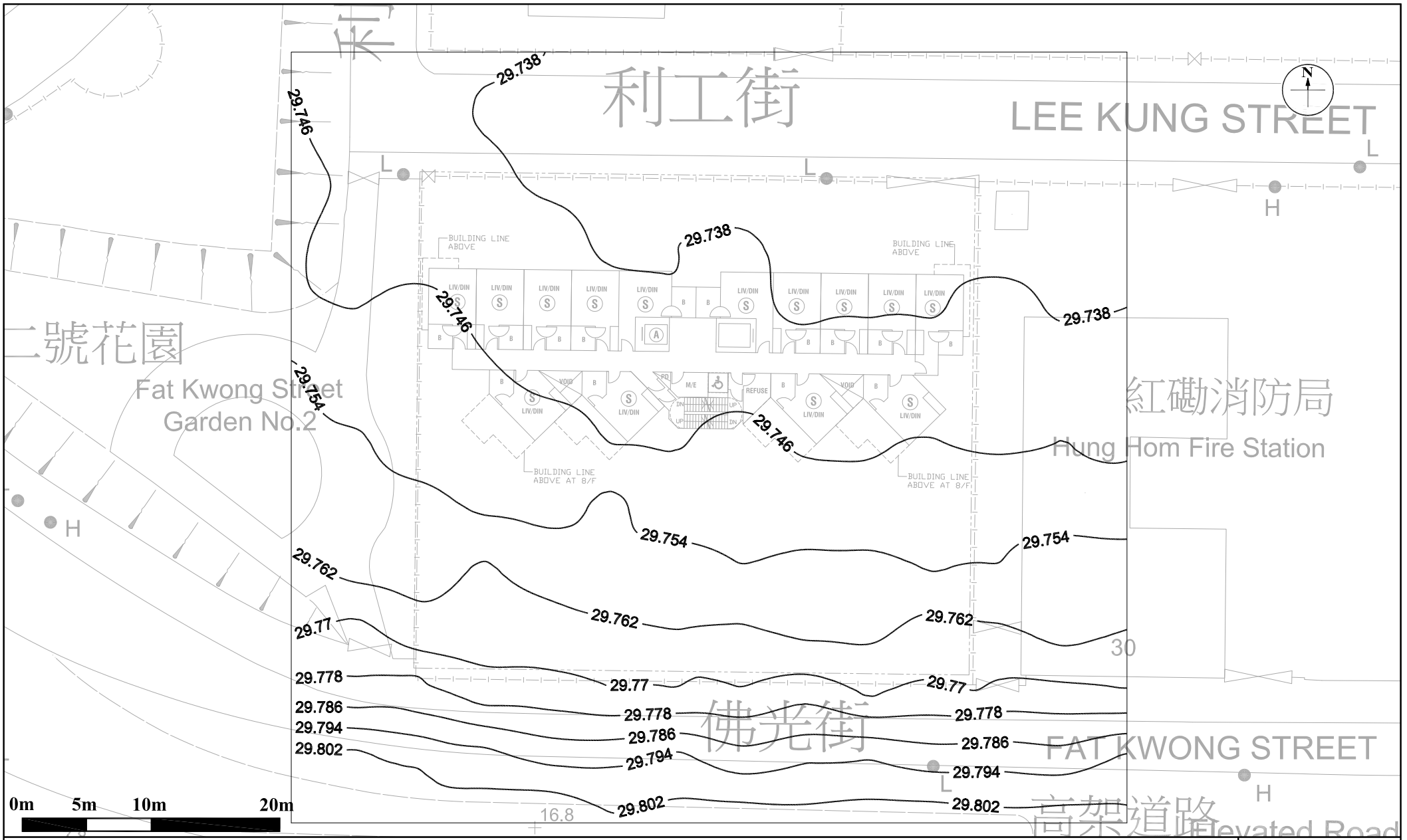
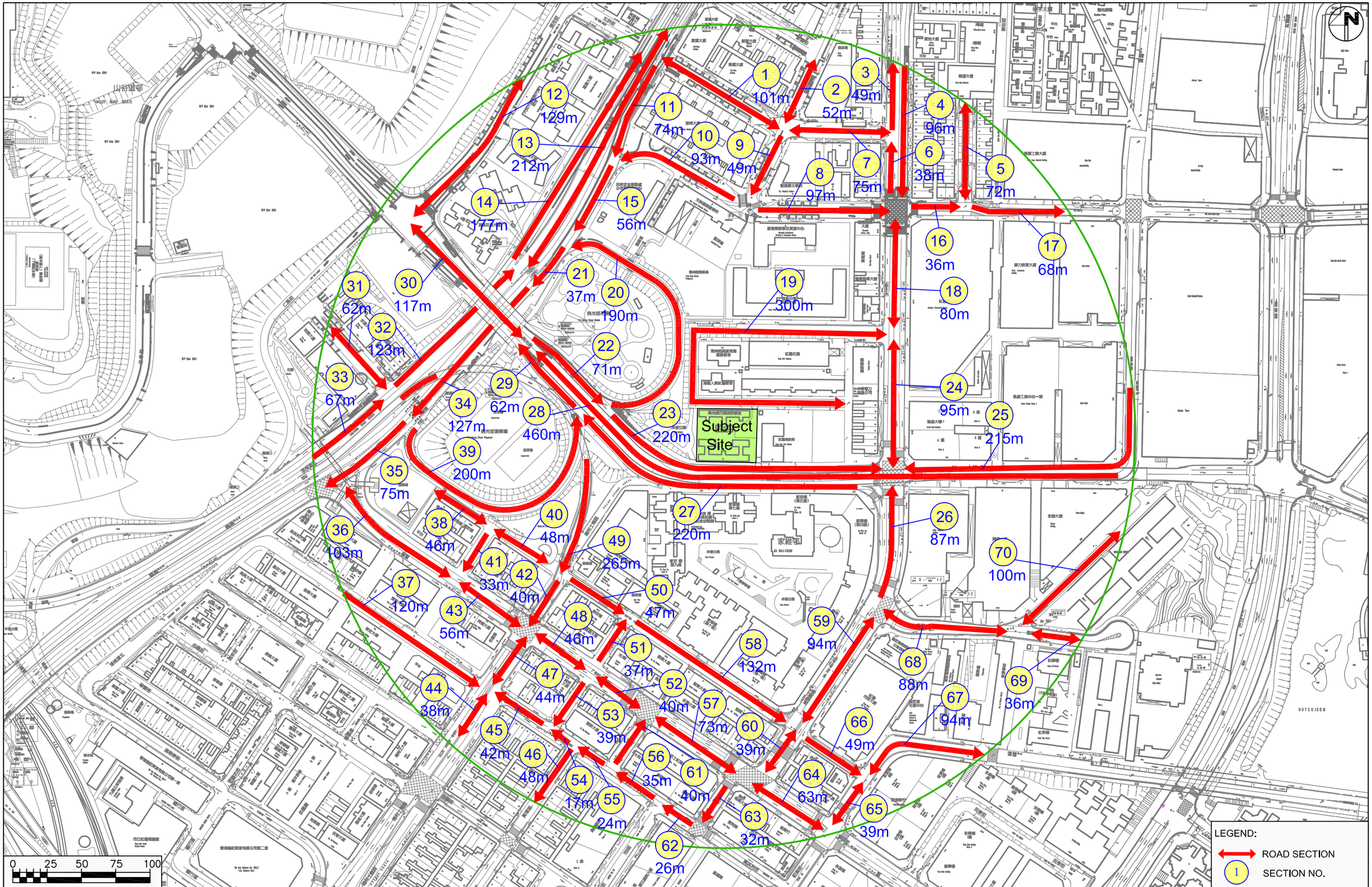


Figure: C12	RAMBOLL ENVIRON
Title: Predicted Cumulative Annual PM2.5 Pollutant Contour at 8mPD (6.5mPD+1.5m) (Criteria : 35 µg/m³)	Drawn by: WT Checked by: TC
Project: Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	Rev.: 1.7 Date: Jul 2016

Appendix 3:
Traffic Forecast for
Traffic Noise Impact Assessment



OZZO TECHNOLOGY

Date	Scale
16/12/2014	1:2500

Project Title

Hong Kong Housing Society

Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Key Plan for TNIA (Traffic Noise Impact Assessment) Traffic Forecast

HONG KONG HOUSING SOCIETY 香港房屋協會

Project No.	80641	Rev.
Dwg No.	Figure 2	

2036 Peak Hour Traffic Forecast for Traffic Noise Impact Assessment (HS9 Lee Kung Street)

Road ID	Road Name	Direction	AM Peak Hour		PM Peak Hour		Speed Limit (kph)	Types of Road Surface		
			Flow (veh/hr)	% HV	Flow (veh/hr)	% HV		1. Concrete surfacing	2. Bituminous surfacing	3. Friction course material
1	Pak Kung Street	EB / WB	157	52%	240	35%	50	✓		
2	Gillies Avenue North	NB / SB	445	46%	478	42%	50	✓		
3	Ma Tau Wai Road	NB	459	59%	617	55%	50		✓	
4	Ma Tau Wai Road	SB	653	50%	626	41%	50	✓		
5	Chun Tin Street	NB / SB	37	27%	37	30%	50		✓	
6	Ma Tau Wai Road	NB	424	67%	593	54%	50		✓	
7	Pak Kung Street	EB / WB	363	40%	425	36%	50	✓		
8	Hok Yuen Street	EB	343	52%	370	48%	50	✓		
9	Gillies Avenue North	SB	456	44%	553	39%	50	✓		
10	Hok Yuen Street	WB	213	50%	259	32%	50	✓		
11	Chatham Road North	SB	418	43%	582	32%	50	✓		
12	Shun Yung Street	NB / SB	1,179	28%	950	31%	50		✓	
13	East Kowloon Corridor	NB / SB	3,918	36%	5,030	32%	70			✓
14	Chatham Road North	NB	924	34%	1,115	34%	50	✓		
15	Chatham Road North	SB	616	41%	794	29%	50	✓		
16	Hok Yuen Street	EB	475	42%	425	41%	50	✓		
17	Hok Yuen Street	EB	467	44%	390	42%	50	✓		
18	Ma Tau Wai Road	NB / SB	1,213	54%	1,292	43%	50		✓	
19	Lee Kung Street	EB / WB	165	41%	267	63%	50	✓		
20	Wo Chung Street	NB	119	40%	97	35%	50		✓	
21	Chatham Road North	SB	745	41%	907	30%	50	✓		
22	Fat Kwong Street	EB	643	40%	510	35%	50		✓	
23	Fat Kwong Street	EB	520	40%	412	35%	50		✓	
24	Ma Tau Wai Road	NB / SB	1211	50%	1381	45%	50		✓	
25	Man Yue Street	WB	286	62%	505	39%	50		✓	
26	Ma Tau Wai Road	NB	1485	52%	1632	47%	50		✓	
27	Fat Kwong Street	WB	279	54%	284	50%	50		✓	
28	Fat Kwong Street Flyover	EB / WB	843	16%	1112	17%	50		✓	
29	Fat Kwong Street	WB	339	47%	341	48%	50		✓	
30	Fat Kwong Street	EB / WB	1804	30%	1965	27%	50		✓	
31	Valley Road	EB / WB	48	2%	23	0%	50		✓	
32	Chatham Road North	NB	3580	34%	4375	34%	50	✓		
33	Chatham Road North	NB	4804	32%	5913	34%	50	✓		
34	Chatham Road North	SB	1968	41%	2727	30%	50	✓		
35	Chatham Road North	SB	1686	41%	2342	29%	50	✓		
36	Wuhu Street	EB / WB	534	45%	646	35%	50		✓	
37	Bulkeley Street	EB	124	42%	143	37%	50		✓	
38	Station Lane	EB / WB	14	21%	21	29%	50		✓	
39	Ping Chi Street	SB	75	24%	58	34%	50	✓		
40	Station Lane	EB / WB	36	31%	45	27%	50		✓	
41	Walker Road	SB	59	29%	79	29%	50		✓	
42	Gillies Avenue South	SB	500	37%	642	27%	50	✓		
43	Wuhu Street	EB / WB	602	32%	777	30%	50		✓	
44	Gillies Avenue South	NB / SB	1476	41%	1597	36%	50		✓	
45	Bulkeley Street	WB	536	38%	599	31%	50	✓		
46	Whompoa Street	SB	492	30%	539	30%	50	✓		
47	Gillies Avenue Road South	NB / SB	1061	43%	1163	38%	50		✓	
48	Wuhu Street	EB / WB	1209	35%	1498	32%	50		✓	
49	Chatham Road North Tunnel	SB	1177	29%	1511	36%	50			✓ anti-skid
50	Station Lane	EB	604	25%	751	42%	50	✓		
51	Kun Yam Street	NB	103	27%	134	25%	50	✓		
52	Wuhu Street	EB / WB	1312	34%	1587	31%	50		✓	
53	Kun Yam Street	SB	342	31%	406	26%	50	✓		
54	Bulkeley Street	WB	196	50%	200	40%	50		✓	
55	Bulkeley Street	WB	690	36%	716	33%	50	✓		
56	Bulkeley Street	WB	827	36%	859	33%	50	✓		
57	Wuhu Street	EB / WB	1641	34%	1985	31%	50		✓	
58	Station Lane	EB	526	25%	652	40%	50		✓	
59	Ma Tau Wai Road	NB / SB	1708	41%	1785	41%	50		✓	
60	Ma Tau Wai Road	NB / SB	1741	38%	1910	41%	50		✓	
61	Marsh Street	NB	166	36%	166	29%	50		✓	
62	Bulkeley Street	WB	662	47%	638	40%	50		✓	
63	Taku Street	SB	582	51%	577	44%	50	✓		
64	Wuhu Street	EB / WB	1943	37%	2300	36%	50		✓	
65	Dock Street	NB / SB	318	18%	348	14%	50		✓	
66	Station Lane	EB	93	34%	77	21%	50	✓		
67	Dyer Avenue	EB / WB	390	17%	369	14%	50		✓	
68	Tai Wan Road	EB / WB	162	28%	186	28%	50		✓	
69	Wai Wan Lane	EB / WB	93	27%	90	19%	50		✓	
70	Tai Wan Road	SB / NB	88	33%	98	37%	50		✓	

Appendix 4:
Traffic Noise Impact Assessment Results

1. Unmitigation Scheme
(A.M. Scenario)

Predicted Road Traffic Noise Level, L10 (1-hr), dB(A) at Selected Sensitive Receivers

Pilot Unit

Unit		S	S	S	S	S	S	S	S	S	S	S	S	S
Floor	mPD	NP_01	NP_02	NP_03	NP_04	NP_05	NP_06	NP_07	NP_08	NP_09	NP_10	NP_11	NP_12	NP_13	NP_14
5/F	31.4	74	74	73	73	73	72	72	72	72	72	73	74	74	75
6/F	34.2	74	74	73	73	73	72	72	72	72	71	73	74	74	75
7/F	37	74	74	73	73	73	72	72	72	72	71	73	73	74	75
Max. Noise Level		74	74	73	73	73	72	72	72	72	72	73	74	74	75
Exceedence		3	3	3	3	3	3	3	3	3	3	3	3	3	3
Exceeded Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3
No. of Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Typical Unit

Unit		1B		S	S	1B		1B		S	S	1B		1B		1B		1B		1B	
Floor	mPD	NT_01	NT_02	NT_03	NT_04	NT_05	NT_06	NT_07	NT_08	NT_09	NT_10	NT_11	NT_12	NT_13	NT_14	NT_15	NT_16	NT_17	NT_18	NT_19	NT_20
8/F	39.8	75	73	73	73	73	72	72	72	72	72	71	71	72	74	73	74	74	75	74	76
9/F	42.6	75	73	73	73	73	72	72	72	72	72	71	71	72	74	73	74	74	75	74	76
10/F	45.4	75	73	73	73	73	72	72	72	72	72	71	72	72	74	73	74	73	75	74	76
11/F	48.2	75	73	73	73	73	72	72	72	72	72	71	72	72	73	73	74	73	75	74	76
12/F	51	75	74	73	73	73	72	72	72	72	72	71	72	73	73	73	74	73	75	74	76
13/F	53.8	75	74	73	73	73	72	72	72	72	72	71	72	73	73	73	74	73	74	74	76
14/F	56.6	75	74	73	73	73	73	72	72	72	72	71	72	73	73	73	74	73	74	74	76
15/F	59.4	75	73	73	73	73	73	72	72	72	72	71	72	73	73	72	74	73	74	74	75
16/F	62.2	75	73	73	73	73	72	72	72	72	72	71	72	73	73	72	73	73	74	73	75
17/F	65	75	73	73	73	73	72	72	72	72	72	71	72	72	73	72	73	73	74	73	75
18/F	67.8	75	73	73	73	73	72	72	72	72	72	71	72	72	72	72	73	73	74	73	75
19/F	70.6	75	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	73	73	73	75
20/F	73.4	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	73	73	73	75
21/F	76.2	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	73	75
22/F	79	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	73	75
23/F	81.8	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	72	75
24/F	84.6	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	72	74
25/F	87.4	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	72	72	73	72	74
26/F	90.2	74	73	73	73	73	72	72	72	72	71	71	72	72	72	71	72	72	73	72	74
27/F	93	74	73	73	73	73	72	72	72	72	71	71	72	72	72	71	72	72	73	72	74
Max. Noise Level		75	74	73	73	73	73	72	72	72	72	71	72	73	74	73	74	74	75	74	76
Exceedence		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Exceeded Premise		20		20	20	20		20		20	20	20		20		20		20		20	
No. of Premise		20		20	20	20		20		20	20	20		20		20		20		20	

Special Unit

Unit		2B			2B			2B			2B			2B		
Floor	mPD	NS_01	NS_02	NS_03	NS_04	NS_05	NS_06	NS_07	NS_08	NS_09	NS_10	NS_11	NS_12	NS_13	NS_14	NS_15
28/F	95.8	74	73	73	73	73	72	72	72	72	71	71	72	64	72	72
29/F	98.6	74	73	73	73	72	72	72	72	72	71	71	72	68	72	72
30/F	101.4	74	73	73	73	72	72	72	72	71	71	71	72	70	72	72
31/F	104.2	74	73	73	73	72	72	72	72	71	71	71	72	-	-	-
32/F	107	74	73	73	73	72	72	72	72	71	71	71	72	-	-	-
Max. Noise Level		74	73	73	73	73	72	72	72	72	71	71	72	70	72	72
Exceedence		5	5	5	5	5	5	5	5	5	5	5	5	0	3	3
Exceeded Premise		5			5			5			5			3		
No. of Premise		5			5			5			5			3		

Summary	
Max. Noise Level	76
Total No. of Exceedance	305
Total No. of Premises	305
%Compliance	0%

Note:

71 shaded cells denote noise level that will exceed limit of 70.4dB(A)

2. Mitigation Scheme (By Fins)
(A.M. Scenario)

Predicted Road Traffic Noise Level, L10 (1-hr), dB(A) at Selected Sensitive Receivers

Pilot Unit

Unit		S	S	S	S	S	S	S	S	S	S	S	S	S	S
Floor	mPD	NP_01	NP_02	NP_03	NP_04	NP_05	NP_06	NP_07	NP_08	NP_09	NP_10	NP_11	NP_12	NP_13	NP_14
5/F	31.4	74	74	73	73	73	72	72	72	72	72	73	74	74	75
6/F	34.2	74	74	73	73	73	72	72	72	72	71	73	74	74	75
7/F	37	74	74	73	73	73	72	72	72	72	71	73	73	74	75
Max. Noise Level		74	74	73	73	73	72	72	72	72	72	73	74	74	75
Exceedence		3	3	3	3	3	3	3	3	3	3	3	3	3	3
Exceeded Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3
No. of Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Typical Unit

Unit		1B		S	S	1B		1B		S	S	1B		1B		1B		1B		1B	
Floor	mPD	NT_01	NT_02	NT_03	NT_04	NT_05	NT_06	NT_07	NT_08	NT_09	NT_10	NT_11	NT_12	NT_13	NT_14	NT_15	NT_16	NT_17	NT_18	NT_19	NT_20
8/F	39.8	75	73	73	73	73	72	72	72	72	72	71	71	72	74	73	74	74	75	74	75
9/F	42.6	75	73	73	73	73	72	72	72	72	72	71	71	72	74	73	74	74	75	74	75
10/F	45.4	75	73	73	73	73	72	72	72	72	72	71	72	72	74	73	74	73	75	74	75
11/F	48.2	75	73	73	73	73	72	72	72	72	72	71	72	72	73	73	74	73	75	74	75
12/F	51	75	74	73	73	73	72	72	72	72	72	71	72	73	73	73	74	73	75	74	75
13/F	53.8	75	74	73	73	73	72	72	72	72	72	71	72	73	73	73	74	73	74	74	75
14/F	56.6	75	74	73	73	73	73	72	72	72	72	71	72	73	73	73	74	73	74	74	74
15/F	59.4	75	73	73	73	73	73	72	72	72	72	71	72	73	73	72	74	73	74	74	74
16/F	62.2	75	73	73	73	73	72	72	72	72	72	71	72	73	73	72	73	73	74	73	74
17/F	65	75	73	73	73	73	72	72	72	72	72	71	72	72	73	72	73	73	74	73	74
18/F	67.8	75	73	73	73	73	72	72	72	72	72	71	72	72	72	72	73	73	74	73	74
19/F	70.6	75	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	73	73	73	74
20/F	73.4	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	73	73	73	73
21/F	76.2	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	73	73
22/F	79	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	73	73
23/F	81.8	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	72	73
24/F	84.6	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	73	72	73	72	73
25/F	87.4	74	73	73	73	73	72	72	72	72	71	71	72	72	72	72	72	72	73	72	73
26/F	90.2	74	73	73	73	73	72	72	72	72	71	71	72	72	72	71	72	72	73	72	73
27/F	93	74	73	73	73	73	72	72	72	72	71	71	72	72	72	71	72	72	73	72	73
Max. Noise Level		75	74	73	73	73	73	72	72	72	72	71	72	73	74	73	74	74	75	74	75
Exceedence		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Exceeded Premise		20		20	20	20		20		20	20	20		20		20		20		20	
No. of Premise		20		20	20	20		20		20	20	20		20		20		20		20	

Special Unit

Unit		2B			2B			2B			2B			2B		
Floor	mPD	NS_01	NS_02	NS_03	NS_04	NS_05	NS_06	NS_07	NS_08	NS_09	NS_10	NS_11	NS_12	NS_13	NS_14	NS_15
28/F	95.8	74	73	73	73	73	72	72	72	72	71	71	72	64	72	72
29/F	98.6	74	73	73	73	72	72	72	72	72	71	71	72	68	72	72
30/F	101.4	74	73	73	73	72	72	72	72	71	71	71	72	70	72	72
31/F	104.2	74	73	73	73	72	72	72	72	71	71	71	72	-	-	-
32/F	107	74	73	73	73	72	72	72	72	71	71	71	72	-	-	-
Max. Noise Level		74	73	73	73	73	72	72	72	72	71	71	72	70	72	72
Exceedence		5	5	5	5	5	5	5	5	5	5	5	5	0	3	3
Exceeded Premise		5			5			5			5			3		
No. of Premise		5			5			5			5			3		

Summary	
Max. Noise Level	75
Total No. of Exceedance	305
Total No. of Premises	305
%Compliance	0%

Note:

71 shaded cells denote noise level that will exceed limit of 70.4dB(A)

3. Mitigation Scheme (By Fins and acoustic window with 4.7dB noise attenuation)
(A.M. Scenario)

Predicted Road Traffic Noise Level, L10 (1-hr), dB(A) at Selected Sensitive Receivers

Pilot Unit

Unit		S	S	S	S	S	S	S	S	S	S	S	S	S	S
Floor	mPD	NP_01	NP_02	NP_03	NP_04	NP_05	NP_06	NP_07	NP_08	NP_09	NP_10	NP_11	NP_12	NP_13	NP_14
5/F	31.4	70	69	69	68	68	68	67	67	67	67	68	69	70	70
6/F	34.2	70	69	69	69	68	68	67	67	67	67	68	69	70	70
7/F	37	70	69	69	68	68	68	67	67	67	67	68	69	70	70
Max. Noise Level		70	69	69	69	68	68	67	67	67	67	68	69	70	70
Exceedence		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceeded Premise		0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Typical Unit

Unit		1B	1B	S	S	1B	1B	1B	1B	S	S	1B	1B	1B	1B	1B	1B	1B	1B	1B	1B
Floor	mPD	NT_01	NT_02	NT_03	NT_04	NT_05	NT_06	NT_07	NT_08	NT_09	NT_10	NT_11	NT_12	NT_13	NT_14	NT_15	NT_16	NT_17	NT_18	NT_19	NT_20
8/F	39.8	70	69	69	68	68	68	68	67	67	67	67	67	67	69	68	70	69	70	70	70
9/F	42.6	70	69	69	68	68	68	68	67	67	67	67	67	67	69	68	69	69	70	70	70
10/F	45.4	70	69	68	68	68	68	68	67	67	67	67	67	68	69	68	69	69	70	69	70
11/F	48.2	70	69	69	68	68	68	68	67	67	67	67	67	68	69	68	69	69	70	69	70
12/F	51	70	69	69	68	68	68	68	67	67	67	67	68	68	69	68	69	69	70	69	70
13/F	53.8	70	69	69	68	68	68	68	67	67	67	67	68	68	68	68	69	68	70	69	70
14/F	56.6	70	69	69	68	68	68	68	67	67	67	67	68	68	68	68	69	68	70	69	70
15/F	59.4	70	69	69	68	68	68	68	67	67	67	67	68	68	68	68	69	68	69	69	69
16/F	62.2	70	69	69	68	68	68	68	67	67	67	67	68	68	68	68	69	68	69	69	69
17/F	65	70	69	69	68	68	68	67	67	67	67	67	68	68	68	67	69	68	69	68	69
18/F	67.8	70	69	69	68	68	68	67	67	67	67	67	68	68	68	67	69	68	69	68	69
19/F	70.6	70	69	68	68	68	68	67	67	67	67	67	68	68	68	67	68	68	69	68	69
20/F	73.4	70	69	68	68	68	68	67	67	67	67	67	68	68	68	67	68	68	69	68	69
21/F	76.2	70	69	68	68	68	68	67	67	67	67	67	68	68	67	67	68	68	69	68	69
22/F	79	70	69	68	68	68	68	67	67	67	67	67	68	67	67	67	68	68	68	68	68
23/F	81.8	70	69	68	68	68	68	67	67	67	67	67	67	67	67	67	68	67	68	68	68
24/F	84.6	70	69	68	68	68	68	67	67	67	67	67	67	67	67	67	68	67	68	68	68
25/F	87.4	70	68	68	68	68	68	67	67	67	67	66	67	67	67	67	68	67	68	68	68
26/F	90.2	70	68	68	68	68	68	67	67	67	67	66	67	67	67	67	68	67	68	67	68
27/F	93	70	68	68	68	68	68	67	67	67	67	66	67	67	67	67	68	67	68	67	68
Max. Noise Level		70	69	69	68	68	68	68	67	67	67	67	68	68	69	68	70	69	70	70	70
Exceedence		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceeded Premise		0		0	0	0		0		0	0	0		0		0		0		0	
No. of Premise		20		20	20	20		20		20	20	20		20		20		20		20	

Special Unit

Unit		2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B
Floor	mPD	NS_01	NS_02	NS_03	NS_04	NS_05	NS_06	NS_07	NS_08	NS_09	NS_10	NS_11	NS_12	NS_13	NS_14	NS_15
28/F	95.8	69	68	68	68	68	68	67	67	67	67	66	67	64	67	68
29/F	98.6	69	68	68	68	68	68	67	67	67	67	66	67	68	67	68
30/F	101.4	69	68	68	68	68	68	67	67	67	67	66	67	70	67	68
31/F	104.2	69	68	68	68	68	68	67	67	67	67	66	67	-	-	-
32/F	107	69	68	68	68	68	67	67	67	67	67	66	67	-	-	-
Max. Noise Level		69	68	68	68	68	68	67	67	67	67	66	67	70	67	68
Exceedence		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceeded Premise		0			0			0			0			0		
No. of Premise		5			5			5			5			3		

Summary	
Max. Noise Level	70
Total No. of Exceedance	0
Total No. of Premises	305
%Compliance	100%

Note:

Acoustic Window (-4.7dB) is applied

1. Unmitigation Scheme
(P.M. Scenario)

Predicted Road Traffic Noise Level, L10 (1-hr), dB(A) at Selected Sensitive Receivers

Pilot Unit

Unit		S	S	S	S	S	S	S	S	S	S	S	S	S
Floor	mPD	NP_01	NP_02	NP_03	NP_04	NP_05	NP_06	NP_07	NP_08	NP_09	NP_10	NP_11	NP_12	NP_13	NP_14
5/F	31.4	75	75	74	74	74	74	74	74	73	73	73	74	74	75
6/F	34.2	75	74	74	74	74	74	73	73	73	73	73	74	74	75
7/F	37	75	74	74	74	74	74	73	73	73	73	73	74	74	75
Max. Noise Level		75	75	74	74	74	74	74	74	73	73	73	74	74	75
Exceedence		3	3	3	3	3	3	3	3	3	3	3	3	3	3
Exceeded Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3
No. of Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Typical Unit

Unit		1B		S	S	1B		1B		S	S	1B		1B		1B		1B		1B	
Floor	mPD	NT_01	NT_02	NT_03	NT_04	NT_05	NT_06	NT_07	NT_08	NT_09	NT_10	NT_11	NT_12	NT_13	NT_14	NT_15	NT_16	NT_17	NT_18	NT_19	NT_20
8/F	39.8	75	74	74	74	74	74	74	73	73	73	73	73	72	74	73	74	74	75	74	76
9/F	42.6	75	74	74	74	74	74	73	73	73	73	73	73	72	74	73	74	74	75	74	76
10/F	45.4	75	74	74	74	74	74	73	73	73	73	73	73	72	74	73	74	73	75	74	76
11/F	48.2	75	74	74	74	74	74	73	73	73	73	73	73	73	73	73	74	73	75	74	76
12/F	51	75	74	74	74	74	74	73	73	73	73	73	73	73	73	73	74	73	75	74	76
13/F	53.8	75	74	74	74	74	73	73	73	73	73	73	73	73	73	73	74	73	74	74	76
14/F	56.6	75	74	74	74	74	73	73	73	73	73	73	73	73	73	73	74	73	74	74	76
15/F	59.4	75	74	74	74	74	73	73	73	73	73	72	73	73	73	72	74	73	74	73	75
16/F	62.2	75	74	74	74	74	73	73	73	73	73	72	73	73	73	72	73	73	74	73	75
17/F	65	75	74	74	74	74	73	73	73	73	73	72	73	73	73	72	73	73	74	73	75
18/F	67.8	75	74	74	74	74	73	73	73	73	73	72	73	73	72	72	73	73	74	73	75
19/F	70.6	75	74	74	74	74	73	73	73	73	72	72	73	73	72	72	73	73	73	73	75
20/F	73.4	75	74	74	74	74	73	73	73	73	72	72	73	73	72	72	73	73	73	73	75
21/F	76.2	75	74	74	74	74	73	73	73	73	72	72	73	73	72	72	73	72	73	73	75
22/F	79	75	74	74	74	73	73	73	73	73	72	72	73	73	72	72	73	72	73	72	75
23/F	81.8	75	74	74	74	73	73	73	73	73	72	72	73	73	72	72	73	72	73	72	75
24/F	84.6	75	74	74	74	73	73	73	73	73	72	72	73	72	72	72	73	72	73	72	75
25/F	87.4	75	74	74	74	73	73	73	73	72	72	72	73	72	72	72	73	72	73	72	74
26/F	90.2	75	74	74	74	73	73	73	73	72	72	72	73	72	72	71	72	72	72	72	74
27/F	93	75	74	74	74	73	73	73	73	72	72	72	73	72	72	71	72	72	72	72	74
Max. Noise Level		75	74	74	74	74	74	74	73	73	73	73	73	73	74	73	74	74	75	74	76
Exceedence		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Exceeded Premise		20		20	20	20		20		20	20	20		20		20		20		20	
No. of Premise		20		20	20	20		20		20	20	20		20		20		20		20	

Special Unit

Unit		2B			2B			2B			2B			2B		
Floor	mPD	NS_01	NS_02	NS_03	NS_04	NS_05	NS_06	NS_07	NS_08	NS_09	NS_10	NS_11	NS_12	NS_13	NS_14	NS_15
28/F	95.8	75	74	74	73	73	73	73	73	72	72	72	73	64	72	72
29/F	98.6	75	74	73	73	73	73	73	73	72	72	72	73	69	72	72
30/F	101.4	75	74	73	73	73	73	73	73	72	72	72	73	70	72	72
31/F	104.2	74	74	73	73	73	73	73	73	72	72	72	73	-	-	-
32/F	107	74	74	73	73	73	73	73	73	72	72	72	73	-	-	-
Max. Noise Level		75	74	74	73	73	73	73	73	72	72	72	73	70	72	72
Exceedence		5	5	5	5	5	5	5	5	5	5	5	5	0	3	3
Exceeded Premise		5			5			5			5			3		
No. of Premise		5			5			5			5			3		

Summary	
Max. Noise Level	76
Total No. of Exceedance	305
Total No. of Premises	305
%Compliance	0%

Note:

71 shaded cells denote noise level that will exceed limit of 70.4dB(A)

2. Mitigation Scheme (By Fins)
(P.M. Scenario)

Predicted Road Traffic Noise Level, L10 (1-hr), dB(A) at Selected Sensitive Receivers

Pilot Unit

Unit		S	S	S	S	S	S	S	S	S	S	S	S	S
Floor	mPD	NP_01	NP_02	NP_03	NP_04	NP_05	NP_06	NP_07	NP_08	NP_09	NP_10	NP_11	NP_12	NP_13	NP_14
5/F	31.4	75	75	74	74	74	74	74	74	73	73	73	74	74	75
6/F	34.2	75	74	74	74	74	74	73	73	73	73	73	74	74	75
7/F	37	75	74	74	74	74	74	73	73	73	73	73	74	74	75
Max. Noise Level		75	75	74	74	74	74	74	74	73	73	73	74	74	75
Exceedence		3	3	3	3	3	3	3	3	3	3	3	3	3	3
Exceeded Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3
No. of Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Typical Unit

Unit		1B		S	S	1B		1B		S	S	1B		1B		1B		1B		1B	
Floor	mPD	NT_01	NT_02	NT_03	NT_04	NT_05	NT_06	NT_07	NT_08	NT_09	NT_10	NT_11	NT_12	NT_13	NT_14	NT_15	NT_16	NT_17	NT_18	NT_19	NT_20
8/F	39.8	75	74	74	74	74	74	74	73	73	73	73	73	72	74	73	74	74	75	74	75
9/F	42.6	75	74	74	74	74	74	73	73	73	73	73	73	72	74	73	74	74	75	74	75
10/F	45.4	75	74	74	74	74	74	73	73	73	73	73	73	72	74	73	74	73	75	74	75
11/F	48.2	75	74	74	74	74	74	73	73	73	73	73	73	73	73	73	74	73	75	74	75
12/F	51	75	74	74	74	74	74	73	73	73	73	73	73	73	73	73	74	73	75	74	75
13/F	53.8	75	74	74	74	74	73	73	73	73	73	73	73	73	73	73	74	73	74	74	74
14/F	56.6	75	74	74	74	74	73	73	73	73	73	73	73	73	73	73	74	73	74	74	74
15/F	59.4	75	74	74	74	74	73	73	73	73	73	72	73	73	73	72	74	73	74	73	74
16/F	62.2	75	74	74	74	74	73	73	73	73	73	72	73	73	73	72	73	73	74	73	74
17/F	65	75	74	74	74	74	73	73	73	73	73	72	73	73	73	72	73	73	74	73	74
18/F	67.8	75	74	74	74	74	73	73	73	73	73	72	73	73	72	72	73	73	74	73	74
19/F	70.6	75	74	74	74	74	73	73	73	73	72	72	73	73	72	72	73	73	73	73	73
20/F	73.4	75	74	74	74	74	73	73	73	73	72	72	73	73	72	72	73	73	73	73	73
21/F	76.2	75	74	74	74	74	73	73	73	73	72	72	73	73	72	72	73	72	73	73	73
22/F	79	75	74	74	74	73	73	73	73	73	72	72	73	73	72	72	73	72	73	72	73
23/F	81.8	75	74	74	74	73	73	73	73	73	72	72	73	73	72	72	73	72	73	72	73
24/F	84.6	75	74	74	74	73	73	73	73	73	72	72	73	72	72	72	73	72	73	72	73
25/F	87.4	75	74	74	74	73	73	73	73	72	72	72	73	72	72	72	73	72	73	72	73
26/F	90.2	75	74	74	74	73	73	73	73	72	72	72	73	72	72	71	72	72	72	72	73
27/F	93	75	74	74	74	73	73	73	73	72	72	72	73	72	72	71	72	72	72	72	72
Max. Noise Level		75	74	74	74	74	74	74	73	73	73	73	73	73	74	73	74	74	75	74	75
Exceedence		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Exceeded Premise		20		20	20	20		20		20	20	20		20		20		20		20	
No. of Premise		20		20	20	20		20		20	20	20		20		20		20		20	

Special Unit

Unit		2B			2B			2B			2B			2B		
Floor	mPD	NS_01	NS_02	NS_03	NS_04	NS_05	NS_06	NS_07	NS_08	NS_09	NS_10	NS_11	NS_12	NS_13	NS_14	NS_15
28/F	95.8	75	74	74	73	73	73	73	73	72	72	72	73	64	72	72
29/F	98.6	75	74	73	73	73	73	73	73	72	72	72	73	69	72	72
30/F	101.4	75	74	73	73	73	73	73	73	72	72	72	73	70	72	72
31/F	104.2	74	74	73	73	73	73	73	73	72	72	72	73	-	-	-
32/F	107	74	74	73	73	73	73	73	73	72	72	72	73	-	-	-
Max. Noise Level		75	74	74	73	73	73	73	73	72	72	72	73	70	72	72
Exceedence		5	5	5	5	5	5	5	5	5	5	5	5	0	3	3
Exceeded Premise		5			5			5			5			3		
No. of Premise		5			5			5			5			3		

Summary	
Max. Noise Level	75
Total No. of Exceedance	305
Total No. of Premises	305
%Compliance	0%

Note:

71 shaded cells denote noise level that will exceed limit of 70.4dB(A)

3. Mitigation Scheme (By Fins and acoustic window with 4.7dB noise attenuation)
(P.M. Scenario)

Predicted Road Traffic Noise Level, L10 (1-hr), dB(A) at Selected Sensitive Receivers

Pilot Unit

Unit		S	S	S	S	S	S	S	S	S	S	S	S	S	S
Floor	mPD	NP_01	NP_02	NP_03	NP_04	NP_05	NP_06	NP_07	NP_08	NP_09	NP_10	NP_11	NP_12	NP_13	NP_14
5/F	31.4	70	70	70	70	70	69	69	69	69	69	69	69	70	70
6/F	34.2	70	70	70	70	70	69	69	69	69	68	69	69	70	70
7/F	37	70	70	70	70	69	69	69	69	68	68	68	69	70	70
Max. Noise Level		70	70	70	70	70	69	69	69	69	69	69	69	70	70
Exceedence		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceeded Premise		0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Premise		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Typical Unit

Unit		1B	1B	S	S	1B	1B	1B	1B	S	S	1B	1B	1B	1B	1B	1B	1B	1B	1B	1B
Floor	mPD	NT_01	NT_02	NT_03	NT_04	NT_05	NT_06	NT_07	NT_08	NT_09	NT_10	NT_11	NT_12	NT_13	NT_14	NT_15	NT_16	NT_17	NT_18	NT_19	NT_20
8/F	39.8	70	69	69	69	69	69	69	69	68	68	68	68	68	69	68	70	69	70	70	70
9/F	42.6	70	69	69	69	69	69	69	69	68	68	68	68	68	69	68	70	69	70	70	70
10/F	45.4	70	69	69	69	69	69	69	69	68	68	68	68	68	69	68	69	69	70	69	70
11/F	48.2	70	69	69	69	69	69	69	69	68	68	68	68	68	69	68	69	69	70	69	70
12/F	51	70	70	69	69	69	69	69	69	68	68	68	69	68	69	68	69	69	70	69	70
13/F	53.8	70	69	69	69	69	69	69	69	68	68	68	69	68	68	68	69	68	70	69	70
14/F	56.6	70	69	69	69	69	69	69	69	68	68	68	69	68	68	68	69	68	70	69	70
15/F	59.4	70	69	69	69	69	69	69	68	68	68	68	69	68	68	68	69	68	69	69	69
16/F	62.2	70	69	69	69	69	69	69	68	68	68	68	69	68	68	68	69	68	69	69	69
17/F	65	70	69	69	69	69	69	68	68	68	68	68	69	68	68	67	69	68	69	68	69
18/F	67.8	70	69	69	69	69	69	68	68	68	68	68	69	68	68	67	69	68	69	68	69
19/F	70.6	70	69	69	69	69	69	68	68	68	68	68	68	68	68	67	68	68	69	68	69
20/F	73.4	70	69	69	69	69	68	68	68	68	68	68	68	68	68	67	68	68	69	68	69
21/F	76.2	70	69	69	69	69	68	68	68	68	68	68	68	68	67	67	68	68	68	68	68
22/F	79	70	69	69	69	69	68	68	68	68	68	68	68	68	67	67	68	68	68	68	68
23/F	81.8	70	69	69	69	69	68	68	68	68	67	68	68	67	67	67	68	68	68	68	68
24/F	84.6	70	69	69	69	69	68	68	68	68	67	68	68	67	67	67	68	67	68	68	68
25/F	87.4	70	69	69	69	69	68	68	68	68	67	68	68	67	67	67	68	67	68	67	68
26/F	90.2	70	69	69	69	69	68	68	68	68	67	68	68	67	67	67	68	67	68	67	68
27/F	93	70	69	69	69	69	68	68	68	68	67	68	68	67	67	67	68	67	68	67	68
Max. Noise Level		70	70	69	69	69	69	69	69	68	68	68	69	68	69	68	70	69	70	70	70
Exceedence		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceeded Premise		0		0	0	0		0		0	0	0		0		0		0		0	
No. of Premise		20		20	20	20		20		20	20	20		20		20		20		20	

Special Unit

Unit		2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B
Floor	mPD	NS_01	NS_02	NS_03	NS_04	NS_05	NS_06	NS_07	NS_08	NS_09	NS_10	NS_11	NS_12	NS_13	NS_14	NS_15
28/F	95.8	70	69	69	69	69	68	68	68	68	67	67	68	64	67	68
29/F	98.6	70	69	69	69	69	68	68	68	68	67	67	68	69	67	68
30/F	101.4	70	69	69	69	69	68	68	68	68	67	67	68	70	67	68
31/F	104.2	70	69	69	69	68	68	68	68	68	67	67	68	-	-	-
32/F	107	70	69	69	69	68	68	68	68	68	67	67	68	-	-	-
Max. Noise Level		70	69	69	69	69	68	68	68	68	67	67	68	70	67	68
Exceedence		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceeded Premise		0			0			0			0			0		
No. of Premise		5			5			5			5			3		

Summary	
Max. Noise Level	70
Total No. of Exceedance	0
Total No. of Premises	305
%Compliance	100%

Note:

Acoustic Window (-4.7dB) is applied

Appendix 5:
Comparison of the room size presented in public housing at ex-San Po Kong Flatted Factory and Lee Kung Street (this project)

Comparison of the room size presented in public housing at ex-San Po Kong Flatted Factory and Lee Kung Street (this project)

Public Housing Test

S (1/2P)

	Height (m)	Area (m2)	Volume (m3)
LIV	2.80	10.31	**28.87**

1B

	Height (m)	Area (m2)	Volume (m3)
LIV	2.80	16.65	46.62
BR	2.80	6.65	18.62
		Total	**65.24**

2B

	Height (m)	Area (m2)	Volume (m3)
LIV	2.80	16.51	46.23
BR 1	2.80	6.59	18.45
BR 2	2.80	6.55	18.34
		Total	**83.02**

Lee Kung Street (This Project)

	Height (m)	Area (m2)	Volume (m3)
LIV	2.80	14.74	**41.27**

	Height (m)	Area (m2)	Volume (m3)
LIV	2.80	16.81	47.07
BR	2.80	7.50	21.00
		Total	**68.07**

	Height (m)	Area (m2)	Volume (m3)
LIV	2.80	20.64	57.79
BR 1	2.80	8.82	24.70
BR 2	2.80	10.06	28.17
		Total	**110.66**

Appendix 6:
TD's Endorsement on Traffic Forecast for Air and Traffic Noise Impact Assessment

K2HNZ

By Fax
3020 0370

運輸署
Transport Department

本署檔案 Our Ref. : (K2SDP) in TD KR146/193/L-9
來函檔號 Your Ref. : 80641_20160713A
電 話 Tel. : 2399 2504
圖文傳真 Fax : 2397 8046
電 郵 Email : joycewclee@td.gov.hk

17 August 2016

OZZO Technology (HK) Ltd.
14/F., EIB Tower
Nos. 4-6 Morrison Hill Road
Wanchai
Hong Kong
(Attn: Ms. Oliver Cheung)

Dear Ms. Cheung,

Rezoning Proposal for the Elderly Housing Development
At Lee Kung Street in Hung Hom, Kowloon
Technical Note: 2036 Traffic Forecast Data for Environmental Impact Assessment

I refer to your above referenced letter dated 13 July 2016.

I have no adverse comment on the methodology adopted for estimating 2036 traffic data for Environmental Impact Assessment.

Yours faithfully,

(Joyce W. C. LEE)
for Commissioner for Transport

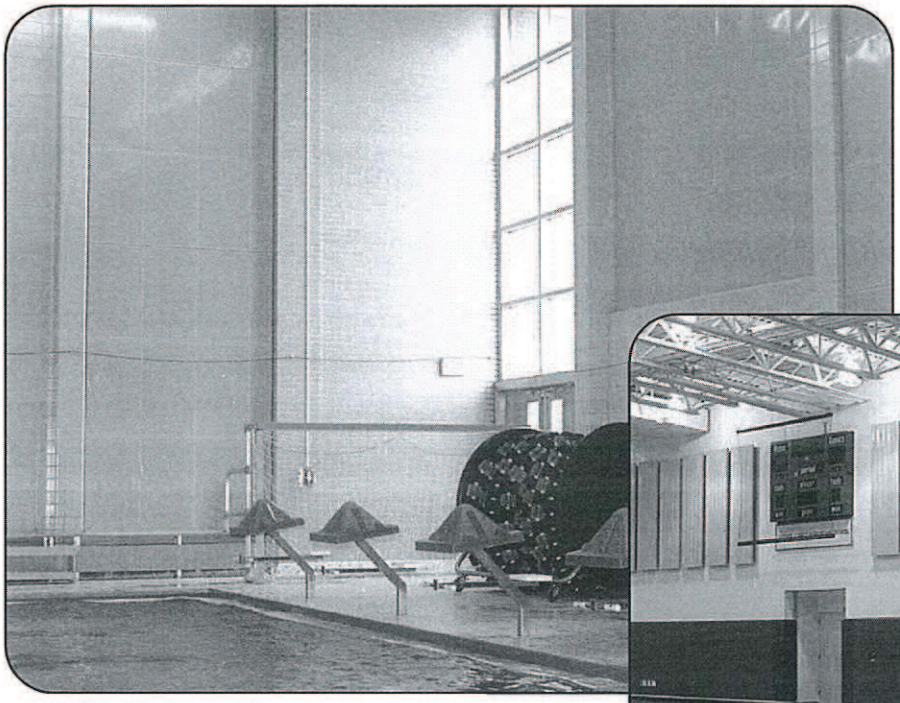
c.c.
PlanD (Attn: Mr. Barry YAN) Fax 2894 9502

Appendix 7:
Example of Sound Absorptive Material

KINETICS NOISE CONTROL

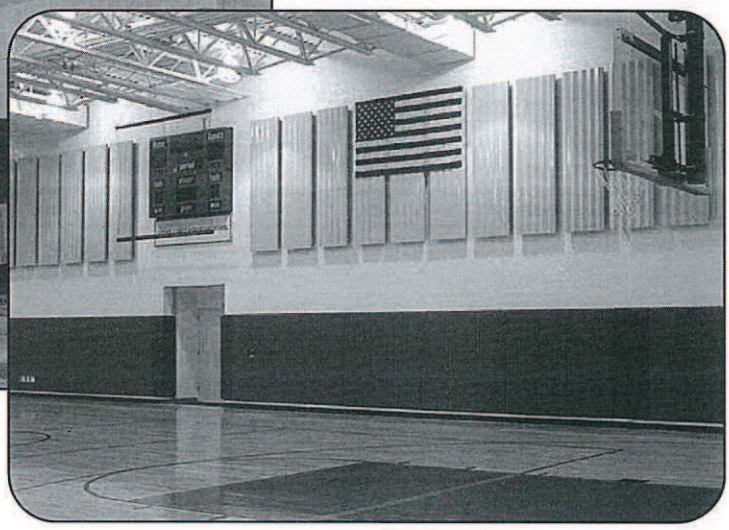
Model KNP

PERFORATED METAL PANELS



KNP, flat panel

These highly durable acoustical panel absorbers are the ideal solution to airborne noise problems in abuse prone areas.



KNP-V, V-groove face

Functional and aesthetically pleasing, the Kinetics' KNP panel is ideal for controlling reverberant noise problems in gymnasiums, natatoriums, and recreation centers.

These highly durable, abuse resistant panels are easy to install on standard Z-clips.

KNP panels are constructed from galvanized steel or aluminum perforated facing. The facing is folded along the vertical edges and is reinforced at each end with solid channels. Each panel is filled with 2" thick, 2.5 PCF mineral fiber sound absorber encapsulated in a heat sealed PVC bag.

The perforated metal face is powder coat painted in a variety of specified colors. The Noise Reduction Coefficient (NRC) of .90 (A mounted) means more reverberation control for a given coverage area when compared to many other abuse resistant panels.

KINETICS Noise Control

6300 Irelan Place
Dublin, OH 43017
1.800.959.1229 Toll-Free
www.kineticsnoise.com

Over 40 years of success solving acoustic and noise control problems!

TECHNICAL INFORMATION

Description

A highly durable, abuse resistant perforated metal acoustical panel.
Available with flat or V-groove face.

Composition

22 gauge perforated galvanized steel or .032 perforated aluminum
2.5 PCF mineral fiber absorber in a 2.0 mil heat sealed black PVC bag.

Acoustical Performance

Sound Absorption per ASTM C-423, A-Mounting

Frequency, Hz	125	250	500	1K	2K	4K	NRC
Absorption Coefficient	.22	.77	1.12	1.00	.78	.57	**.90**

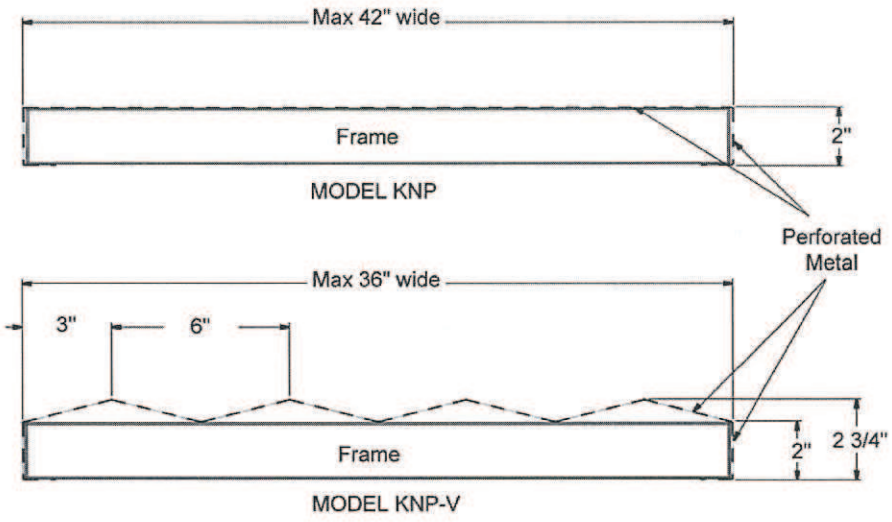
Note: Stand off brackets (optional) will increase sound absorption.

Fire Test Data

Class A per ASTM E84

Applications

Reverberant, noisy spaces where panels must resist damage from impacts, abrasion, or moisture.
Gymnasiums
Recreational Facilities
Multi-Purpose Rooms
Natatoriums (specify aluminum)
Convention Centers



Sizes and Tolerances

Model KNP, 2" thick Flat Face
Maximum 42" wide x 120" high or 114" wide x 48" high

Model KNP-V, 2" thick V-Groove Face
Maximum 36" wide x 120" high (V-grooves run vertically)
or 96" wide x 48" high (V-grooves run vertically)
Note: Custom sizes available. Contact the factory

Tolerances - Models KNP and KNP-V panels are built to plus or minus 1/8 inch tolerances for length, width and squareness (Diagonal measurement).

Mounting

Z-Clips (top), L-Clips (bottom) standard.
Optional: Stand-off brackets or J - Channel (bottom), Z-channel (top)

Download the Specification in CSI Masterformat at **www.kineticsnoise.com**

KINETICS Noise Control

Please contact your factory representative for design layout, specifications and pricing

04/07

GEIGER & HAMME, L.L.C.
Acoustical Testing
POST OFFICE BOX 1345
ANN ARBOR, MICHIGAN 48106
LABORATORIES: 3250 E. MORGAN RD.

REPORT

TEST ON SOUND-ABSORBING MATERIALS BY REVERBERATION ROOM METHOD

To: **KINETICS NOISE CONTROL INC.**
Dublin, Ohio

Test No. **KNC-58** on samples received August 26, 1998

Specimen: **KINETICS KNP ACOUSTICAL PANELS.** Two 2"-thick by 48" by 96" perforated metal panels laid directly on the reverberation room floor (Mounting A per ASTM Designation E795) in a 96" x 96" patch (Specimen area: 64.0 sq.ft.), with perforated facings exposed and with specimen edges sealed. Panels consist of 0.034"-thick galvanized steel facings perforated with 3/32"-dia. holes on 3/16" staggered centers; fabricated with rollformed 2" legs and return flanges; and reinforced with top, bottom and two intermediate 2"-deep rails. Panels each fitted with 2"-thick, 3-lb/cu.ft. density fiberglass in 2-mil plastic-film casings. Fiberglass fillers were installed with 3/16"-thick 2-1/2" x 3" diamond-mesh plastic spacer between the perforated facing and the plastic-film casing. Weight of panels: 132 lbs (2.06 PSF).

Band Center Frequency (Hz)	100	125	160	200	250	315	400	500	630
Sound Absorption Coefficient	0.11	0.20	0.33	0.55	**0.77**	0.97	1.10	**1.14**	1.12
Band Center Frequency (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
Sound Absorption Coefficient	1.09	**1.04**	0.97	0.91	**0.84**	0.78	0.72	0.62	0.54

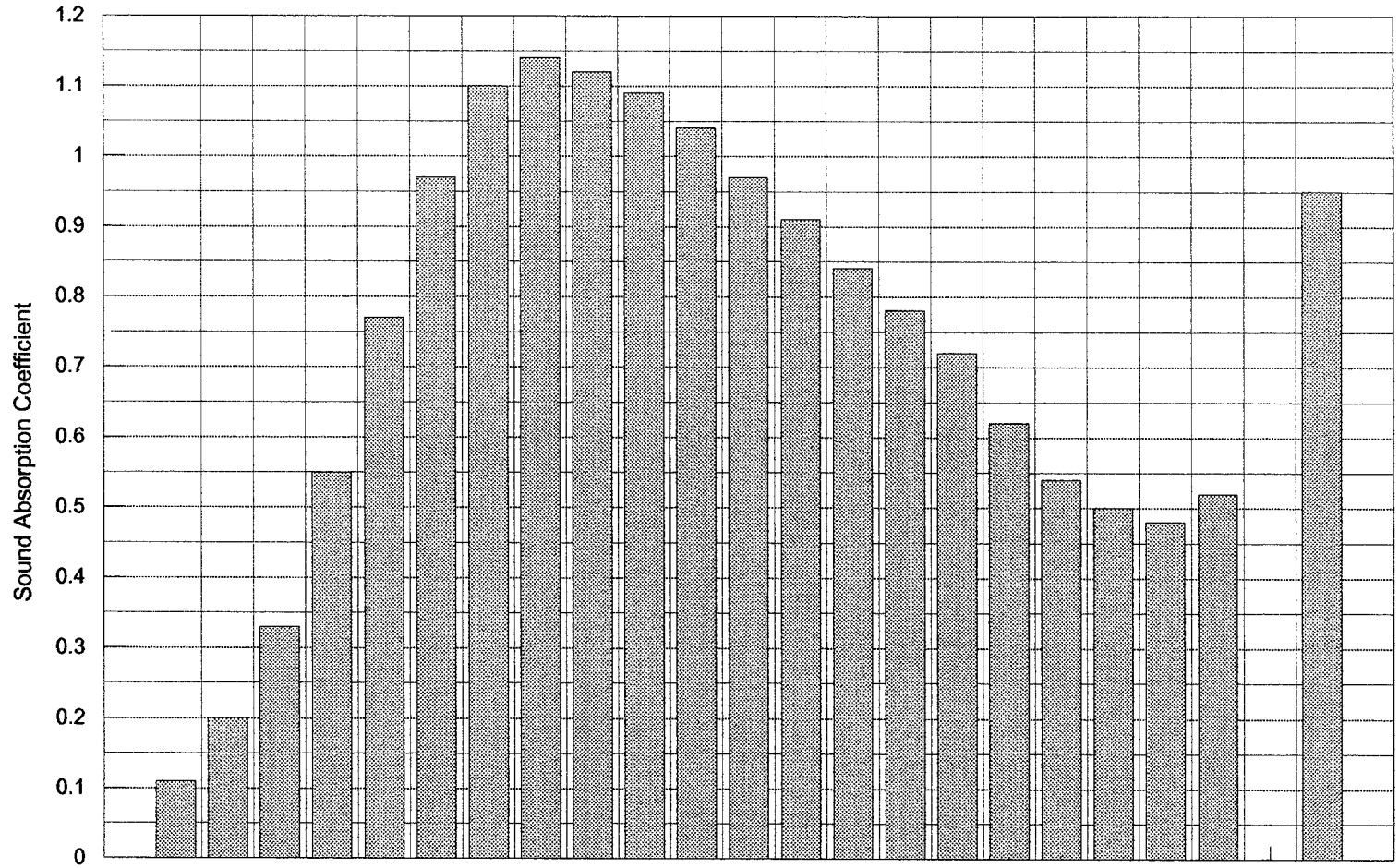
(NRC Average: 0.948) **NOISE REDUCTION COEFFICIENT (NRC) = 0.95**

Sound absorption coefficients determined in accordance with ASTM Designation C423-90a using a Bruel & Kjaer Type 2133 Frequency Analyzer. Precision requirements met except possibly at 100 Hz.

Harold F. Reiher

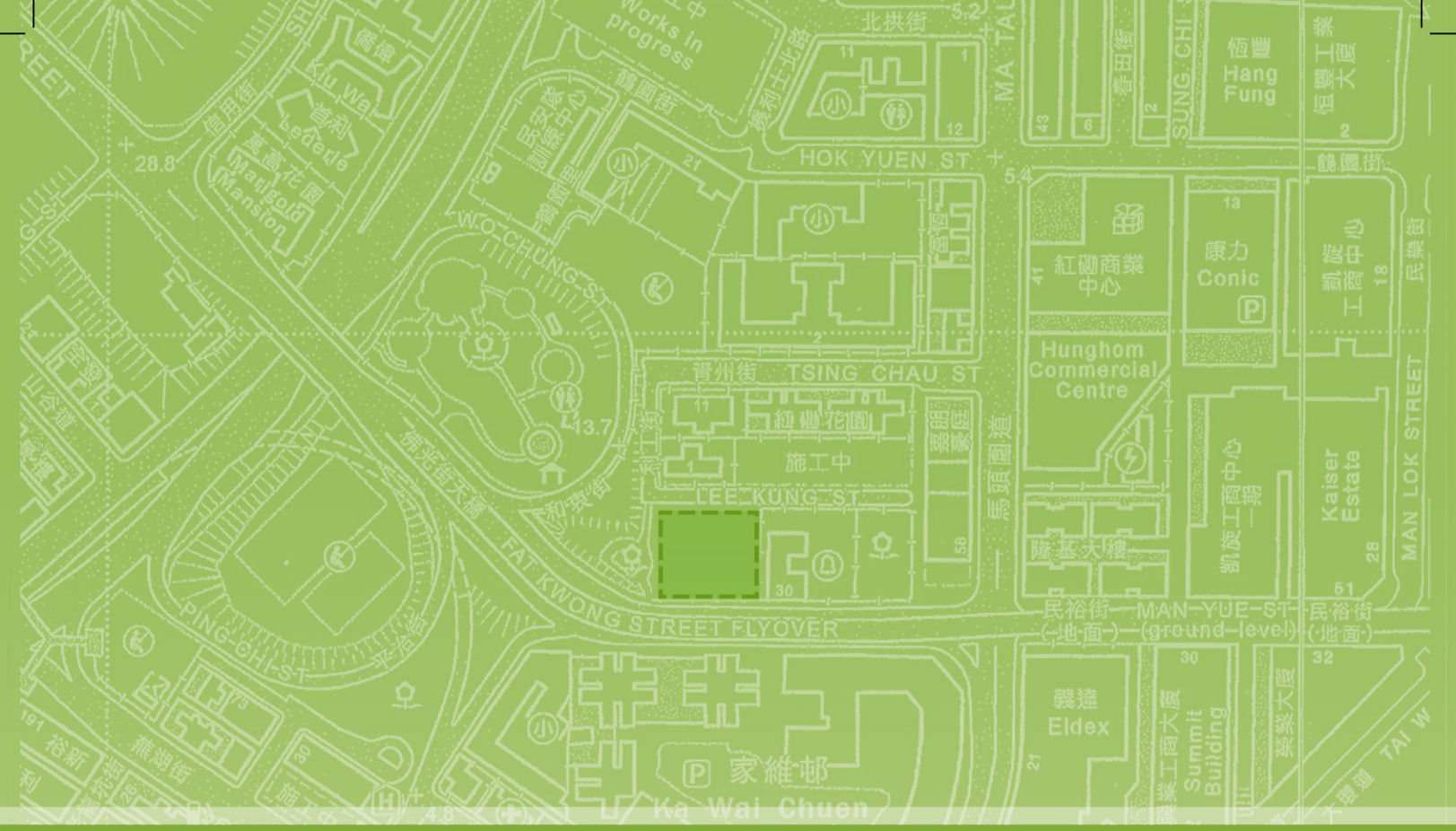
for **GEIGER & HAMME, L.L.C.**
August 27, 1998

KNC-58 2" perforated metal faced panel with plastic spacers and 2", 3pcf fiberglass pads in plastic film casings.
Two 48" x 96" x 2" KINETICS KNP ACOUSTICAL PANELS mounted against floor.



1/3 Oct Freq Hz	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.2k	4k	5k	6.3k	8k	10k		NRC
▯ Absorption Coefficient	0.11	0.20	0.33	0.55	0.77	0.97	1.10	1.14	1.12	1.09	1.04	0.97	0.91	0.84	0.78	0.72	0.62	0.54	0.50	0.48	0.52		0.95
◇ SABINS	7.1	12.8	21.1	35.5	49.3	61.9	70.2	73.2	71.7	69.8	66.6	62.1	58.3	53.8	49.6	46.3	39.4	34.4	32.1	30.8	33.1		{0.948 }

Appendix 8:
Land Use Map with 12 Directions
(Refer to CD Rom)



Annex D

Water Supply Impact Assessment

Hong Kong Housing Society

Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Water Supply Impact Assessment

November 2015

Contents

APPENDICES

Appendix A

Water Demand Calculations

Appendix B

Figures

1 Introduction

1.1 Background

1.1.1 AIM Group Limited has been commissioned by Hong Kong Housing Society (HKHS) to undertake a Water Supply Impact Assessment (WSIA) for the proposed development.

1.1.2 The proposed development involves the construction of a new multi-storey housing development at the Site, which is located between Fat Kwong Street (to the south of the Site) and Lee Kung Street (to the north). The Site is immediately to the west of Hung Hom Fire Station.

1.1.3 This report assesses the water supply arrangements in the vicinity of the Site and the impact of the development with respect to water supply issues. The purpose of this assessment is to demonstrate that the proposed development at the Site will not impose an unacceptable water supply impacts.

2 Project Outline

2.1 Project Title

2.1.1 The project title is “Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hong Hom, Kowloon”. The location of the proposed development is shown on Figure 1.

2.2 Proponent

2.2.1 The proponent of the project is the Hong Kong Housing Society.

2.3 Contact Person

2.3.1 For issues relating to this WSIA Study, please contact Ir Colin Moreby of AIM Group Limited at 2572 6533.

2.4 Nature and Description of the Project

2.4.1 The overall Application Site covers a total land area of approximately 1,680m^2. The Project will involve the construction of a single new main building to provide residential accommodation for 332 persons, with some shops and recreational facilities at the lower levels. There will also be a Residential Care Home for the Elderly, with 58 beds. Typical floor plans for the proposed development are included in Annex A of the Planning Submission.

2.5 Location

2.5.1 The Application Site is located to the north of Fat Kwong Street, to the south of Lee Kung Street and to the west of Hung Hom Fire Station.

2.6 S16 Planning Application

2.6.1 This report has been prepared in support of a Section 16 Town Planning submission.

3 Planning and Implementation Programme

3.1 Planning and Implementation

3.1.1 The Project will be planned and implemented under the supervision of appropriately qualified and experienced professionals. The construction of any works for the Project will be carried out by a Contractor to be identified following a tender process prior to the construction phase.

3.2 Project Timetable

3.2.1 The proposed development is targeted for completion in the Year 2021.

3.3 Interface with Other Projects

3.3.1 There is no foreseeable interaction with other development projects in the area, which should be considered at this time.

4 Existing Water Supply

4.1 Existing Water Supplies

4.1.1 The Site is within the supply zone of Ho Man Tin East Freshwater Service Reservoir and Ho Man Tin West Freshwater Service Reservoir, which are located a short distance to the north-west of the Site.

4.1.2 There is a 4" diameter freshwater connection pipe to the Site from a 6" freshwater main in Fat Kwong Street (see Figure 2). This connection pipe continues as a 0.75" main across the Site and on towards Fat Kwong Street Garden No. 1.

4.1.3 There is a (dedicated) 3" saltwater connection pipe from a 6" main in Fat Kwong Street to the Site.

4.1.4 The populations and associated water demands from the previous FSD Married Quarters at the Site are unknown.

5 Water Supply Impact Assessment

5.1 Assessment Criteria

5.1.1 The unit water demands for the various population categories have been taken from Water Supplies Department (WSD) Departmental Instruction 1309 (where available) or have been derived from Environmental Protection Department's Guidelines for the Estimation of Sewage Flows for Infrastructure Planning. Water demand calculations are included in Appendix A.

5.2 Water Demand Impact Assessment

Supply Impacts

5.2.1 The proposed development at the Site will result in new water demands. It is estimated that the freshwater demand from the proposed development will 158.5m^3/day and the saltwater demand will be 45.9m^3/day. These are fairly small volumes and it should be noted that there would have been previous demands from the Site when it was

occupied by FSD Married Quarters, so the actual increases in demand are likely to be minimal in proportion to the overall supply to the general area. It is considered that the impacts to the fresh and salt water supplies are acceptable.

Watermains Impacts

5.2.2 The existing freshwater connection pipe actually runs through the western portion of Site and will almost certainly be in conflict with the proposed development. In order to avoid the clash, it is proposed to retain the 4" connection pipe only to approximately the Site Boundary, with internal pipework to be provided within the Site to suit the final building layout(s). The existing pipeline continues onwards (as 0.75" diameter) to the Fat Kwong Street Garden No. 1 and it is proposed to relocate this connection along the footpath and through Fat Kwong Street Garden No. 2, as shown on Figure 3. The diversion/relocation will need to be developed in detail to demonstrate that it meets WSD design, construction, operation and maintenance requirements and will need to be submitted to WSD for comment and approval. This will be carried out in later stages of implementation, prior to construction works.

5.2.3 The saltwater connection to the Site will be unaffected by the proposed development, although, as for the freshwater mains, the future alignments within the Site will be developed to suit the layout of the future building(s).

6 Conclusions

6.1.1 There will be new demands both fresh and salt water as a result of the development. However, the volumes are not large and the increases from previous demands at the Site are considered to be insignificant in terms of overall supplies to the area.

6.1.2 There will be a conflict between the existing freshwater main within the Site and the proposed building. However, this can be resolved by a minor diversion of a small diameter pipe around the Site. The project proponent will submit details of the proposed waterworks to Region Office of WSD for approval in the detail design stage prior to the construction works.

6.1.3 It is concluded that the proposed development can be implemented without any unacceptable adverse water supply impacts.

Appendix A

Water Demand Calculations

C88 Rezoning Proposal for the Elderly Housing Development at Lee Kung Street, Hung Hom
Populations and Water Demands

Populations

Residential	332	
Staff	25	Persons
of which, say:		
	15	General staff (maintenance, cleaning, etc.)
	10	Non-Effluent producing (guards etc.)
Residential Care Home for the Elderly (RCHE)		
Bed Spaces	58	Beds (assume same as hotel rooms)

Water Demands

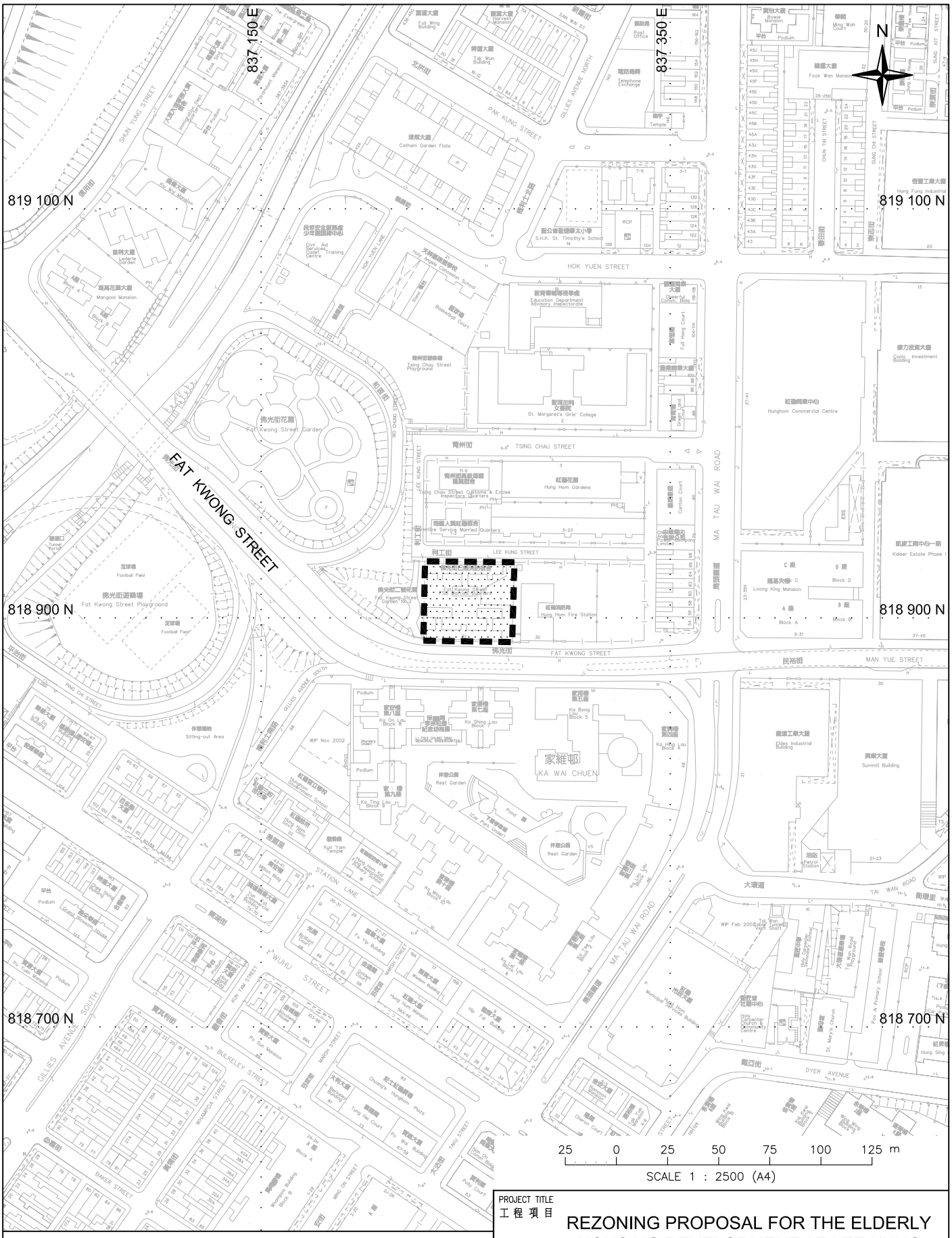
Refer WSD Departmental Instruction 1309 and EPD Guidelines for the Estimation of Sewage Flows for Infrastructure Planning

Population	Category	Population	Daily Demand Freshwater (m^3/h/d)	Daily Demand Saltwater (m^3/h/d)	Daily Demand Freshwater (m^3/d)	Daily Demand Saltwater (m^3/d)
Residential	R2	332	0.300	0.070	99.6	23.2
"Dry" Non-Domestic (General staff)	J11	15	0.035	0.070	0.5	1.1
"Dry" Non-Domestic	General	10	0.035	0.070	0.4	0.7
RCHE	Beds/Rooms	58	1.000	0.360	58.0	20.9
TOTAL					**158.5**	**45.9**

N.B. Accuracy as shown

Appendix B

Figures



LEGEND

PROJECT SITE

PROJECT TITLE
工程項目

REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON

DRAWING TITLE
圖名

SITE LOCATION PLAN

REV. 修訂	DATE 日期	DESCRIPTION 內容摘要	CHECKED 復核	APPD. 批準人
-	XX	XX	XX	XX

REVISION

CONSULTANT
工程顧問

AIM EXPERT SERVICES

CAD REF. 檔案名稱 C88_A4_1A

REV. 修訂 -

DRAWING NO. 圖紙編號 FIGURE 1

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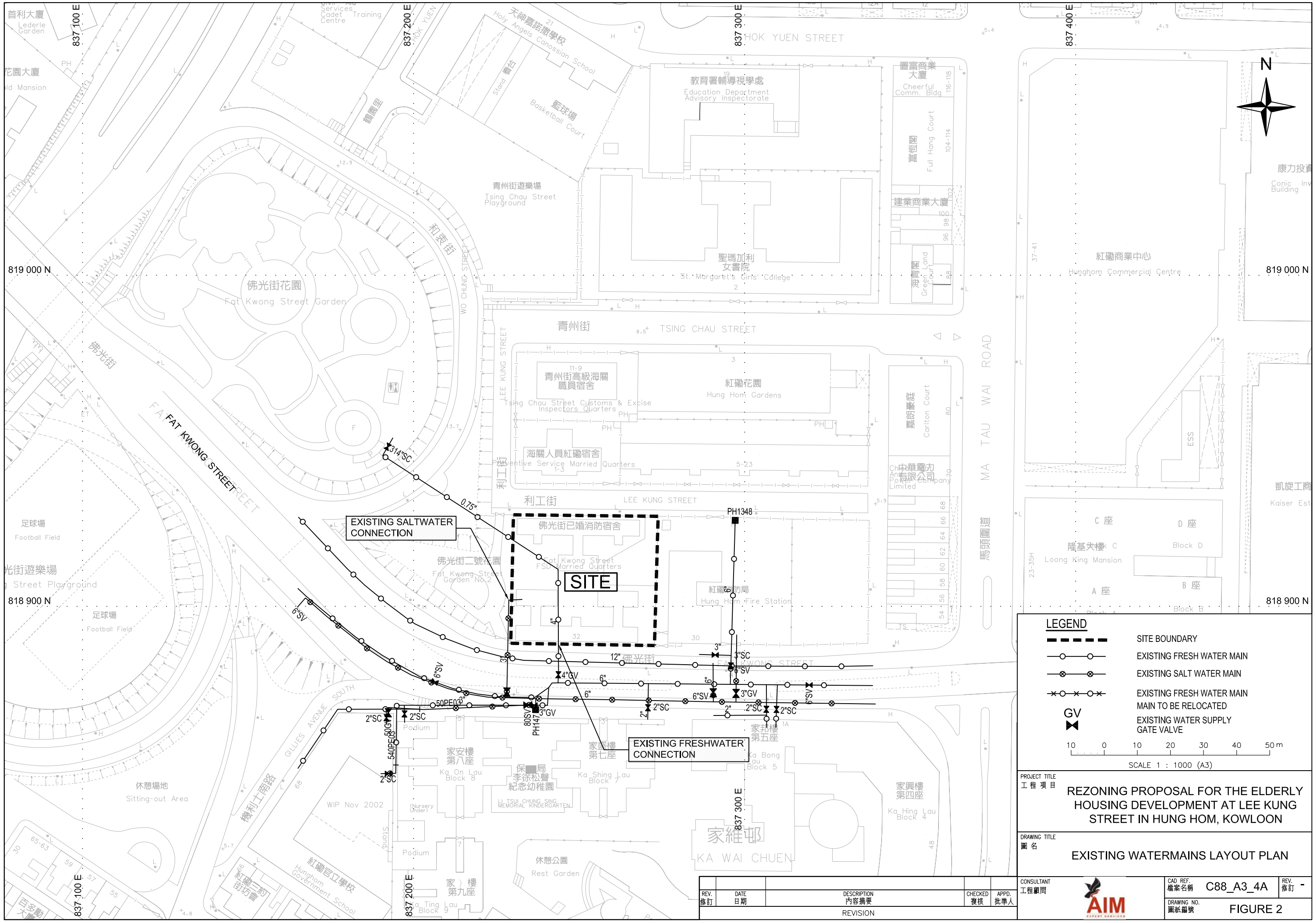

LEGEND

- SITE BOUNDARY
- EXISTING FRESH WATER MAIN
- EXISTING SALT WATER MAIN
- EXISTING FRESH WATER MAIN MAIN TO BE RELOCATED
- GV — EXISTING WATER SUPPLY GATE VALVE

10 0 10 20 30 40 50 m

SCALE 1 : 1000 (A3)

REV. 修訂	DATE 日期	DESCRIPTION 內容摘要	CHECKED 復核	APPD. 批準人

REVISION

PROJECT TITLE 工程項目

REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON

DRAWING TITLE 圖名

EXISTING WATERMAINS LAYOUT PLAN

CONSULTANT 工程顧問

AIM EXPERT SERVICES

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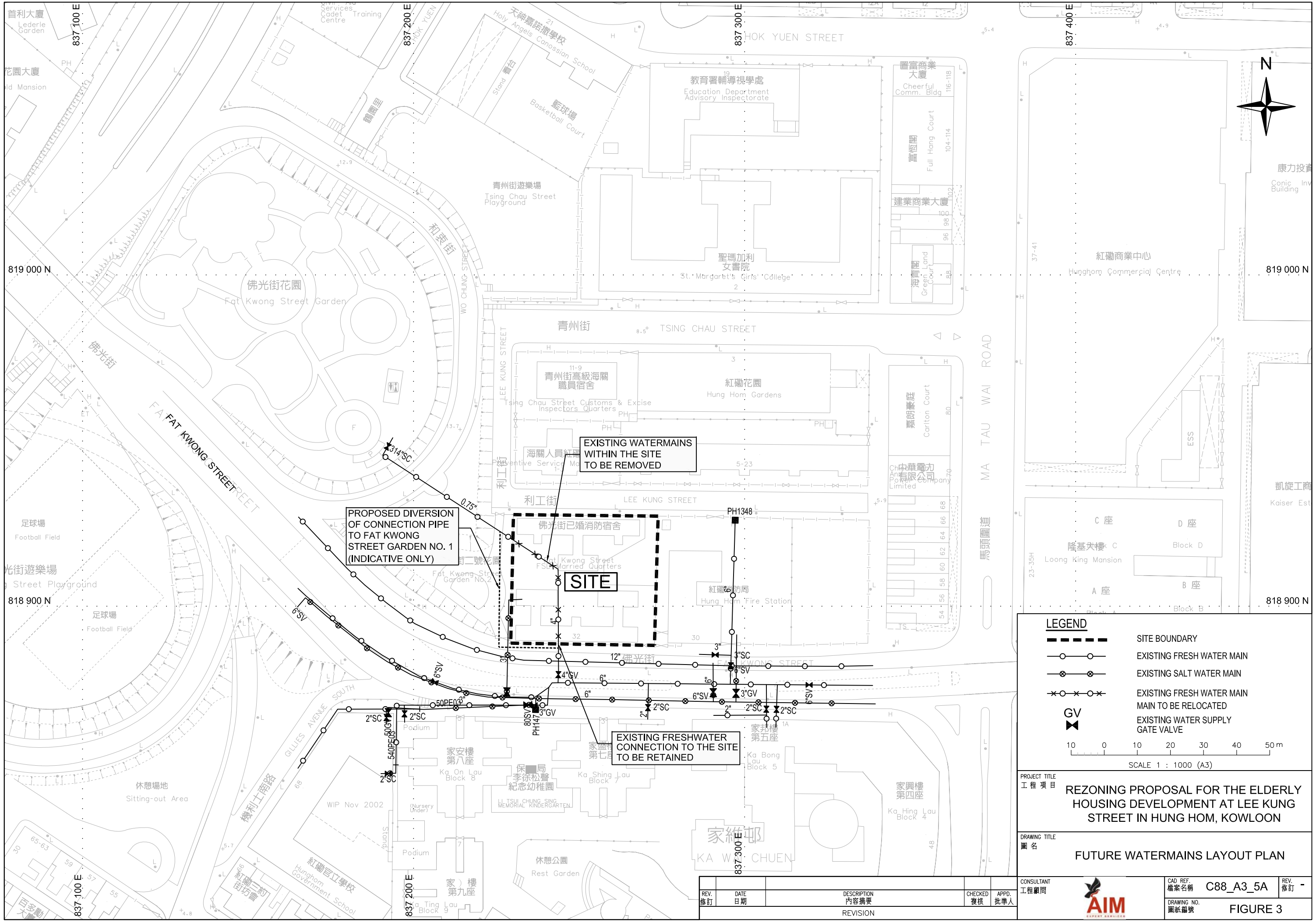
837 100 E
837 200 E
837 300 E
837 400 E
819 000 N
818 900 N
N
HOK YUEN STREET
TSING CHAU STREET
LEE KUNG STREET
WO CHUNG STREET
FAT KWONG STREET
GILLIES AVENUE SOUTH
MA TAU WAI ROAD
和宗街
佛光街
利工街
青州街
機利士南路
馬頭圍道
首利大廈
Lederle Garden
花園大廈
Old Mansion
Services Cadet Training Centre
天神嘉諾撒學校
Holy Angels Canossian School
Stand 看台
籃球場
Basketball Court
鶴園里
青州街遊樂場
Tsing Chau Street Playground
教育署輔導視學處
Education Department Advisory Inspectorate
置富商業大廈
Cheerful Comm. Bldg
富恆閣
Full Hang Court
建業商業大廈
海富閣
Green Land Court
聖瑪加利女書院
St. Margaret's Girls' College
紅磡商業中心
Hunghom Commercial Centre
康力投資
Conic Inv Building
佛光街花園
Fat Kwong Street Garden
青州街高級海關職員宿舍
Tsing Chau Street Customs & Excise Inspectors Quarters
紅磡花園
Hung Hom Gardens
嘉朗豪庭
Carlton Court
中華電力有限公司
China Power Company Limited
凱旋工商
Kaiser Est
C 座
D 座
隆基大樓
Loong King Mansion
A 座
B 座
海關人員紅磡
Preventive Service Mansion
佛光街已婚消防宿舍
Fat Kwong Street FSU Married Quarters
Fat Kwong Street Garden No.2
紅磡消防局
Hung Hom Fire Station
家安樓 第八座
Ka On Lau Block 8
家盛樓 第七座
Ka Shing Lau Block 7
家邦樓 第五座
Ka Bong Lau Block 5
家興樓 第四座
Ka Hing Lau Block 4
家維邨
KA WAI CHUEN
保■同李徐松聲紀念幼稚園
LI TSUI CHUNG SING MEMORIAL KINDERGARTEN
家) 樓 第九座
Ka Ting Lau Block 9
休憩公園
Rest Garden
休憩場地
Sitting-out Area
足球場
Football Field
光街遊樂場
Street Playground
WIP Nov 2002
紅磡官立學校
Hunghom Government School
紅磡三約街坊會
EXISTING WATERMAINS WITHIN THE SITE TO BE REMOVED
PROPOSED DIVERSION OF CONNECTION PIPE TO FAT KWONG STREET GARDEN NO. 1 (INDICATIVE ONLY)
SITE
EXISTING FRESHWATER CONNECTION TO THE SITE TO BE RETAINED
PH1348
PH1347
314"SC
0.75"
6"SV
4"GV
6"
3"
3"SC
3"GV
2"SC
50PE
50GI
540PE
80SV
12"
LEGEND
SITE BOUNDARY
EXISTING FRESH WATER MAIN
EXISTING SALT WATER MAIN
EXISTING FRESH WATER MAIN MAIN TO BE RELOCATED
GV
EXISTING WATER SUPPLY GATE VALVE
10 0 10 20 30 40 50 m
SCALE 1 : 1000 (A3)
PROJECT TITLE 工程項目
REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON
DRAWING TITLE 圖名
FUTURE WATERMAINS LAYOUT PLAN
REV. 修訂
DATE 日期
DESCRIPTION 內容摘要
CHECKED 複核
APPD. 批準人
REVISION
CONSULTANT 工程顧問
AIM
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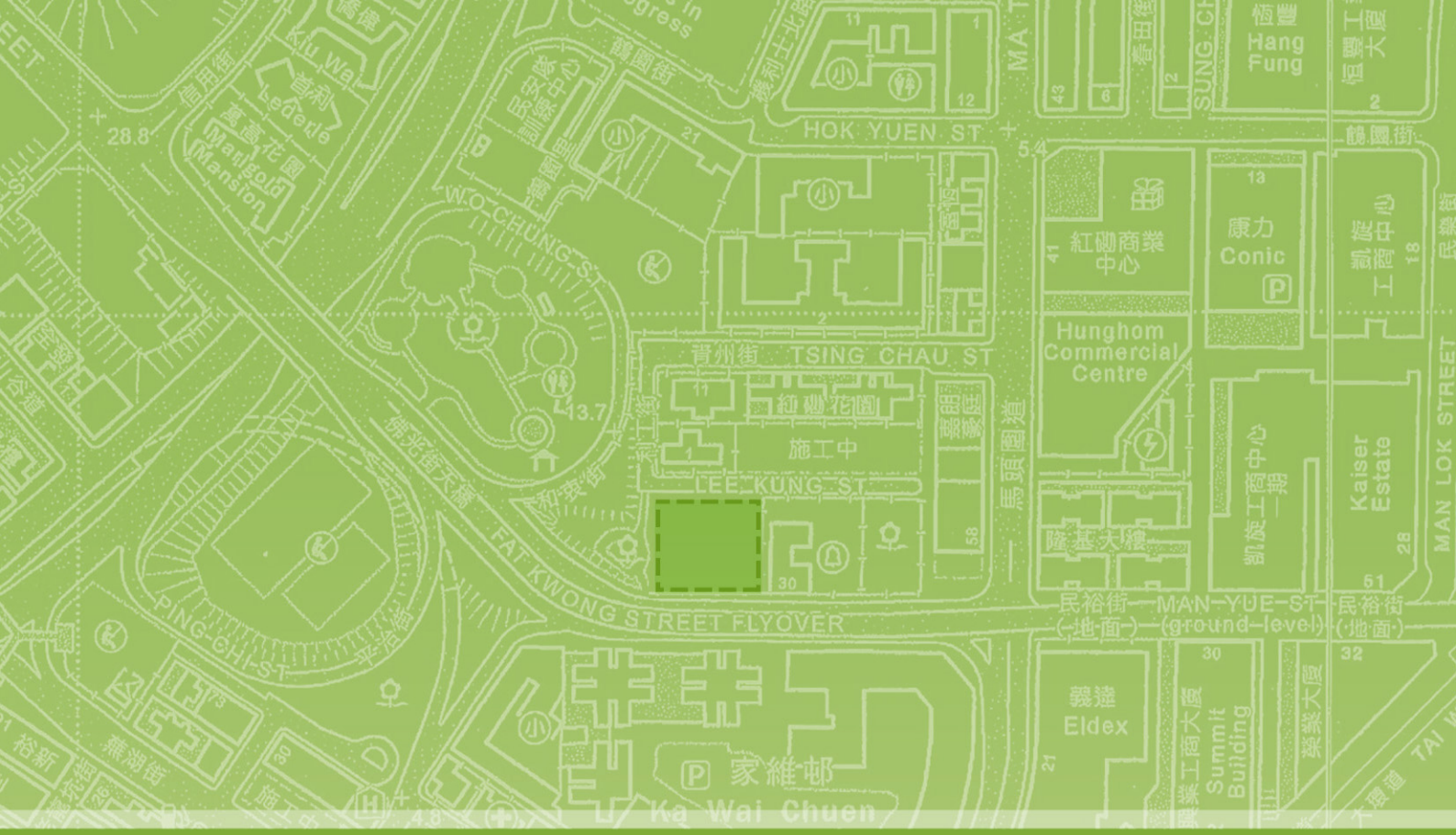


Annex E

Drainage Impact Assessment

Hong Kong Housing Society

Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Drainage Impact Assessment

Project Profile Report

July 2015

Contents

APPENDICES

Appendix A

Figures

1 Introduction

1.1 Background

1.1.1 AIM Group Limited has been commissioned by the Hong Kong Housing Society (HKHS) to undertake a drainage impact assessment (DIA) for the proposed development.

1.1.2 The proposed development involves the construction of a new multi-storey housing development at the Site, which is located between Fat Kwong Street (to the south of the Site) and Lee Kung Street (to the north). The Site is immediately to the west of Hung Hom Fire Station.

1.1.3 This report assesses the drainage arrangements in the vicinity of the Site and the impact of the development with respect to drainage issues. The purpose of this assessment is to demonstrate that the proposed development at the Site will not impose an unacceptable increase in the risk of flooding to the surrounding areas.

1.1.4 This Project Profile Report is prepared in accordance with the requirements of the DIA process for private sector projects set out under Drainage Services Department's (DSD's) Technical Advice Note No. 1.

1.2 Information Available for the Study

1.2.1 Reference has been made to Drainage Services Department (DSD) Drainage Record Sheets Nos. 11-NW-25B-2 and 11-NW-25B-4, which cover the Site and immediate surrounding areas.

1.2.2 Reference has also been made to DSD's Stormwater Drainage Manual and list of flooding blackspots provided on DSD's website.

2 Project Outline

2.1 Project Title

2.1.1 The project title is “Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hong Hom, Kowloon”. The location of the proposed development is shown on Figure 1.

2.2 Proponent

2.2.1 The proponent of the project is the Hong Kong Housing Society.

2.3 Contact Person

2.3.1 For issues relating to this DIA Study, please contact Ir Colin Moreby of AIM Group Limited at 2572 6533.

2.4 Nature and Description of the Project

2.4.1 The overall Application Site covers a total land area of approximately 1,680m^2. The Project will involve the construction of a single new main building to provide residential accommodation, with low-level shops and recreational facilities at the lower levels. Typical floor plans for the proposed development are included in Annex A of the Planning Submission.

2.5 Location

2.5.1 The Application Site is located to the north of Fat Kwong Street, to the south of Lee Kung Street and to the west of Hung Hom Fire Station.

2.6 Area of Project Site

2.6.1 The Site has an area of approximately 1,680m^2.

2.7 Change in Level

2.7.1 The existing Site is flat and paved, having been previously occupied by Fire Services Department Married Quarters and subsequently used as a car park. The existing Site is at an elevation of approximately +6.7mPD.

2.7.2 The proposed development will not significantly affect the levels at the Site, with the new buildings to be above the existing Site formation.

2.8 S16 Planning Application

2.8.1 This report has been prepared in support of a Section 16 Town Planning submission.

3 Planning and Implementation Programme

3.1 Planning and Implementation

3.1.1 The Project will be planned and implemented under the supervision of appropriately qualified and experienced professionals. The construction of any works for the Project will be carried out by a Contractor to be identified following a tender process prior to the construction phase.

3.2 Project Timetable

3.2.1 The proposed development is targeted for completion in the Year 2021.

3.3 Interface with Other Projects

3.3.1 There are no other projects in the area which are likely to conflict with this Project.

4 Existing Drainage

4.1 Existing Watercourses and Drainage Routes

4.1.1 The existing Site is flat and fully paved, with a 300mm diameter connection from the Site to manhole SMH14033442 indicated on the Drainage Record Drawings. The discharge from this manhole is via a 600mm diameter drain running eastwards along Fat Kwong Street to a single cell (1050 x 1050) box culvert running northwards along Ma Tau Wai Road. This culvert in turn connects to a larger (1475 x (1275) single cell box culvert running eastwards along Hok Yuen Street to the Harbour.

4.1.2 There are no flooding blackspots in the vicinity of the Site and the existing drainage facilities appear to be generally adequate for the existing runoff.

4.2 Areas of Catchments

4.2.1 The Site effectively comprises single self-contained catchment of 1,680m^2, with surrounding areas draining separately to the public drainage system(s).

5 Drainage Impact Assessment

5.1 Drainage Impact Assessment

General

5.1.1 The existing Site is already fully paved and properly connected to the public drainage system, with no known drainage capacity problems. The proposed development therefore cannot increase the amount of runoff and therefore cannot have any adverse drainage impacts. In reality, the runoff will need to discharge from the rooftop(s) and some landscaping is likely to be introduced, and these factors will actually slightly reduce the runoff, although these have been ignored for this assessment.

5.1.2 The Project Proponent will be responsible for the design, construction, repair and maintenance of any new drains within the Site to the satisfaction of relevant Government departments.

5.1.3 The proposed development will not have any adverse drainage impacts.

5.2 Recommendations

Internal Drainage and Drainage Connection

5.2.1 It is recommended that internal drainage systems be provided to convey runoff to the existing discharge point at the south east corner of the Site.

Implementation and Maintenance

5.2.2 All drainage facilities will be implemented and maintained by the Project Proponent.

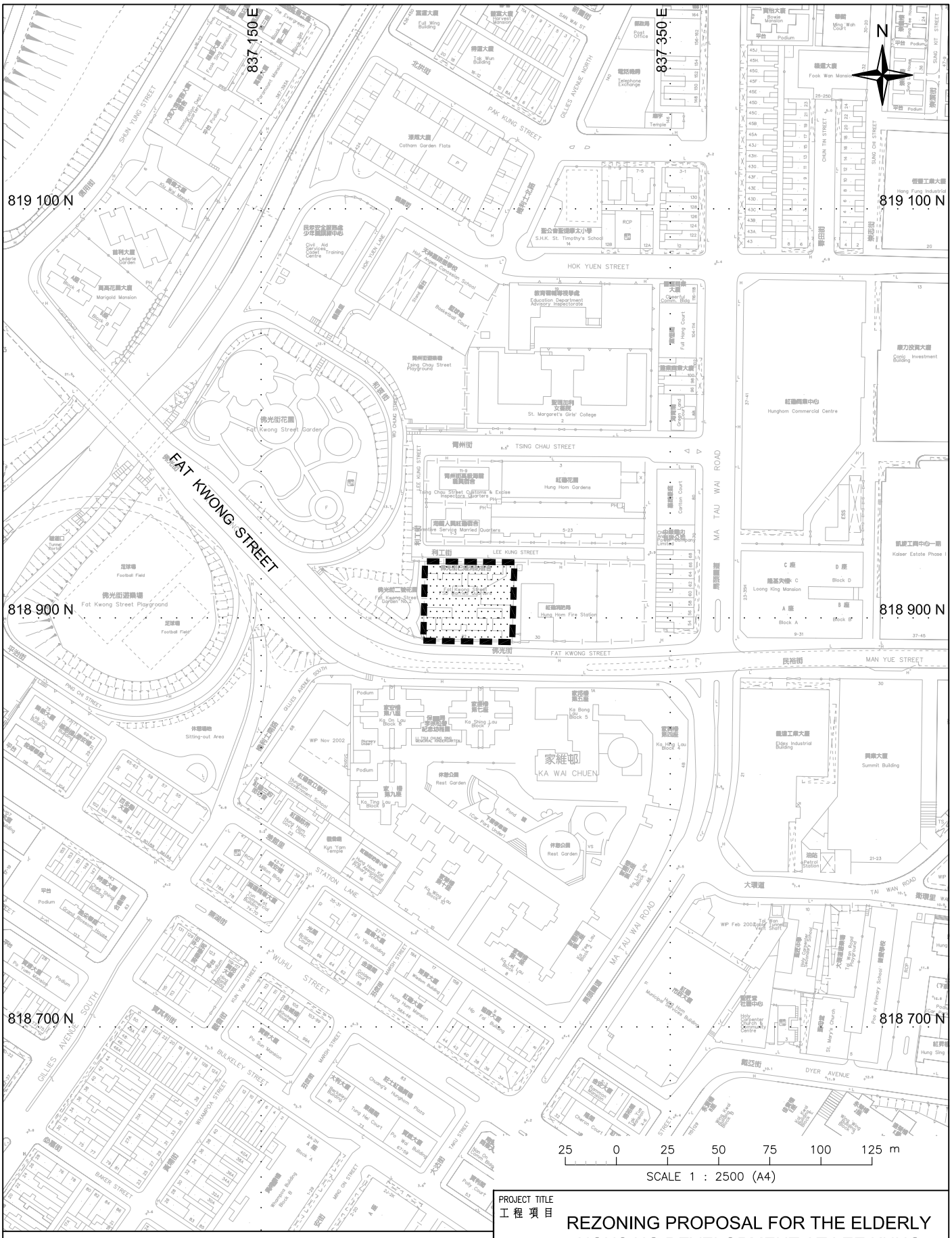
6 Conclusions

6.1.1 There will be a no increase in the amount of runoff from the Site as a result of the proposed development. All runoff will continue to discharge to the existing drainage connection point.

6.1.2 The proposed development will result in no adverse drainage impact.

Appendix A

Figures



LEGEND

PROJECT SITE

PROJECT TITLE
工程項目

REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON

DRAWING TITLE
圖名

SITE LOCATION PLAN

REV. 修訂	DATE 日期	DESCRIPTION 內容摘要	CHECKED 復核	APPD. 批準人
-	XX	XX	XX	XX

REVISION

CONSULTANT
工程顧問

AIM EXPERT SERVICES

CAD REF. 檔案名稱 C88_A4_1A

REV. 修訂 -

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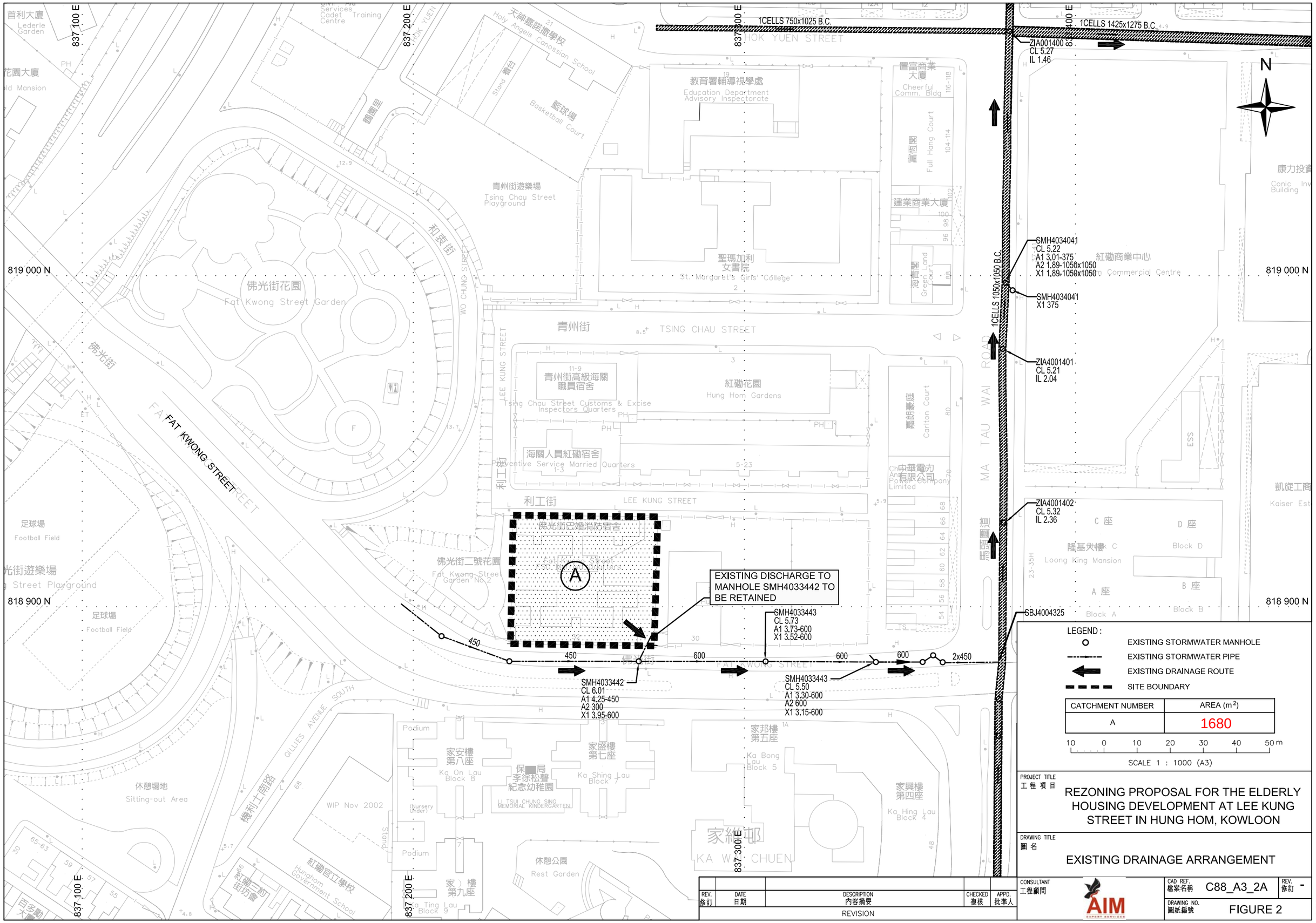
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837 200 E
837 300 E
819 000 N
818 900 N
1CELLS 750x1025 B.C.
1CELLS 1425x1275 B.C.
1CELLS 1050x1050 B.C.
HOK YUEN STREET
TSING CHAU STREET
LEE KUNG STREET
FAT KWONG STREET
WO CHUNG STREET
MA TAU WAI ROAD
GLUGES AVENUE SOUTH
ZIA001400
CL 5.27
IL 1.46
SMH4034041
CL 5.22
A1 3.01-375
A2 1.89-1050x1050
X1 1.89-1050x1050
SMH4034041
X1 375
ZIA4001401
CL 5.21
IL 2.04
ZIA4001402
CL 5.32
IL 2.36
SBJ4004325
SMH4033442
CL 6.01
A1 4.25-450
A2 300
X1 3.95-600
SMH4033443
CL 5.73
A1 3.73-600
X1 3.52-600
SMH4033443
CL 5.50
A1 3.30-600
A2 600
X1 3.15-600
EXISTING DISCHARGE TO MANHOLE SMH4033442 TO BE RETAINED
A
450
600
2x450
N
佛光街花園
Fat Kwong Street Garden
青州街遊樂場
Tsing Chau Street Playground
聖瑪加利女書院
St. Margaret's Girls' College
教育署輔導視學處
Education Department Advisory Inspectorate
天神嘉諾撒學校
Holy Angels Canossian School
籃球場
Basketball Court
青州街高級海關職員宿舍
Tsing Chau Street Customs & Excise Inspectors Quarters
紅磡花園
Hung Hom Gardens
海關人員紅磡宿舍
Preventive Service Married Quarters
佛光街二號花園
Fat Kwong Street Garden No.2
休憩公園
Rest Garden
休憩場地
Sitting-out Area
足球場
Football Field
紅磡官立學校
Hunghom Government School
家安樓第八座
Ka On Lau Block 8
家盛樓第七座
Ka Shing Lau Block 7
家邦樓第五座
Ka Bong Lau Block 5
家興樓第四座
Ka Hing Lau Block 4
家維邨
KA WAI CHUEN
家）樓第九座
Ka Ting Lau Block 9
保■局李徐松馨紀念幼稚園
LI TSUI CHUNG SING MEMORIAL KINDERGARTEN
WIP Nov 2002
置富商業大廈
Cheerful Comm. Bldg
建業商業大廈
Full Hang Court
Green Land Court
嘉朗豪庭
Carlton Court
中華電力有限公司
China Light & Power Company Limited
紅磡商業中心
Hung Hom Commercial Centre
康力投資大廈
Conic Investment Building
凱旋工商中心
Kaiser Estate
隆基大樓
Loong King Mansion
C 座 Block C
D 座 Block D
A 座 Block A
B 座 Block B
首利大廈
Lederle Garden
花園大廈
Old Mansion
LEGEND :
EXISTING STORMWATER MANHOLE
EXISTING STORMWATER PIPE
EXISTING DRAINAGE ROUTE
SITE BOUNDARY
CATCHMENT NUMBER
AREA (m²)
A
1680
10 0 10 20 30 40 50 m
SCALE 1 : 1000 (A3)
PROJECT TITLE
工程項目
REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON
DRAWING TITLE
圖名
EXISTING DRAINAGE ARRANGEMENT
REV. 修訂
DATE 日期
DESCRIPTION 內容摘要
CHECKED 覆核
APPD. 批準人
REVISION
CONSULTANT 工程顧問
AIM
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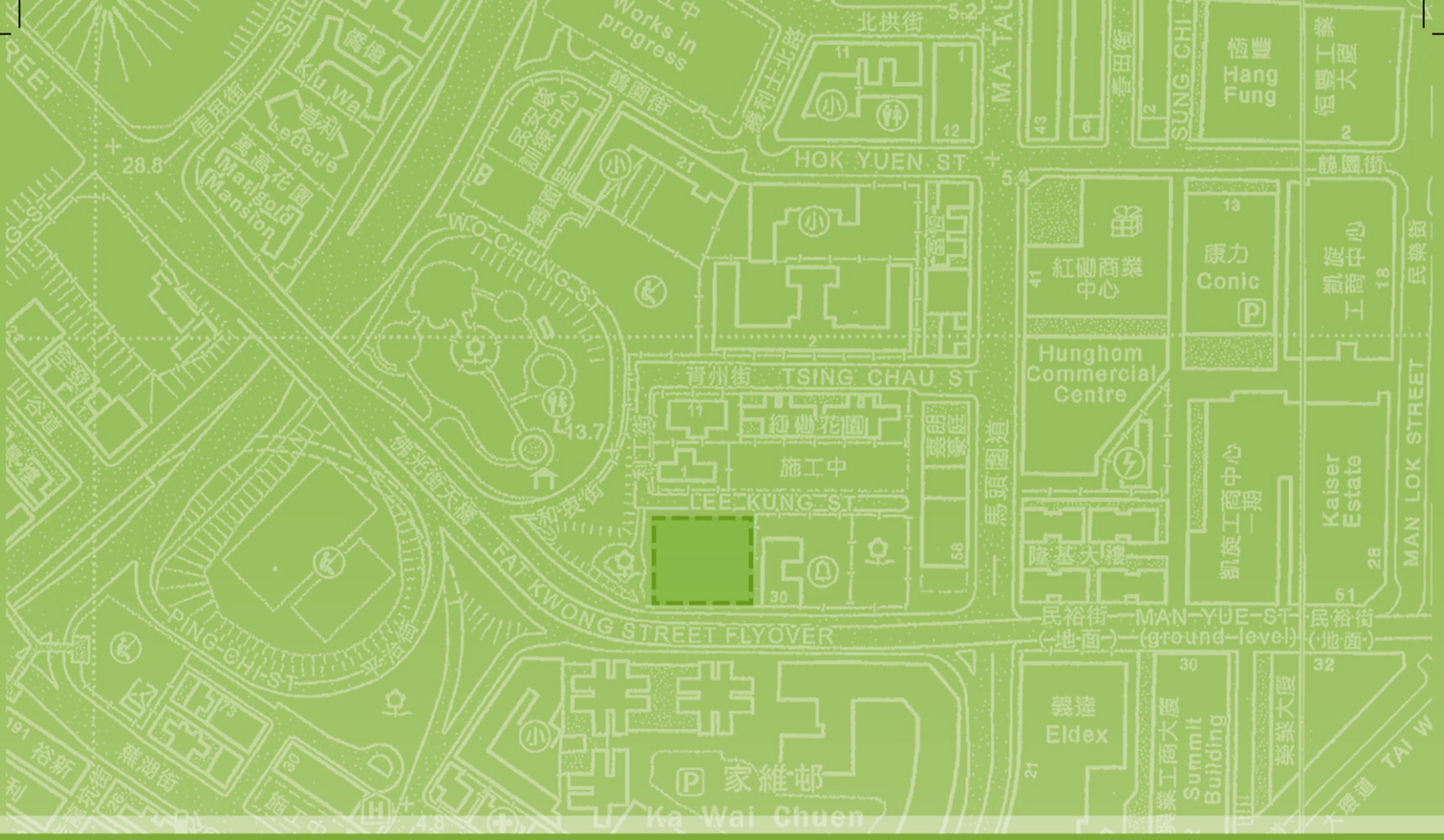


Annex F

Sewerage Impact Assessment

Hong Kong Housing Society

Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Sewerage Impact Assessment

Project Profile Report

November 2015

Contents

APPENDICES

1 Introduction

1.1 Background

1.1.1 AIM Group Limited has been commissioned by the Hong Kong Housing Society (HKHS) to undertake a sewerage impact assessment (SIA) for the proposed development.

1.1.2 The proposed development involves the construction of a new multi-storey housing development at the Site, which is located between Fat Kwong Street (to the south of the Site) and Lee Kung Street (to the north). The Site is immediately to the west of Hung Hom Fire Station.

1.1.3 This report assesses the sewerage arrangements in the vicinity of the Site and the impact of the development with respect to sewerage issues. The purpose of this assessment is to demonstrate that the proposed development at the Site will not impose any unacceptable adverse impacts on the public sewerage system.

1.2 Information Available for the Study

1.2.1 Reference has been made to Drainage Services Department (DSD) Drainage Record Sheet Nos. 11-NW-25B-2 and 11-NW-25B-4, which cover the Site and immediate surrounding areas.

1.2.2 Reference has also been made to DSD's Sewerage Manual, Part 1, and Environmental Protection Department's (EPD's) Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF).

2 Project Outline

2.1 Project Title

2.1.1 The project title is "Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hong Hom, Kowloon". The location of the proposed development is shown on Figure 1.

2.2 Proponent

2.2.1 The proponent of the project is the Hong Kong Housing Society.

2.3 Contact Person

2.3.1 For issues relating to this SIA Study, please contact Ir Colin Moreby of AIM Group Limited at 2572 6533.

2.4 Nature and Description of the Project

2.4.1 The overall Application Site covers a total land area of approximately 1,680m^2. The Project will involve the construction of a single new main building to provide residential accommodation for 332 persons, with some shops and recreational facilities at the lower levels. There will also be a Residential Care Home for the Elderly (RCHE), with 58 beds. Typical floor plans for the proposed development are included in Annex A of the Planning Submission.

2.5 Location

2.5.1 The Application Site is located to the north of Fat Kwong Street, to the south of Lee Kung Street and to the west of Hung Hom Fire Station.

2.6 Planning Application

2.6.1 This report has been prepared in support of a Section 16 Town Planning submission.

3 Planning and Implementation Programme

3.1 Planning and Implementation

3.1.1 The Project will be planned and implemented under the supervision of appropriately qualified and experienced professionals. The construction of any works for the Project will be carried out by a Contractor to be identified following a tender process prior to the construction phase.

3.2 Project Timetable

3.2.1 The proposed development is targeted for completion in the Year 2021.

3.3 Interface with Other Projects

3.3.1 There is no foreseeable interaction with other development projects in the area, which should be considered at this time.

4 Existing Sewerage and Sewage Generation

4.1 Existing Sewerage

4.1.1 The existing sewerage arrangement is shown on Figure 2. There appears to be a connection from the Site to the public sewer in Fat Kwong Street at manhole FMH4027955. This manhole also collects discharge from the adjacent Hung Hom Fire Station and discharges to the main 375mm diameter sewer running in an easterly direction along Fat Kwong Street. At the junction of Fat Kwong Street and Ma Tau Wai Road, the sewer discharges into a single cell 975 x 675 box culvert, running towards the north along Ma Tau Wai Road. At the junction of Ma Tau Wai Road and Hok Yuen Street the culvert enlarges to a single cell 1500 x 825 box culvert and continues northwards along Ma Tau Wai Road towards Bailey Street and the To Kwa Wan Preliminary Treatment Works.

4.1.2 The To Kwa Wan Preliminary Treatment Works discharges to the Harbour Area Treatment Scheme, Stage 1.

4.2 Existing Sewage Generation

4.2.1 The Site was previously occupied by a Fire Services Department Married Quarters, so there would have been previous sewage generation at the Site. However, the previous population of the Married Quarters is unknown, so the previous discharge cannot be quantified.

5 Sewerage Impact Assessment

5.1 Future Sewage Generation

5.1.1 The proposed development will introduce a residential population (332 persons), with associated sewage flows. Furthermore, a small worker

population has been included (25 persons). For the RCHE, the sewage flow has been based on the employee population (53 persons). The future sewage flows are presented in Appendix A.

5.1.2 The overall flow to the public sewer from the Site is estimated to be 178m^3/day, with a peak discharge of 16.8l/s.

5.2 Sewerage Impact Assessment

General

5.2.1 The hydraulic capacities of the existing sewers in the vicinity of the Site have been assessed using the Colebrook-White Equation, with a roughness factor, k_s, of 0.6mm (see Appendix B) and the overall peak discharge from the Site represents a very small percentage of the available sewer capacity (generally less than 10% of available capacity). With consideration that there would have been previous discharge from the Married Quarters at the Site and the general area would have previously had industrial land uses, which have largely been removed, it is therefore reasonable to conclude that the future peak flow can be accommodated in the existing public sewerage system.

5.2.2 It is proposed that the existing sewerage connection be retained. However, the pipe size will need to be increased to at least 200mm diameter, as required by the DSD Sewerage Manual (N.B. the downstream pipe is 225mm diameter, which would be suitable).

5.2.3 The overall surrounding catchment contributing flow to the sewer in Fat Kwong Street has also been assessed and the peak discharge represents, at most, just over 50% of the available capacity. It would be reasonable to conclude that the local existing public sewerage system has adequate capacity for the overall expected flows.

5.3 Recommendations

Internal Sewerage

5.3.1 It is recommended that an internal sewerage system be provided to deliver flow by gravity to the existing sewerage connection point in Fat Kwong Street.

Sewerage Connection

5.3.2 It is recommended that the Site continues to discharge to existing manhole FMH4027955. However, the pipe size will need to be increased to at least 200mm diameter.

Implementation and Maintenance

5.3.3 All new sewerage facilities will be implemented and maintained by the Project Proponent.

6 Conclusions

6.1.1 The proposed development at the Site will generate sewage flows. However, the existing local sewers have adequate capacity to accommodate the expected flows.

6.1.2 New internal sewers will be required to connect to existing public manhole FMH4027955, via an enlarged (225mm diameter) connection pipe.

6.1.3 The proposed development will be provided with properly planned sewerage facilities and no adverse impact on the public sewerage system is anticipated.

Appendix A

Sewage Generation Calculations

C88 Proposed Elderly Housing Development at Lee Kung Street, Hung Hom
Populations and Sewage Flows
The Site and Adjacent Building

Populations

Residential	332	Persons
Staff	25	Persons
of which, say:		
	15	General staff (maintenance, cleaning, etc.)
	10	Non-Effluent producing (guards etc.)
Residential Care Home for the Elderly (RCHE)		
Bed Spaces	58	Beds (sewage flows included in Employee Unit Flows)
Employees, assume as for Hotels	53	Persons

Sewage Flows

Refer DSD Sewerage Manual, Part 1, and EPD Guidelines for the Estimation of Sewage Flows

Population	Category	Population	Unit Flow (m^3/h/d)	Daily Flow (m^3/d)	
1. The Site					
Residential	R2	332	0.270	89.6	
"Dry" Non-Domestic (General staff)	J11	15	0.280	4.2	
"Dry" Non-Domestic	General	10	0.080	0.8	
RCHE, Employees	J10	53	1.580	83.7	
TOTAL				**178**	
Average Flow (l/s)				2.1	
Equivalent (R2) Population			0.270	659	<1,000
Peaking Factor - Gravity (Including Stormwater Allowance)				8	
Peak Flow - Gravity (l/s)				**16.8**	
2. Hung Hom Fire Station					
Employees (Estimate)	General	100	0.280	28.0	
OVERALL TOTAL				**206.0**	
Average Flow (l/s)				2.4	
Equivalent (R2) Population			0.270	763	<1,000
Peaking Factor - Gravity (Including Stormwater Allowance)				8	
Peak Flow - Gravity (l/s)				**19.2**	

N.B. Accuracy as shown

C88 Rezoning Proposal for the Elderly Housing Development at Lee Kung Street, Hung Hom
Populations and Sewage Flows
The Site and Surrounding Catchment

Populations

Residential	332	Persons
Staff	25	Persons
of which, say:		
	15	General staff (maintenance, cleaning, etc.)
	10	Non-Effluent producing (guards etc.)

Residential Care Home for the Elderly (RCHE)

Bed Spaces	58	Beds (sewage flows included in Employee Unit Flows)
Employees, assume as for Hotels	53	Persons

Populations for Ka Wai Chuen taken from Centamap Census Data

Sewage Flows

Refer DSD Sewerage Manual, Part 1, and EPD Guidelines for the Estimation of Sewage Flows

Population	Category	Population	Unit Flow (m^3/h/d)	Daily Flow (m^3/d)	
1. Fat Kwong Street Garden No. 1					
Visitors to Public Toilets	As for Students, say	20	0.040	0.8	
2. The Site					
Residential	R2	332	0.270	89.6	
"Dry" Non-Domestic (General staff)	J11	15	0.280	4.2	
"Dry" Non-Domestic	General	10	0.080	0.8	
RCHE, Employees	J10	53	1.580	83.7	
3. Hung Hom Fire Station					
Employees (Estimate)	General	100	0.280	28.0	
TOTAL (1 to 3)				**207.1**	
Average Flow (l/s)				2.4	
Equivalent (R2) Population			0.270	767	< 1,000
Peaking Factor - Gravity (Including Stormwater Allowance)				8	
Peak Flow - Gravity (l/s)				**19.2**	
4. Ka Wai Chuen					
Residential (Building Group KC0186)	R2	1,350	0.270	364.5	
Residential (Building Group KC0191)	R2	1,701	0.270	459.3	
Flow from Items 1 to 3 (above)				207.1	
Overall Total				**1,030.9**	
Average Flow (l/s)				11.9	
Equivalent (R2) Population			0.270	3,818	1,000 - 5,000
Peaking Factor - Gravity (Including Stormwater Allowance)				6	
Peak Flow - Gravity (l/s)				**71.4**	

N.B. Accuracy as shown

Appendix B

Hydraulic Capacity Calculations

C88 Rezoning Proposal for the Elderly Housing Development at Lee Kung Street, Hung Hom
Existing Sewerage Capacity

Refer DSD Drainage Record Plan 11-NW-25B-4

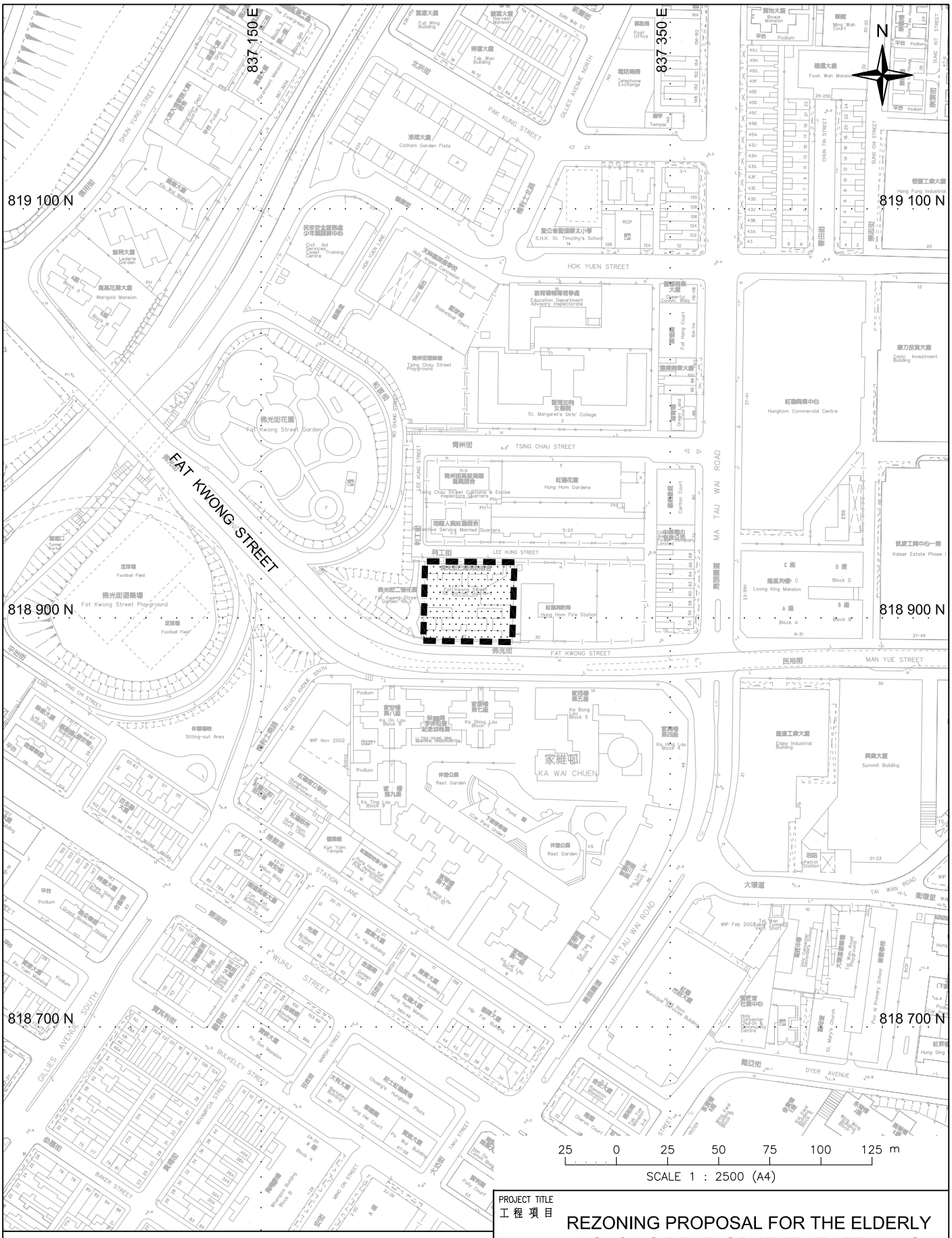
Check capacity of existing sewers in Fat Kwong Street

	m^3/s
Site Discharge	0.0168

Manhole Ref.	CL (mPD)	IL (mPD)	Distance (m)	Diameter (mm)	Gradient (1 in)	Capacity (m^3/s)	Site Discharge as %age of Capacity (%)	Overall Discharge (m^3/s)	Overall Discharge as % of Capacity (%)	Remarks
FMH4027955	6.24	4.84								Connection from the Site and Hung Hom Fire Station
			4	225	22	0.100	**16.8**	0.0192	**19.2**	
FMH4027954	5.88	4.66								
			62	375	71	0.214	**7.8**	0.0192	**9.0**	
FMH4027951	5.45	3.79								
			5	375	-83	-	**-**			Apparent backfall - see below
FMH4027945	5.45	3.85								
			14	450	-1400	-	**-**			Apparent backfall - see below
FMH4027946	5.47	3.86								
		3.77								
			18	375	180	0.134	**12.5**	0.0714	**53.2**	
FMH40285000	5.50	3.67								
			49	975 x 675	408	0.763	**2.2**	0.0714	**9.4**	
ZIA4001409	5.38	3.55								
Approximate assessment over backfalls										
FMH4027954	5.88	4.66								
			81	375	101	0.179	**9.4**	0.0714	**39.8**	Total fall over total lengths of backfalls
FMH4027946	5.47	3.86								

Appendix C

Figures



LEGEND

PROJECT SITE

PROJECT TITLE
工程項目

REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON

DRAWING TITLE
圖名

SITE LOCATION PLAN

REV. 修訂	DATE 日期	DESCRIPTION 內容摘要	CHECKED 復核	APPD. 批準人
-	XX	XX	XX	XX

REVISION

CONSULTANT
工程顧問

AIM EXPERT SERVICES

CAD REF. 檔案名稱 C88_A4_1A

REV. 修訂 -

DRAWING NO. 圖紙編號 FIGURE 1

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837 300 E
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818 900 N

N

ZIA4001463
ZIA4001454
CL 5.35
IL 3.11
ZIA4001407
CL 5.29
IL 3.33
ZIA4001410
CL 5.33
IL 3.44
ZIA4001408
CL 5.28
IL 3.46
ZIA4001409
CL 5.38
IL 3.55
1CELLS 975X675 B.C.

SITE

EXISTING DISCHARGE TO MANHOLE FMH4027955 TO BE RETAINED

FMH4027955
CL 6.24
A1 4.87-150
A2 4.84-225
X1 4.84-225

FMH4027944
CL 6.56
A1 5.19-225
X1 5.19-375

FMH4027954
CL 5.88
A1 4.66-375
X1 4.66-375

FMH4027952
CL 5.59
X1 3.99

FMH4027951
A1 3.79-375
A2 3.79-375
A3 3.79
X1 3.79-375

FMH4027945
CL 5.45
A1 3.85-450
A2 4.12-375
X1 3.85-450

FMH4027946
CL 5.47
A1 3.85-450
X1 3.77-375

FMH4028500
CL 5.50
A1 3.67-375
X1 3.64-975-675

225
375
375
375
450
375

LEGEND :

- EXISTING FOUL SEWER MANHOLE
- EXISTING FOUL SEWER
- EXISTING DRAINAGE ROUTE
- SITE BOUNDARY

10 0 10 20 30 40 50 m

SCALE 1 : 1000 (A3)

PROJECT TITLE
工程項目

REZONING PROPOSAL FOR THE ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET IN HUNG HOM, KOWLOON

DRAWING TITLE
圖名

EXISTING SEWERAGE ARRANGEMENT

REV. 修訂	DATE 日期	DESCRIPTION 內容摘要	CHECKED 複核	APPD. 批準人

REVISION

CONSULTANT
工程顧問

AIM

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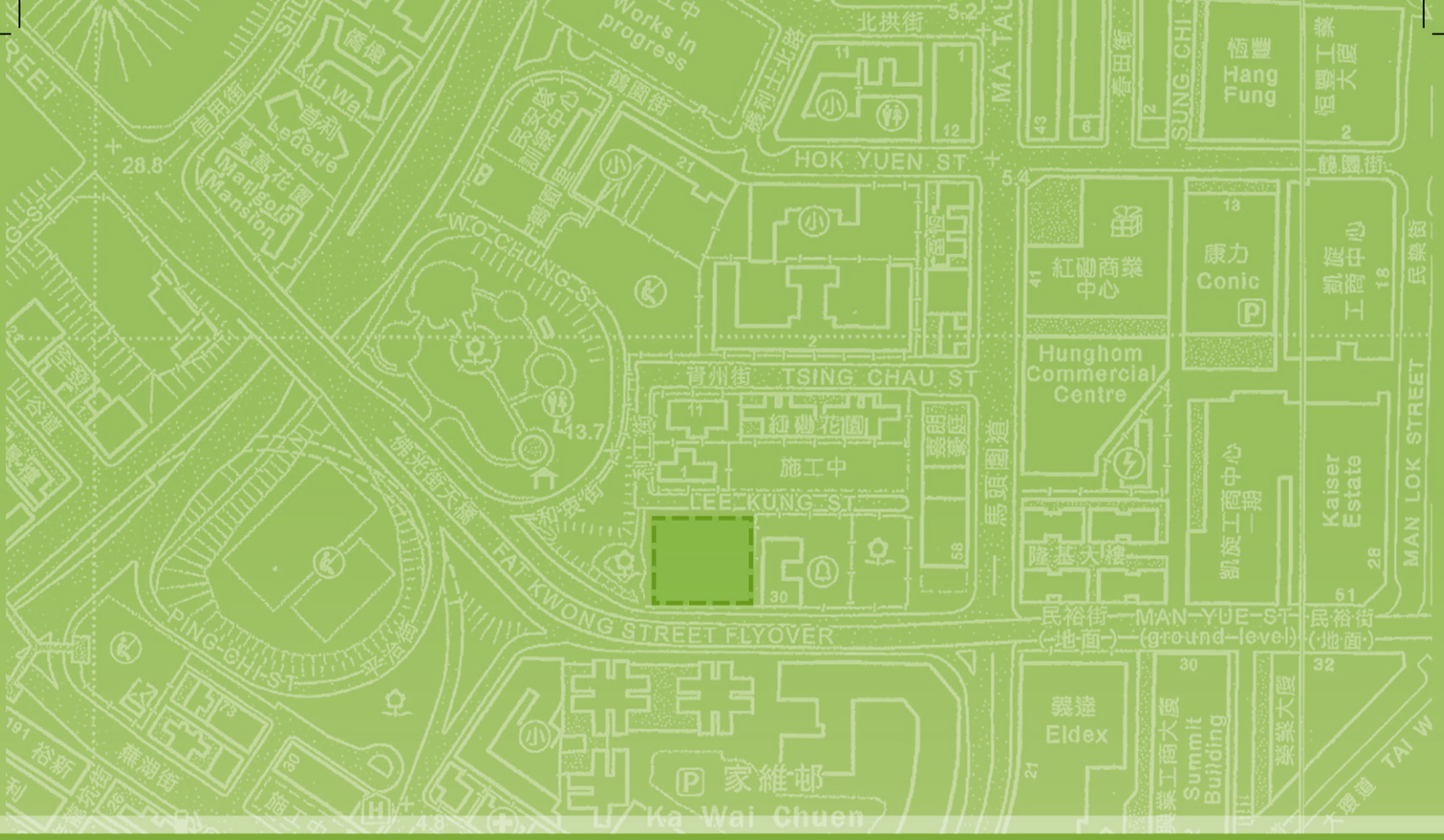

Annex **G**

Visual Impact Assessment

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development At Lee Kung Street in Hung Hom

Discussion Paper: Final Visual Impact Assessment

(Doc Ref: 152435)

December 2015

Prepared by :	*Cody Erhart*	*UD*	16 December 2015 Date
Checked by :	*Alan Macdonald*	*PM*	16 December 2015 Date
Approved for Issue by:	Alan Macdonald	*PD*	16 December 2015 Date

Page

List of Tables

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1 INTRODUCTION

1.1 Purpose

1.1.1 The purpose of this Discussion Paper is to assess the visual impact arising from the rezoning proposal for Elderly Housing Development with a residential care home for the elderly (RCHE) at Lee Kung Street, Hung Hom, Kowloon.

1.2 Background

1.2.1 This supporting planning document seeks the agreement of the Town Planning Board (the TPB) to rezone the subject site (the Site) from "Government, Institution or Community" ("G/IC") to "Residential (Group A)" ("R(A)") to enable 'Residential Institution' [1] development under Column 1 to facilitate an Elderly Housing Development with a residential care home for the elderly (RCHE) in a site of about 1,680m² along Lee Kung Street in Hung Hom, Kowloon[2].

1.2.2 The Site falls within the boundary of the approved Hung Hom Outline Zoning Plan No. S/K9/24 (the HH OZP), zoned "G/IC" and can be accessed via Fat Kwong Street and Lee Kung Street. While the proposed development conforms to the prevailing "G/IC" zoning of the Site, the current building height restriction is limited to 11 storeys for 'Residential Institution' that are permissible subject to application under Column 2 of the HH OZP. In order to develop the Site to its full potential for facilitating the demand of Elderly Housing and to mitigate adverse noise impacts to future residents, it is proposed to rezone the Site to an appropriate zone "R(A)" as a proposed amendment with a maximum building height restriction at 110 mPD of the OZP under the Town Planning Ordinance (Cap.131) (the Ordinance).

2 METHODOLOGY FOR THE APPRAISAL OF VISUAL IMPACT

2.1 Introduction

2.1.1 This methodology follows the requirements set out in Town Planning Board Guidelines on Submission of Visual Impact Assessment for Planning Applications to the Town Planning Board (TPB PG-No.41).

2.1.2 Appraisal of visual impacts is not an objective science but is based upon a structured and reasoned evaluation of predicted impacts, informed by professional judgement and experience.

2.1.3 The methodology adopted for this visual appraisal consists of:

- Identification of Baseline Conditions (Assessment Area, Visual Elements and Resources and Viewing Points);

1 Residential Institution refers to residential facilities in a wholly owned development managed or operated by an institution, society, college, religious/voluntary/charitable body or other organizations. It includes hostel, dormitory, and elderly housing provided not as a form of social welfare facility but excludes hotel and guesthouse regulated under the Hotel and Guesthouse Accommodation Ordinance (Cap. 349), and other residential facilities provided as a form of social welfare facility such as boys'/girls' homes, residential care home for the elderly, drug treatment centre, etc.

2 The subject site of about 1,680m² falls within portion of existing "G/IC" area of about 4,077 m² in the approved Hung Hom Outline Zoning Plan No. S/K9/24.

- Identification of Potential Sources of Impact;
- Identification of Potential Mitigation Measures
- Appraisal of Significance of Visual Impacts
- Evaluation of Overall Visual Impact

2.1.4 These stages are described in more detail below.

2.2 Identification of Baseline Visual Conditions

2.2.1 In order to identify clearly the visual impacts of a proposed development, it is necessary to establish the existing baseline visual conditions of the surrounding environment. For these purposes, the project Study Area is defined by reference to the projects' *Visual Envelope* (see below).

2.2.2 During the identification of baseline visual conditions, the following issues are defined:

- The Existing Site Conditions and Assessment Area of the Proposed Project
- Visual Elements and Resources
- Viewing Points

2.2.3 The identification of these conditions is the product of both desk-top research and field survey.

2.3 Assessment Area

2.3.1 The assessment area is the visual envelope within which the proposed development is pronouncedly visible from key sensitive viewers. The extent of the assessment area varies case by case depending on the size of development, the site context and the distance and location of the sensitive viewers. A larger building will more likely give a more distinct visual impact than a smaller building at the same distance. Groups of buildings seen at a farther distance may be visually less distinct than the close-up views of individual buildings.

2.3.2 The assessment area will be determined having regard to the size of the proposed development, the distance of the development and its potential visibility from the selected viewing points. The visual envelope forms the Assessment Area for the purposes of VIA. As stated in the TPB PG-No. 41, "When the viewer is at a distance equal to three times the height of the building, the viewer will tend to see the building as part of a group rather than a single building. This may be used as an initial reference in approximating the extent of assessment area".

2.4 Visual Elements and Resources

2.4.1 Visual Elements and Resources are the components features of a landscape or townscape which shape its appearance and visual character to those who see it. Key Visual Elements and Resources may include major physical structures, visual resources or attractors (e.g. Victoria Harbour, natural coastline, ridgeline, mountain backdrop, woodland, streams, etc.) and/or visual eyesores or detractors (e.g. pylons, sewage treatment plants, refuse

collection points, ventilation shaft buildings, quarries, etc.) that currently exist or are known to be planned within the assessment area should be reported.

2.4.2 Different Visual Elements and Resources may enhance, degrade or neutralize the overall visual impact of the development being assessed. Victoria Harbour and its ridgelines are recognized as particularly important Visual Elements in the Hong Kong context.

2.4.3 Different aspects of Visual Elements and Resources give the landscape its visual character, including their scale (e.g. buildings, topographic features, etc.), variety of visual texture, pattern, form and colour. These features affect the visual character of a landscape and the type of development that can be accommodated within it without significantly changing this visual character.

2.4.4 Where committed future major development falls within the Assessment Area, it Visual Elements and Resources are also considered, in as far they are known.

2.5 Public Viewing Points

2.5.1 TPB PG-No.41 notes that "in the highly developed context of Hong Kong, it is not practical to protect private views without stifling development opportunity and balancing other relevant considerations. In the interest of the public, it is far more important to protect public views, particularly those easily accessible and popular to the public or tourists. VIA should primarily assess the impact on sensitive public viewers from the most affected viewing points. The viewing points could be kinetic or static. They include key pedestrian nodes, popular areas used by the public or tourists for outdoor activities, recreation, rest, sitting-out, leisure, walking, sight-seeing, and prominent travel routes where travellers' visual attention may be caught by the proposed development."

2.5.2 The TPB PG-No. 41 continues "For identification of key public viewing points, the applicants may refer to Chapter 11 on Urban Design Guidelines in the Hong Kong Planning Standards and Guidelines (HKPSG), the Explanatory Statements of relevant statutory plans, adopted outline development plans and layout plans, and completed planning studies available for public reference. Local viewpoints should be determined with reference to the setting of the project and views of local significance".

2.6 Appraisal of Visual Change

2.6.1 Under the TPB PG-No. 41, the effects of the visual changes on the assessment area and sensitive public viewers shall be appraised. Visual changes may be positive or negative and they are not necessarily mutually exclusive. The visual appraisal will take into account the following aspects:

- Visual Composition
- Visual Obstruction
- Effect on Visual Resources
- Effect on Public Viewers

2.6.2 The magnitude of the change depends on a number of factors including the physical extent of the change, the landscape and visual context of the change – i.e. a set

circumstance/facts surrounding the change, the compatibility of the project with the surrounding landscape; and the time-scale of the change – i.e. whether it is temporary (short, medium or long term), permanent but potentially reversible, or permanent and irreversible.

2.7 Identification of Sources of Impact

2.7.1 Next, the key sources of visual impact of the proposed development are identified. These will generally be matters such as the completed building itself, associated structures and infrastructure works, such as highways, pumping stations, electricity substations etc., used to service the development. It should be noted that Sources of Impact may be Positive or Negative.

2.8 Mitigation Proposals

2.8.1 Sources of visual impact are where possible, subject to specific mitigation proposals so that the significance of impacts is reduced. Mitigation measures can be part of the project design (e.g. the location of buildings; colour treatment of building facades) or can be added to the basic project design (e.g. tree planting to screen a development).

2.9 Evaluation of Overall Visual Impact

2.9.1 The overall visual impact of the proposed development, taking into account the sensitivity of the key public viewers, visual resources and visual amenities likely to be affected, the magnitude, extent and duration of impact and any resultant improvement or degradation in the visual quality and character of the surroundings area, and planning intention and know planned development of the area.

2.9.2 Impacts are assessed upon completion of the projects (as construction stage impacts are not required under TPB PG-No. 41). Impacts are also assessed on the assumption that mitigation measures are in place (and planting fully mature). **Table 2.1** below shows the matrix used to assess visual impacts. The matrix is a means of subdividing and categorizing the continuous spectrum of potential impacts from zero impact at the bottom left of the figure to the maximum possible impact at the top right.

Table 2.1 – Relationship Between Receptor Sensitivity and Magnitude of Change in Defining Impact Significance

MAGNITUDE OF CHANGE	Low	Medium	High
Large	Slight or Moderate	Moderate or Substantial	Substantial
Intermediate	Slight or Moderate	Moderate	Moderate or Substantial
Small	Insubstantial or Slight	Slight or Moderate	Slight or Moderate
Negligible	Insubstantial	Insubstantial	Insubstantial

SENSITIVITY OF PUBLIC VIEWER

Note: the magnitude of change may be Positive or Adverse.

2.9.3 The significance of impacts are assessed as 'Significant Adverse' or 'Significant Positive', 'Moderate Adverse' or 'Moderate Positive', 'Slight Adverse' or 'Slight Positive' and 'Negligible'. 'Negligible' impacts are deemed to make no significant difference to the character of views, even though the Project Site and development may be physically visible in them.

2.9.4 Finally, a single summary assessment of the impacts is made based on the following thresholds stated in the TPG:

2.9.5 **Enhanced** – if the proposed development in overall term will improve the visual quality and complement the visual character of its setting from most of the identified key public viewing points;

2.9.6 **Partly enhanced/partly adverse** – if the proposed development will exhibit enhanced visual effects to some of the identified key public viewing points and at the same time, with or without mitigation measures, exhibit adverse visual effects to some other key public viewing points;

2.9.7 **Negligible** – if the proposed development will, with or without mitigation measures, in overall term have insignificant visual effects to most of the identified key public viewing points, or the visual effects would be screened or filtered by other distracting visual elements in the assessment area;

2.9.8 **Slightly adverse** – if the proposed development will, with or without mitigation measures, result in overall term some negative visual effects to most of the identified key public viewing points;

2.9.9 **Moderately adverse** – if the proposed development will, with or without mitigation measures, result in overall term negative visual effects to most of the key identified key public viewing points; and

2.9.10 **Significantly adverse** – if the proposed development will in overall term cause serious and detrimental visual effects to most of the identified key public viewing points even with mitigation measures.

3 IDENTIFICATION OF BASELINE VISUAL CONDITION

3.1 Existing Site Conditions

3.1.1 The Subject Site (the Site), with an area of about 1,680m², is located on Lee Kung Street in Hung Hom, Kowloon. At present, the Site is occupied by an open-air car park, zoned "Government, Institution or Community" ("G/IC") on the HH OZP.

3.1.2 The Site, located within the boundary of the HH OZP, is situated adjacent to the Hung Hom Fire Station. Lee Kung Street and Fat Kwong Street respectively abut the north and south sides of the Site. The Site is also located to the immediate north of the Fat Kwong Street flyover close to the Chatham Road.

3.1.3 The majority of the surrounding land uses within a 500m radius comprise residential developments zoned "Residential (A)" ("R(A)"), with clusters of business-type developments

located in "Other Specific Uses (Business)" ("OU(B)") and "Commercial" ("C") zones to the east and northeast of the Site along, Man Yue Street, Hok Yuen Street and Ma Tau Wai Road. The new Departmental Quarters building for the Customs and Excise Department and Hung Hom Gardens are located to the north of the Site in an "R(A)" zone. To the south of the Site is the Ka Wai Chuen development abutting the south side of Fat Kwong Street, also zoned "R(A)". To the immediate east of the Site is the 11-storey high Hung Hom Fire Station, while the west side of the Site abuts an "Open Space" ("O") zone adjoining the Tsing Chau Street Playground.

3.1.4 The proposed development would not encroach onto the open space. The close vicinity of the open space could provide the elderly with a place for passive recreational use. "G/IC" uses located in close proximity (within a 500m radius) of the Site comprise schools, a fire station, a church and a municipal services building. The provision of supporting facilities for the proposed development would be in line with permitted "G/IC" uses, and the land use would be generally compatible with the surrounding residential developments.

3.2 Assessment Area

3.2.1 The assessment area is the Visual Envelope within which the proposed development is pronouncedly visible from key sensitive public viewers and is shown in **Figure 2**. **Figure 2** also shows the Initial Assessment Area defined, in accordance with TPB GN-41, by the distance 3H from the development boundary, where H is the proposed height of the development.

3.2.2 The Initial Assessment Area for the development of the subject site encompasses the general area of Hung Hom and includes Ma Tau Wai Road and adjacent developments from its southern extent towards Bailey Street, as well as a section of the East Kowloon Corridor and adjacent developments.

3.2.3 Most of the land to the North, West, and South is comprised of "Residential (Group A)" ("R(A)") with scattered "Commercial" ("C") and "Other Specified Uses" ("OU"), and Government, Institution, or Community ("G/IC") land along and near to Ma Tau Wai Road. Immediately adjacent to the West of the site is land zoned "Open Space" ("O") and therein is Fat Kwong Street Park and some sitting out areas across the street.

3.2.4 The Visual Envelope extends beyond the Initial Assessment Area because the development will be visible to key sensitive pubic viewers along the major view corridors that extend outwards from the development site into the surrounding hinterland.

3.2.5 The average building height (+100mPD) coupled with the narrow streets largely defines the Visual Envelope. To the East of the development views are limited mainly to Fat Kwong Street and the intersection with Ma Tau Wai Road. To the West and North, views from the East Kowloon Corridor and buildings on the West side of the Corridor have generally unobstructed views to the development site.

3.3 Visual Elements

3.3.1 The visual outlook is shaped by the combined composition of all the visual elements which come into sight of the viewers. All key visual elements, including any major physical structures, visual resources or attractors/detractors have been identified and are listed

3.3.2 Key Positive Visual Elements:

- Fat Kwong Street Park

- King's Park High Level Service Reservoir Park
- Ho Man Tin Service Reservoir Park

3.3.3 Key Negative Visual Elements:

- Ongoing Major Development Landscape – this is a transitional landscape which is currently under construction
- Traffic along East Kowloon Corridor
- Traffic along Fat Kwong Street Flyover

3.4 Viewing Points

VP1: Viewpoint from Ma Tau Wai Road (Figure 4)

3.4.1 Ma Tau Wai Road is one of the main arterial streets in Hung Hom. The density of medium-rise and high-rise residential and commercial development along this corridor limits views to the site except at the intersection with Fat Kwong Street. Here public viewers will have unobstructed views of the proposed development

3.4.2 The public viewers at VP1 are considered to have high sensitivity to visual change.

VP2: View from Station Lane Sitting-out Area (Figure 5)

3.4.3 Station Lane Sitting-out area is one of the few accessible open spaces in the area and the vicinity of the Site. As such, it is expected to receive high numbers of visitors throughout the day and evenings as neighbourhood residents use the open space for playing, socializing, picnicking and casual seating. The sitting-out area has generally unobstructed views of the proposed development.

3.4.4 The public viewers at VP2 are considered to have high sensitivity to visual change.

VP3: View from Fat Kwong Street Park (Figure 6)

3.4.5 The Fat Kwong Street Park is a developed open space used by neighbourhood residents for exercise, casual seating, socializing, dog walking and picnicking. It is expected to experience high volumes of traffic, particularly in the evenings and on weekends as it is one of only several accessible open spaces in the immediate vicinity. Public viewers have intermittent, partially obstructed views of the project Site.

3.4.6 The public viewers at VP3 are considered to have high sensitivity to visual change.

4 VISUAL APRAISAL

4.1 Introduction

4.1.1 The visual impacts of the Proposed Development on the Key Public Viewing Points are summarised in **Table 5.1** and are described briefly below with reference to the four aspects listed in TPB-PG-No.41. The locations of the Viewing Points are shown on **Figure 2**.

4.2 Viewpoint 1: View from Ma Tau Wai Road (Figure 4)

4.2.1 The planned view from Ma Tau Wai Road will have uninhibited, relatively close views of the development project.

4.2.2 Effects on Visual Composition: The view currently comprises the intersection of Ma tau Wai Road with Fat Kwong Street and a corner construction yard in the foreground with the Fat Kwong Street Flyover present overhead and continuing from the foreground to the distance. The middle-ground is occupied by limited street tree, the mid-rise Hung Hom Fire Station, and a residential high-rise building, and the background comprises several mid-rise buildings and views to the open sky. The presence of the proposed development will result in a high-rise building located in the middle-ground of the view, significantly contrasting with

the building height profiles of surrounding developments while also maintaining a relatively slender profile and building massing.

4.2.3 Effects on Visual Obstruction: The building is oriented with a slender profile to minimize the bulkiness of the building mass, however due to the proposed building height the presence of the proposed development will moderately increase the visual obstruction relating to distant views of the sky. The visual permeability will be slightly affected as the building causes visual blockage of the skyline and the open sky.

4.2.4 Effects on Visual Elements/Resources: There would be no additional impact upon the Visual Element/Resources.

4.2.5 Effects on Public Viewers: The public's perception of the view from the intersection of Ma Tau Wai Road would generally be of moderate value, as the view is open to the sky and is comprised of mixed medium-rise buildings and street trees. The proposed development would create an imposing building that would contrast with existing building height profiles. While vertically dominating, the proposed building is designed and oriented so as to maintain a slender profile and minimize the massing of the development. The public viewers will have permanent and continuous open views toward the subject site at a distance of 100m. The changes described above, combined with the relative close proximity of these changes to the viewer, will cause a small magnitude of change. This small magnitude of change when combined with the high sensitivity of the public viewers will result in a visual impact significance considered to be **Slightly Adverse**.

4.3 Viewpoint 2: View from Station Lane Sitting-out Area (Figure 5)

4.3.1 The planned view from the Station Lane Sitting-out Area will be subject to mid-distance views of the high-rise residential building project.

4.3.2 Effects on Visual Composition: The view currently comprises a local green space with trees, seating pavilions, and vegetation in the foreground, a roadway ramp and high-rise building in the middle-ground, and scattered high-rise buildings in the distance. The presence of the proposed development will result in a high-rise building located in the background of the view in conformance with surrounding building height profiles and massing.

4.3.3 Effects on Visual Obstruction: The presence of the proposed development, while similar in size, height and massing with surrounding developments, will block distant, open views of the sky and result in a wall of development in the distant. The visual permeability will be reduced moderately, as the presence of the proposed building will reduce visual openness of this view, create a sense of enclosure for the viewer, and create a 'wall' effect' in the background of this view.

4.3.4 Effects on Visual Elements/Resources: There would be no additional impact upon the Visual Element/Resources.

4.3.5 Effects on Public Viewers: The public's perception of the view from the Station Lane Sitting-out Area would generally be of high value, as the view is from a green open space and looks out to high-rise buildings in the middle-ground and the open sky in the distance. The proposed development would create a building in similar height and mass with adjacent developments but would also 'close in' the view by blocking distant views and create a wall of buildings reducing visual permeability from the sitting-out area. The public viewers will have permanent and semi-continuous open views toward the subject site at a distance of at

least 100m. The changes described above, combined with the relative moderate proximity of these changes to the viewer, will cause a small magnitude of change. This small magnitude of change when combined with the high sensitivity of the public viewers will result in a visual impact significance considered to be **Moderately Adverse**.

4.4 Viewpoint 3: View from Fat Kwong Street Park (Figure 6)

4.4.1 The planned view from the Fat Kwong Street Park will be subject to close views of the high-rise residential building.

4.4.2 Effects on Visual Composition: The view currently comprises a local green space with trees, seating pavilions, water feature and vegetation in the foreground, additional trees and a high-rise building screened by vegetation it the middle-ground, and scattered medium and high-rise buildings in the distance. The presence of the proposed development will result in a high-rise building located in the middle-ground of the view, resulting in a substantial imposing effect on the viewer even while maintaining conformity with the height and massing of adjacent developments. This stark change in composition is due to the close proximity of the proposed development with the viewpoint.

4.4.3 Effects on Visual Obstruction: The presence of the proposed development will substantially increase the visual obstruction; the proposed building will completely block views of the open sky and of the medium and high-rise buildings of the Hung Hom area in the background. The proposed building would also be expected to cast significant shadow on the local open space. The visual permeability will be reduced as the building massing and proximity would 'close in' the view,' reducing the openness of the view by creating a wall effect in the middle-ground.

4.4.4 Effects on Visual Elements/Resources: There would be no additional impact upon the Visual Element/Resources.

4.4.5 Effects on Public Viewers: The public's perception of the view from the Fat Kwong Street Park would generally be of high value, as the view from a green space comprises high-rise buildings in the background and views of the sky in the distance. The proposed development would create an imposing building substantially blocking views to the East and visually reducing the permeability of the view. The public viewers will have permanent and semi-continuous open views toward the subject site at a distance of 75m. The changes described above, combined with the relative close proximity of these changes to the viewer, will cause an intermediate magnitude of change. This intermediate magnitude of change when combined with the high sensitivity of the public viewers will result in a visual impact significance considered to be **Moderately Adverse**.

4.5 Mitigation Proposals

4.5.1 Mitigation proposals seek to reduce or eliminate the visual impacts of the proposed Project. The following mitigation proposals will be introduced as part of the development of the Project.

ID No.	Visual Mitigation Measures
OM1	Small building footprint
OM2	Stepped height profile
OM3	Sensitive architectural and chromatic treatment
OM4	Extensive NBA's and landscaped areas
OM5	Aesthetic improvement planting of NBAs and landscaped areas
OM6	Implementation of green roofs and vertical greening

4.5.2 **OM1** – Building footprint within the site has been adjusted to reduce visual obstruction.

4.5.3 **OM2** – Height profile has been designed so to appear less visually intrusive.

4.5.4 **OM3** – Building finishes shall be in recessive or neutral colours and shall not include visually intrusive colours.

4.5.5 **OM4** – A NBA to the south and landscaped areas have been introduced within the site to enhance visual permeability.

4.5.6 **OM5** – Tree and shrub planting within NBA's and landscaped areas where possible to mitigate the scale and impact of the buildings, and improve the quality of the streetscape environment. (Refer to Figures 3a to 3c)

4.5.7 **OM6** – Provision of green roofs and vertical greening (screening Shrubs) where feasible and appropriate to mitigate visual impact of buildings.

4.5.8 Planting will take a number of years to establish and so the full effects of mitigation will not be seen until some 10 years after completion of the project.

5 CONCLUSION AND SUMMARY OF IMPACTS

5.1 Impacts on Viewing Points/Public Visually Sensitive Receivers

5.1.1 The methodology for deriving the magnitude of change upon the Public Viewer's and the significance of the visual impacts is described in **Sections 2.6** and **2.9.**

VP1: View from Ma Tau Wai Road

5.1.2 The presence of the proposed development would result in a **Small** magnitude of change to the views experienced by the key sensitive public receivers at Ma Tau Wai Road, which, when taken together with the **High** sensitivity of these receivers, will result in a visual impact significance considered **Slightly Adverse**.

VP2: View from Station Lane Sitting-out Area

5.1.3 The presence of the proposed development would result in a **Small** magnitude of change to the views experienced by the key sensitive public receivers at the Planned Open Space, which, when taken together with the **High** sensitivity of these receivers, will result in a visual impact significance considered **Slightly Adverse**.

VP3: View from Fat Kwong Street Park

5.1.4 The presence of the proposed development would result in an **Intermediate** magnitude of change to the views experienced by the key sensitive public receivers in the Sitting-out Area, which, when taken together with the **High** sensitivity of these receivers, will result in a visual impact significance considered **Moderately Adverse**.

5.2 Overall Assessment of Visual Impacts

5.2.1 The visual impact of the baseline scheme (compliance with the building height set by the prevailing HH OZP) – a G/IC building of 11 storeys has been assessed. The largest visual impact resulting from the proposed development under the rezoning scheme would be the change from a building with maximum height of 11-storeys to that of one with a maximum building height of 110mPD. The proposed scheme, with a notably taller building height than the baseline scheme, is however in conformance with the existing building height profiles in the area that range from 80mPD to 150mPD as compared to the adjoining "Residential (Group A)" zones. Furthermore, it is noted that a stepped height building profile can also be achieved with the proposed height to ensure a degree of visual permeability with stepped height profile descending from north to south. Other factors such as building footprint, setbacks, etc. would be similar under both schemes and no additional visual impacts are predicted. Thus, under the proposed rezoning scheme, public viewers will be subject to a building with taller height and resulting larger shadow, but the building, itself, would be in conformance with others in the area, and at the ground level the visual impacts would be similar under the baseline scheme and the proposed rezoning scheme.

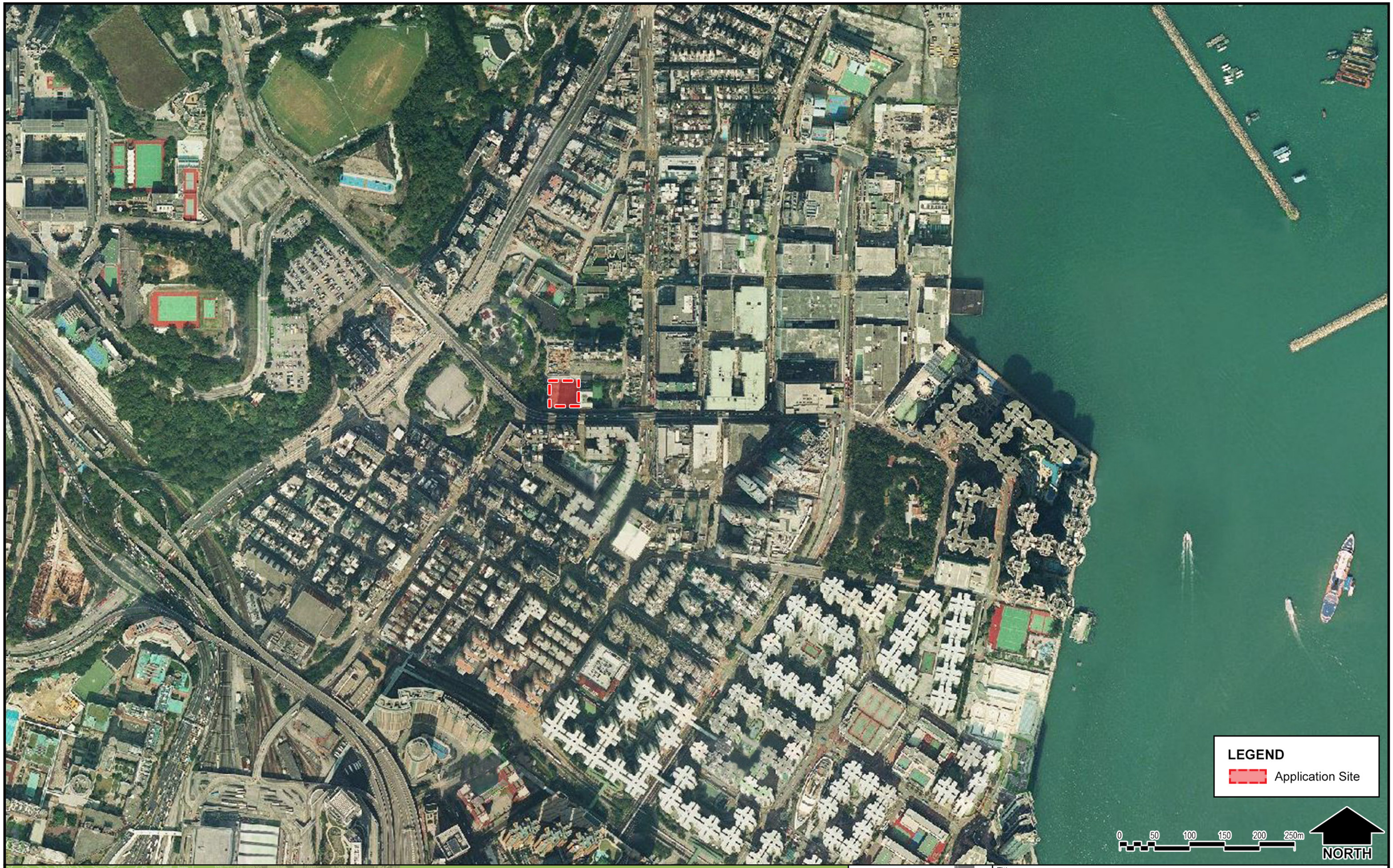
5.2.2 After the implementation of the proposed mitigation measures, there will be adverse residual visual impacts. For VP3, specifically, it is expected that public viewers will be subject to a magnitude of change predicted to be Intermediate. Implementation of the proposed mitigation measures, OM1-OM6, shall be of high importance here in mitigating the effects on public viewers. Specifically, implementation of vertical greening (OM6), special attention given to the façade of the proposed building (OM3), and a stepped building profile (OM2) should be thoroughly explored in order to reduce the residual visual impacts on public viewers here.

5.2.3 Although implementation of the recommended mitigation measures should slightly reduce the magnitude of the residual visual impacts during the construction and operation phase, this will not be sufficient to reduce the overall significance thresholds described for a no mitigation scenario collectively for all Viewpoints.

5.2.4 In overview, the visual impact significance of the proposed development as shown in **Figures 4 to 6** would be considered **Slightly Adverse**. A summary of the degree of impacts to key public viewing points is provided in **Table 5.1.**

Table 5.1: Significance of Visual Impacts (Note: All impacts are adverse unless otherwise stated)

VP	Degree of Visibility of Source(s) of Visual Impact (Full, Partial, Obscured)	Approx. Distance Between VSR & Nearest Source(s) of Impact	Magnitude of Change (Large, Intermediate, Small, Negligible)	Receptor Sensitivity (Low, Medium, High)	Receptor Number (Very Few, Few, Many, Very Many)	Impact Significance during Operation Phase (Substantial, Moderate, Slight, Insubstantial)
VP1	Full	~100m	Small	High	Very Many	Slightly Adverse
VP2	Full	~100m	Small	High	Very Many	Slightly Adverse
VP3	Full	~75m	Intermediate	High	Very Many	Moderately Adverse

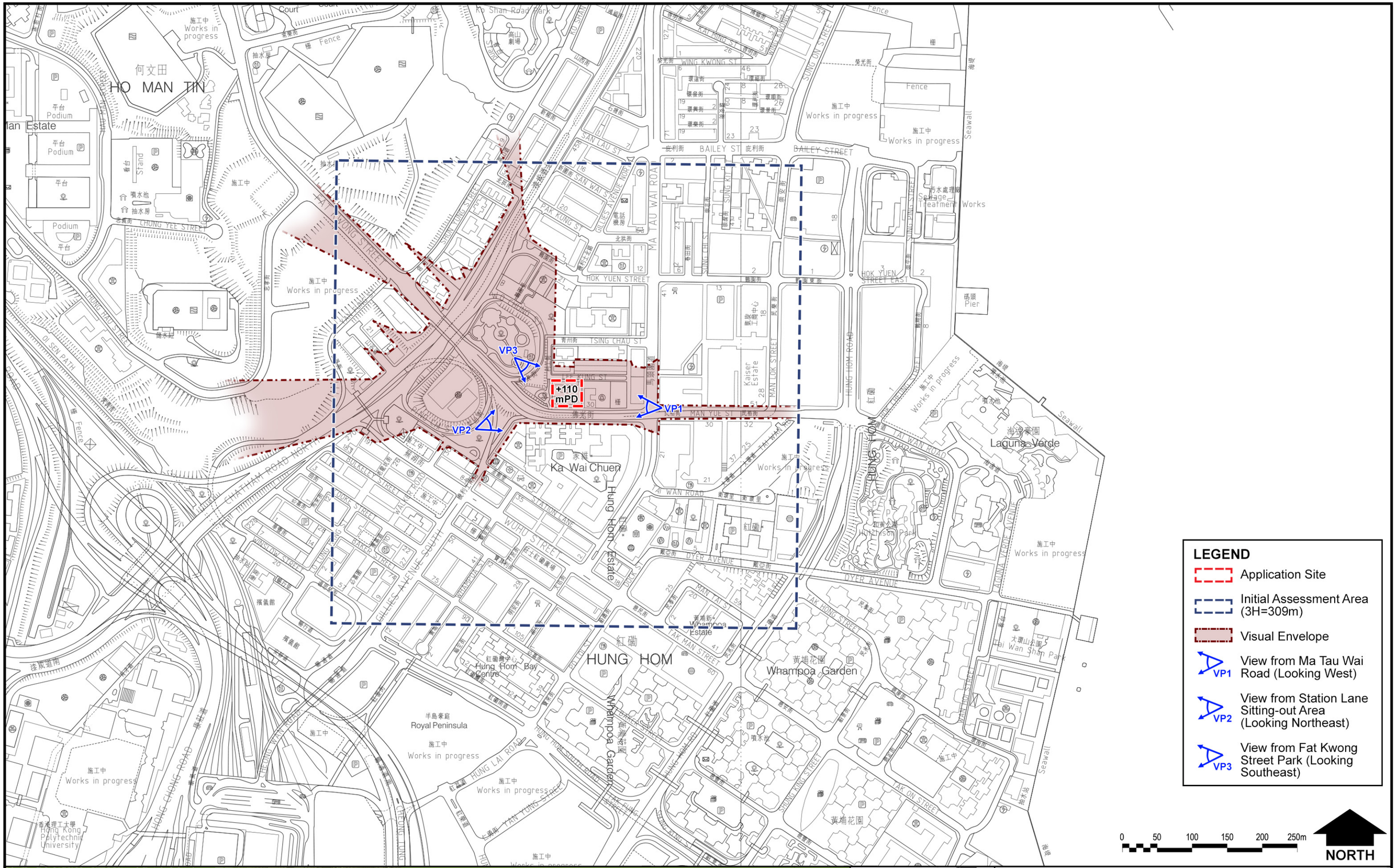


Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Title

Aerial Photo

Scale	Date	Figure No.
1:5,000 @ A3	December 2014	1



LEGEND

- Application Site
- Initial Assessment Area (3H=309m)
- Visual Envelope
- VP1 View from Ma Tau Wai Road (Looking West)
- VP2 View from Station Lane Sitting-out Area (Looking Northeast)
- VP3 View from Fat Kwong Street Park (Looking Southeast)

0 50 100 150 200 250m

NORTH

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Title: Zone of Visual Influence

Scale	Date	Figure No.
1:5,000 @ A3	March 2015	2

1-3

LEE KUNG STREET

7.45 +

7.19 +

6.63 +

6.54 +

6.29 +

MEDICAL CENTRE ENTRY

REHABILITATION CENTRE ENTRY

RESIDENTIAL ENTRY

7500

B.L.

10000

BUILDING LINE ABOVE

Hung Hom Fire Station

*REHABILITATION CENTRE
*TRAINING AREA
*RCHE ADMIN. OFFICE
*INTERVIEW ROOM
+6.50

*E&M
*REFUSE

RESIDENTIAL LIFT LOBBY
+6.50

DRIVEWAY

BACK ENTRY

MEDICAL CENTRE
+6.50

AMBULANCE

L/UL

L/UL

*KITCHEN
*LAUNDARY

BUILDING LINE ABOVE

*E&M
*STAFF REST-RM.
*CHANGEROOM
*STORE
+6.50

1 2 3 4 5 6 7

10000

30

Fat Kwong Street Garden No.2

MEDICAL CENTRE ENTRY

STAFF ENTRY

SITE ENTRY FROM FAT KWONG STREET

FAT KWONG STREET

FAT KWONG STREET FLYOVER ABOVE

SCALE 1 : 250

0 2 4 6 8 10m

NORTH

LEGEND

- Subject Site
- High Shrubs / Small Trees
- Low Shrubs / Groundcovers
- Hedges / Screening Shrubs

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Site Layout Plan - Ground Floor Plan

Scale	Date	Figure No.
1:250 @ A3	March 2016	3c

1-3

7.45

7.19

LEE KUNG STREET

6.63

6.54

6.29

7500

10000

B.L.

LANDSCAPE GARDEN
+16.50

RESIDENTIAL
LOBBY
+16.50

EXERCISE ROOM
+16.50

*LOUNGE
*READING AREA
*MULTI-PURPOSE AREA
+16.50

RCHE
LOBBY

*TOILET
*PANTRY
*M&E

BUILDING LINE ABOVE

LANDSCAPE GARDEN
+16.50

TAI CHI
COURT

OUTDOOR
FITNESS
CORNER

Hung Hom

Fat Kwong Street
Garden No.2

B.L.

10000

30

FAT KWONG STREET +6.20

FAT KWONG STREET
FLYOVER ABOVE

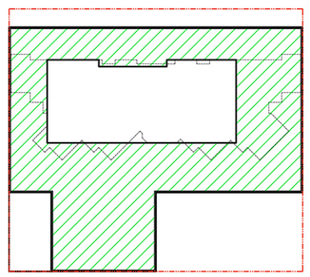
SCALE 1 : 250
0 2 4 6 8 10m

NORTH

LEGEND

- Subject Site
- Medium Sized Trees
- High Shrubs / Small Trees
- Low Shrubs / Groundcovers
- Hedges / Screening Shrubs
- Stone Paving
- Stone Paving with Feature Pattern
- Seating

Communal Open Space Provision at 2nd Floor Clubhouse



- Subject Site
- Open Space (867 sqm)

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Site Layout Plan - Second Floor Plan

Scale	Date	Figure No.
1:250 @ A3	March 2016	3b

1-3

7.45

7.19

LEE KUNG STREET

6.63

6.54

6.29

7500

B.L.

10000

Hung Hom Fire Station

COVERED LANDSCAPE +24.50

M/E

LOBBY +24.50

M/E

COVERED LANDSCAPE +24.50

Fat Kwong Street Garden No.2

B.L.

10000

30

FAT KWONG STREET

FAT KWONG STR FLYOVER

SCALE 1 : 250

0 2 4 6 8 10m

NORTH

LEGEND

- Subject Site
- Low Shrubs / Groundcovers
- Hedges / Screening Shrubs
- Stone Paving
- Seating

Communal Open Space Provision at Fourth Floor

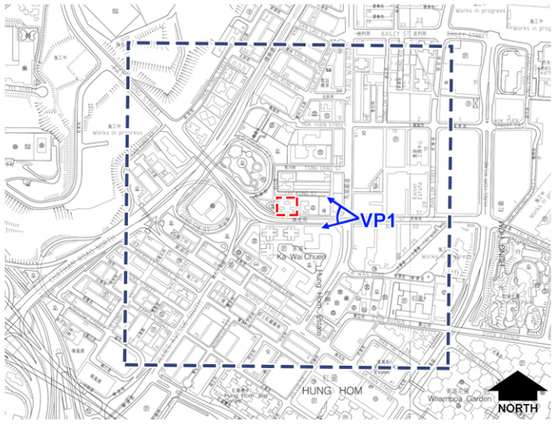
- Subject Site
- Open Space (261 sqm)

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title

Site Layout Plan - Fourth Floor Plan

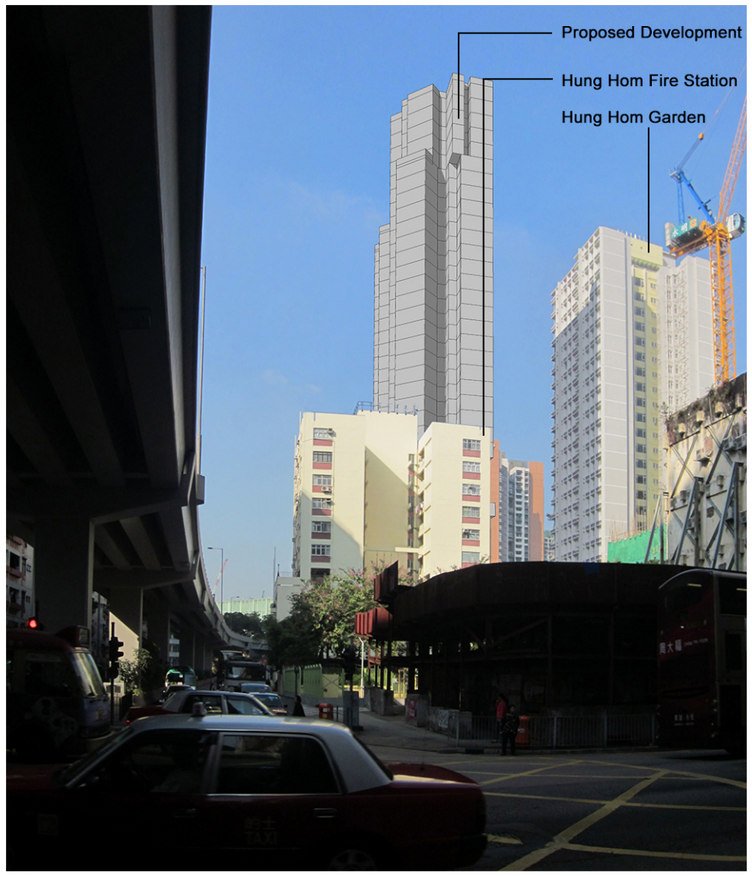
Scale	Date	Figure No.
1:250 @ A3	March 2016	**3a**



Keyplan

Existing Condition

Baseline Development

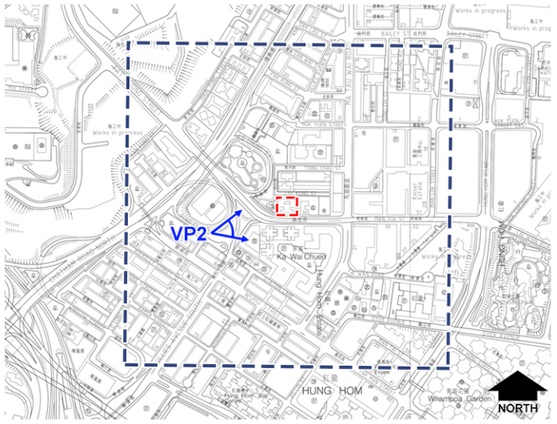


Proposed Development

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

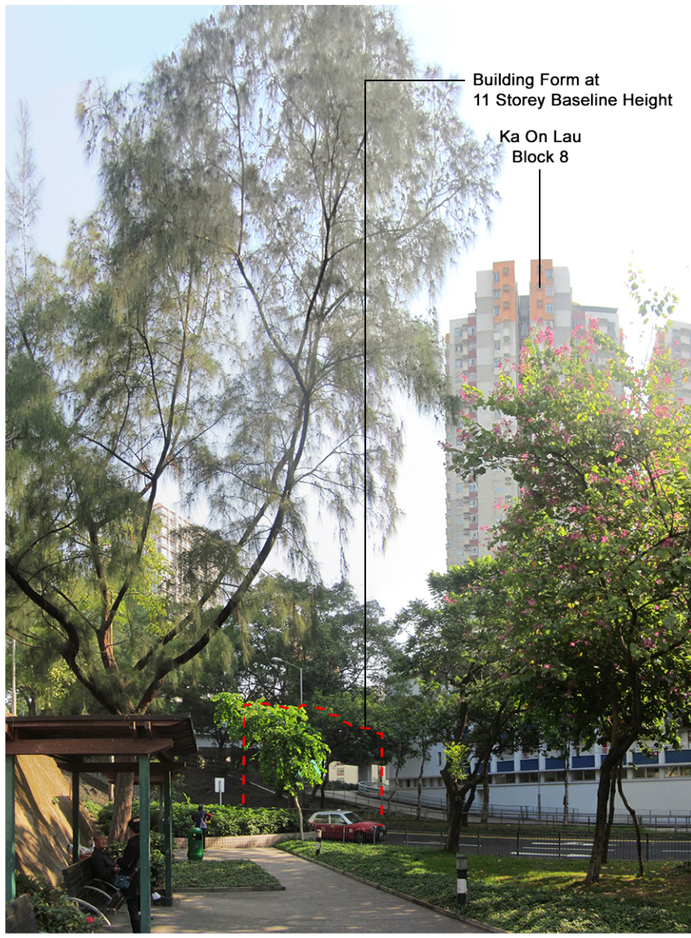
Title: View Point 1 - View from Ma Tau Wai Road (Looking West)

Scale	Date	Figure No.
N.T.S.	December 2015	4



Keyplan

Existing Condition



Baseline Development

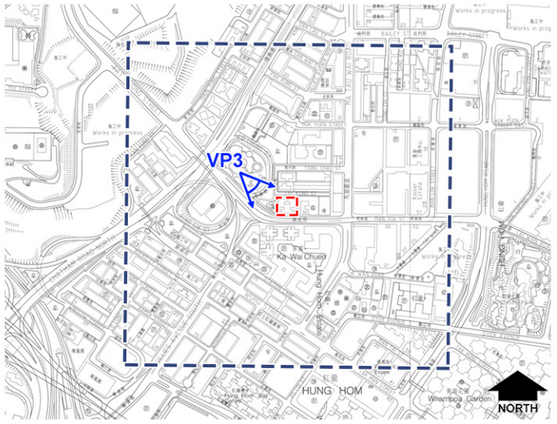
Proposed Development

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

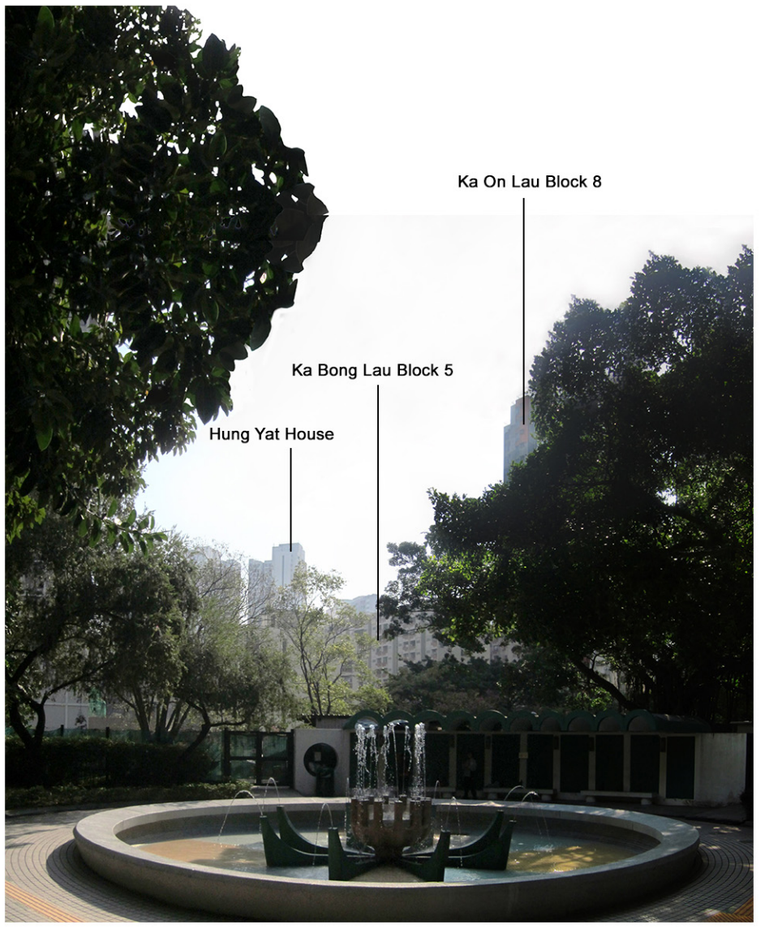
Title

View Point 2 - View from Station Lane Sitting-out Area
(Looking Northeast)

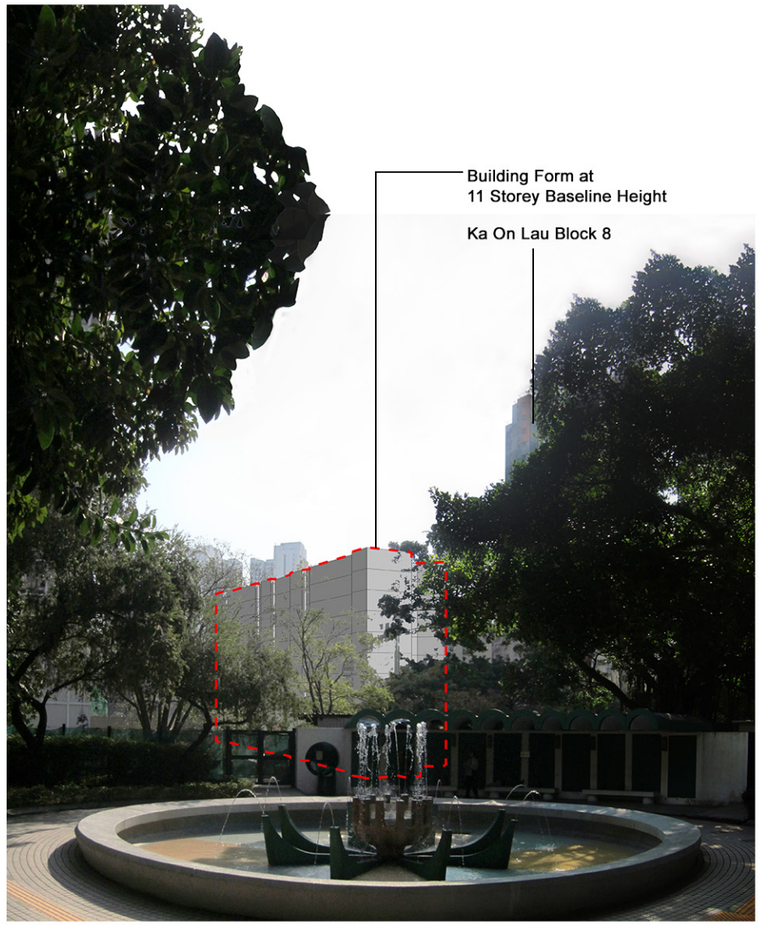
Scale	Date	Figure No.
N.T.S.	December 2015	5



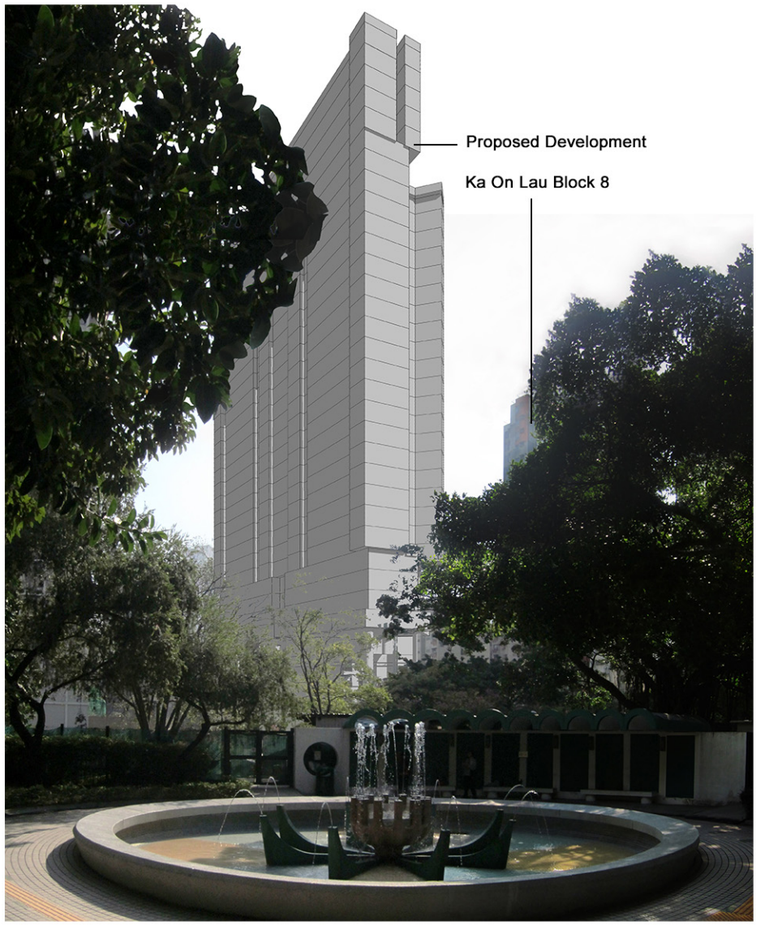
Keyplan



Existing Condition



Baseline Development

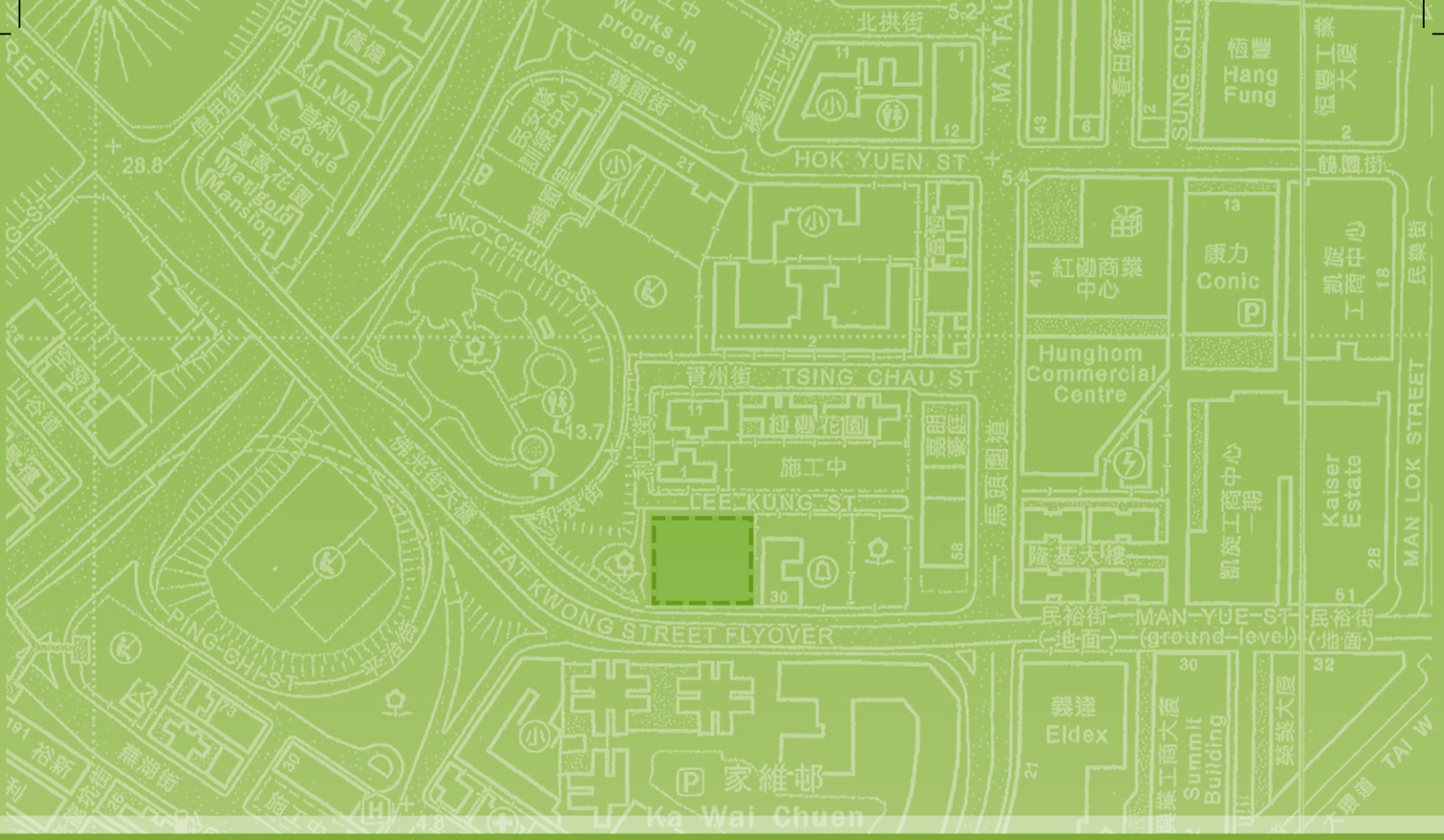


Proposed Development

Feasibility Study and Re-zoning Planning Application for the Proposed Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Title: View Point 3 - View from Fat Kwong Street Park (Looking Southeast)

Scale	Date	Figure No.
N.T.S.	December 2015	6



Annex H

Traffic Impact Assessment

Hong Kong Housing Society
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Traffic Impact Assessment Study
Final Study Report
September 2016

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http:// www.ozzotec.com

Hong Kong Housing Society
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Traffic Impact Assessment Study
Final Study Report
September 2016

Contents Amendment Record

This report has been issued and amended as follows:

Revision	Description	Prepared / Date	Approved / Date
0	Final Report	BK 10/3/2015	OC 10/3/2015
1	Final Report	BK 20/3/2015	OC 20/3/2015
2	Final Report	BK 14/5/2015	OC 18/5/2015
3	Final Report	BK 12/6/2015	OC 12/6/2015
4	Final Report	BK 10/7/2015	OC 10/7/2015
5	Final Report	BK 24/2/2016	OC 24/2/2016
6	Final Report	BK 24/6/2016	OC 30/6/2016
7	Final Report	MM 2/9/2016	OC 9/9/2016

CONTENT

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1 INTRODUCTION

1.1 Background

1.1.1 Hong Kong Housing Society propose to develop a housing development for elderly (for people aged 60 or above) at Lee Kung Street in Hung Hom, Kowloon (hereafter referred as the "Subject Site").

1.1.2 **Figure 1.1** shows the location of the Subject Site which is situated to the south of Lee Kung Street, adjacent to Hung Hom Fire Station. The total site area of the Subject Site is approximately 1,680m^2 and the site is currently being used as an open car park.

1.1.3 The proposed development comprises of a single tower containing 305 elderly housing units and 58 care unit bed spaces as well as other supporting facilities for the elderly residents, such as medical cente, rehabilitation and physiotherapy services.

1.1.4 Ozzo Technology (HK) Limited has been commissioned to undertake the Traffic Impact Assessment (TIA) Study to assess the potential traffic impact to be induced by the proposed housing development.

1.2 Study Objectives

1.2.1 The objectives of the TIA study are as follows:

- To review the existing traffic situation of the surrounding road network;
- To estimate the potential traffic generations/ attractions of the proposed development;
- To assess the future traffic situation of the surrounding road network;
- To appraise the potential traffic impact of the proposed development on the surrounding road network;
- To recommend improvement proposals, if required; and
- To advise on the internal transport arrangements.

1.3 Report Structure

1.3.1 Following this introductory chapter, this report is arranged as follow:

- Chapter 2 describes the Subject Site and the proposed housing development;
- Chapter 3 summarises the existing traffic situation in the vicinity of the Subject Site;
- Chapter 4 provides traffic forecast and the traffic impact results;
- Chapter 5 reviews the internal transport provisions; and
- Chapter 6 presents the findings and conclusion of this study.

2 THE PROPOSED DEVELOPMENT

2.1 Subject Site Location and Study Area

2.1.1 **Figure 2.1** shows the location of the Subject Site which is situated between Lee Kung Street and Fat Kwong Street in Hung Hom. The area of the site is approximately 1,680m^2 and the site is currently used as an open car park.

2.1.2 **Figure 2.1** also shows the proposed study area for this Traffic Impact Assessment Study and which includes all the key junctions in the vicinity of the Subject Site.

2.2 The Proposed Development

2.2.1 **Table 2-1** presents the planned development parameters of the proposed elderly housing development.

Table 2-1 Proposed Development Parameters

Parameter	Proposed
Site Area	1,680 m^2
Total Plot Ratio (PR) - Domestic PR - Non-Domestic PR	 - About 7.44 - About 1.05
Total Gross Floor Area (GFA) - Domestic GFA - Non-Domestic GFA	About 14,263 m^2 - About 12,499 m^2 - About 1,764 m^2
Nos. of Rooms - Studio Room - 1-Bed Room - 2-Bed Room	Total 305 - 122 - 160 - 23
Nos. of RCHE Bed Spaces	58 Bed Spaces

2.2.2 A total of 305 rental housing units and 58 Care Unit bed spaces for elderly, with supporting facilities such as medical centre, rehabilitation and physiotherapy services, will be provided.

2.3 Access Arrangement

2.3.1 The vehicular access for the proposed housing development will be located at Lee Kung Street which is then connected to the wider network via the Tsing Chau Street/ Ma Tai Wai Road junction.

2.3.2 For pedestrians, there will be two accesses with one on the southern side of the development, connecting to Fat Kwong Street; and the other one connecting to Lee Kung Street on the northern side of the development.

3 EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 **Figure 2.1** shows the road network in the vicinity of the Subject Site and which comprises of several major road links including East Kowloon Corridor, Chatham Road North, Fat Kwong Street and Ma Tau Wai Road.

3.1.2 East Kowloon Corridor, which is part of Route Five of the Hong Kong strategic road network, is an Urban Trunk (UT) road and connects the Study Area with other parts of the Hong Kong territories. Chatham Road North, located to the northwest of the Subject Site, is a Primary Distributor (PD) road providing north-south connectivity.

3.1.3 Fat Kwong Street and Ma Tau Wai Road are classified as a District Distributor (DD) roads, providing east-west and north-south connectivity respectively.

3.1.4 The vehicular access for the Subject Site is located at Lee Kung Street which is a local access road with one traffic lane in each direction. There is a cul-de-sac at the eastern end of the street and hence all traffic is connected to the wider road network via the Tsing Chau Street/ Ma Tau Wai Road junction which is a priority junction with all movements permitted.

3.2 Existing Public Transport Services

3.2.1 The area is currently well served by public transport services with both bus and Green Minibus (GMB) services. **Table 3-1** lists the bus and GMB routes serving the area and the locations of the bus stops in the vicinity of the Subject Site are shown in **Figure 3.1**.

Table 3-1 Existing Bus and GMB Services

Route No.	Termination Points		Frequency (Mins) (Weekday)
Franchised Bus Services			
2E	Kowloon City Ferry	Pak Tin	15
3B	Tsz Wan Shan	Hung Hom Ferry Concourse	11-20
5	Fu Shan	Star Ferry	7-14
5A	Kowloon City (Shing Tak Street)	Star Ferry	12-20
5C	Tsz Wan Shan	Star Ferry	8
5D	Telford Garden	Hung Hom (Circular)	15-30
5P	Tsz Wan Shan (Central)	Star Ferry	15 (07:15-08:00, 18:00-20:00)
6C	Kowloon City Ferry	Mei Foo	6-10
6F	Kowloon City Ferry	Lai Kok	15-20
7B	Hung Hom Ferry Concourse	Lok Fu	15-20
8	Star Ferry	Kowloon Railway Stn	12-20
8A	Whampoa Garden	Tim Sha Tsui (Circular)	9-15
11K	Chuk Yuen Estate	Hung Hom Railway Stn	12-15
11X	Sau Mau Ping	Hung Hom Railway Stn	10-20
12A	Whampoa Garden	Sham Shui Po	8-15
14	Lei Yue Mun Estate	China Ferry	12-15
15	Ping Tin	Hung Hom Ferry	12-15
15X	Lam Tin	Hung Hom Railway Stn	20 (07:10-09:30; 17:00-19:00)
21	Choi Wan	Hung Hom Railway Stn	12-20
26	ShunTin	Tsim Sha Tsui East	7-15
28	Lok Wah	Tsim Sha Tsui East (Mody Road)	8-15
30X	Allway Gardens	Whampoa Garden	15-20
41	Cheung Ching	Kowloon City Ferry	15-25
45	Kowloon City Ferry	Lau Yiu	17-23
85S	Yiu On	Hung Hom Ferry Concourse	07:45, 08:00
85X	Ma On Shan Town	Hung Hom Ferry Concourse	12-20
93K	Po Lam	Mong Kok East Station	15-20
101	Kwun Tong (Yue Man Square)	Kennedy Town	3-10
106	Wong Tai Sin	Siu Sai Wan	4-11
106A	Wong Tai Sin	Tai Koo	07:25, 07:35, 07:45, 07:55
106P	Wong Tai Sin	Siu Sai Wan	17:15, 17:35
107	Kowloon Bay	Wah Kwai	7-12
108	Kai Yip	Braemar Hill	10-20
109	Ho Man Tin	Central (Macau Ferry)	8-20
111	Ping Shek	Central (Macau Ferry)	3-11
111P	Choi Fook	Central (Macau Ferry)	10-15 (07:07-07:55)
115	Kowloon City Ferry	Macau Ferry	4-20
116	Tsz Wan Shan (Central)	Quarry Bay (Yau Man St.)	4-10
212	Whampoa Garden	Sham Shui Po	12-15

Route No.	Termination Points		Frequency (Mins) (Weekday)
230X	Allway Gardens	Whampoa Garden	07:40, 07:55, 08:10
297	Hang Hau (North)	Hung Hom Ferry Concourse	10-20
297P	Hang Hau (North)	Hung Hom Ferry Concourse	08:00
796X	Lohas Park	Tsim Sha Tsui	12-20
A22	Lam Tin Station	Airport (Ground Transportation Centre/ Cathay City)	15-20
E23	Tsz Wan Shan	HK International Airport	12-20
GMB Services			
2	Whampoa Garden	Festival Walk	10-15
6	Tsim Sha Tsui	Whampoa Garden	3-5
6A	Hung Hom Tak Man St	Canton Rd	3-5
8	Tsim Sha Tsui	Ho Man Tin Estate	4-9
8S	Tsim Sha Tsui (Hankow Road)	Ho Man Tin	10
13	Hung Hom Ferry Concourse	Kowloon Tong	10-15

3.3 Existing Junction Performance

3.3.1 To gain an understanding of the existing traffic condition in the Study Area, classified turning movement counts were undertaken on 30 May 2016 (Tuesday) over the peak periods of 07:00 to 10:00 (AM peak period) and 16:00 to 19:00 (PM peak period). **Figure 3.2** shows the traffic survey locations.

3.3.2 All vehicle flows in the subsequent analysis have been converted to passenger car unit (PCU) based on the PCU factors for traffic signal as indicated in Table 2.3.1.1 of Volume 2 of Transport Planning and Design Manual (TPDM) and shown in **Table 3-2**.

Table 3-2 Passenger Car Unit Conversion Factors

Vehicle Type	PCU Conversion Factor
Car/ Taxi	1.00
Public Light Bus/ Minibus	1.50
Light Goods Vehicle	1.50
Medium/ Heavy Goods Vehicle	1.75
Bus/ Coach	2.00

Notes: Data Source: Table 2.3.1.1, Chapter 2.3, Volume 2, TPDM

3.3.3 By applying the above conversion factors, the recorded vehicular traffic flows are converted to PCUs and the result indicates that the AM and PM peak hour occur at 08:30 to 09:30 and 17:45 to 18:45 respectively. **Figure 3.3** presents the 2016 observed peak hour traffic flows on the road network in the vicinity of the Subject Site.

3.4 Existing Junction Performance

3.4.1 Based on the observed traffic flows, the 2016 peak hour performances of the key junctions in the vicinity of the Subject Site are assessed. The results are summarised in **Table 3-3** and the detailed calculation sheets are provided in **Appendix A**.

Table 3-3 2016 Peak Hour Performance of Key Junctions

Jn. ID.	Location	Type	Capacity Index(1) R.C.(C)(2)		Capacity Index(1) R.C.(A)(3)	
			AM	PM	AM	PM
J1	Ma Tau Wai Road / Hok Yuen Street	Signal	109%	92.9%	68.7%	84.6%
J2	Ma Tau Wai Road / Tsing Chau Street	Priority	0.04	0.09	0.04	0.09
J3	Ma Tau Wai Road / Fat Kwong Street	Signal	44.9%	44.7%	1.7%	21.1%
J4	Ma Tau Wai Road / Tai Wan Road	Signal	79.4%	102%	74.5%	79.4%
J5	Ma Tau Wai Road / Station Lane / Wuhu Street	Signal	35.2%	62.0%	12.5%	31.5%
J6	Gillies Avenue North / Pak Kung Street	Priority	0.25	0.25	0.25	0.25
J7	Gillies Avenue South / Station Lane	Signal	154%	154%	153%	153%
J8	Gillies Avenue South / Wuhu Street	Signal	121%	71.4%	78.9%	15.8%

Notes:
(1) The capacity index for signalised junction is reserve capacity (RC). The capacity index for priority junctions is design flow to capacity ratio (DFC).
(2) R.C.(C) – Current Reserve Capacity of signal controlled junction at current cycle time with optimum green times
(3) R.C.(A) –Actual Reserve Capcity of signal controlled junction at current cycle time with actual green times

3.4.2 For signal controlled junctions, two set of reserve capacity indeces, i.e. R.C.(C) and R.C.(A), are calculated in accordance with the calculation method stated in Chapter 2.4 of Volume 4 TPDM. The first set of calculation, R.C.(C), shows the Current Reserve Capacity under current cycle time with the optimum green times for respective phases, i.e. the R.C.(C) shows the maximum reserve capacity of the junction that can be achievable at current cycle time.

3.4.3 The other set of calculation, R.C. (A), shows the Actual Reserve Capacity under current cycle time with the actual green times being observed on-site for respective phases and hence reflects the actual on-site traffic condition at the concerned junction.

3.4.4 The results of the junction assessments show that all the key junctions in the vicinity of the Subject Site operate satisfactorily in both the AM and PM peak periods in 2016.

3.4.5 It is noted that the junction of Ma Tau Kok Road and Fat Kwong Street (J3) was observed to approach capacity during the AM peak hour because the green time allocated to the critical approach is not sufficient to accommodate the demand. As shown in Table 3-3, the reserve capacity of the junction (R.C. (C)) could be increased if the green time for each phase is optimized as shown in the calculation sheets in Appendix A.

4 FUTURE TRAFFIC SITUATION

4.1 Design Year

4.1.1 The planned operation year of the proposed development is 2021, hence, the “Design Year” for this TIA study is set as 2024, i.e. 3 years after the operation year.

4.2 Methodology

4.2.1 In forecasting the future traffic condition in the area, references are made to the following sources of information which include:

- the historical traffic data from Annual Traffic Census (ATC);
- the latest 2021 planning data from the 2011-based Territorial Population and Employment Data Matrices (TPEDM) from Planning Department;
- planning application(s) in the district published by Planning Department;
- traffic forecasts from the relevant Base District Traffic Model (BDTM); and
- future transport infrastructure.

4.2.2 All of the factors are reviewed to determine the traffic growth factor between 2016 and 2024 for estimating the future year 2024 Reference Flows (i.e. without proposed development).

4.2.3 The amount of traffic to be induced by the proposed development are estimated by making references to trip generations/ attractions rates observed at existing developments similar to the proposed development as well as relevant trip rates contained in the Transport Planning and Design Manual (TPDM).

4.2.4 The development flows are then added to the 2024 Reference Traffic Flows to obtain the 2024 Design Traffic Flows (i.e. with proposed development) for both the AM and PM peak hour accordinlgy.

4.2.5 The traffic impact to be induced by the proposed development are assessed by comparing the 2024 Peak Hour Reference Traffic Flows against the 2024 Design Traffic Flows.

4.3 Historical Traffic Growth

4.3.1 To gain an understanding of the historical trends of traffic growth in the Study Area, relevant traffic data over the period of 2009 to 2014 are extracted from the Annual Traffic Census (ATC) Reports for the ATC stations in the Study Area. **Table 4-1** describes the locations of the ATC stations and provides the corresponding traffic data.

Table 4-1 Historical Traffic Data from Annual Traffic Census

Stn No.	Road Name	From	To		AADT (1)						% Growth p.a.
					2008	2009	2010	2011	2012	2013	
4039	Fat Kwong St	Yan Fung St	Ma Tau Wai Rd	AADT	20,360	20,990	21,380	20,170	20,560	20,180	--
				% growth p.a.	-1.8%	+3.1%	+1.9%	-5.7%	+1.9%	-1.9%	-0.18%
4040	Ma Tau Wai Rd	San Lau St & Baily St	Fat Kwong St	AADT	17,790	18,340	18,480	15,160	16,740	16,950	--
				% growth p.a.	-1.8%	+3.1%	+0.8%	-18.0%	+10.4%	+1.3%	-0.96%
4211	Fat Kwong St	Chung Hau St	Yan Fung St	AADT	20,980	20,970	21,610	20,600	20,610	20,640	--
				% growth p.a.	-1.9%	0.0%	+3.1%	-4.7%	0.0%	+0.2%	-0.33%
4213	East Kowloon Corridor	Ma Tau Kok Rd	Chatham Rd N	AADT	72,170	74,710	76,090	76,880	76,930	77,910	--
				% growth p.a.	-0.9%	+3.5%	+1.8%	+1.0%	+0.1%	+1.3%	+1.54%
Overall Total					131,300	135,010	137,560	132,810	134,840	135,680	--
Average Growth Rate (per annum)					-1.3%	+2.8%	+1.9%	-3.5%	+1.5%	+0.6%	+0.66%

Notes: Data Source: Appendix B, The Annual Traffic Census, TD, TTSD Publication

(1) Average Annual Daily Traffic

4.3.2 As indicated in Table 4-1, the traffic volume on the road network in the vicinity of the Subject Site had increased slightly between 2009 and 2014, with an average traffic growth rate of 0.66% per annum.

4.4 Planning Data Assumptions

4.4.1 Reference is also made to the 2011-based Territorial Population and Employment Data Matrices (2015 version TPEDM) land use data which is the latest set of planning data by Planning Department.

4.4.2 **Table 4-2** presents the population, employment and school places data for the Kowloon City District for 2011, 2016, 2021 and 2026, as extracted from TPEDM. Data for 2014 has also been calculated by interpolation for reference.

Table 4-2 2011-Based TPEDM for Kowloon City District

Category	2016	2021	2026	2016 – 2024 Annual Growth
Population	420,150	437,000	443,950	+0.61%
Employment	216,950	230,250	244,750	+1.21%
School Places	144,750	149,850	150,500	+0.47%
Total	781,850	817,100	839,200	+0.76%

4.4.3 As shown in Table 4-2, the Population and Employment in the Kowloon City District are predicted to grow by 0.61% and 1.21% per annum respectively between 2016 and 2024, with a lower increase rate of 0.47% per annum for School places. Overall, the development intensity, including population, employment and school places, in the district is forecast to increase by no more than 0.8% per annum between 2016 and 2024.

4.5 Base District Transport Model

4.5.1 As a source of reference for estimating traffic growth on the road network within the study area, reference are also made to the 2008 Base District Transport Model (BDTM) for Kowloon East (BDTM-K2). **Table 4-3** shows the BDTM traffic flows on the key road links in the vicinity of the Subject Site.

Table 4-3 Peak Hour Traffic Flows from BDTM (PCU)

Road Name	2008	2016	2021	% Growth p.a.	
				2008-2016	2016-2021
AM Peak Hour					
Fat Kwong St	627	548	562	-1.67%	+0.51%
Fat Kwong St F/O	791	794	766	+0.05%	-0.72%
Ma Tau Wai Rd	1,661	1,450	1,479	-1.68%	+0.40%
Chatham Rd N	8,190	8,089	8,516	-0.15%	+1.03%
Total	11,269	10,881	11,323	-0.44%	+0.80%
PM Peak Hour					
Fat Kwong St	436	455	456	+0.53%	+0.04%
Fat Kwong St F/O	598	507	525	-2.04%	+0.70%
Ma Tau Wai Rd	1,288	1,160	1,180	-1.30%	+0.34%
Chatham Rd N	7,518	7,767	8,176	+0.41%	+1.03%
Total	9,840	9,889	10,337	+0.06%	+0.89%

4.5.2 As shown in Table 4-3, the 2016 to 2021 traffic growth rate within the Study Area, as predicted by BDTM, is around +0.80% and +0.89% per annum for the AM and PM peak hour respectively.

4.6 Planned Major Transport Infrastructure

4.6.1 There are three planned major transport infrastructure projects in the East Kowloon region, namely:

- the Kwun Tong Line Extension (KTE);
- the Shatin to Central Link (SCL); and
- the Central Kowloon Route (CKR).

The KTE and SCL are strategic rail network improvements to extend the existing Hong Kong MTR network whilst the CKR is a strategic road network improvement.

4.6.2 The KTE involves the extension of the existing Kwun Tong Line of the MTR network from Yau Ma Tei to Whampoa with one intermediate station at Ho Man Tin. Construction has commenced in 2012 and it is expected to be completed by 2016.

4.6.3 The construction of the SCL has commenced in 2012, and the expected completion year of the SCL is 2021, with the first section (i.e. Tai Wai to Hung Hom) being in operation earlier in 2019. Ho Man Tin Station of the SCL and KTE will be located approximately 300m (crow-fly) from the Subject Site. The completion of the SCL and KTE, and provision of improved rail connectivity is likely to change the travel pattern and behaviour in the area which currently rely heavily on road transport. It is expected that the planned rail infrastructure will have positive impact on the road traffic demand in the Study Area.

4.6.4 The Central Kowloon Route (CKR) is a 4.7km dual 3-lane trunk road linking Yau Ma Tei Interchange in West Kowloon with the road network on the Kai Tak Development in East Kowloon. The project is currently under detailed design stage and tentatively for completion by 2023 subject to final review by the authority. The CKR will provide an alternative east-west route for the Kowloon area and is expected to alleviate the congestion on the existing major east-west corridors, including the East Kowloon Route and Chatham Road North which are located in close proximity to the Subject Site.

4.7 2024 Background Traffic Flows

4.7.1 Taking into account the above information discussed in **Section 4.3** to **Section 4.6**, as summarized below,

- Historical traffic data shows an average growth rate of 0.66% per annum between 2009 and 2014;
- According to TPEDM, an average increase of approximately 0.8% per annum in terms of development intensity is forecast between 2016 and 2026;
- Forecast of traffic growth in the Study Area by BDTM at a rate of 0.80% and 0.89% per annum for the AM and PM peak hour respectively between 2016 and 2021;
- Improved transport infrastructure, namely the KTE, SCL and CKR, which will improve rail and road connectivity for the Study Area by 2021;

a conservative growth rate of +2.0% per annum is adopted for deriving the 2024 Background Traffic Flows, which equivalent to an overall increase of +17.2% from 2016 to 2024, to ensure the robustness of the future year assessments. **Figure 4.1** shows the 2024 Peak Hour Background Traffic Flows.

4.8 Planned and Committed Developments

4.8.1 According to the published information from Planning Department, there is only one planning application in the vicinity of the Study Area as described below:

Case No.:	A/K9/198
Use Applied for:	Proposed Hotel within Commercial Podium of a Proposed Commercial/Residential Development
Address:	424 Chatham Road, Hung Hom (KIL6545)
Site Area:	3,786.14 m^2
No. of Unit:	Residential : Not more than 263 Hotel: 90 to 108

4.8.2 In addition, the committed development at No. 9 Lee Kung Street, which is currently under construction for completion by 2016, will provide a total of 216 residential flats with flat size of 40m^2 approximately.

4.8.3 The locations of the planned and committed developments are shown in **Figure 4.2**. The additional flows to be generated by these planned and committed developments will be added to the 2024 Background Traffic Flows to derive the 2024 Reference Taffic Flows (i.e. without proposed development).

4.9 2024 Reference Traffic Flows

4.9.1 **Table 4-4** shows the additional traffic flows to be generated by the planned and committed developments which are estimated based on relevant trip rates contained in Table 1, Annex D, Ch.3, Vol.1 of TPDM 2013.

Table 4-4 Peak Hour Trip Generations and Attractions by the Planned and Committed Developments

	Land Use	Average Flat Size	Peak Hour Trip Rates (pcu/hr/unit)			
			AM Generation	AM Attraction	PM Generation	PM Attraction
TPDM Trip Rates	Private Housing	60m^2	0.0718	0.0425	0.0286	0.0370
	Hotel	-	0.1329	0.1457	0.1290	0.1546
Development Site	**Type**	**No. of Units**	**Peak Hour Trips (pcu/hour)**			
			AM Generation	AM Attraction	PM Generation	PM Attraction
424 Chatham Road, Hung Hom	Residential	263	19	11	8	10
	Hotel	108	14	16	14	17
	Total Trips	-	33	27	22	27
No. 9 Lee Kung Street	Residential	216	16	9	6	8

4.9.2 The additional flows by the two developments are then added to the 2024 Background Traffic Flows to derive the 2024 Reference Traffic Flows (i.e. without proposed development) as shown in **Figure 4.3**.

4.10 Development Traffic Generations/ Attractions

4.10.1 To determine the trip rates and traffic generations/ attractions of the proposed development, traffic surveys were undertaken at two existing elderly housing developments managed by Hong Kong Housing Society, namely Jolly Place in Tseung Kwan O and Cheerful Court in Jordan Valley. Both developments possess similar characteristics to the proposed development as all of them are elderly housing developments under the management of Hong Kong Housing Society. The trip generation surveys were carried out on 11 November 2014 between 07:00 – 10:00 and 17:00 – 20:00. **Table 4-5** below summarises the survey results. The table also include the trip rates for public rental housing as contained in the Transport Planning and Design Manual (TPDM) for reference.

Table 4-5 Trip Survey Data and Trip Rates

	AM Peak Hour		PM Peak Hour	
	Generation (Out)	Attraction (In)	Generation (Out)	Attraction (In)
Jolly Place, Tseung Kwan O (243 Flats+38 bed spaces)(1)				
Observed Flow (PCU/hr)	2	7	5	3
Trip Rate (PCU/hr/unit)	0.0071	0.0249	0.0178	0.0107
Cheerful Court, Jordan Valley (333 Flats+57 bed spaces) (1)				
Observed Flow (PCU/hr)	8	8	10	8
Trip Rate (PCU/hr/unit)	0.0205	0.0205	0.0256	0.0205
TPDM Trip Rates for Public Rental Housing 2)				
Mean Value for flat size 30m^2	0.0242	0.0226	0.0177	0.0201

Notes: *(1) Data Source: HKHS - http://www.hkhs.com/sen_20040903/index2.htm*

(2) Data Source: , Annex D, Appendix 1, Chapter 3, Volume 1 of TPDM

4.10.2 To provide conservative estimates, it is proposed to adopt the higher trip rates observed at Cheerful Court, which are also comparable to the TPDM trip rates for public rental housing developments, for estimating the traffic flows to be generated by the proposed development. **Table 4-6** shows the estimated peak hour traffic generations/ attractions for the proposed development.

Table 4-6 Peak Hour Development Traffic Generations/ Attractions

Proposed Development (305 units+58 bed spaces)	AM Peak Hour		PM Peak Hour	
	Generation (Out)	Attraction (In)	Generation (Out)	Attraction (In)
Trip Rate (PCU/hr/unit)	0.0205	0.0205	0.0256	0.0205
No. of Trip (PCU/hr)	7	7	9	7
Total 2-way Trip (PCU/hr)	14		16	

4.10.3 As shown in the table, it is estimated that the proposed development would generate two-way traffic flows of 14 and 16 pcu's in the AM and PM peak hour respectively. The peak hour development flows are assigned to the road network as shown in **Figure 4.4**.

4.11 2024 Design Flows

4.11.1 By adding the peak hour development flows (Figure 4.4) onto the forecast 2024 Peak Hour Reference Flows (Figure 4.3), the 2024 Peak Hour Design Flows (i.e. with proposed development) are derived as shown in **Figure 4.5**.

4.12 Traffic Impact Assessment

4.12.1 Based on the 2024 Reference Flows (i.e. without proposed development) and 2024 Design Flows (i.e. with proposed development), junction capacity assessments are undertaken and the results are presented in **Table 4-7**. Detailed calculation sheets are provided in **Appendix B.**

Table 4-7 2024 Peak Hour Performance at Key Junctions

ID.	Location	Type	2024 Reference		2024 Design	
			AM	PM	AM	PM
J1	Ma Tau Wai Road / Hok Yuen Street	Signal	71.8%	61.1%	71.3%	60.8%
J2	Ma Tau Wai Road / Tsing Chau Street	Priority	0.07	0.08	0.12	0.13
J3	Ma Tau Wai Road / Fat Kwong Street	Signal	23.2%	28.6%	23.1%	28.5%
J4	Ma Tau Wai Road / Tai Wan Road	Signal	52.5%	71.8%	52.3%	71.1%
J5	Ma Tau Wai Road/ Station Lane /Wuhu Street	Signal	11.0%	33.6%	10.7%	32.7%
J6	Gillies Avenue North / Pak Kung Street	Priority	0.31	0.32	0.32	0.32
J7	Gillies Avenue South / Station Lane	Signal	117%	116%	117%	116%
J8	Gillies Avenue South / Wuhu Street	Signal	88.4%	33.4%	88.4%	33.2%

Notes: - The capacity index for signalised junction is Current Reserve Capacity (RC(C)) at current cycle time with optimum green times.
- The capacity index for priority junctions is design flow to capacity ratio (DFC)

4.12.2 It is indicated in Table 4-7 that all of the assessed junctions in the vicinity of the Subject Site would perform satisfactorily during the AM and PM peak hour for both the 2024 Reference (without proposed development) and Design (with proposed development) scenarios. As the amount of additional development traffic is not significant, there are minimal differences between the Reference and Design scenarios. It can be concluded, therefore, that the proposed development traffic will not cause adverse traffic impact to the road network in the vicinity of the Subject Site.

4.13 Footpath Level of Service Assessment

4.13.1 At present, the amount of pedestrian flow at the footpaths on both sides of Lee Kung Street is extremely low, with only 1 pedestrian being observed during the peak hour on a weekday.

4.13.2 It is noted that at present the amount of pedestrians from Cheerful Court is small during the peak hour. To provide conservative estimates, it is assumed that 20% of the residents (each room has 2 residents and each bed space has 1 resident) would use the footpath adjacent to the proposed development during the peak hour. Hence, a maximum of 134 pedestrians would be generated during the peak hour as below:

(305 units x 2 + 58 beds x 1) x 20% = 134 pedestrians per hour

4.13.3 The level of service (LOS) of the footpath is calculated to accord with the LOS criteria stipulated in Paragraph 10.4.2.3 of Volume 6 of TPDM. Only 1.0m of footpath width is assumed along the footpath adjacent to the proposed development, after deducting 1.0m of shy zone from the actual width of 2.0m. The result of the LOS assessment for the concerned footpath is presented in **Table 4-8**.

Table 4-8 2024 Peak Hour Level of Service at Lee Kung Street

Location	Effective Width	Peak Hour Flow	Peak Minute Flow /Metre	Level of Service
Footpath adjacent to Proposed development	1.0m	134	2.2	**A**

Notes: (1) Effective footway width = Actual footway width – 1.0m shy zone

4.13.4 The result indicates that the LOS of the footpath adjacent to the proposed development would be satisfactory.

5 INTERNAL TRANSPORT PROVISIONS

5.1 Parking and Loading/ Unloading Provisions

5.1.1 **Table 5-1** summarizes the proposed internal parking and loading/ unloading provisions for the elderly housing development.

Table 5-1 Proposed Parking and Loading/ Unloading Provisions

Parking/ L/UL	Vehicle Type	Reference	Lee Kung Street 305 flats+58 bed spaces		
			Proposed Provisions	Headroom	Dimensions
Parking	Car	1-3 let out (Cheerful Court)	4	Open space	5m x 2.5m
Visitor Parking	Car	1-5 car spaces per block (HKPSG – private housing)	2	Open space	5m x 2.5m
	LGV/Car		1	4.5m	7m x 3.5m
Loading/ Unloading	GV	1 bay (Cheerful Court)	1	4.5m	7m x 3.5m
	Disabled Car	1 bay (Cheerful Court)	1	Open space	5m x 3.5m
	Ambulance	1 bay (Cheerful Court)	1	4.5m	7m x 3.5m

5.1.2 For the provision of car parking spaces, reference is made to the existing usage of car parking spaces at Cheerful Court in Jordan Valley which is also a rental housing development for elderly similar to the proposed development. With a total of 333 nos. of flats at Cheerful Court and a maximum of 3 nos. of car parking spaces being rent out, it is proposed to provide 4 nos. of car parking spaces within the proposed development.

5.1.3 For the provision of visitor parking, reference is made to the visitor parking provisions for private housing development as stipulated in the Hong Kong Planning Standard and Guidelines (HKPSG) as the visitor parking at Cheerful Court are open to the public which is not the arrangement for the proposed development.

5.1.4 Based on the proposed provision as indicated in Table 5-1, the development will provide a total of 7 nos. of parking spaces (6 for private car and one for LGV). Motorcycle parking will not be provided as this is not a popular mode for elderly in general.

5.1.5 The proposed provisions for loading and unloading facilities are similar to the relevant provisions at Cheerful Court, i.e. one each for goods vehicle, disabled car and ambulance will be provided.

5.1.6 **Figure 5.1** shows the arrangement of the parking and loading/unloading bays within the development and the swept path assessment results are shown in **Figures 5.2** and **5.3.**

6 SUMMARY AND CONCLUSION

6.1 Summary

6.1.1 Hong Kong Hosuing Society propose to develop an rental housing development for elderly at Lee Kung Street in Hung Hom (the Subject Site). The proposed development within the Subject Site, which is currently a open car park, will comprise of a single tower providing 305 residential units, for people aged 60 or above, with supporting facilities.

6.1.2 The Subject Site is well served by public transport, including bus and GMB services. In order to appraise the existing traffic condition in the area, classified turning movement counts were carried out at the key junctions in the vicinity of the Subject Site over the AM and PM peak periods on 24 September 2014 (Wednesday). The AM and PM peak hours are identified to be 08:00 to 09:00 and 17:00 to 18:00 respectively.

6.1.3 Junction capacity assessments are undertaken for the AM and PM peak hours for all the key junctions in the vicinity of the Subject Site. The assessment results indicate that all the assessed junctions perform satisfactorily during the AM and PM peak hours with the exception of the Junction Gillies Avenue South and Wuhu Street due to insufficient green time allocated to eastbound traffic of Wuhu Street. The reserve capacity of the junction could be increased significantly by optimizing the signal timings of the junction at the current cycle time of 130 seconds.

6.1.4 The planned completion for the proposed development is 2021 and hence the “Design Year” for this study is set as 2024, i.e. 3 years after the completion year. Having reviewed the historical trend of traffic growth in the area, the planned transport infrastructure in the district and the planned population and employment growth in the area, to provide conservative estimates, a traffic growth factor of 2.0% per annum is adopted for estimating the 2024 Background Traffic Flows. By adding the additional trips to be generated by the planned and committed development in the Study Area, the 2024 Reference traffic flows (i.e. without proposed development) are derived.

6.1.5 Trip rate data obtained from existing developments similar to the proposed development is adopted to estimate the amount of development to be induced by the proposed development. It is estimated that total two-way traffic flows of 14 pcu's and 16 pcu's would be induced by the proposed development during the AM and PM peak hour respectively. The development traffic is then added to the 2024 Reference Traffic Flows (i.e. without proposed development) to derive the 2024 Design Traffic Flows (i.e. with proposed development).

6.1.6 Traffic impact assessments are undertaken by comparing the peak hour junction performance of the 2024 Reference scenario (i.e. without the proposed development) against the Design scenario (i.e. with the proposed development). The results of the assessments indicate that all the assessed junctions in the vicinity of the proposed development would perform satisfactorily during the AM and PM peak periods for both scenarios.

6.1.7 As the amount of additional development traffic is not significant, there are minimal differences between the Reference and Design scenarios in term of junction performances. It is therefoe concluded that the development traffic would not cause adverse traffic impact on the road network in the vicinity of the proposed development.

6.1.8 The internal transport provisions (i.e. parking and loading/ unloading provisions) are proposed with reference to the existing usage of an elderly housing development similar to the proposed development. Accordingly, a total of 4 parking spaces for residents and 3 visitor parking space for visitor parking will be provided. For loading/unloading provisions, one bay each for goods vehicle, ambulance and disabled car will be provided within the development site.

6.2 Conclusion

6.2.1 Based on the results of the traffic impact assessment study, it is concluded that the proposed development will not induce adverse traffic impact to the road network in the vicinity of the proposed development.

Figures

OZZO TECHNOLOGY

Project Title

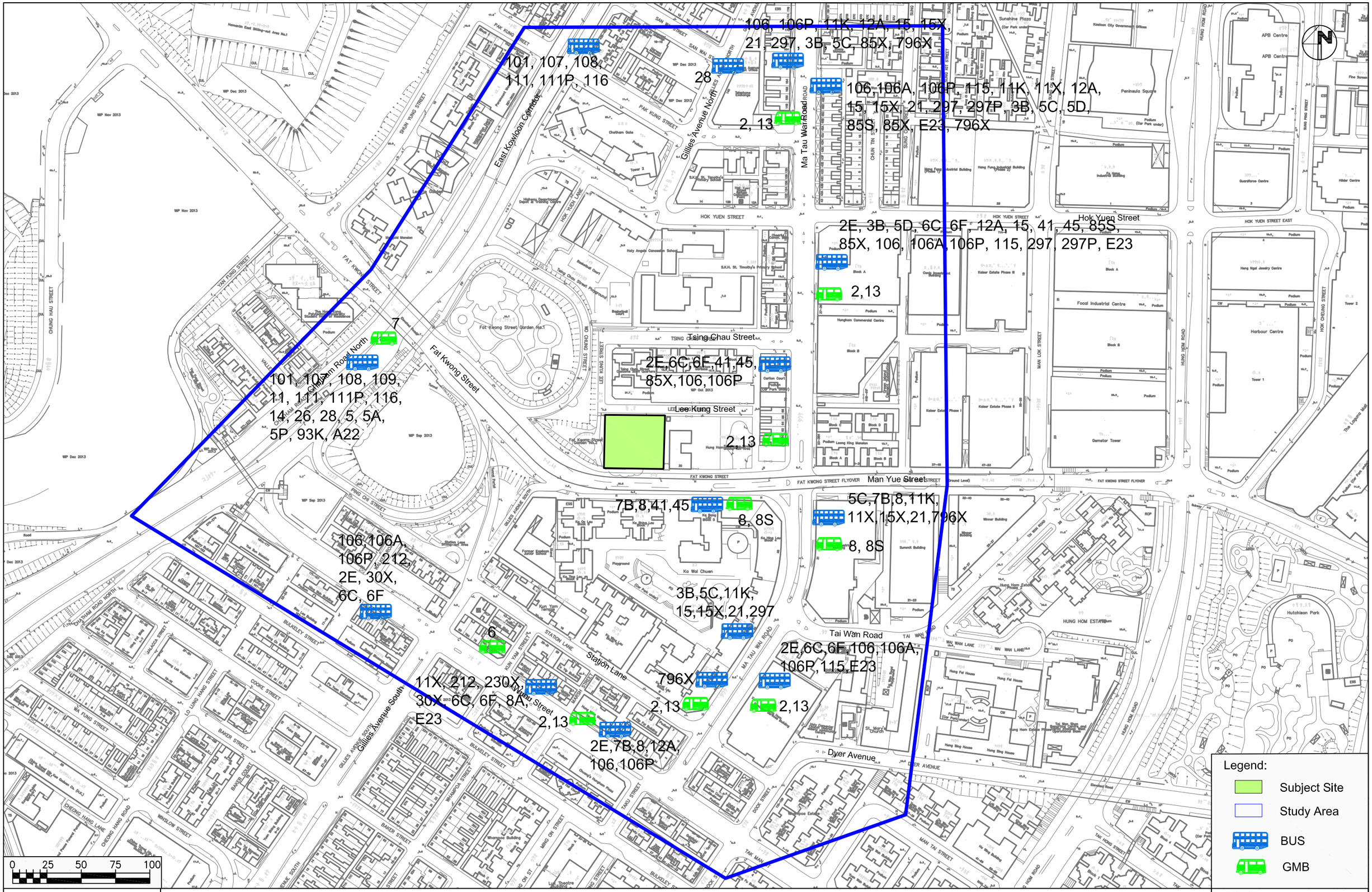
Hong Kong Housing Society
The Proposed Elderly Hosing Development at Lee Kung Street in Hung Hom,Kowloon

Site Location Plan

Date	Scale
10/03/2015	1:2500

HONG KONG HOUSING SOCIETY 香港房屋協會

Project No.	80641	Rev.
Dwg No.	Figure 2.1	-



OZZO TECHNOLOGY

Project Title

Hong Kong Housing Society

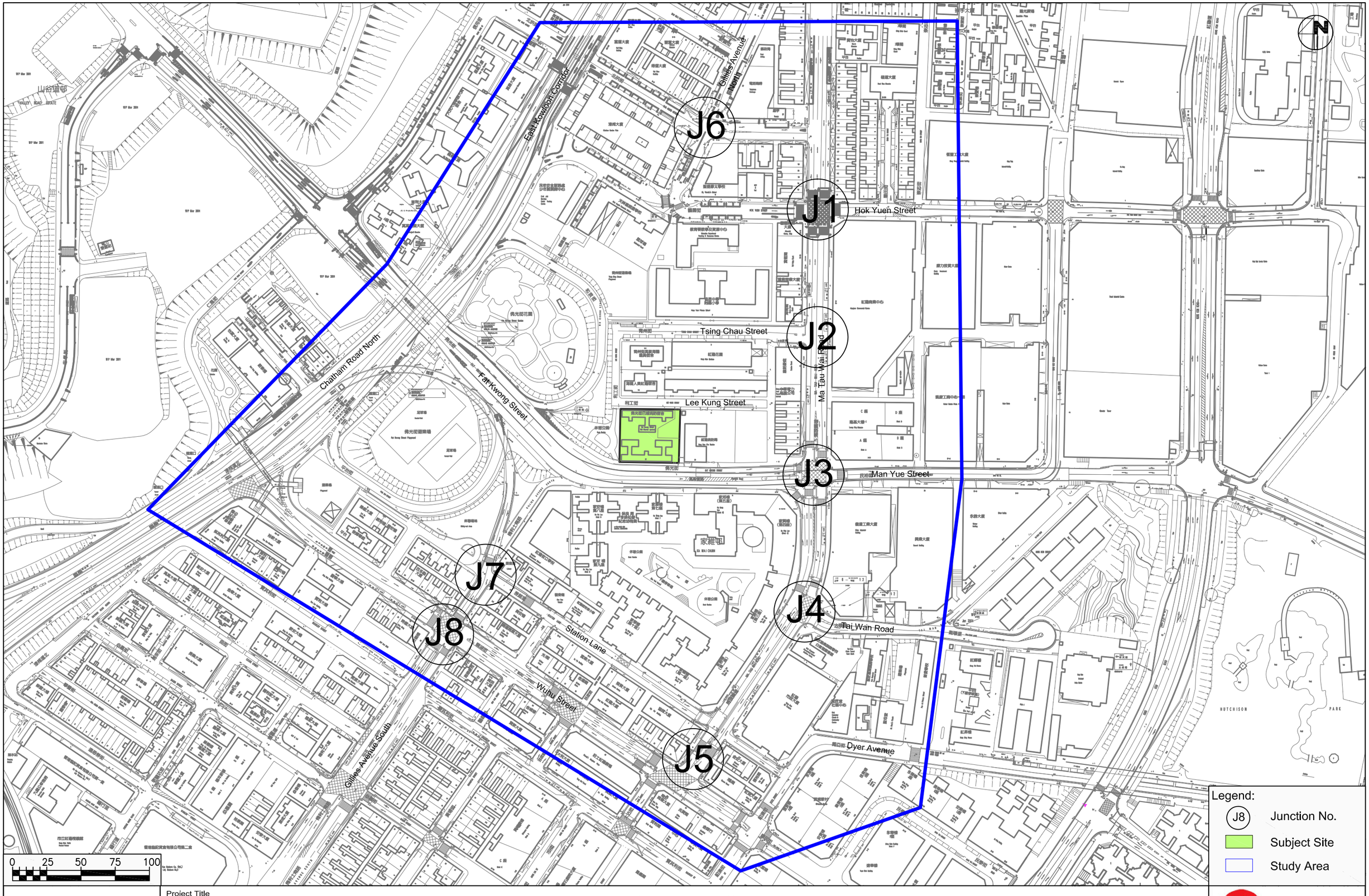
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Existing Public Transport Inventory

Date	Scale
31/05/2016	1:2500

HONG KONG HOUSING SOCIETY 香港房屋協會

Project No.	Rev.
80641	A
Dwg No. Figure 3.1	



OZZO TECHNOLOGY

Project Title

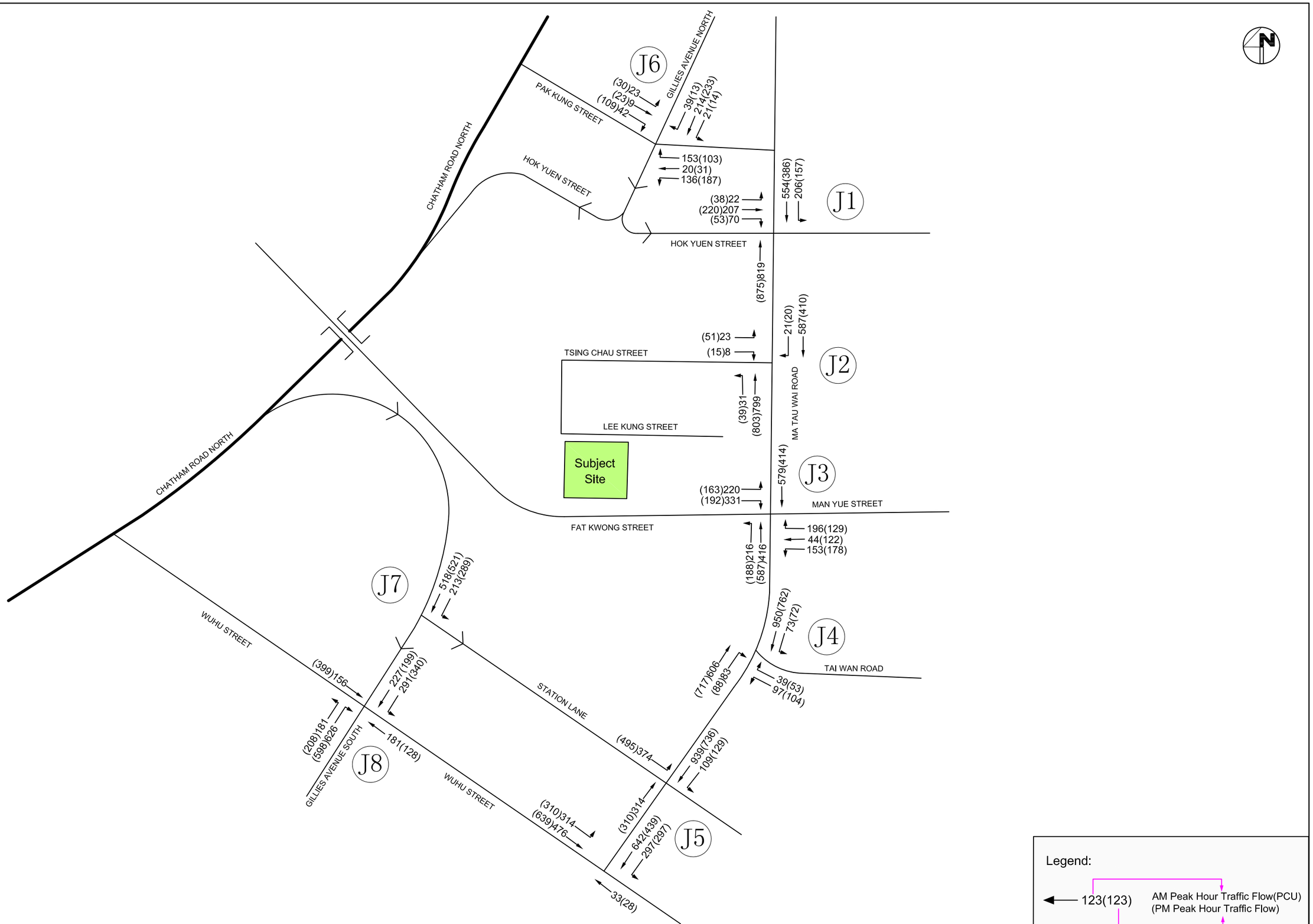
Hong Kong Housing Society
The Proposed Elderly Hosing Development at Lee Kung Street in Hung Hom,Kowloon

Survey Locations

HONG KONG HOUSING SOCIETY 香港房屋協會

Date	Scale
10/03/2015	1:2500

Project No.	80641	Rev.
Dwg No.	Figure 3.2	-



Legend:

123(123) — AM Peak Hour Traffic Flow(PCU) (PM Peak Hour Traffic Flow)

OZZO TECHNOLOGY

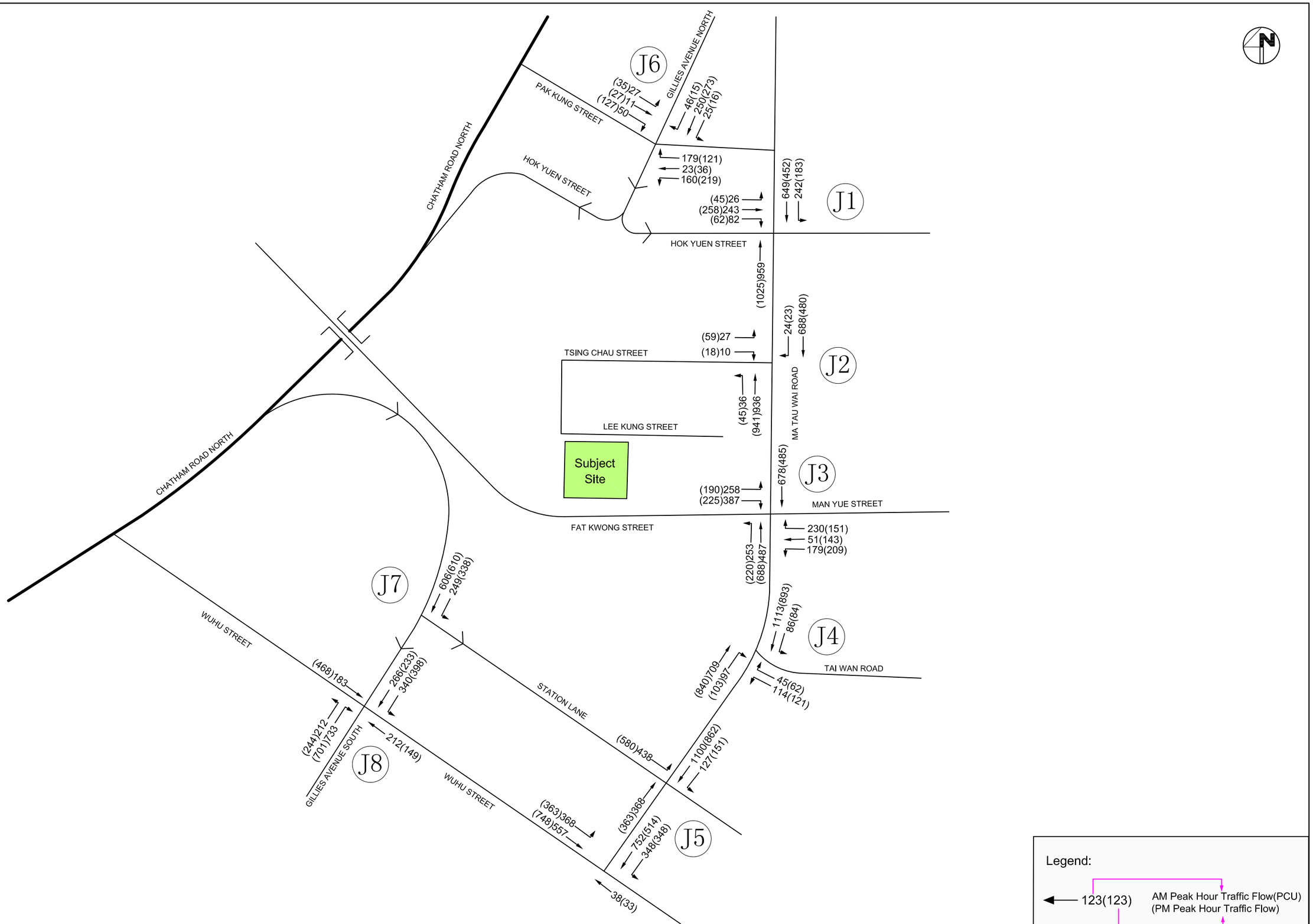
Project Title

Hong Kong Housing Society
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

2016 Observed Peak Hour Traffic Flows

HONG KONG HOUSING SOCIETY 香港房屋協會

Date	Scale	Project No.	Rev.
30/06/2016	NTS	80641	A
		Dwg No. Figure 3.3	



Legend:

123(123) — AM Peak Hour Traffic Flow(PCU) (PM Peak Hour Traffic Flow)

OZZO TECHNOLOGY

Date 30/06/2016 | Scale NTS

Project Title

Hong Kong Housing Society

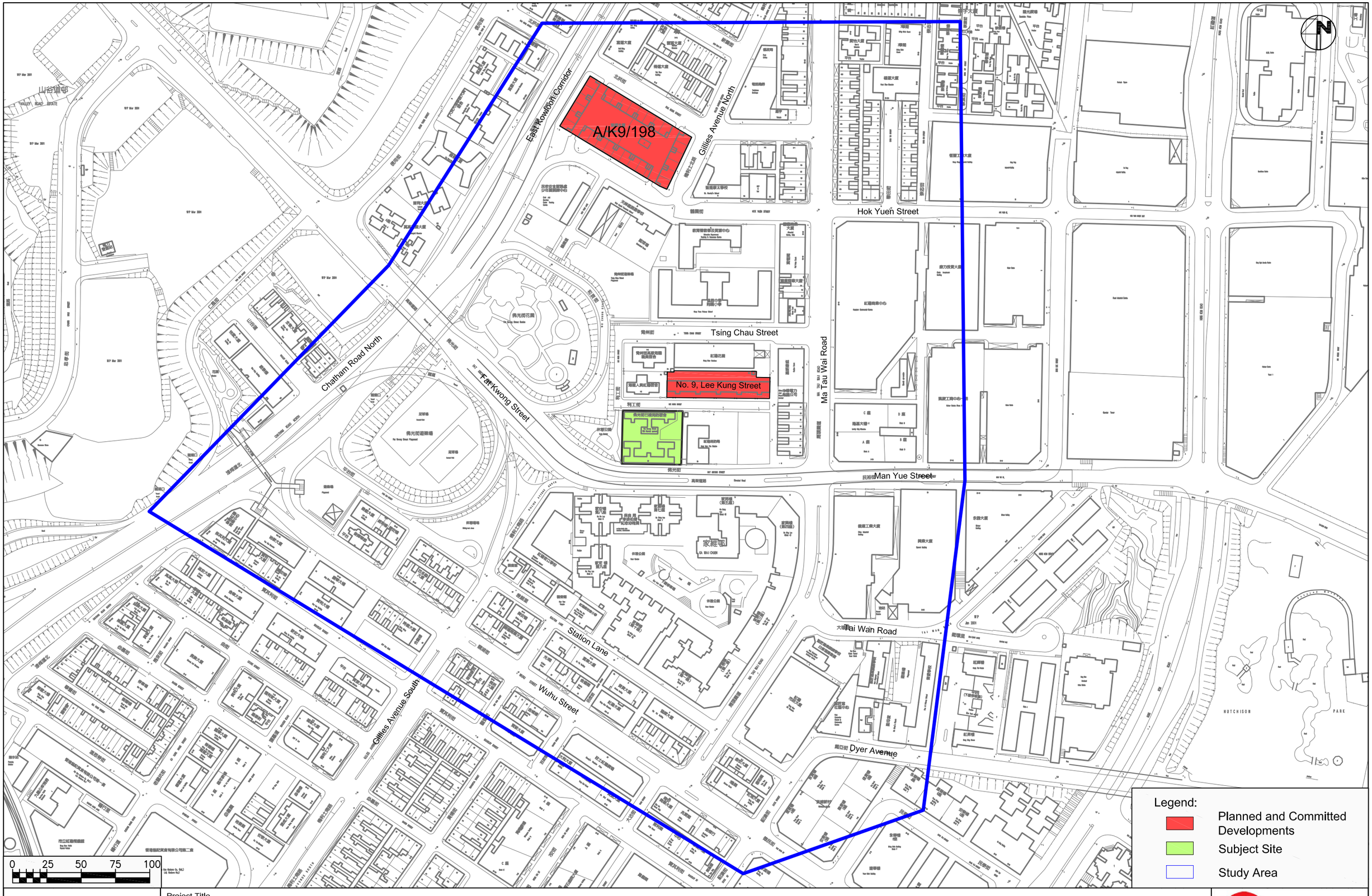
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

2024 Background Peak Hour Traffic Flows

HONG KONG HOUSING SOCIETY 香港房屋協會

Project No. 80641 | Rev. A

Dwg No. Figure 4.1



OZZO TECHNOLOGY

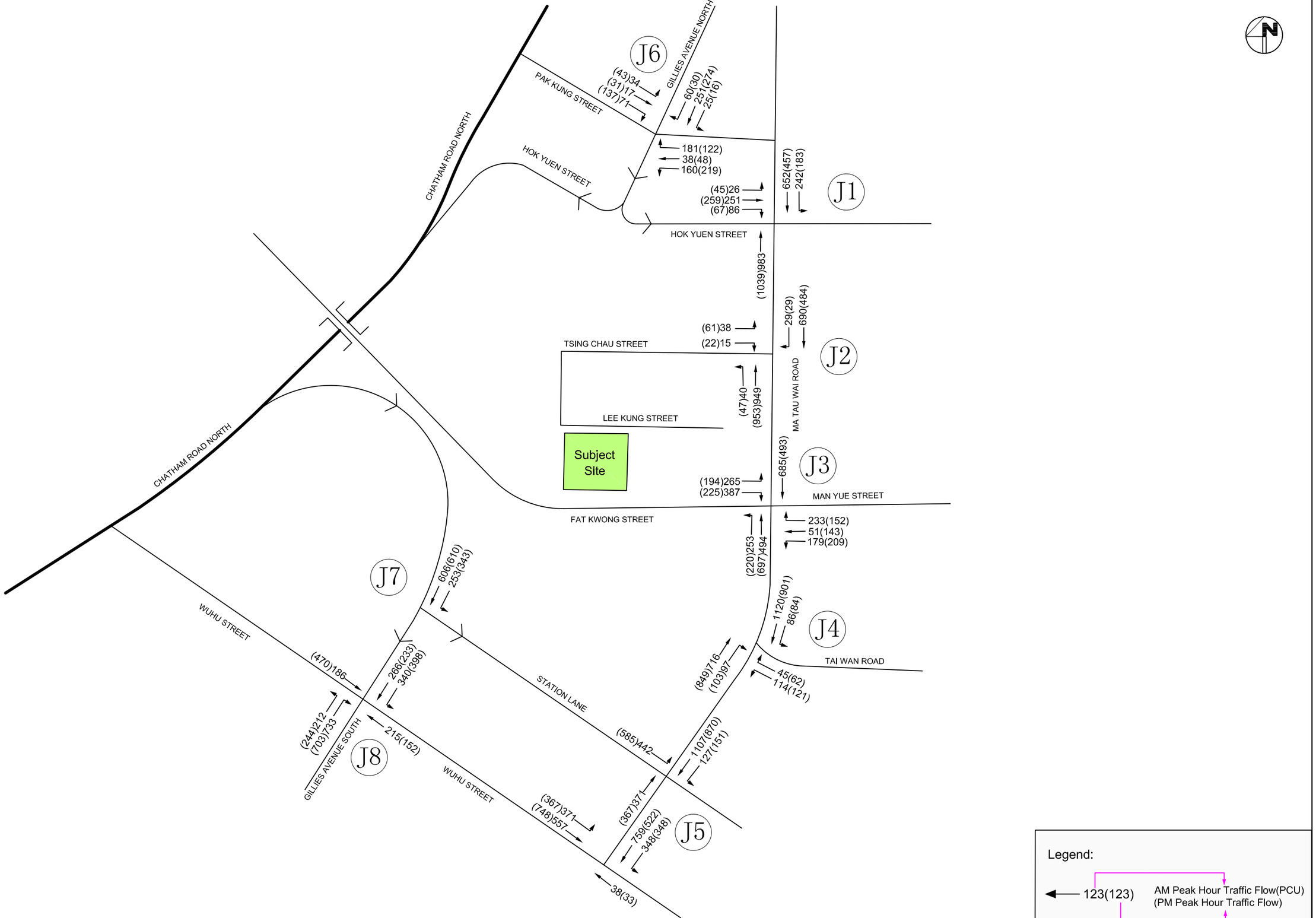
Project Title

Hong Kong Housing Society
The Proposed Elderly Hosing Development at Lee Kung Street in Hung Hom,Kowloon

Locations of Planned and Committed Developments

HONG KONG HOUSING SOCIETY 香港房屋協會

Date	Scale	Project No.	Rev.
18/05/2015	1:2500	80641	A
		Dwg No. Figure 4.2	



Legend:

123(123) — AM Peak Hour Traffic Flow(PCU) (PM Peak Hour Traffic Flow)

OZZO TECHNOLOGY

Date 30/06/2016 | Scale NTS

Project Title

Hong Kong Housing Society

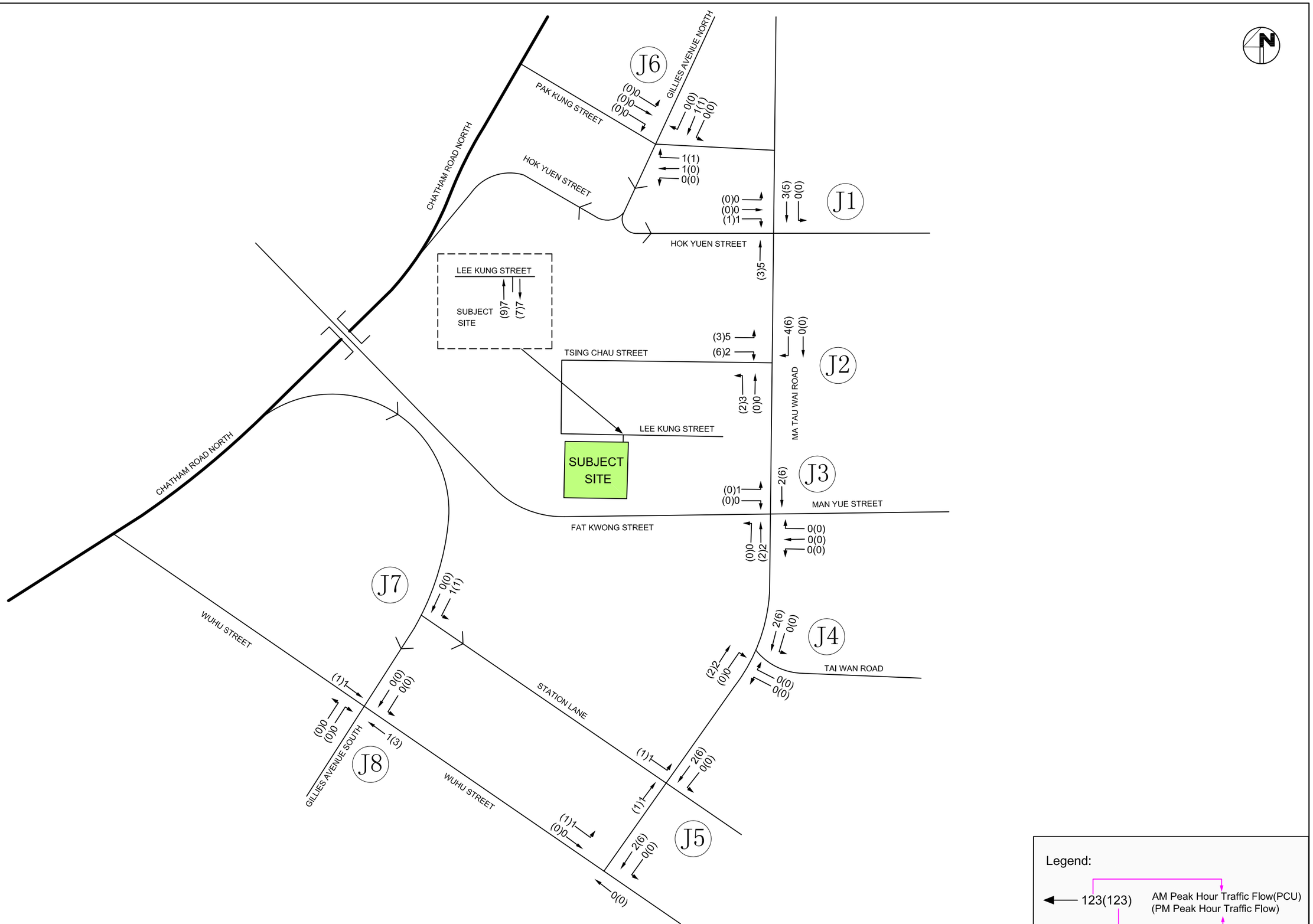
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

2024 Reference Peak Hour Traffic Flows

HONG KONG HOUSING SOCIETY 香港房屋協會

Project No. 80641 | Rev. C

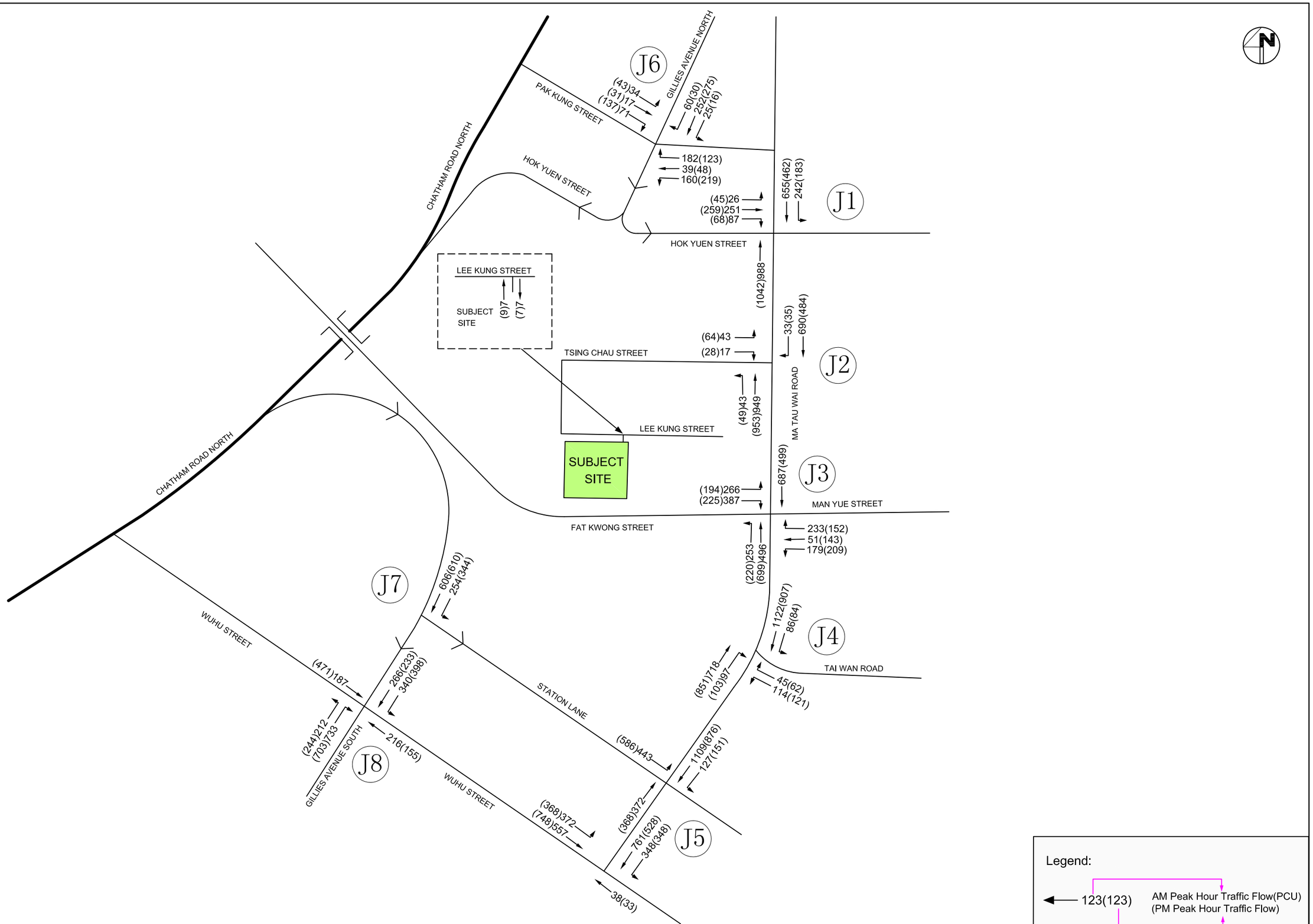
Dwg No. Figure 4.3



Legend:

123(123) — AM Peak Hour Traffic Flow(PCU) (PM Peak Hour Traffic Flow)

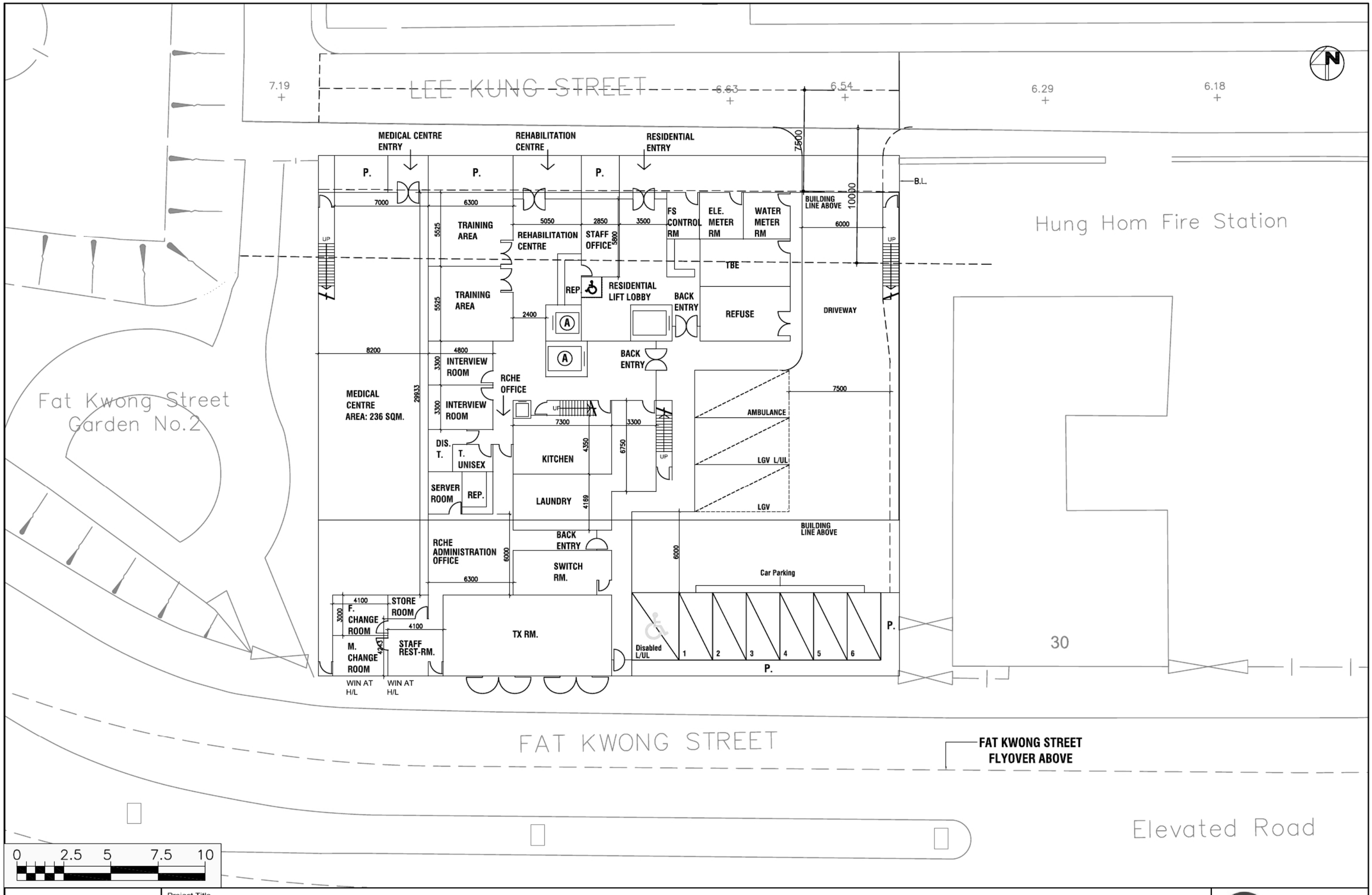
OZZO TECHNOLOGY	Project Title		HONG KONG HOUSING SOCIETY 香港房屋協會
Date 30/06/2016	Scale NTS	Hong Kong Housing Society Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon Peak Hour Development Flows	Project No. 80641 / Dwg No. Figure 4.4 / Rev. C



Legend:

123(123) — AM Peak Hour Traffic Flow(PCU) (PM Peak Hour Traffic Flow)

OZZO TECHNOLOGY	Project Title		HONG KONG HOUSING SOCIETY 香港房屋協會
Date 30/06/2016	Scale NTS	Hong Kong Housing Society Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon 2024 Design Peak Hour Traffic Flows	Project No. 80641 Rev. C Dwg No. Figure 4.5



OZZO TECHNOLOGY

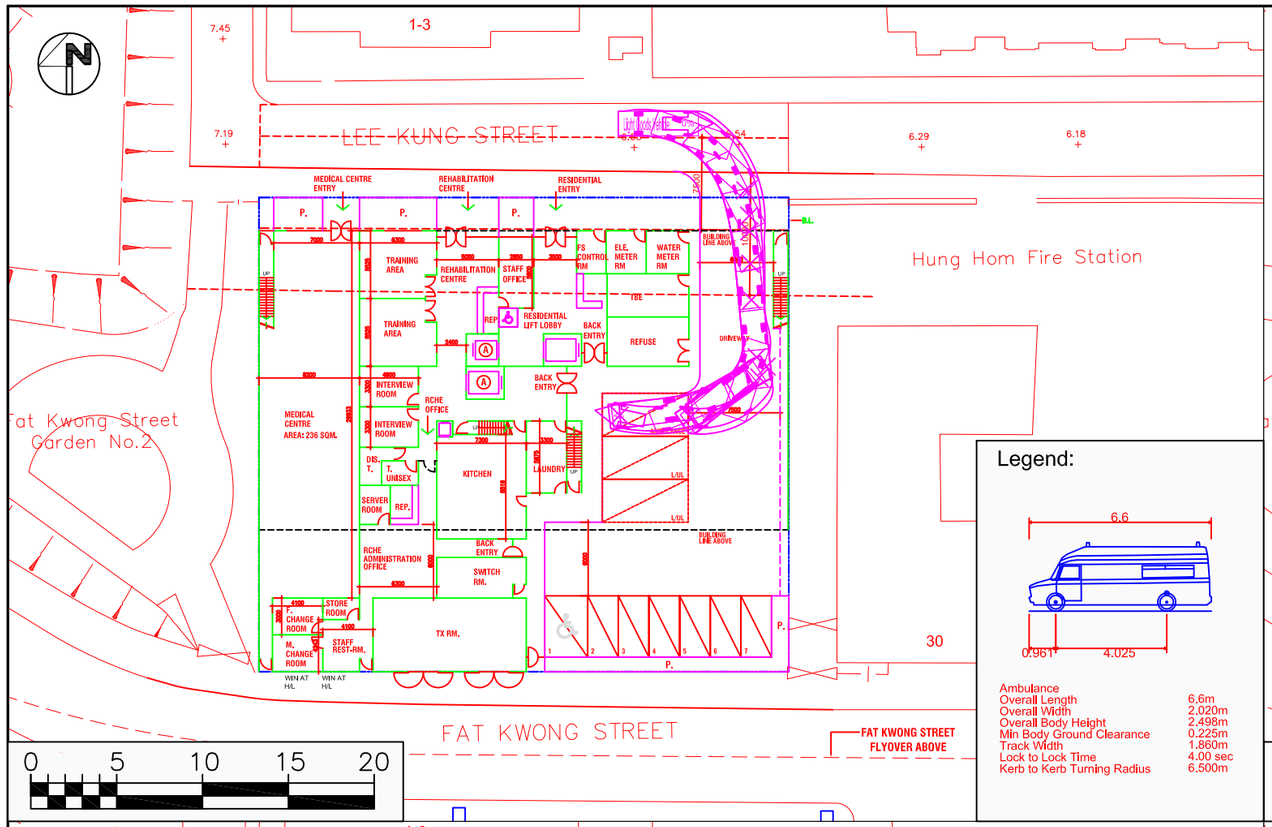
Date	Scale
13/05/2015	1:250

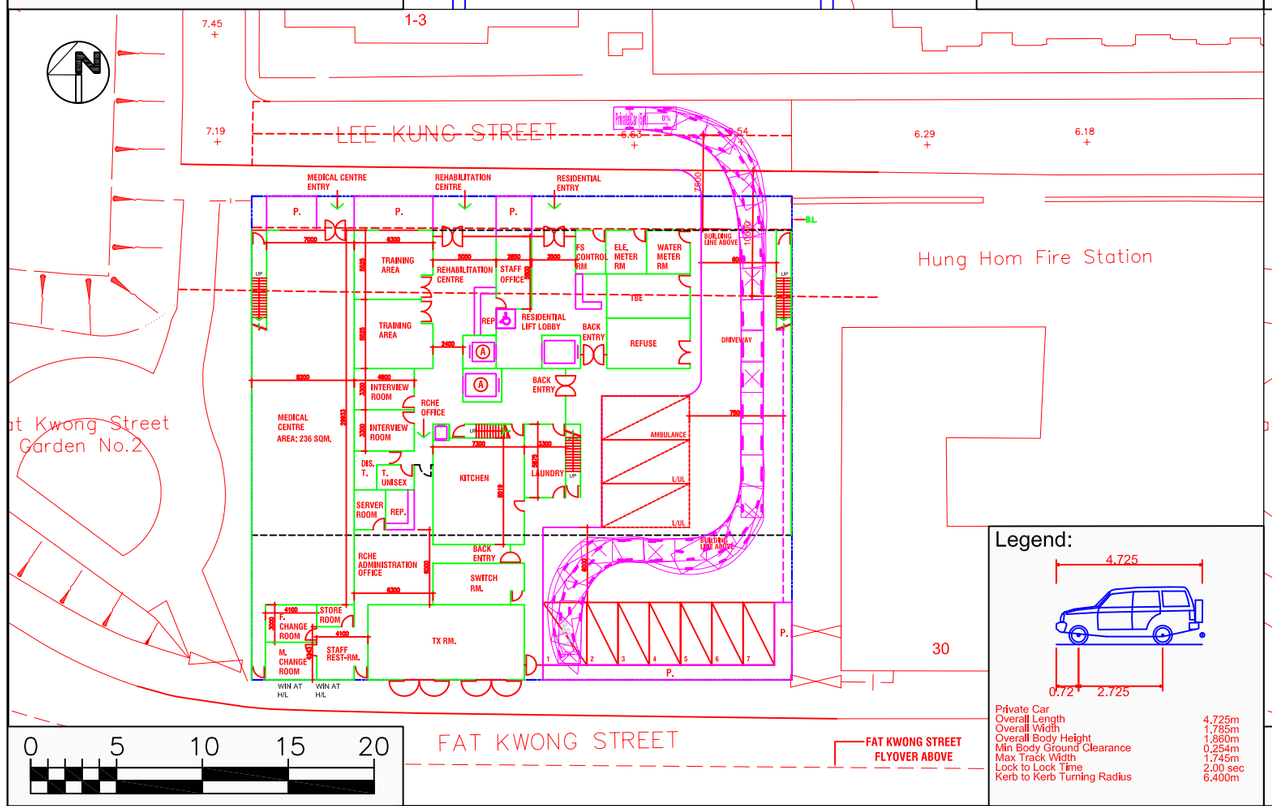
Project Title

Hong Kong Housing Society
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon
Parking and Loading/Unloading Arrangement

HONG KONG HOUSING SOCIETY 香港房屋協會

Project No.	80641	Rev. A
Dwg No.	Figure 5.1	





OZZO TECHNOLOGY

Project Title

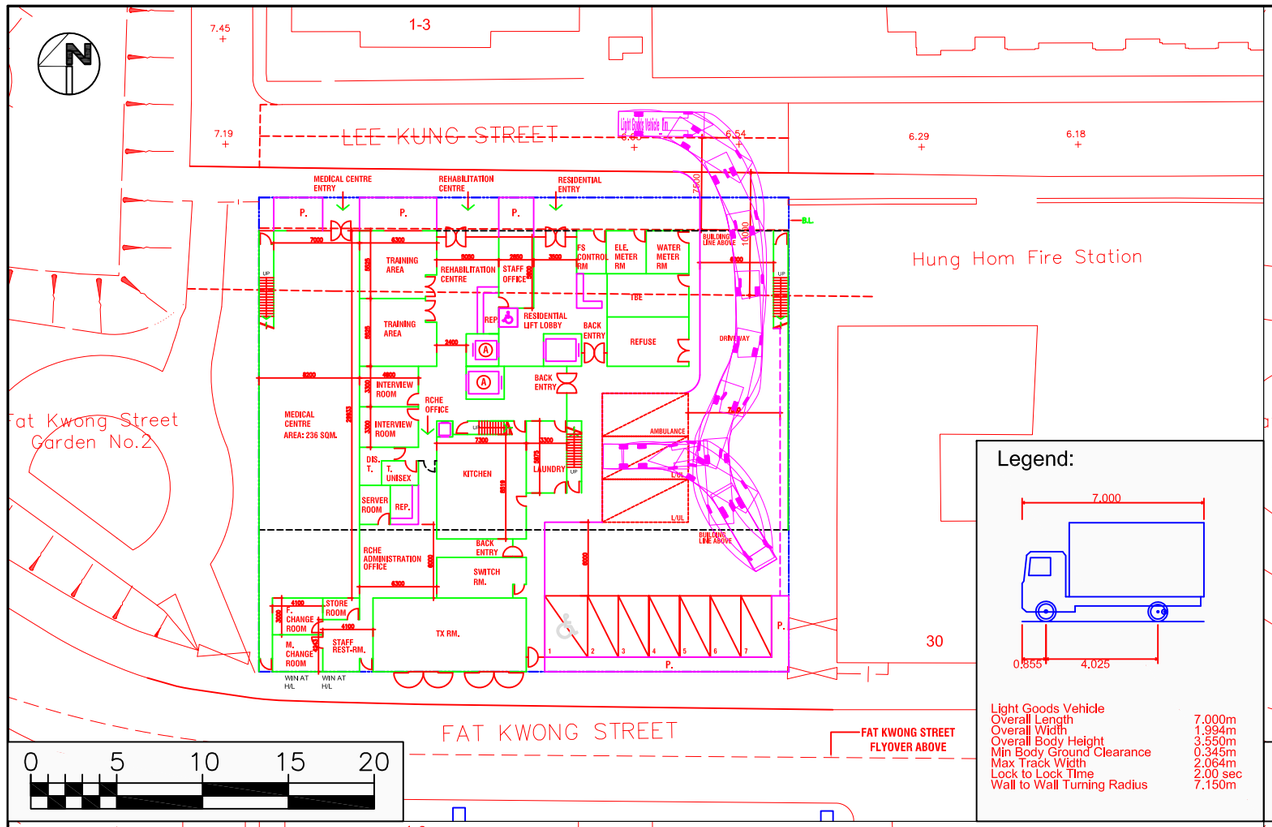
Hong Kong Housing Society
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

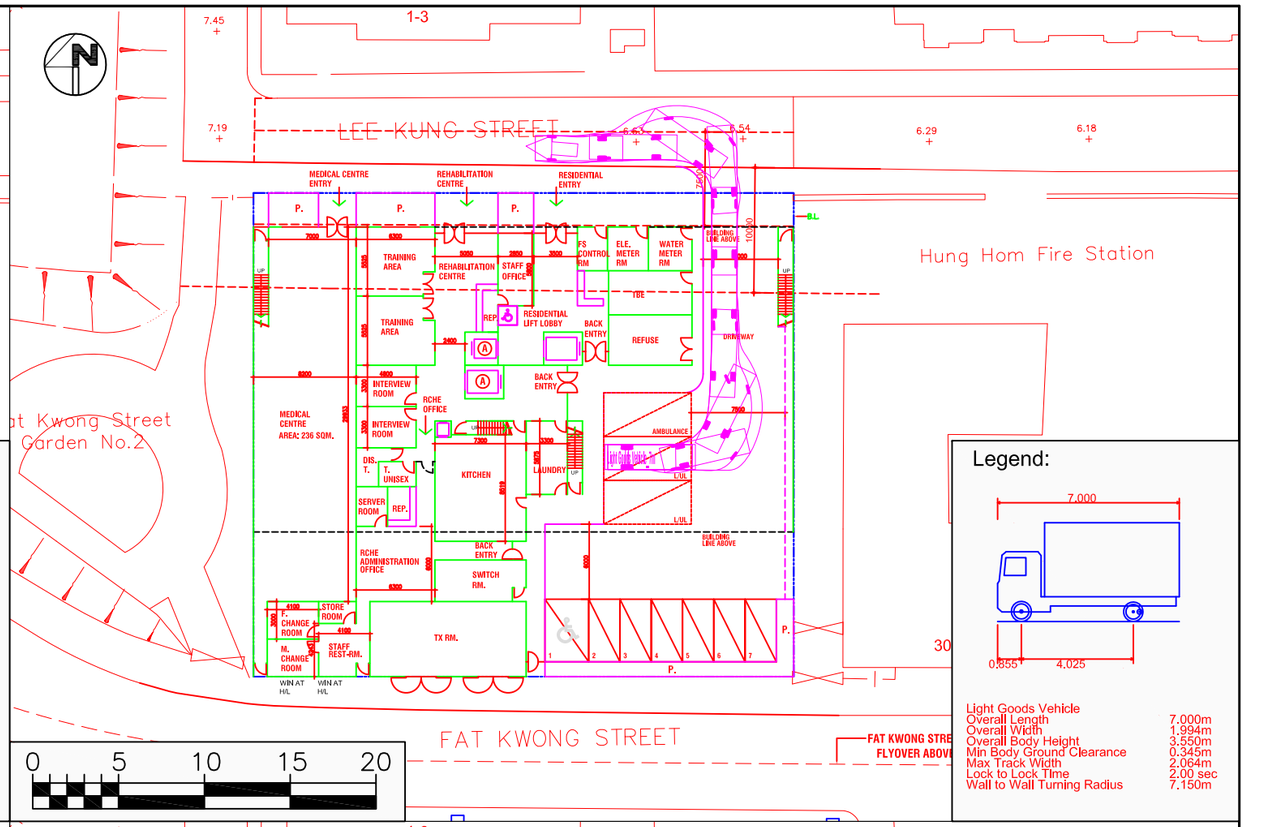
Swept Path Assessment

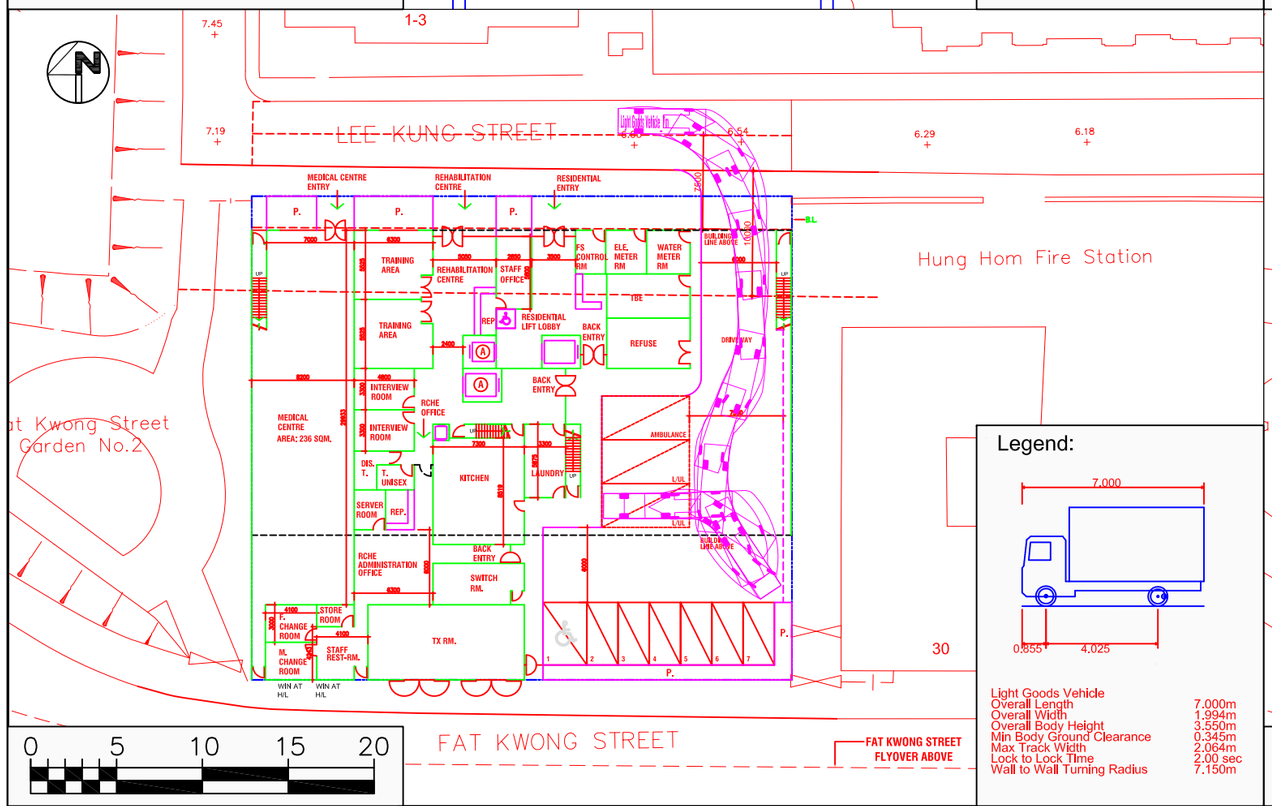
Date	Scale
05/09/2015	1:500

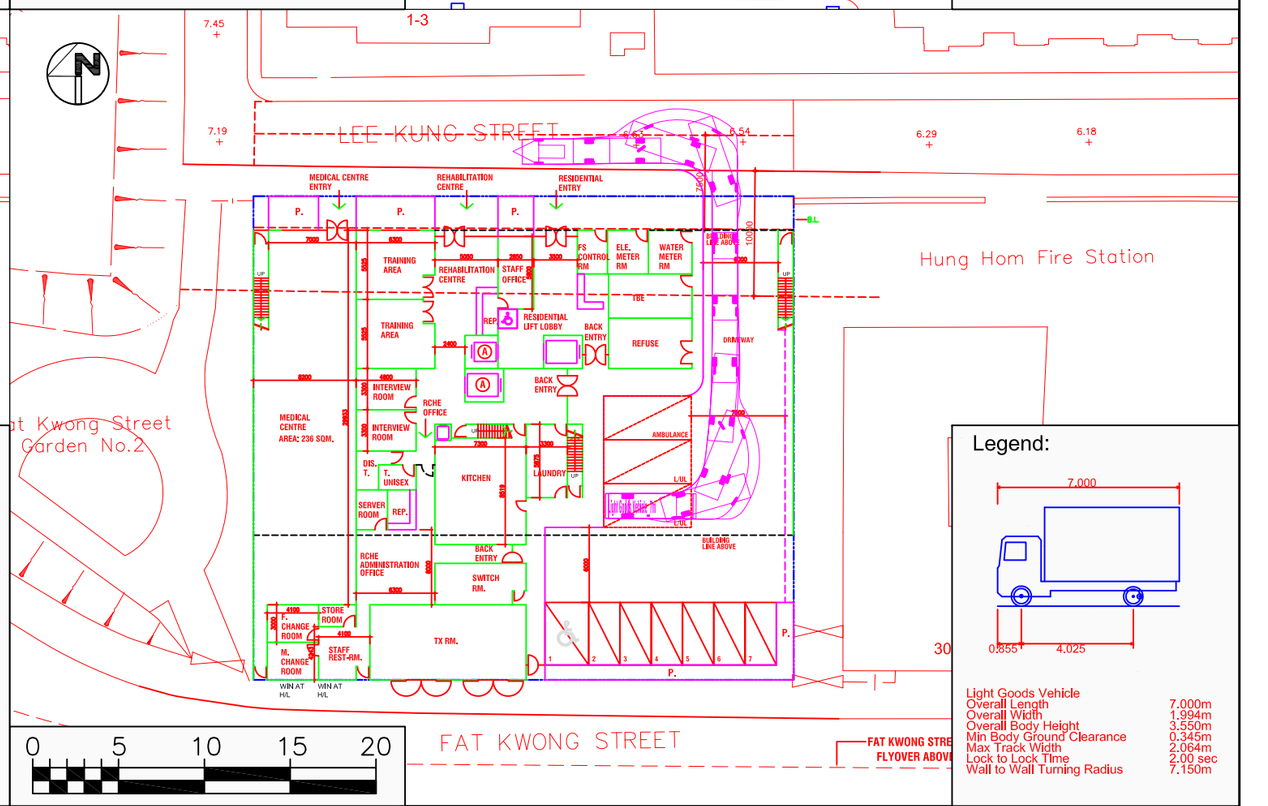
HONG KONG HOUSING SOCIETY 香港房屋協會

Project No.	80641	Rev.
Dwg No.	Figure 5.2	-









OZZO TECHNOLOGY

Project Title

Hong Kong Housing Society
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon

Swept Path Assessment - Proposed Loading / Unloading Arrangement

HONG KONG HOUSING SOCIETY 香港房屋協會

Date	Scale	Project No.	Rev.
05/09/2015	1:500	80641	-
		Dwg No. Figure 5.3	

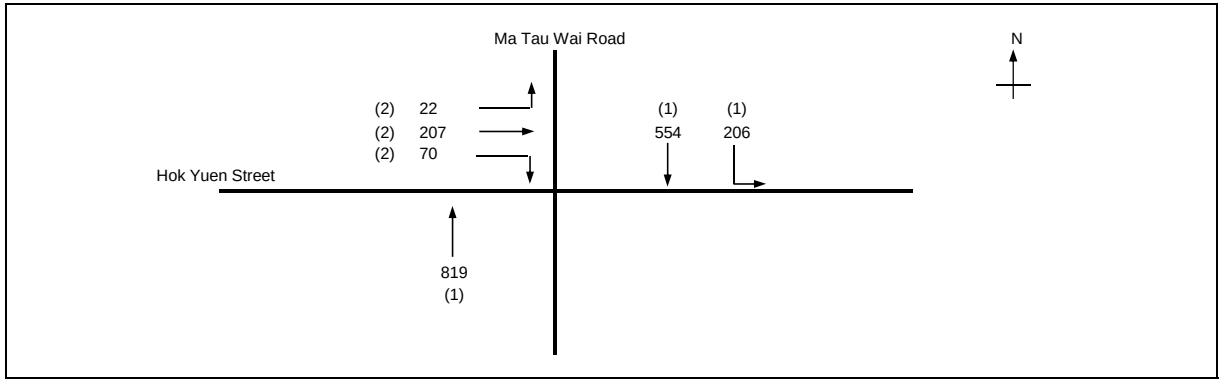
Appendix A

2016 Junction Calculation Sheets

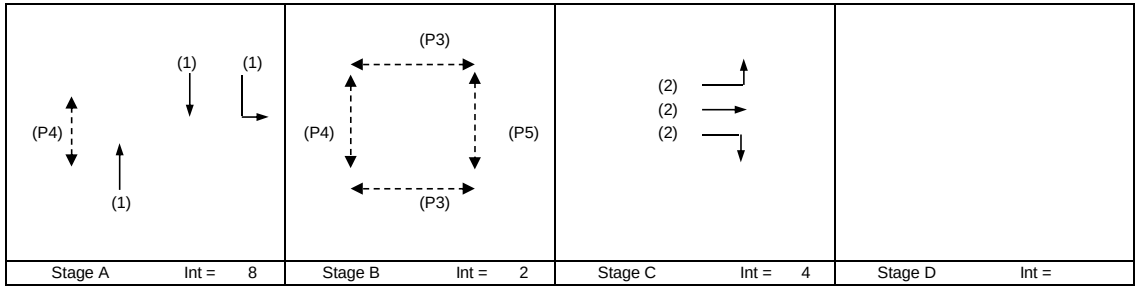
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

				INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 1 - Ma Tau Wai Road / Hok Yuen Street		FILENAME :	Checked By:	OC	Jun-16
2016 AM Peak Hour Traffic Flows		J1_Ma Tau Wai Rd_Hok Yuen St.xls	Reviewed By:	OC	Jun-16



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	135	sec
Sum(y)	Y =	0.303	
Loss time	L =	40	sec
Total Flow	=	1878	pcu
Co = (1.5*L+5)/(1-Y)	=	93.2	sec
Cm = L/(1-Y)	=	57.4	sec
Yult	=	0.600	
R.C.ult = (Yult-Y)/Y*100%	=	98.1	%
Cp = 0.9*L/(0.9-Y)	=	60.3	sec
Ymax = 1-L/C	=	0.704	
Xmax	=	0.533	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	109.1	%
R.C.(A) = (0.9/Xmax-1)*100%	**=**	**68.7**	**%**



Stage A	Int = 8	Stage B	Int = 2	Stage C	Int = 4	Stage D	Int =

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	12	6	11	3	83	11
P3	B	7	8	7	0	21	7
P5	B	9	5	8	0	20	8

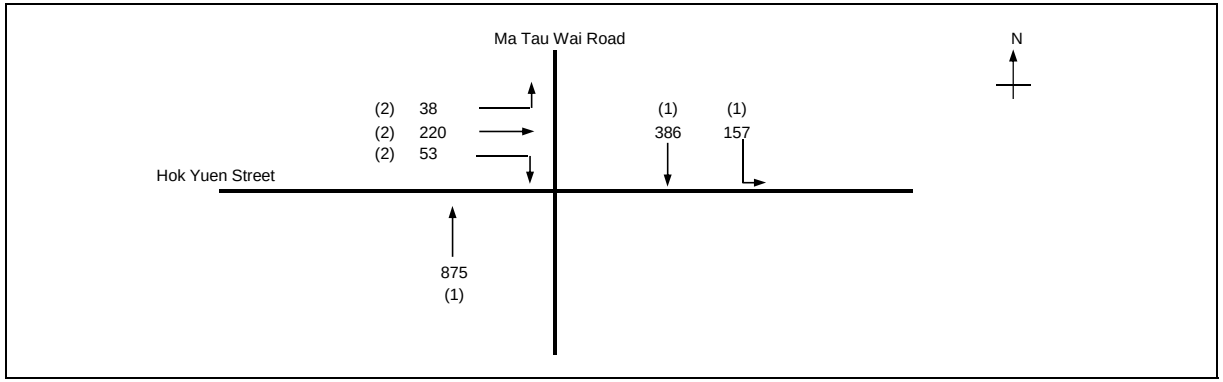
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				12					
LT,SA	C	4.00	2	1	10		N	2015	0	207		207	0.00	2015			2015	0.103	0.103		32	**26**	**0.533**	**36**	**49**
LT	C	4.00	2	1	9			2155	22			22	1.00	1847			1847	0.012			4	**26**	**0.063**	**0**	**40**
RT	C	4.00	2	1	10			2155			70	70	1.00	1874			1874	0.037			12	**26**	**0.195**	**12**	**42**
SA,LT	A	3.50	1	1	9		N	1965	206	143		349	0.59	1789			1789	0.195	0.200		61	**67**	**0.393**	**36**	**20**
SA	A	3.50	1	1				2105		411		411	0.00	2105			2105	0.195			61	**67**	**0.393**	**42**	**20**
SA	A	3.60	1	2			N	4090		819		819	0.00	4090			4090	0.200			63	**67**	**0.403**	**45**	**20**
Ped	B																			28		**28**			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

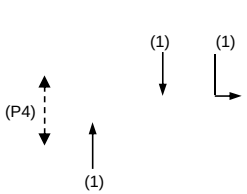
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

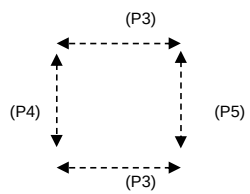
				INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 1 - Ma Tau Wai Road / Hok Yuen Street		FILENAME :	Checked By:	OC	Jun-16
2016 PM Peak Hour Traffic Flows		J1_Ma Tau Wai Rd_Hok Yuen St.xls	Reviewed By:	OC	Jun-16



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	130	sec
Sum(y)	Y =	0.323	
Loss time	L =	40	sec
Total Flow	=	1727	pcu
Co = (1.5*L+5)/(1-Y)	=	96.0	sec
Cm = L/(1-Y)	=	59.1	sec
Yult	=	0.600	
R.C.ult = (Yult-Y)/Y*100%	=	85.8	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.692	
Xmax	=	0.488	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	92.9	%
R.C.(A) = (0.9/Xmax-1)*100%	**=**	**84.6**	**%**



Stage A Int = 8



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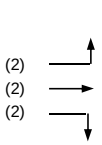


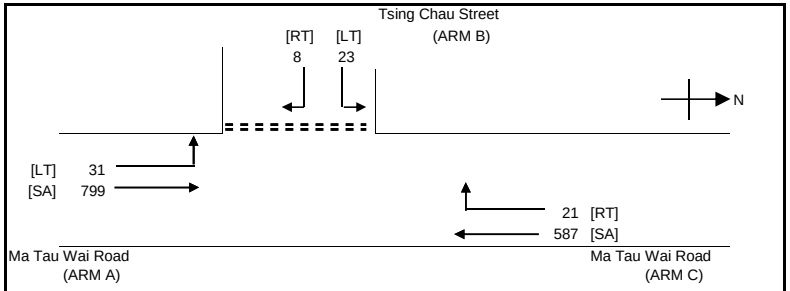
Stage C Int = 4

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	12	6	11	3	73	11
P3	B	7	8	7	0	21	7
P5	B	9	5	8	0	20	8

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				12					
LT,SA	C	4.00	2	1	10		N	2015	0	220		220	0.00	2015			2015	0.109	0.109		30	**31**	**0.458**	**36**	**41**
LT	C	4.00	2	1	9			2155	38			38	1.00	1847			1847	0.021			6	**31**	**0.086**	**6**	**35**
RT	C	4.00	2	1	10			2155			53	53	1.00	1874			1874	0.028			8	**31**	**0.117**	**6**	**35**
SA,LT	A	3.50	1	1	9		N	1965	157	92		248	0.63	1778			1778	0.140	0.214		39	**57**	**0.318**	**30**	**22**
SA	A	3.50	1	1				2105		294		294	0.00	2105			2105	0.140			39	**57**	**0.318**	**30**	**22**
SA	A	3.60	1	2			N	4090		875		875	0.00	4090			4090	0.214			60	**57**	**0.488**	**51**	**24**
P3,P5	B																			28		**28**			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2016 AM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 2 - Ma Tau Wai Rd / Tsing Chau St		FILENAME : Tau Wai Rd_Tsing Chau St.xls	CHECKED BY:	CC	Jun-16
2016 AM Peak Hour Traffic Flows			REVIEWED BY:	CC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.00	(metres)
W cr	=	0	(metres)
q a-b	=	31	(pcu/hr)
q a-c	=	799	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.30	(metres)
Vr c-b	=	50	(metres)
q c-a	=	587	(pcu/hr)
q c-b	=	21	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	3.50	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	70	(metres)
Vr b-c	=	70	(metres)
q b-a	=	8	(pcu/hr)
q b-c	=	23	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8850424
E	=	0.9415345
F	=	0.9942507
Y	=	0.586

THE CAPACITY OF MOVEMENT :

Q b-a	=	326			
Q b-c	=	538	Q b-c (O) =	534.6	
Q c-b	=	565			

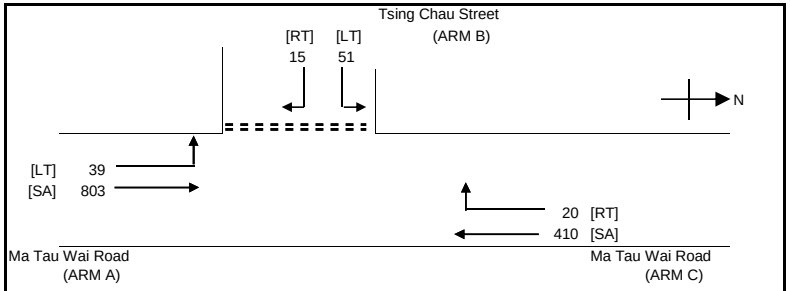
TOTAL FLOW = 1469.25 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0253
DFC b-c	=	0.0428
DFC c-b	=	0.0367

CRITICAL DFC = 0.04

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2016 PM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 2 - Ma Tau Wai Rd / Tsing Chau St		FILENAME : Tau Wai Rd_Tsing Chau St.xls	CHECKED BY:	CC	Jun-16
2016 PM Peak Hour Traffic Flows			REVIEWED BY:	CC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.00	(metres)
W cr	=	0	(metres)
q a-b	=	39	(pcu/hr)
q a-c	=	803	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.30	(metres)
Vr c-b	=	50	(metres)
q c-a	=	410	(pcu/hr)
q c-b	=	20	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	3.50	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	70	(metres)
Vr b-c	=	70	(metres)
q b-a	=	15	(pcu/hr)
q b-c	=	51	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8850424
E	=	0.9415345
F	=	0.9942507
Y	=	0.586

THE CAPACITY OF MOVEMENT :

Q b-a	=	346			
Q b-c	=	537	Q b-c (O) =	531.2	
Q c-b	=	562			

TOTAL FLOW = 1337.25 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

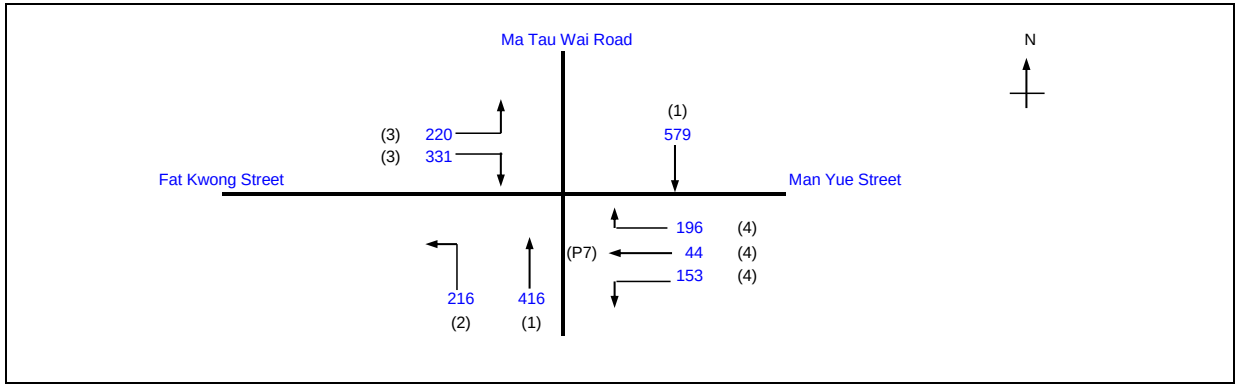
DFC b-a	=	0.0434
DFC b-c	=	0.0945
DFC c-b	=	0.0351

CRITICAL DFC = 0.09

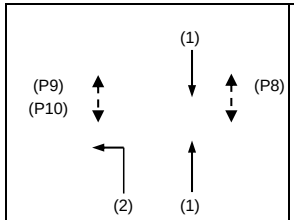
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

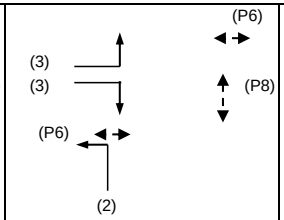
		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2016 AM Peak**		
Junction 3 - Ma Tau Wai Rd / Fat Kwong St / Man Yue St	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
2016 AM Peak Hour Traffic Flows	FILENAME : J3_Ma Tau Wai Rd_Fat Kwong St.xls	Checked By:	OC	Jun-16
		Reviewed By:	OC	Jun-16



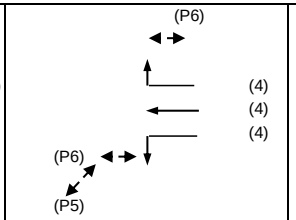
			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.435	
Loss time		L =	39	sec
Total Flow		=	2154	pcu
Co	= (1.5*L+5)/(1-Y)	=	112.4	sec
Cm	= L/(1-Y)	=	69.0	sec
Yult		=	0.608	
R.C.ult	= (Yult-Y)/Y*100%	=	39.7	%
Cp	= 0.9*L/(0.9-Y)	=	75.5	sec
Ymax	= 1-L/C	=	0.700	
Xmax		=	0.885	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	44.9	%
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**1.7**	**%**



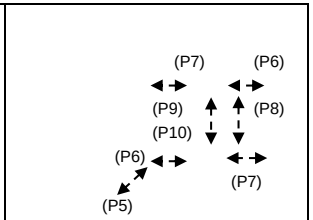
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



Stage D Int = 2

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P5	C,D	6	5	7	2	48	7
P6	B,C,D	6	5	7	0	81	7
P7	D	7	5	7	9	18	7
P8	A,B,D	7	5	7	2	87	7
P9	A,D	7.6	5	10	6	47	10
P10	A,D	5	5	10	6	47	10

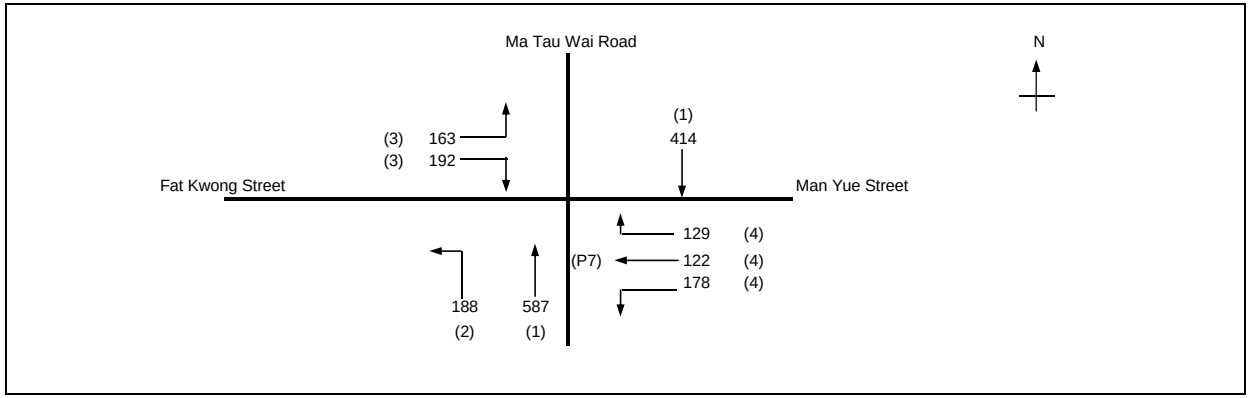
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA (SB)	A	3.30	1	2			N	4030		579		579	0.00	4030			4030	0.144	0.144		30	36	0.519	45	37
SA(NB)	A	3.00	1	2				4110		416		416	0.00	4110			4110	0.101			21	36	0.365	30	35
LT	A,B	4.50	2	1	18		N	2065	216			216	1.00	1906			1906	0.113			24	69	0.213	18	15
LT	B	3.00	3	1	12		N	1915	220			220	1.00	1702			1702	0.129	0.177		27	26	0.647	36	52
LT,RT	B	3.00	3	1	15			2055	0		331	331	1.00	1868			1868	0.177			37	26	0.885	66	46
RT	C	3.00	4	1	15			2055			196	196	1.00	1868			1868	0.105	0.114		22	29	0.471	30	43
SA/LT	C	3.00	4	1	10		N	1915	153	44		196	0.78	1715			1715	0.114			24	29	0.512	30	44
Ped	D																			25		25			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

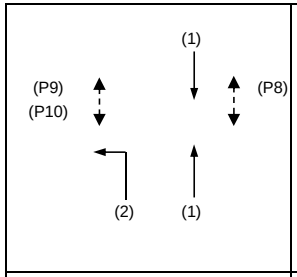
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

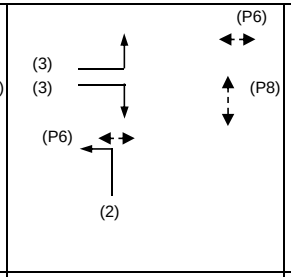
			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 3 - Ma Tau Wai Rd / Fat Kwong St / Man Yue St		FILENAME :	Checked By:	OC	Jun-16
2016 PM Peak Hour Traffic Flows		J3_Ma Tau Wai Rd_Fat Kwong St.xls	Reviewed By:	OC	Jun-16



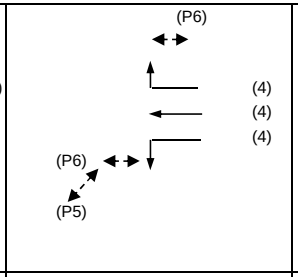
		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	130	sec
Sum(y)	Y =	0.416	
Loss time	L =	43	sec
Total Flow	=	1973	pcu
Co	= (1.5*L+5)/(1-Y) =	119.1	sec
Cm	= L/(1-Y) =	73.7	sec
Yult	=	0.578	
R.C.ult	= (Yult-Y)/Y*100% =	38.7	%
Cp	= 0.9*L/(0.9-Y) =	80.0	sec
Ymax	= 1-L/C =	0.669	
Xmax	=	0.743	
R.C.(C)	= (0.9*Ymax-Y)/Y*100% =	44.7	%
R.C.(A)	**= (0.9/Xmax-1)*100% =**	**21.1**	**%**



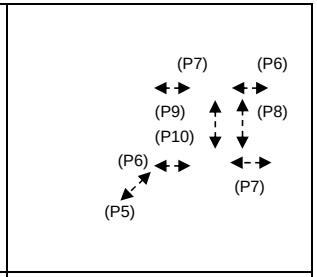
Stage A Int = 7



Stage B Int = 5



Stage C Int = 6



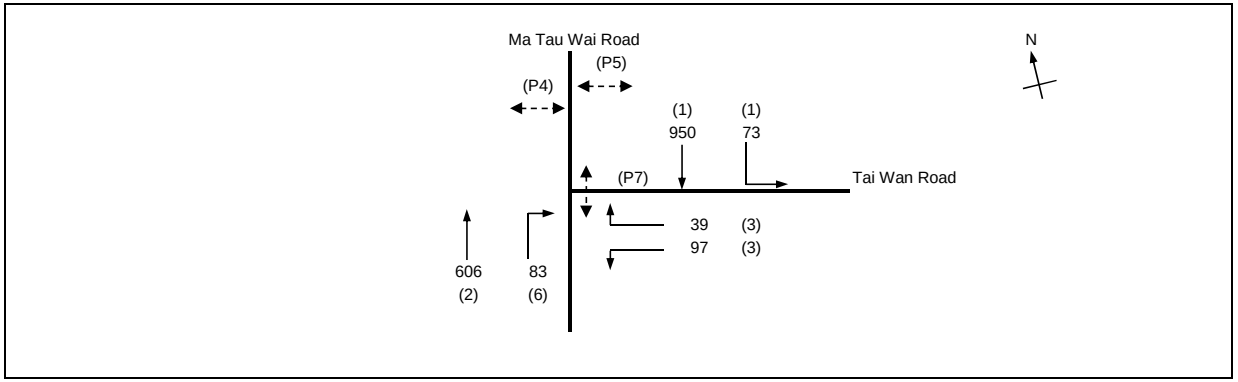
Stage D Int = 3

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P5	C,D	6	5	7	2	55	7
P6	B,C,D	6	5	7	0	80	7
P7	D	7	5	7	9	18	7
P8	A,B,D	7	5	7	2	80	7
P9	A,D	7.6	5	10	6	48	10
P10	A,D	5	5	10	6	48	10

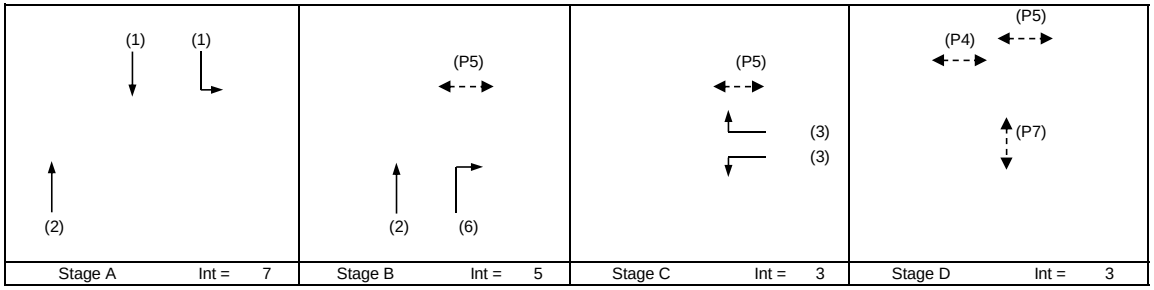
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
SA (SB)	A	3.30	1	2			N	4030		414		414	0.00	4030			4030	0.103	0.143		21	36	0.371	30	35
SA(NB)	A	3.00	1	2				4110		587		587	0.00	4110			4110	0.143			30	36	0.516	45	37
LT	A,B	4.50	2	1	18		N	2065	188			188	1.00	1906			1906	0.099			21	61	0.210	18	19
LT	B	3.00	3	1	12		N	1915	163			163	1.00	1702			1702	0.095	0.103		20	18	0.689	30	63
LT,RT	B	3.00	3	1	15			2055	0		192	192	1.00	1868			1868	0.103			22	18	0.743	36	67
RT	C	3.00	4	1	15			2055			129	129	1.00	1868			1868	0.069	0.170		14	33	0.273	18	36
SA/LT	C	3.00	4	1	10		N	1915	178	122		300	0.59	1758			1758	0.170			36	33	0.672	48	47
Ped	D																			25		25			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 4 - Ma Tau Wai Rd / Tai Wan Rd		FILENAME :	Checked By:	OC	Jun-16
2016 AM Peak Hour Traffic Flows		J4_Ma Tau Wai Rd_Tai Wan Rd.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.359	
Loss time		L =	37	sec
Total Flow		=	1847	pcu
Co	= (1.5*L+5)/(1-Y)	=	94.4	sec
Cm	= L/(1-Y)	=	57.7	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	73.4	%
Cp	= 0.9*L/(0.9-Y)	=	61.5	sec
Ymax	= 1-L/C	=	0.715	
Xmax		=	0.516	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	79.4	%
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**74.5**	**%**

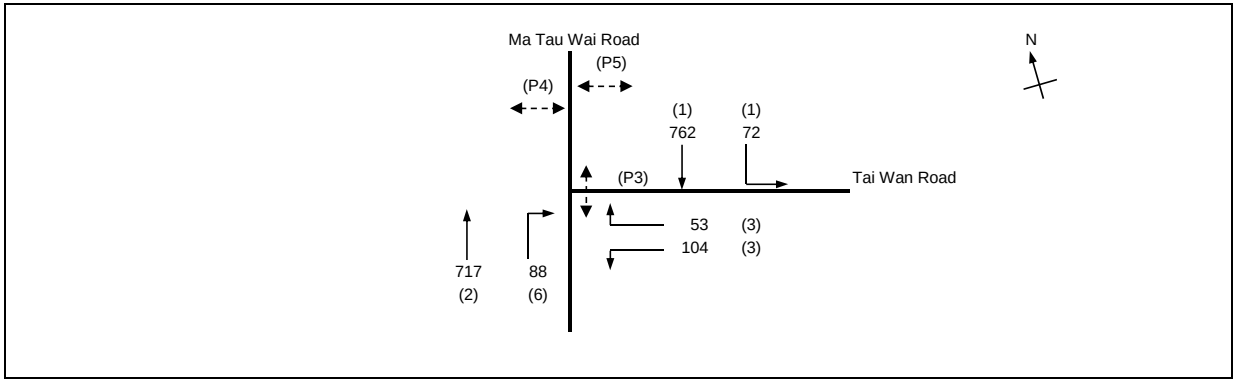


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	D	6.4	5	7	6	9	7
P5	B,C,D	6.3	5	7	0	51	7
P7	D	6.4	8	7	2	13	7

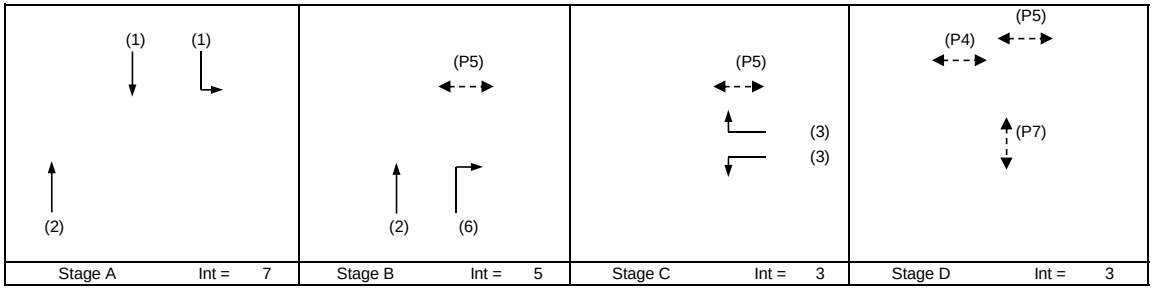
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	G (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT,SA	A	3.10	1	1	18		N	1925	73	417		490	0.15	1901			1901	0.258	0.258		67	**65**	**0.516**	**48**	**22**
SA	A	3.10	1	1				2065		532		532	0.00	2065			2065	0.258			67	**65**	**0.516**	**54**	**21**
SA	A,B	3.10	2	2			N	3990		606		606	0.00	3990			3990	0.152			39	**84**	**0.235**	**21**	**9**
RT	B	3.10	6	1	18			2065			83	83	1.00	1906			1906	0.043	0.043		11	**12**	**0.469**	**12**	**59**
LT	C	3.20	3	1	10		N	1935	97			97	1.00	1683			1683	0.058	0.058		15	**16**	**0.470**	**18**	**55**
RT	C	3.20	3	1	18			2075			39	39	1.00	1915			1915	0.020			5	**16**	**0.163**	**6**	**47**
P4,P7	D		4,7																	22		**22**			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 4 - Ma Tau Wai Rd / Tai Wan Rd		FILENAME :	Checked By:	OC	Jun-16
2016 PM Peak Hour Traffic Flows		J4_Ma Tau Wai Rd_Tai Wan Rd.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.318	
Loss time		L =	37	sec
Total Flow		=	1795	pcu
Co	= (1.5*L+5)/(1-Y)	=	88.7	sec
Cm	= L/(1-Y)	=	54.3	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	95.6	%
Cp	= 0.9*L/(0.9-Y)	=	57.2	sec
Ymax	= 1-L/C	=	0.715	
Xmax		=	0.502	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	102.3	%
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**79.4**	**%**



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	D	6.4	5	7	6	9	7
P5	B,C,D	6.3	5	7	0	51	7
P7	D	6.4	8	7	2	13	7

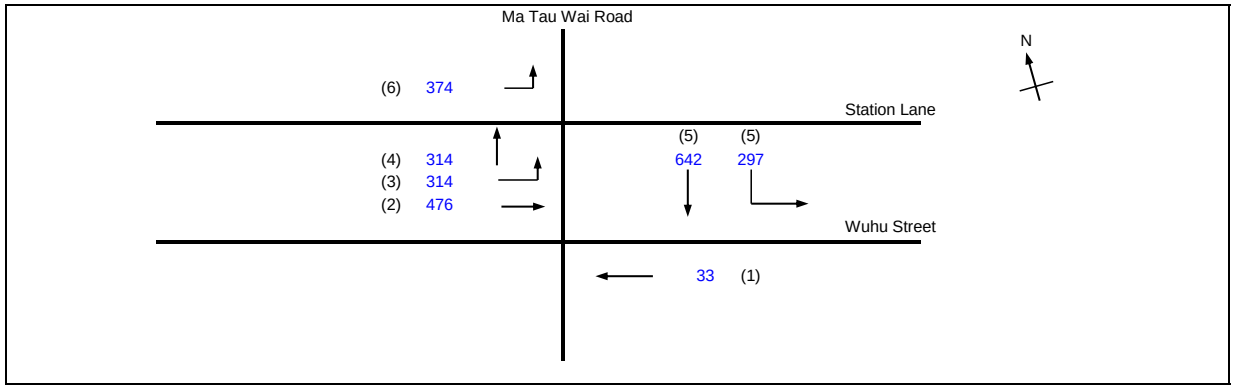
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	G (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT,SA	A	3.10	1	1	18		N	1925	72	327		399	0.18	1897			1897	0.210	0.210		61	65	0.421	42	20
SA	A	3.10	1	1				2065		434		434	0.00	2065			2065	0.210			61	65	0.421	42	20
SA	A,B	3.10	2	2			N	3990		717		717	0.00	3990			3990	0.180			53	84	0.278	27	9
RT	B	3.10	6	1	18			2065			88	88	1.00	1906			1906	0.046	0.046		14	12	0.502	12	60
LT	C	3.20	3	1	10		N	1935	104			104	1.00	1683			1683	0.062	0.062		18	16	0.500	18	56
RT	C	3.20	3	1	18			2075			53	53	1.00	1915			1915	0.028			8	16	0.224	6	48
P4,P7	D		4,7																	22		22			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

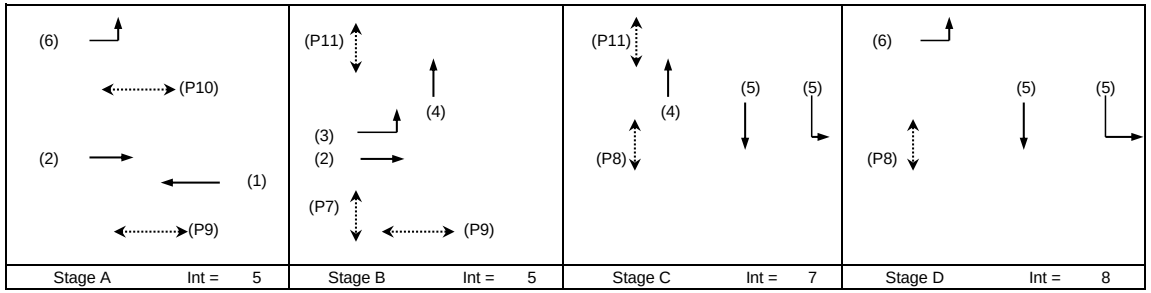
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kow	**2016 AM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 5 - Ma Tau Wai Rd / Station Ln / Wuhu St		FILENAME :	Checked By:	OC	Jun-16
2016 AM Peak Hour Traffic Flows		J5_Ma Tau Wai Rd_Wuhu St_Station Lane	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.512	
Loss time		L =	30	sec
Total Flow		=	2448	pcu
Co	= (1.5*L+5)/(1-Y)	=	102.5	sec
Cm	= L/(1-Y)	=	61.5	sec
Yult		=	0.675	
R.C.ult	= (Yult-Y)/Y*100%	=	31.8	%
Cp	= 0.9*L/(0.9-Y)	=	69.6	sec
Ymax	= 1-L/C	=	0.769	
Xmax		=	0.800	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	35.2	%
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**12.5**	**%**



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P7	B	5	5	5	7	27	5
P8	C,D	8	5	7	2	41	7
P9	A,B	9.2	5	8	10	46	8
P10	A	6.5	5	5	1	14	5
P11	B,C	10	5	8	2	61	8

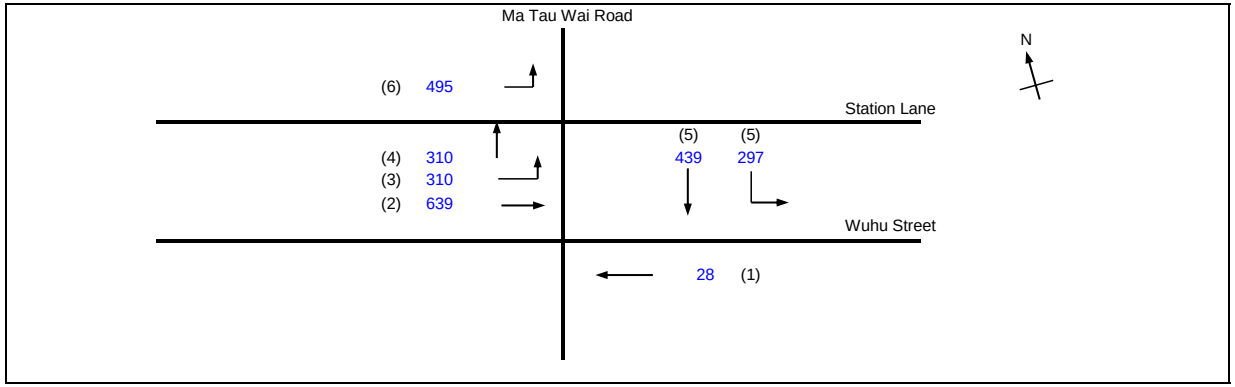
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				21					
LT	A,D	4.00	6	2	13		N	4170	374			374	1.00	3739			3739	0.100			20	49	0.266	24	26
SA	A	4.00	1	1			N	2015		33		33	0.00	2015			2015	0.016	0.016	9	3	20	0.105	0	43
SA	A,B	3.30	2	2				4170		476		476	0.00	4170			4170	0.114			22	64	0.232	24	17
LT	B	3.30	3	1	9		N	1945	314			314	1.00	1667			1667	0.188	0.188		37	39	0.627	42	41
SA	B,C	3.00	4	1			N	1915		314		314	0.00	1915			1915	0.164			32	66	0.323	30	18
LT	C,D	3.30	5	1	9		N	1945	297			297	1.00	1667			1667	0.178			35	50	0.463	36	29
SA	C,D	3.30	5	1	11			2085		642		642	0.00	2085			2085	0.308	0.308		60	50	0.800	84	40

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

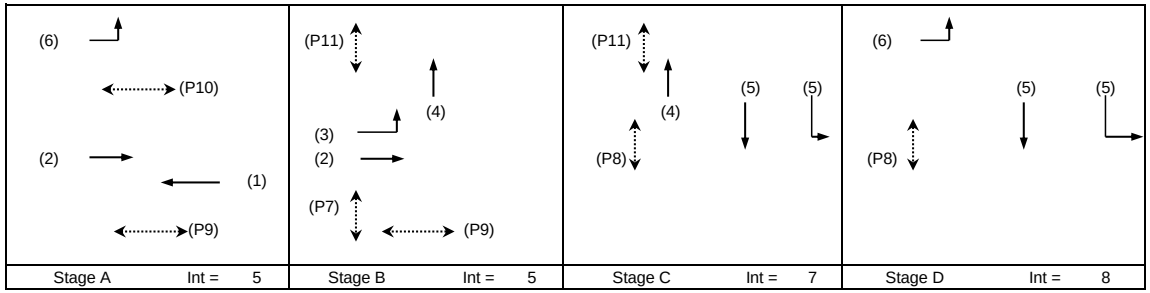
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kow	**2016 PM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 5 - Ma Tau Wai Rd / Station Ln / Wuhu St		FILENAME :	Checked By:	OC	Jun-16
2016 PM Peak Hour Traffic Flows		J5_Ma Tau Wai Rd_Wuhu St_Station Lane	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.410	
Loss time		L =	36	sec
Total Flow		=	2518	pcu
Co	= (1.5*L+5)/(1-Y)	=	100.0	sec
Cm	= L/(1-Y)	=	61.0	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	53.6	%
Cp	= 0.9*L/(0.9-Y)	=	66.2	sec
Ymax	= 1-L/C	=	0.723	
Xmax		=	0.684	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	58.6	%
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**31.5**	**%**

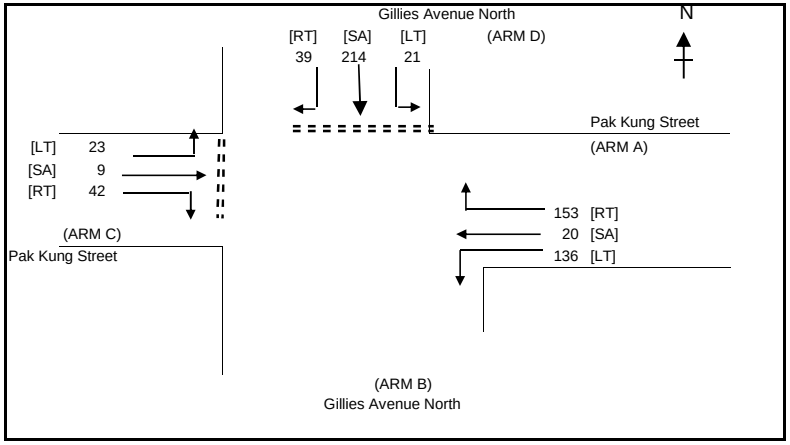


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P7	B	5	5	5	7	28	5
P8	C,D	8	5	7	2	31	7
P9	A,B	9.2	5	8	10	52	8
P10	A	6.5	5	5	1	19	5
P11	B,C	10	5	8	2	56	8

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				25					
LT	A,D	4.00	6	2	13		N	4170	495			495	1.00	3739			3739	0.132			30	54	0.319	30	24
SA	A	4.00	1	1			N	2015		28		28	0.00	2015			2015	0.014	0.014	11	3	25	0.072	0	39
SA	A,B	3.30	2	2				4170		639		639	0.00	4170			4170	0.153			35	70	0.284	30	15
LT	B	3.30	3	1	9		N	1945	310			310	1.00	1667			1667	0.186	0.186		43	40	0.604	42	39
SA	B,C	3.00	4	1			N	1915		310		310	0.00	1915			1915	0.162			37	61	0.345	30	21
LT	C,D	3.30	5	1	9		N	1945	297			297	1.00	1667			1667	0.178			41	40	0.579	42	38
SA	C,D	3.30	5	1	11			2085		439		439	0.00	2085			2085	0.211	0.211		48	40	0.684	60	41

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2016 AM Peak**	PROJECT NO.: 80641	PREPARED BY:	BK	Jun-16
Junction 6 - Gillies Avenue North / Pak Kung Street		FILENAME : Avenue North_Pak Kung Street.	CHECKED BY:	OC	Jun-16
2016 AM Peak Hour Traffic Flows			REVIEWED BY:	OC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

GENERAL

W	=	7.30	(metres)		
W cr	=	0	(metres)	Y =	0.74815

MAJOR ROAD (ARM A)				MAJOR ROAD (ARM B)			
W a-d	=	3.50	(metres)	W c	=	7.00	(metres)
Vr a-d	=	50	(metres)	Vr b-c	=		(metres)
q a-b	=	136	(pcu/hr)	q b-a	=		(pcu/hr)
q a-c	=	20	(pcu/hr)	q b-c	=		(pcu/hr)
q a-d	=	153	(pcu/hr)	q b-d	=		(pcu/hr)

MINOR ROAD (ARM C)				MINOR ROAD (ARM D)			
W c-b	=	3.50	(metres)	W d-c	=	3.50	(metres)
W c-d	=	3.50	(metres)	W d-a	=	3.50	(metres)
Vl c-d	=	50	(metres)	Vl d-c	=	50	(metres)
Vr c-d	=	50	(metres)	Vr d-c	=	50	(metres)
Vr c-b	=	50	(metres)	Vr d-a	=	50	(metres)
q c-a	=	9	(pcu/hr)	q d-c	=	39	(pcu/hr)
q c-b	=	42	(pcu/hr)	q d-a	=	21	(pcu/hr)
q c-d	=	23	(pcu/hr)	q d-b	=	214	(pcu/hr)

GEOMETRIC FACTORS :

X b	=	0.868	X a	=	0.924
X c	=	1.173	X d	=	0.868
Z b	=	0.924	Z d	=	0.924
M b	=	0.868	M d	=	0.868

PROPORTION OF MINOR STRAIGHT AHEAD TRAFFIC :

r b-a	=	0.019		r d-c	=	0.082	
ql b-d	=	11.72	(pcu/hr)	ql d-b	=	115.551797	(pcu/hr)
qr b-d	=	11.28	(pcu/hr)	qr d-b	=	97.948203	(pcu/hr)

CAPACITY OF MOVEMENT :

Q b-a	=	431	(pcu/hr)	Q d-c	=	473	(pcu/hr)
Q b-c	=	666	(pcu/hr)	Q d-a	=	674	(pcu/hr)
Q c-b	=	754	(pcu/hr)	Q a-d	=	688	(pcu/hr)
Ql b-d	=	491	(pcu/hr)	Ql d-b	=	470	(pcu/hr)
Qr b-d	=	491	(pcu/hr)	Qr d-b	=	470	(pcu/hr)

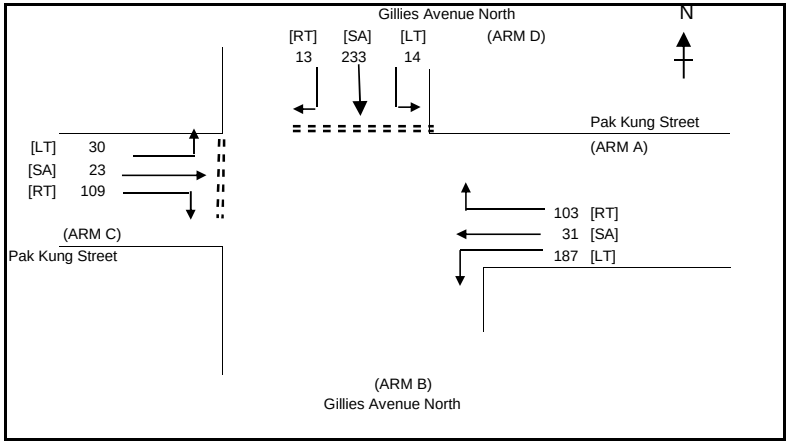
TOTAL FLOW = 657 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0209
DFC b-c	=	0.0634
DFC c-b	=	0.0000
DFCl b-d	=	0.0239
DFCr b-d	=	0.0230
DFC d-c	=	0.0825
DFC d-a	=	0.0312
DFC a-d	=	0.2224
DFCl d-b	=	0.2459
DFCr d-b	=	0.2084

CRITICAL DF(= 0.25

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2016 PM Peak**	PROJECT NO.: 80641	PREPARED BY:	BK	Jun-16
Junction 6 - Gillies Avenue North / Pak Kung Street		FILENAME : Avenue North_Pak Kung Street.	CHECKED BY:	OC	Jun-16
2016 PM Peak Hour Traffic Flows			REVIEWED BY:	OC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

GENERAL

W	=	7.30	(metres)		
W cr	=	0	(metres)	Y =	0.74815

MAJOR ROAD (ARM A)				MAJOR ROAD (ARM B)			
W a-d	=	3.50	(metres)	W c	=	7.00	(metres)
Vr a-d	=	50	(metres)	Vr b-c	=		(metres)
q a-b	=	187	(pcu/hr)	q b-a	=		(pcu/hr)
q a-c	=	31	(pcu/hr)	q b-c	=		(pcu/hr)
q a-d	=	103	(pcu/hr)	q b-d	=		(pcu/hr)

MINOR ROAD (ARM C)				MINOR ROAD (ARM D)			
W c-b	=	3.50	(metres)	W d-c	=	3.50	(metres)
W c-d	=	3.50	(metres)	W d-a	=	3.50	(metres)
Vl c-d	=	50	(metres)	Vl d-c	=	50	(metres)
Vr c-d	=	50	(metres)	Vr d-c	=	50	(metres)
Vr c-b	=	50	(metres)	Vr d-a	=	50	(metres)
q c-a	=	23	(pcu/hr)	q d-c	=	13	(pcu/hr)
q c-b	=	109	(pcu/hr)	q d-a	=	14	(pcu/hr)
q c-d	=	30	(pcu/hr)	q d-b	=	233	(pcu/hr)

GEOMETRIC FACTORS :

X b	=	0.868	X a	=	0.924
X c	=	1.173	X d	=	0.868
Z b	=	0.924	Z d	=	0.924
M b	=	0.868	M d	=	0.868

PROPORTION OF MINOR STRAIGHT AHEAD TRAFFIC :

r b-a	=	0.049		r d-c	=	0.028	
ql b-d	=	15.74	(pcu/hr)	ql d-b	=	119.729211	(pcu/hr)
qr b-d	=	14.26	(pcu/hr)	qr d-b	=	113.270789	(pcu/hr)

CAPACITY OF MOVEMENT :

Q b-a	=	435	(pcu/hr)	Q d-c	=	469	(pcu/hr)
Q b-c	=	654	(pcu/hr)	Q d-a	=	683	(pcu/hr)
Q c-b	=	757	(pcu/hr)	Q a-d	=	688	(pcu/hr)
Ql b-d	=	495	(pcu/hr)	Ql d-b	=	477	(pcu/hr)
Qr b-d	=	495	(pcu/hr)	Qr d-b	=	477	(pcu/hr)

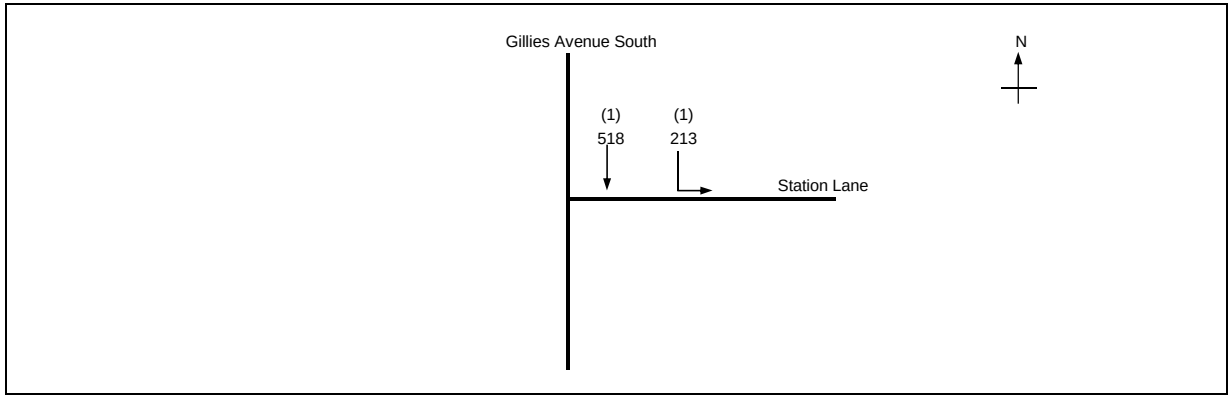
TOTAL FLOW = 742.5 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

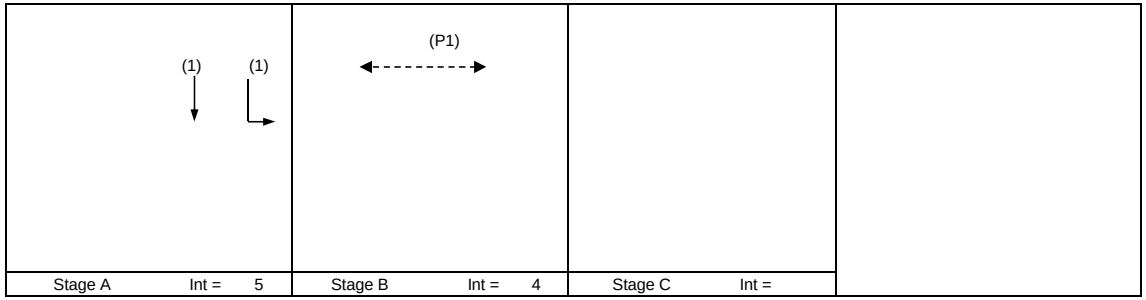
DFC b-a	=	0.0529
DFC b-c	=	0.1663
DFC c-b	=	0.0000
DFCl b-d	=	0.0318
DFCr b-d	=	0.0288
DFC d-c	=	0.0277
DFC d-a	=	0.0201
DFC a-d	=	0.1501
DFCl d-b	=	0.2510
DFCr d-b	=	0.2375

CRITICAL DF(= 0.25

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 7 - Gillies Avenue South / Station Lane		FILENAME :	Checked By:	OC	Jun-16
2016 AM Peak Hour Traffic Flows		J7_Gillies Avenue South_Station Lane.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time
No. of stages per cycle		N =	2
Cycle time		C =	130 sec
Sum(y)		Y =	0.283
Loss time		L =	26 sec
Total Flow		=	730 pcu
Co	= (1.5*L+5)/(1-Y)	=	61.3 sec
Cm	= L/(1-Y)	=	36.2 sec
Yult		=	0.705
R.C.ult	= (Yult-Y)/Y*100%	=	149.4 %
Cp	= 0.9*L/(0.9-Y)	=	37.9 sec
Ymax	= 1-L/C	=	0.800
Xmax		=	0.353
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	154.7 %
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**154.7 %**

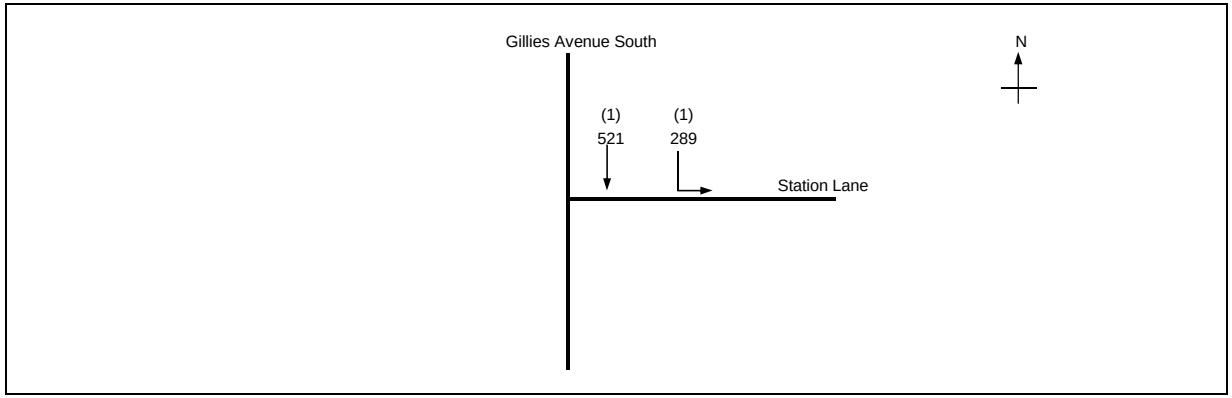


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	B	7.5	6	6	0	12	6

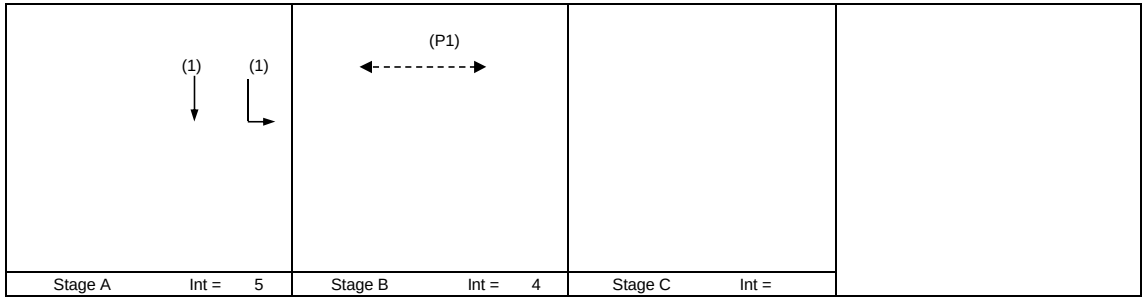
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				8					
LT/SA	A	3.50	1	1	10			2105	213			518	1.00	1830			1830	0.283	0.283		104	**104**	**0.353**	**18**	**4**
SA	A	3.50	1	1				2105		518		518	0.00	2105			2105	0.246			90	**104**	**0.307**	**18**	**4**
Ped	B																			18					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 7 - Gillies Avenue South / Station Lane		FILENAME :	Checked By:	OC	Jun-16
2016 PM Peak Hour Traffic Flows		J7_Gillies Avenue South_Station Lane.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time
No. of stages per cycle		N =	2
Cycle time		C =	130 sec
Sum(y)		Y =	0.284
Loss time		L =	26 sec
Total Flow		=	809 pcu
Co	= (1.5*L+5)/(1-Y)	=	61.5 sec
Cm	= L/(1-Y)	=	36.3 sec
Yult		=	0.705
R.C.ult	= (Yult-Y)/Y*100%	=	147.9 %
Cp	= 0.9*L/(0.9-Y)	=	38.0 sec
Ymax	= 1-L/C	=	0.800
Xmax		=	0.355
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	153.2 %
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**153.2 %**



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	B	7.5	6	6	0	12	6

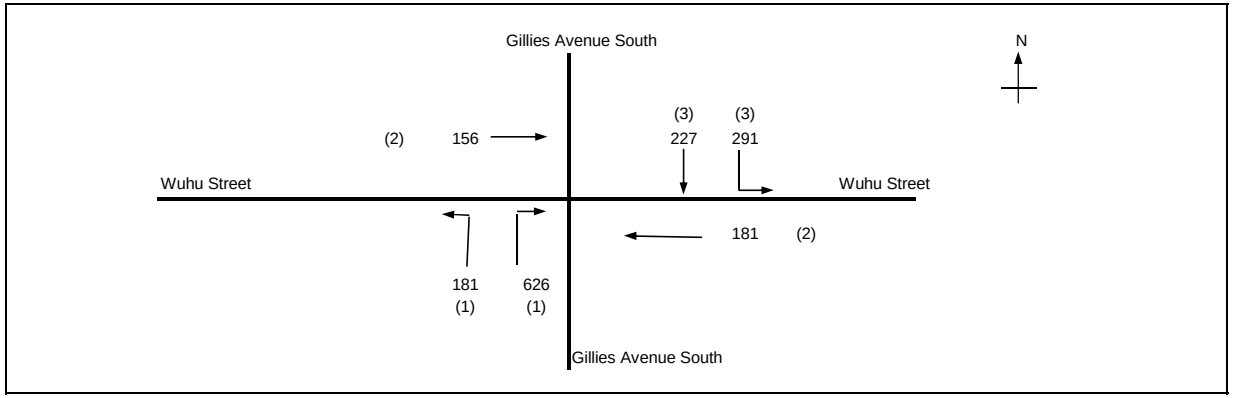
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				8					
LT/SA	A	3.50	1	1	10			2105	289			521	1.00	1830			1830	0.284	0.284		104	**104**	**0.355**	**18**	**4**
SA	A	3.50	1	1				2105		521		521	0.00	2105			2105	0.247			90	**104**	**0.309**	**18**	**4**
Ped	B																			18					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

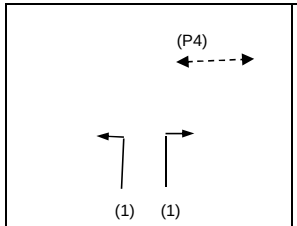
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

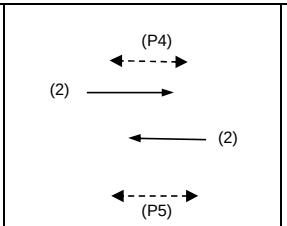
		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 AM Peak		
Junction 8 - Gillies Avenue South / Wuhu Street	PROJECT NO.: 80641	Prepared By: MM	Jun-16
2016 AM Peak Hour Traffic Flows	FILENAME : J8_Gillies Avenue South_Wuhu Street.xls	Checked By: OC	Jun-16
		Reviewed By: OC	Jun-16



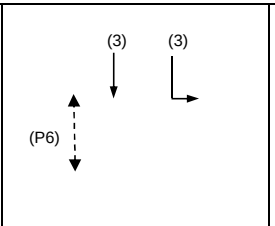
			Existing Cycle Time
No. of stages per cycle		N =	3
Cycle time		C =	130 sec
Sum(y)		Y =	0.363
Loss time		L =	14 sec
Total Flow		=	1661 pcu
Co	= (1.5*L+5)/(1-Y)	=	40.8 sec
Cm	= L/(1-Y)	=	22.0 sec
Yult		=	0.795
R.C.ult	= (Yult-Y)/Y*100%	=	119.3 %
Cp	= 0.9*L/(0.9-Y)	=	23.4 sec
Ymax	= 1-L/C	=	0.892
Xmax		=	0.503
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	121.5 %
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**78.9 %**



Stage A Int = 5



Stage B Int = 6



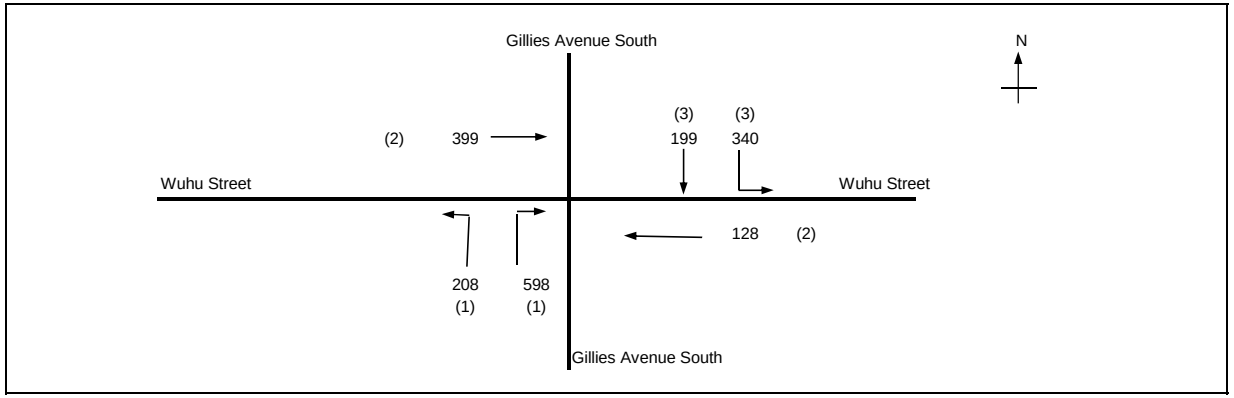
Stage C Int = 6

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	11	6	9	1	33	9
P5	B	12	8	10	2	26	10
P6	C	12	5	10	6	17	10

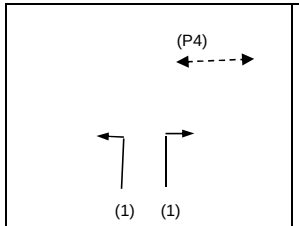
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA(EB)	B	3.50	2	1			N	1965		156		156	0.00	1965			1965	0.080	0.080		25	38	0.272	18	33
SA(WB)	B	3.30	2	2			N	4030		181		181	0.00	4030			4030	0.045			14	38	0.153	12	31
LT	C	3.30	3	2	9.0		N	4030	291	0		291	1.00	3454			3454	0.084	0.109		27	33	0.331	21	36
SA	C	3.30	3	1				2085		227		227	0.00	2085			2085	0.109			35	33	0.429	36	39
LT	A	3.00	1	1	9.0		N	1915	181			181	1.00	1641			1641	0.110	0.174		35	45	0.318	24	29
LT/RT	A	3.00	1	1	11.0			2055			315	315	1.00	1808			1808	0.174			56	45	0.503	42	33
RT	A	3.00	1	1	10.0			2055			311	311	1.00	1787			1787	0.174			56	45	0.502	42	33

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

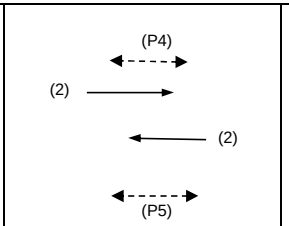
OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2016 PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 8 - Gillies Avenue South / Wuhu Street		FILENAME :	Checked By:	OC	Jun-16
2016 PM Peak Hour Traffic Flows		J8_Gillies Avenue South_Wuhu Street.xls	Reviewed By:	OC	Jun-16



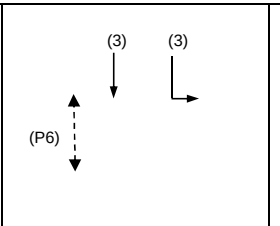
			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	130	sec
Sum(y)		Y =	0.483	
Loss time		L =	14	sec
Total Flow		=	1872	pcu
Co	= (1.5*L+5)/(1-Y)	=	50.2	sec
Cm	= L/(1-Y)	=	27.1	sec
Yult		=	0.795	
R.C.ult	= (Yult-Y)/Y*100%	=	64.8	%
Cp	= 0.9*L/(0.9-Y)	=	30.2	sec
Ymax	= 1-L/C	=	0.892	
Xmax		=	0.777	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	66.4	%
R.C.(A)	**= (0.9/Xmax-1)*100%**	**=**	**15.8**	**%**



Stage A Int = 5



Stage B Int = 6



Stage C Int = 6

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	11	6	9	1	29	9
P5	B	12	8	10	2	22	10
P6	C	12	5	10	6	24	10

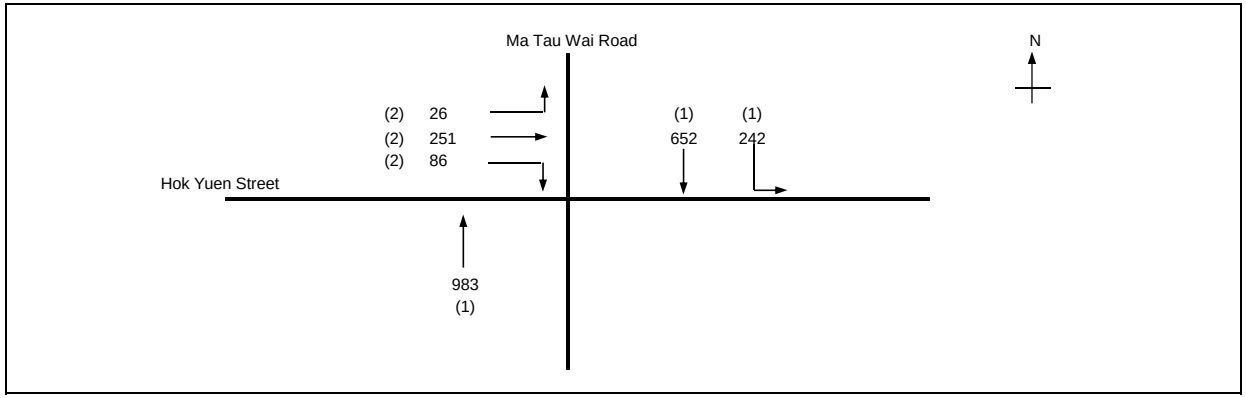
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA(EB)	B	3.50	2	1			N	1965		399		399	0.00	1965			1965	0.203	0.203		49	**34**	**0.777**	**60**	**51**
SA(WB)	B	3.30	2	2			N	4030		128		128	0.00	4030			4030	0.032			8	**34**	**0.121**	**9**	**33**
LT	C	3.30	3	2	9.0		N	4030	340	0		340	1.00	3454			3454	0.098	0.098		24	**40**	**0.320**	**24**	**32**
SA	C	3.30	3	1				2085		199		199	0.00	2085			2085	0.095			23	**40**	**0.309**	**24**	**32**
LT	A	3.00	1	1	9.0		N	1915	208			208	1.00	1641			1641	0.127	0.181		31	**42**	**0.393**	**30**	**33**
LT/RT	A	3.00	1	1	11.0			2055			275	275	1.00	1808			1808	0.152			37	**42**	**0.471**	**36**	**34**
RT	A	3.00	1	1	10.0			2055			323	323	1.00	1787			1787	0.181			43	**42**	**0.560**	**42**	**36**

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

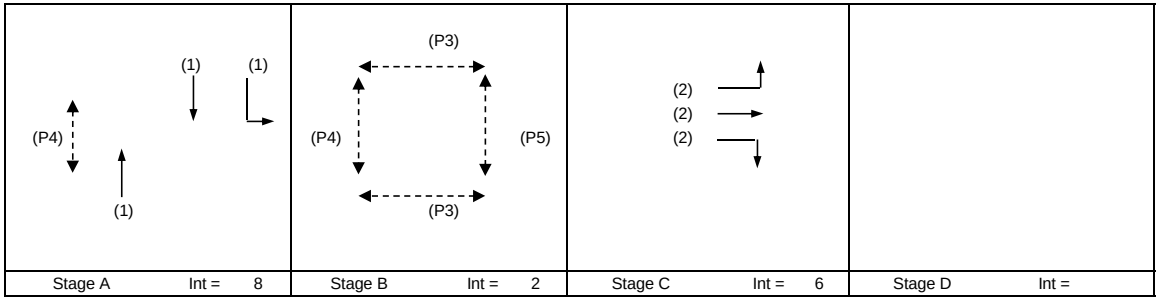
Appendix B

2024 Junction Calculation Sheets

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 1 - Ma Tau Wai Road / Hok Yuen Street		FILENAME :	Checked By:	OC	Jun-16
2024 Reference AM Peak Hour Traffic Flows		J1_Ma Tau Wai Rd_Hok Yuen St.xls	Reviewed By:	OC	Jun-16



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	135	sec
Sum(y)	Y =	0.365	
Loss time	L =	41	sec
Total Flow	=	2240	pcu
Co = (1.5*L+5)/(1-Y)	=	104.7	sec
Cm = L/(1-Y)	=	64.5	sec
Yult	=	0.593	
R.C.ult = (Yult-Y)/Y*100%	=	62.5	%
Cp = 0.9*L/(0.9-Y)	=	68.9	sec
Ymax = 1-L/C	=	0.696	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71.8	%



Stage A	Int = 8	Stage B	Int = 2	Stage C	Int = 6	Stage D	Int =

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	12	6	11	3	74	11
P3	B	7	8	7	0	20	7
P5	B	9	5	8	0	19	8

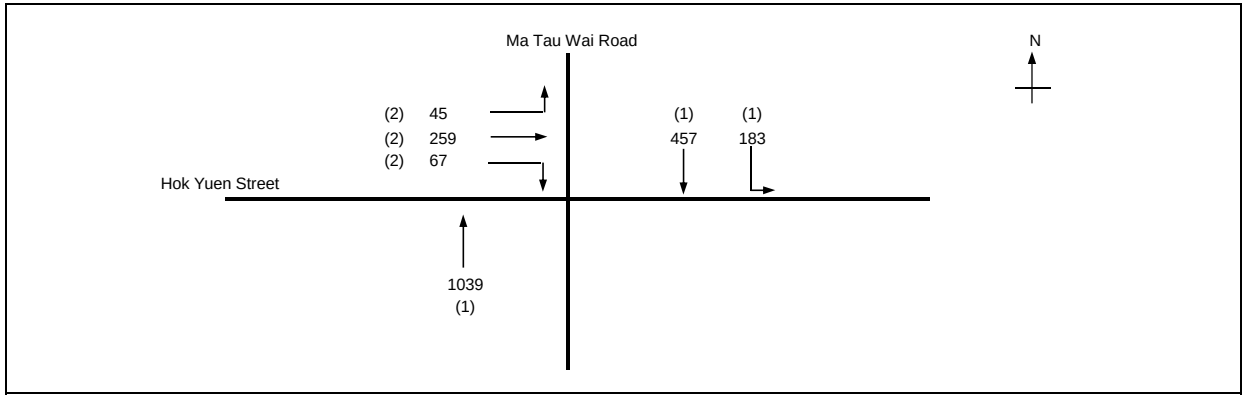
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
LT,SA	C	4.00	2	1	10		N	2015	0	251		251	0.00	2015			2015	0.124	0.124		32	**32**	**0.524**	**42**	**44**
LT	C	4.00	2	1	9			2155	26			26	1.00	1847			1847	0.014			4	**32**	**0.524**	**6**	**94**
RT	C	4.00	2	1	10			2155			86	86	1.00	1874			1874	0.046			12	**32**	**0.524**	**18**	**64**
SA,LT	A	3.50	1	1	9		N	1965	242	169		411	0.59	1789			1789	0.229	0.240		59	**59**	**0.524**	**48**	**27**
SA	A	3.50	1	1				2105		483		483	0.00	2105			2105	0.229			59	**59**	**0.524**	**60**	**27**
SA	A	3.60	1	2			N	4090		983		983	0.00	4090			4090	0.240			62	**59**	**0.524**	**57**	**24**
P3,P5	B																			27		**27**			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

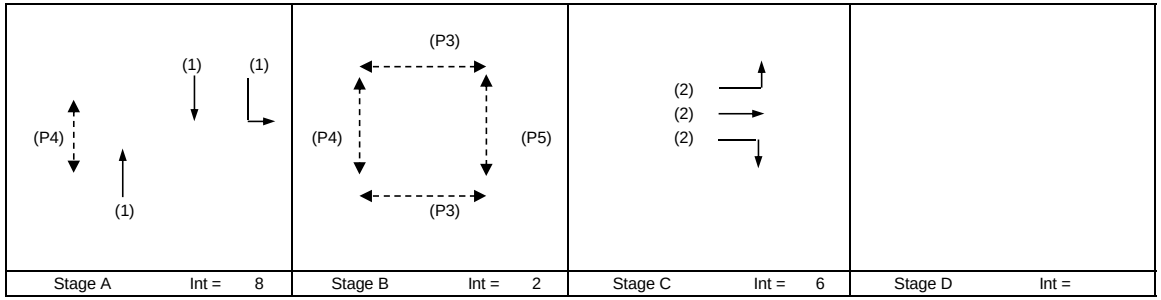
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 1 - Ma Tau Wai Road / Hok Yuen Street		FILENAME :	Checked By:	OC	Jun-16
2024 Reference PM Peak Hour Traffic Flows		J1_Ma Tau Wai Rd_Hok Yuen St.xls	Reviewed By:	OC	Jun-16



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	130	sec
Sum(y)	Y =	0.382	
Loss time	L =	41	sec
Total Flow	=	2048	pcu
Co = (1.5*L+5)/(1-Y)	=	107.7	sec
Cm = L/(1-Y)	=	66.4	sec
Yult	=	0.593	
R.C.ult = (Yult-Y)/Y*100%	=	55.0	%
Cp = 0.9*L/(0.9-Y)	=	71.3	sec
Ymax = 1-L/C	=	0.685	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	61.1	%



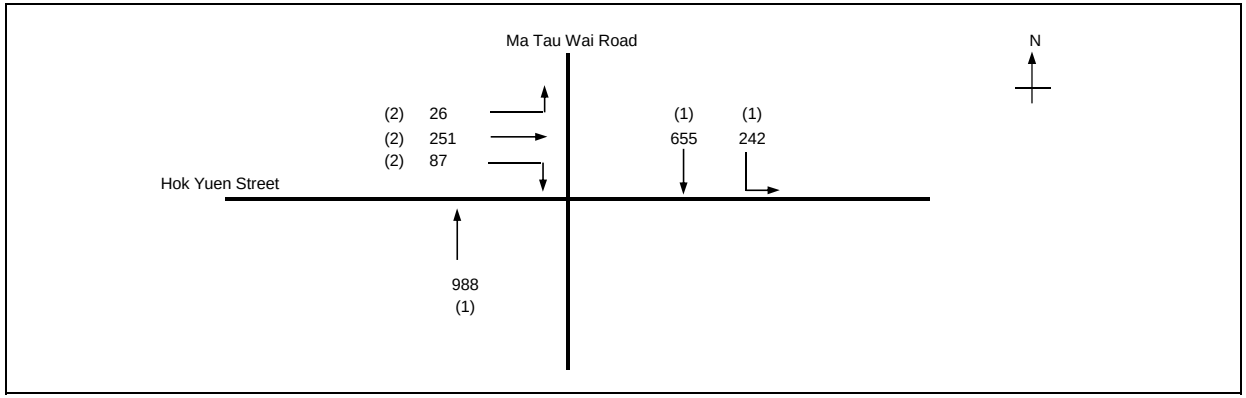
Stage A	Int = 8	Stage B	Int = 2	Stage C	Int = 6	Stage D	Int =

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	12	6	11	3	74	11
P3	B	7	8	7	0	20	7
P5	B	9	5	8	0	19	8

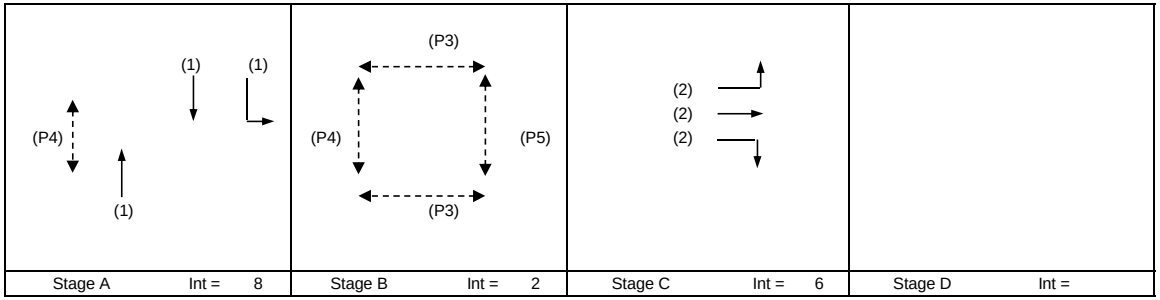
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
LT,SA	C	4.00	2	1	10		N	2015	0	259		259	0.00	2015			2015	0.128	0.128		30	30	0.559	42	44
LT	C	4.00	2	1	9			2155	45			45	1.00	1847			1847	0.024			6	30	0.559	6	81
RT	C	4.00	2	1	10			2155			67	67	1.00	1874			1874	0.035			8	30	0.559	12	70
SA,LT	A	3.50	1	1	9		N	1965	183	110		293	0.63	1780			1780	0.165	0.254		38	59	0.559	42	39
SA	A	3.50	1	1				2105		347		347	0.00	2105			2105	0.165			38	59	0.559	48	38
SA	A	3.60	1	2			N	4090		1039		1039	0.00	4090			4090	0.254			59	59	0.559	60	24
P3,P5	B																			27		27			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 1 - Ma Tau Wai Road / Hok Yuen Street		FILENAME :	Checked By:	OC	Jun-16
2024 Design AM Peak Hour Traffic Flows		J1_Ma Tau Wai Rd_Hok Yuen St.xls	Reviewed By:	OC	Jun-16



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	135	sec
Sum(y)	Y =	0.366	
Loss time	L =	41	sec
Total Flow	=	2249	pcu
Co = (1.5*L+5)/(1-Y)	=	104.9	sec
Cm = L/(1-Y)	=	64.7	sec
Yult	=	0.593	
R.C.ult = (Yult-Y)/Y*100%	=	61.9	%
Cp = 0.9*L/(0.9-Y)	=	69.1	sec
Ymax = 1-L/C	=	0.696	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71.3	%



Stage A	Int = 8	Stage B	Int = 2	Stage C	Int = 6	Stage D	Int =

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	12	6	11	3	74	11
P3	B	7	8	7	0	20	7
P5	B	9	5	8	0	19	8

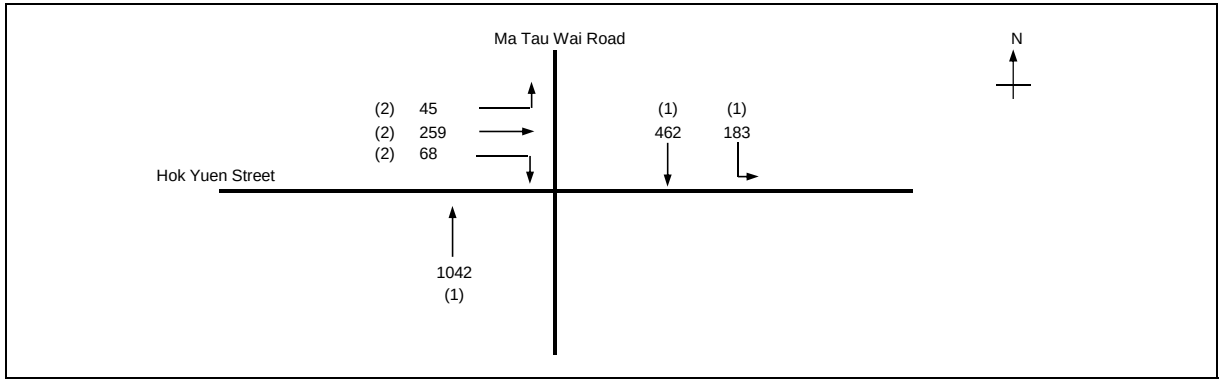
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
LT,SA	C	4.00	2	1	10		N	2015	0	251		251	0.00	2015			2015	0.124	0.124		32	32	0.525	42	44
LT	C	4.00	2	1	9			2155	26			26	1.00	1847			1847	0.014			4	32	0.525	6	95
RT	C	4.00	2	1	10			2155			87	87	1.00	1874			1874	0.047			12	32	0.525	18	64
SA,LT	A	3.50	1	1	9		N	1965	242	170		412	0.59	1790			1790	0.230	0.242		59	59	0.525	48	27
SA	A	3.50	1	1				2105		485		485	0.00	2105			2105	0.230			59	59	0.525	60	27
SA	A	3.60	1	2			N	4090		988		988	0.00	4090			4090	0.242			62	59	0.525	60	24
P3,P5	B																			27		27			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

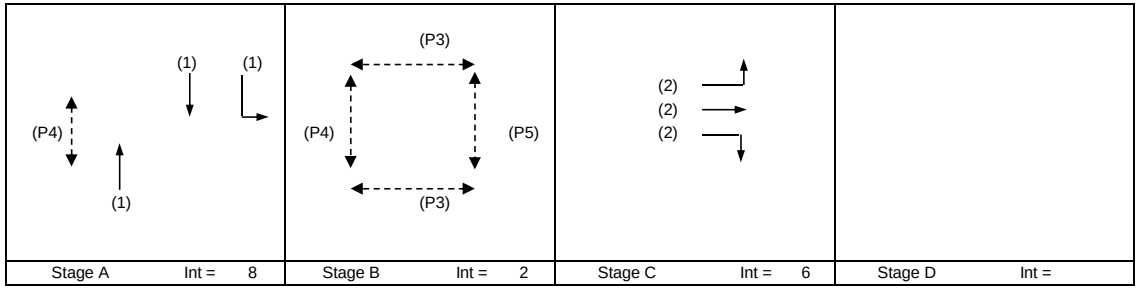
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

				INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 1 - Ma Tau Wai Road / Hok Yuen Street		FILENAME :	Checked By:	OC	Jun-16
2024 Design PM Peak Hour Traffic Flows		J1_Ma Tau Wai Rd_Hok Yuen St.xls	Reviewed By:	OC	Jun-16



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	130	sec
Sum(y)	Y =	0.383	
Loss time	L =	41	sec
Total Flow	=	2057	pcu
Co = (1.5*L+5)/(1-Y)	=	107.8	sec
Cm = L/(1-Y)	=	66.5	sec
Yult	=	0.593	
R.C.ult = (Yult-Y)/Y*100%	=	54.7	%
Cp = 0.9*L/(0.9-Y)	=	71.4	sec
Ymax = 1-L/C	=	0.685	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	60.8	%



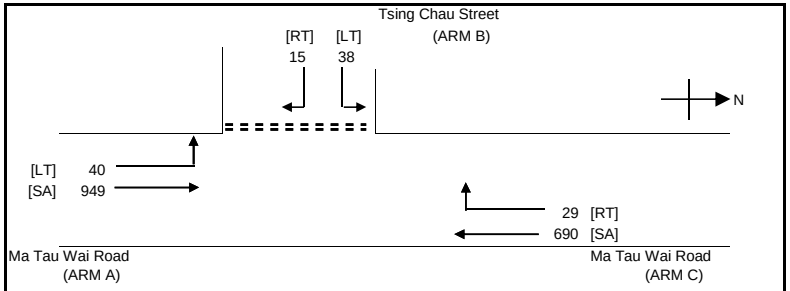
Stage A	Int = 8	Stage B	Int = 2	Stage C	Int = 6	Stage D	Int =

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	12	6	11	3	74	11
P3	B	7	8	7	0	20	7
P5	B	9	5	8	0	19	8

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
LT,SA	C	4.00	2	1	10		N	2015	0	259		259	0.00	2015			2015	0.128	0.128		30	**30**	**0.560**	**42**	**44**
LT	C	4.00	2	1	9			2155	45			45	1.00	1847			1847	0.024			6	**30**	**0.560**	**6**	**81**
RT	C	4.00	2	1	10			2155			68	68	1.00	1874			1874	0.036			8	**30**	**0.560**	**12**	**70**
SA,LT	A	3.50	1	1	9		N	1965	183	112		296	0.62	1781			1781	0.166	0.255		39	**59**	**0.560**	**42**	**39**
SA	A	3.50	1	1				2105		349		349	0.00	2105			2105	0.166			39	**59**	**0.560**	**48**	**38**
SA	A	3.60	1	2			N	4090		1042		1042	0.00	4090			4090	0.255			59	**59**	**0.560**	**60**	**24**
P3,P5	B																			27		**27**			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Ref AM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 2 - Ma Tau Wai Rd / Tsing Chau St		FILENAME : Tau Wai Rd_Tsing Chau St.xls	CHECKED BY:	CC	Jun-16
2024 Reference AM Peak Hour Traffic Flows			REVIEWED BY:	CC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.00	(metres)
W cr	=	0	(metres)
q a-b	=	40	(pcu/hr)
q a-c	=	949	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.30	(metres)
Vr c-b	=	50	(metres)
q c-a	=	690	(pcu/hr)
q c-b	=	29	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	3.50	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	70	(metres)
Vr b-c	=	70	(metres)
q b-a	=	15	(pcu/hr)
q b-c	=	38	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8850424
E	=	0.9415345
F	=	0.9942507
Y	=	0.586

THE CAPACITY OF MOVEMENT :

Q b-a	=	283			
Q b-c	=	508	Q b-c (O) =	501.4	
Q c-b	=	531			

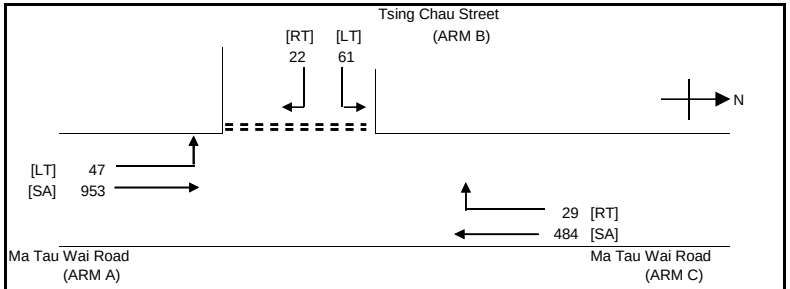
TOTAL FLOW = 1761.460546 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0518
DFC b-c	=	0.0747
DFC c-b	=	0.0552

CRITICAL DFC = 0.07

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Ref PM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 2 - Ma Tau Wai Rd / Tsing Chau St		FILENAME : Tau Wai Rd_Tsing Chau St.xls	CHECKED BY:	CC	Jun-16
2024 Reference PM Peak Hour Traffic Flows			REVIEWED BY:	CC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.00	(metres)
W cr	=	0	(metres)
q a-b	=	47	(pcu/hr)
q a-c	=	953	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.30	(metres)
Vr c-b	=	50	(metres)
q c-a	=	484	(pcu/hr)
q c-b	=	29	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	3.50	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	70	(metres)
Vr b-c	=	70	(metres)
q b-a	=	22	(pcu/hr)
q b-c	=	61	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8850424
E	=	0.9415345
F	=	0.9942507
Y	=	0.586

THE CAPACITY OF MOVEMENT :

Q b-a	=	306			
Q b-c	=	506	Q b-c (O) =	497.1	
Q c-b	=	529			

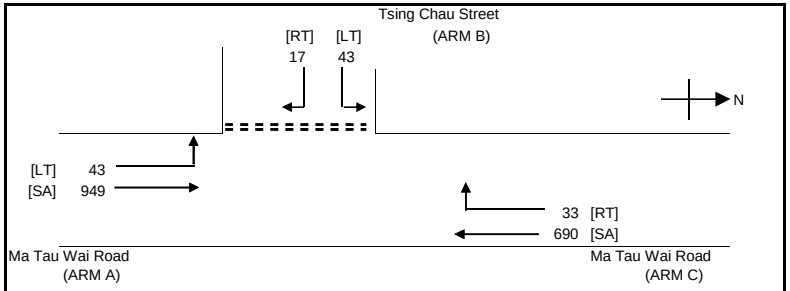
TOTAL FLOW = 1596.801507 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0705
DFC b-c	=	0.1215
DFC c-b	=	0.0551

CRITICAL DFC = 0.12

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Des AM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 2 - Ma Tau Wai Rd / Tsing Chau St		FILENAME : Tau Wai Rd_Tsing Chau St.xls	CHECKED BY:	CC	Jun-16
2024 Design AM Peak Hour Traffic Flows			REVIEWED BY:	CC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.00	(metres)
W cr	=	0	(metres)
q a-b	=	43	(pcu/hr)
q a-c	=	949	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.30	(metres)
Vr c-b	=	50	(metres)
q c-a	=	690	(pcu/hr)
q c-b	=	33	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	3.50	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	70	(metres)
Vr b-c	=	70	(metres)
q b-a	=	17	(pcu/hr)
q b-c	=	43	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8850424
E	=	0.9415345
F	=	0.9942507
Y	=	0.586

THE CAPACITY OF MOVEMENT :

Q b-a	=	282			
Q b-c	=	507	Q b-c (O) =	499.5	
Q c-b	=	530			

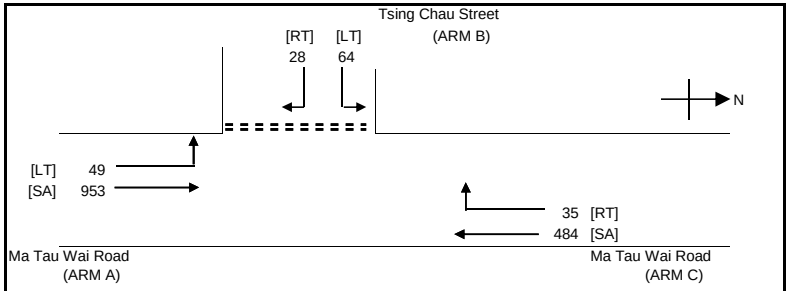
TOTAL FLOW = 1775.460546 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0591
DFC b-c	=	0.0847
DFC c-b	=	0.0629

CRITICAL DFC = 0.08

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Des PM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 2 - Ma Tau Wai Rd / Tsing Chau St		FILENAME : Tau Wai Rd_Tsing Chau St.xls	CHECKED BY:	CC	Jun-16
2024 Design PM Peak Hour Traffic Flows			REVIEWED BY:	CC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.00	(metres)
W cr	=	0	(metres)
q a-b	=	49	(pcu/hr)
q a-c	=	953	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.30	(metres)
Vr c-b	=	50	(metres)
q c-a	=	484	(pcu/hr)
q c-b	=	35	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	3.50	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	70	(metres)
Vr b-c	=	70	(metres)
q b-a	=	28	(pcu/hr)
q b-c	=	64	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8850424
E	=	0.9415345
F	=	0.9942507
Y	=	0.586

THE CAPACITY OF MOVEMENT :

Q b-a	=	304			
Q b-c	=	506	Q b-c (O) =	494.5	
Q c-b	=	528			

TOTAL FLOW = 1613.801507 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

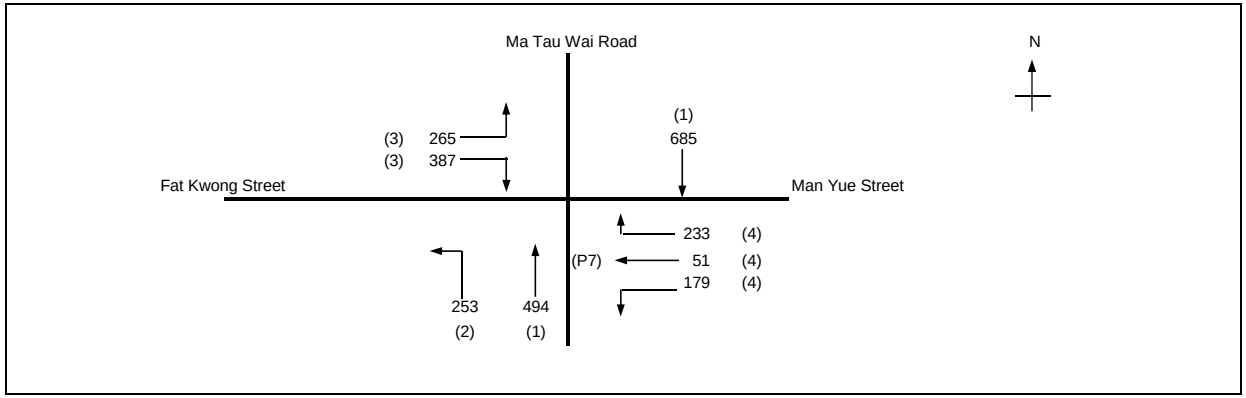
DFC b-a	=	0.0907
DFC b-c	=	0.1274
DFC c-b	=	0.0666

CRITICAL DFC = 0.13

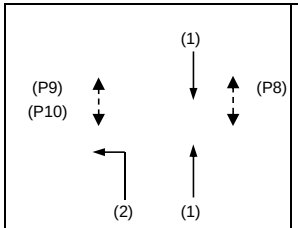
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

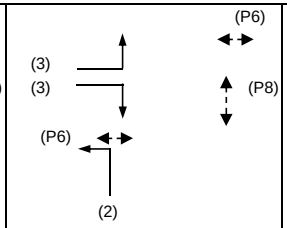
		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref AM Peak		
Junction 3 - Ma Tau Wai Rd / Fat Kwong St / Man Yue St	PROJECT NO.: 80641	Prepared By: MM	Jun-16
2024 Reference AM Peak Hour Traffic Flows	FILENAME : J3_Ma Tau Wai Rd_Fat Kwong St.xls	Checked By: OC	Jun-16
		Reviewed By: OC	Jun-16



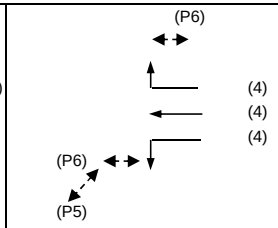
		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	130	sec
Sum(y)	Y =	0.511	
Loss time	L =	39	sec
Total Flow	=	2547	pcu
Co = (1.5*L+5)/(1-Y)	=	129.9	sec
Cm = L/(1-Y)	=	79.8	sec
Yult	=	0.608	
R.C.ult = (Yult-Y)/Y*100%	=	18.8	%
Cp = 0.9*L/(0.9-Y)	=	90.3	sec
Ymax = 1-L/C	=	0.700	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	23.2	%



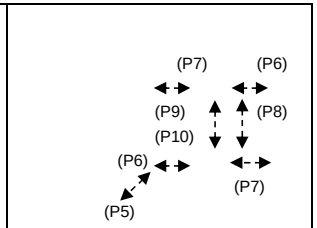
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



Stage D Int = 2

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P5	C,D	6	5	7	2	41	7
P6	B,C,D	6	5	7	0	85	7
P7	D	7	5	7	9	18	7
P8	A,B,D	7	5	7	2	92	7
P9	A,D	7.6	5	10	6	41	10
P10	A,D	5	5	10	6	41	10

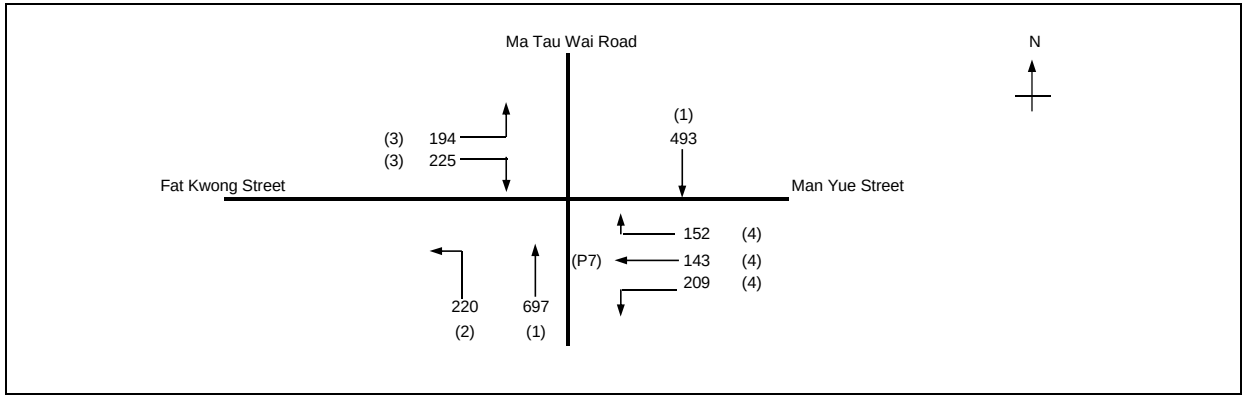
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA (SB)	A	3.30	1	2			N	4030		685		685	0.00	4030			4030	0.170	0.170		30	30	0.730	54	46
SA(NB)	A	3.00	1	2				4110		494		494	0.00	4110			4110	0.120			21	30	0.730	42	53
LT	A,B	4.50	2	1	18		N	2065	253			253	1.00	1906			1906	0.133			24	30	0.730	42	58
LT	B	3.00	3	1	12		N	1915	265			265	1.00	1702			1702	0.156	0.207		28	37	0.730	42	55
LT,RT	B	3.00	3	1	15			2055	0		387	387	1.00	1868			1868	0.207			37	37	0.730	60	46
RT	C	3.00	4	1	15			2055			233	233	1.00	1868			1868	0.125	0.134		22	22	0.730	42	60
SA/LT	C	3.00	4	1	10		N	1915	179	51		230	0.78	1715			1715	0.134			24	22	0.730	42	59
Ped	D																			25		25			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

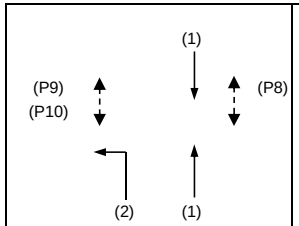
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

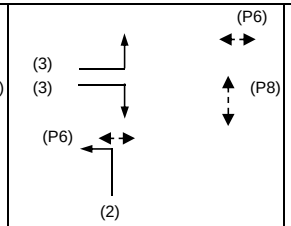
		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref PM Peak		
Junction 3 - Ma Tau Wai Rd / Fat Kwong St / Man Yue St	PROJECT NO.: 80641	Prepared By:	MM Jun-16
2024 Reference PM Peak Hour Traffic Flows	FILENAME : J3_Ma Tau Wai Rd_Fat Kwong St.xls	Checked By:	OC Jun-16
		Reviewed By:	OC Jun-16



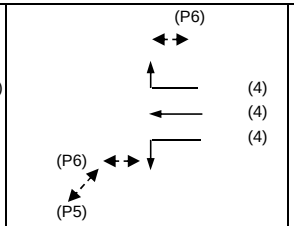
			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.490	
Loss time		L =	39	sec
Total Flow		=	2334	pcu
Co	= (1.5*L+5)/(1-Y)	=	124.5	sec
Cm	= L/(1-Y)	=	76.5	sec
Yult		=	0.608	
R.C.ult	= (Yult-Y)/Y*100%	=	24.0	%
Cp	= 0.9*L/(0.9-Y)	=	85.6	sec
Ymax	= 1-L/C	=	0.700	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.6	%



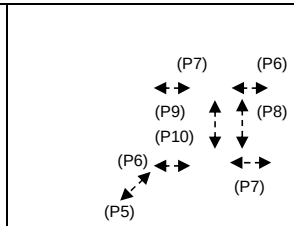
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



Stage D Int = 2

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P5	C,D	6	5	7	2	56	7
P6	B,C,D	6	5	7	0	85	7
P7	D	7	5	7	9	18	7
P8	A,B,D	7	5	7	2	79	7
P9	A,D	7.6	5	10	6	43	10
P10	A,D	5	5	10	6	43	10

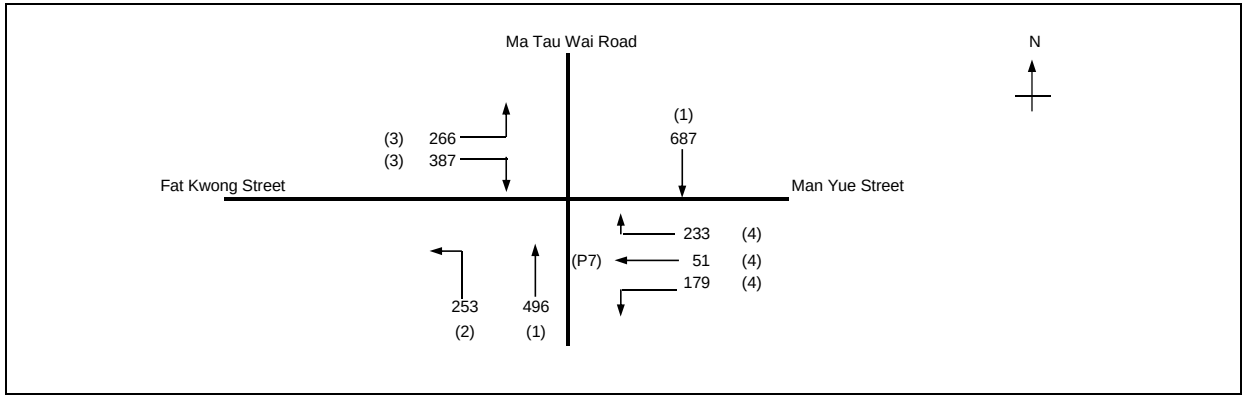
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA (SB)	A	3.30	1	2			N	4030		493		493	0.00	4030			4030	0.122	0.170		23	32	0.700	42	51
SA(NB)	A	3.00	1	2				4110		697		697	0.00	4110			4110	0.170			32	32	0.700	57	44
LT	A,B	4.50	2	1	18		N	2065	220			220	1.00	1906			1906	0.116			21	32	0.700	36	58
LT	B	3.00	3	1	12		N	1915	194			194	1.00	1702			1702	0.114	0.121		21	22	0.700	36	60
LT,RT	B	3.00	3	1	15			2055	0		225	225	1.00	1868			1868	0.121			22	22	0.700	36	57
RT	C	3.00	4	1	15			2055			152	152	1.00	1868			1868	0.082	0.200		15	37	0.700	30	67
SA/LT	C	3.00	4	1	10		N	1915	209	143		351	0.59	1758			1758	0.200			37	37	0.700	54	45
Ped	D																			25		25			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

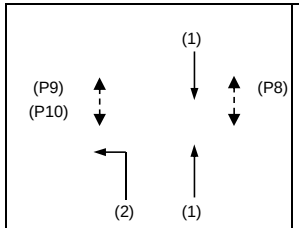
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

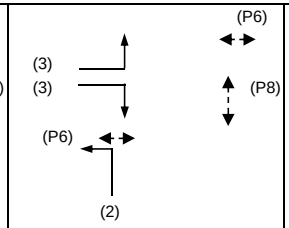
			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 3 - Ma Tau Wai Rd / Fat Kwong St / Man Yue St		FILENAME :	Checked By:	OC	Jun-16
2024 Design AM Peak Hour Traffic Flows		J3_Ma Tau Wai Rd_Fat Kwong St.xls	Reviewed By:	OC	Jun-16



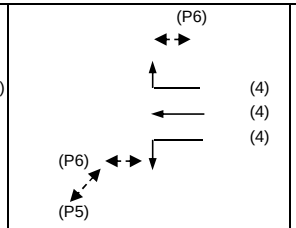
		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	130	sec
Sum(y)	Y =	0.512	
Loss time	L =	39	sec
Total Flow	=	2552	pcu
Co = (1.5*L+5)/(1-Y)	=	130.1	sec
Cm = L/(1-Y)	=	79.9	sec
Yult	=	0.608	
R.C.ult = (Yult-Y)/Y*100%	=	18.7	%
Cp = 0.9*L/(0.9-Y)	=	90.4	sec
Ymax = 1-L/C	=	0.700	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	23.1	%



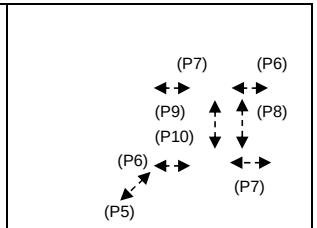
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



Stage D Int = 2

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P5	C,D	6	5	7	2	41	7
P6	B,C,D	6	5	7	0	85	7
P7	D	7	5	7	9	18	7
P8	A,B,D	7	5	7	2	92	7
P9	A,D	7.6	5	10	6	41	10
P10	A,D	5	5	10	6	41	10

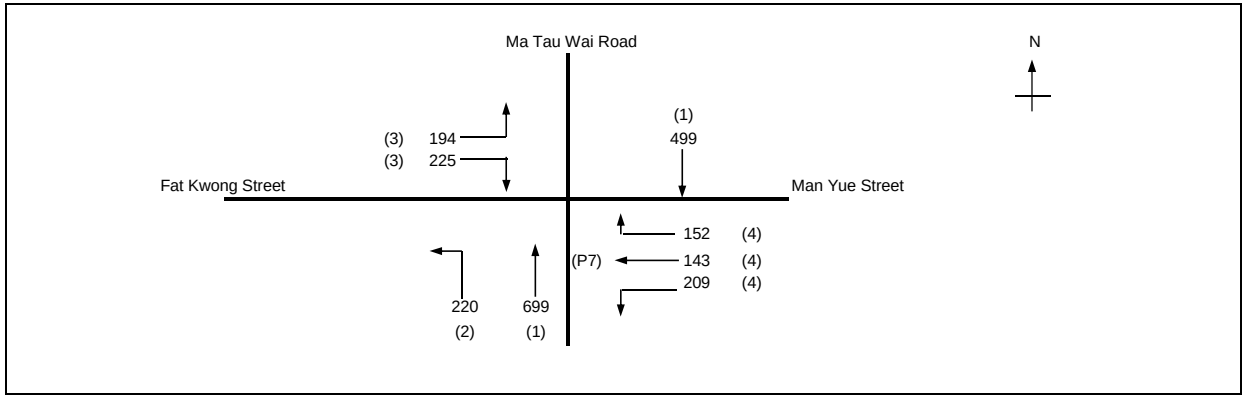
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA (SB)	A	3.30	1	2			N	4030		687		687	0.00	4030			4030	0.171	0.171		30	30	0.731	57	46
SA(NB)	A	3.00	1	2				4110		496		496	0.00	4110			4110	0.121			21	30	0.731	42	53
LT	A,B	4.50	2	1	18		N	2065	253			253	1.00	1906			1906	0.133			24	30	0.731	42	58
LT	B	3.00	3	1	12		N	1915	266			266	1.00	1702			1702	0.156	0.207		28	37	0.731	42	55
LT,RT	B	3.00	3	1	15			2055	0		387	387	1.00	1868			1868	0.207			37	37	0.731	60	46
RT	C	3.00	4	1	15			2055			233	233	1.00	1868			1868	0.125	0.134		22	22	0.731	42	60
SA/LT	C	3.00	4	1	10		N	1915	179	51		230	0.78	1715			1715	0.134			24	22	0.731	42	59
Ped	D																			25		25			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

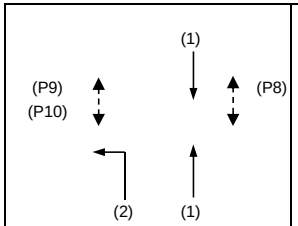
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

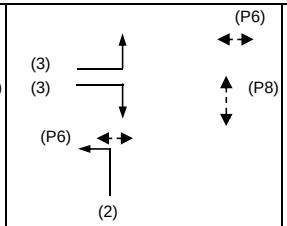
		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des PM Peak		
Junction 3 - Ma Tau Wai Rd / Fat Kwong St / Man Yue St	PROJECT NO.: 80641	Prepared By: MM	Jun-16
2024 Design PM Peak Hour Traffic Flows	FILENAME : J3_Ma Tau Wai Rd_Fat Kwong St.xls	Checked By: OC	Jun-16
		Reviewed By: OC	Jun-16



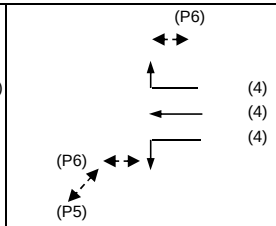
		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	130	sec
Sum(y)	Y =	0.490	
Loss time	L =	39	sec
Total Flow	=	2342	pcu
Co = (1.5*L+5)/(1-Y)	=	124.6	sec
Cm = L/(1-Y)	=	76.5	sec
Yult	=	0.608	
R.C.ult = (Yult-Y)/Y*100%	=	23.9	%
Cp = 0.9*L/(0.9-Y)	=	85.7	sec
Ymax = 1-L/C	=	0.700	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28.5	%



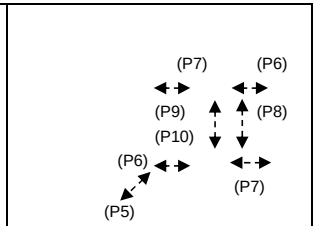
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



Stage D Int = 2

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P5	C,D	6	5	7	2	56	7
P6	B,C,D	6	5	7	0	85	7
P7	D	7	5	7	9	18	7
P8	A,B,D	7	5	7	2	79	7
P9	A,D	7.6	5	10	6	43	10
P10	A,D	5	5	10	6	43	10

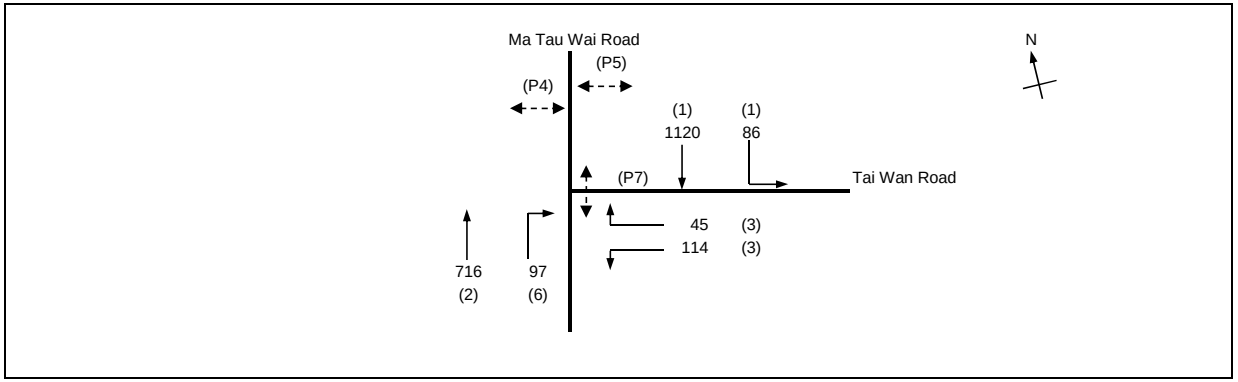
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA (SB)	A	3.30	1	2			N	4030		499		499	0.00	4030			4030	0.124	0.170		23	32	0.701	42	51
SA(NB)	A	3.00	1	2				4110		699		699	0.00	4110			4110	0.170			32	32	0.701	57	44
LT	A,B	4.50	2	1	18		N	2065	220			220	1.00	1906			1906	0.116			21	32	0.701	36	58
LT	B	3.00	3	1	12		N	1915	194			194	1.00	1702			1702	0.114	0.121		21	22	0.701	36	60
LT,RT	B	3.00	3	1	15			2055	0		225	225	1.00	1868			1868	0.121			22	22	0.701	36	57
RT	C	3.00	4	1	15			2055			152	152	1.00	1868			1868	0.082	0.200		15	37	0.701	30	67
SA/LT	C	3.00	4	1	10		N	1915	209	143		351	0.59	1758			1758	0.200			37	37	0.701	54	45
Ped	D																			25		25			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

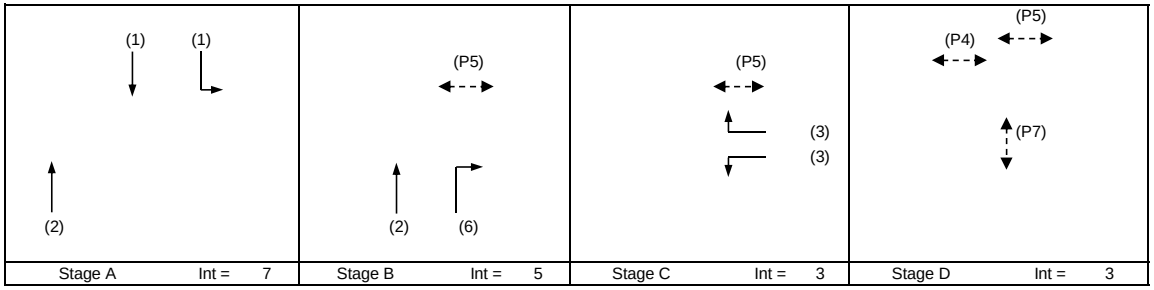
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

				INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 4 - Ma Tau Wai Rd / Tai Wan Rd		FILENAME :	Checked By:	OC	Jun-16
2024 Reference AM Peak Hour Traffic Flows		J4_Ma Tau Wai Rd_Tai Wan Rd.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.422	
Loss time		L =	37	sec
Total Flow		=	2177	pcu
Co	= (1.5*L+5)/(1-Y)	=	104.7	sec
Cm	= L/(1-Y)	=	64.0	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	47.4	%
Cp	= 0.9*L/(0.9-Y)	=	69.7	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	52.5	%



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	D	6.4	5	7	6	9	7
P5	B,C,D	6.3	5	7	0	49	7
P7	D	6.4	8	7	2	13	7

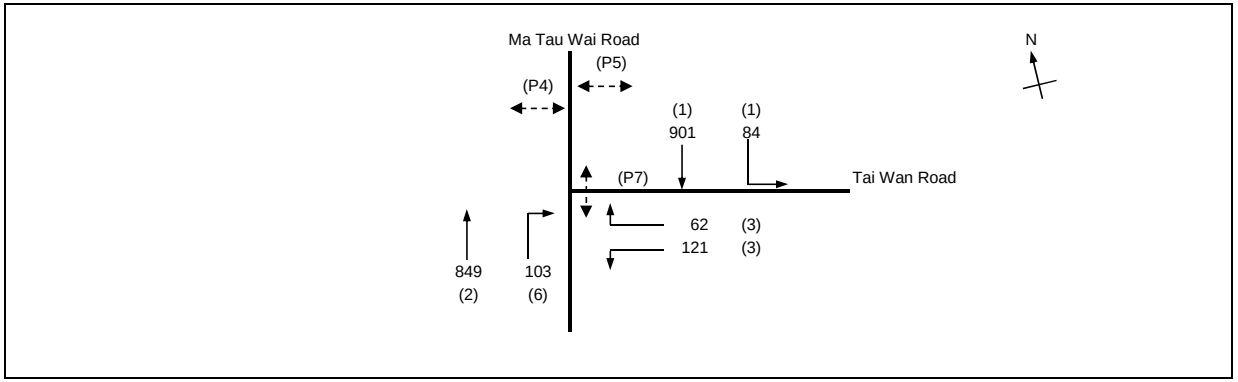
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	G (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT,SA	A	3.10	1	1	18		N	1925	86	492		578	0.15	1902			1902	0.304	0.304		67	67	0.590	60	22
SA	A	3.10	1	1				2065		627		627	0.00	2065			2065	0.304			67	67	0.590	60	22
SA	A,B	3.10	2	2			N	3990		716		716	0.00	3990			3990	0.180			40	85	0.590	54	36
RT	B	3.10	6	1	18			2065			97	97	1.00	1906			1906	0.051	0.051		11	11	0.590	18	66
LT	C	3.20	3	1	10		N	1935	114			114	1.00	1683			1683	0.068	0.068		15	15	0.590	18	61
RT	C	3.20	3	1	18			2075			45	45	1.00	1915			1915	0.024			5	15	0.590	6	86
P4,P7	D		4,7																	22		22			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

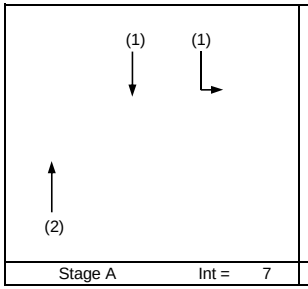
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

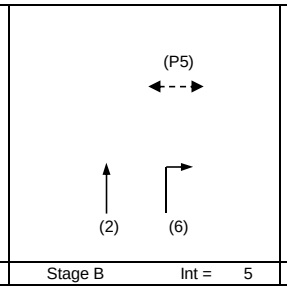
				INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 4 - Ma Tau Wai Rd / Tai Wan Rd		FILENAME :	Checked By:	OC	Jun-16
2024 Reference PM Peak Hour Traffic Flows		J4_Ma Tau Wai Rd_Tai Wan Rd.xls	Reviewed By:	OC	Jun-16



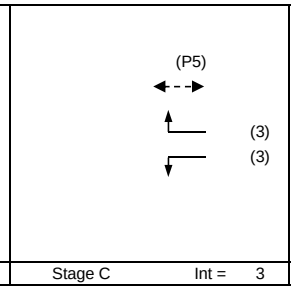
			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.375	
Loss time		L =	37	sec
Total Flow		=	2120	pcu
Co	= (1.5*L+5)/(1-Y)	=	96.8	sec
Cm	= L/(1-Y)	=	59.2	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	66.1	%
Cp	= 0.9*L/(0.9-Y)	=	63.4	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	71.8	%



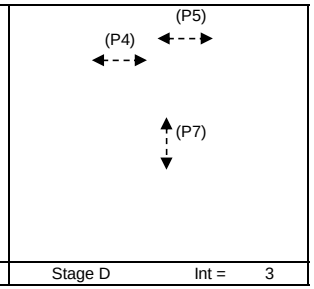
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



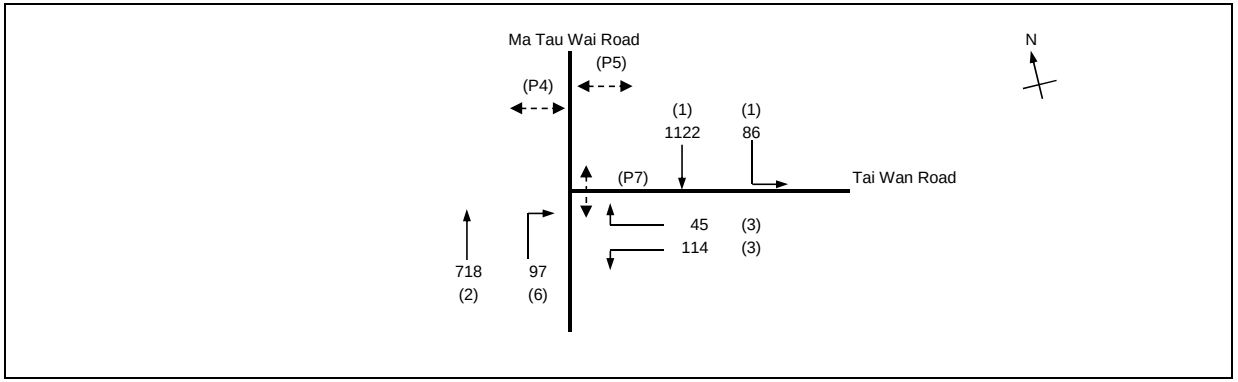
Stage D Int = 3

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	D	6.4	5	7	6	9	7
P5	B,C,D	6.3	5	7	0	54	7
P7	D	6.4	8	7	2	13	7

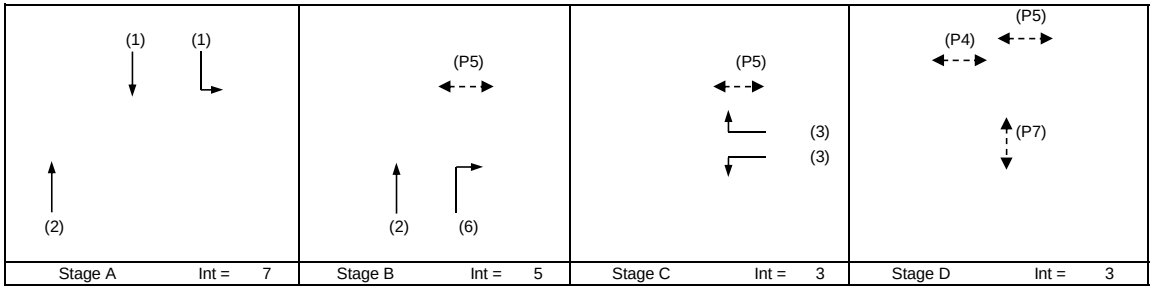
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	G (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT,SA	A	3.10	1	1	18		N	1925	84	387		471	0.18	1897			1897	0.249	0.249		62	62	0.524	48	23
SA	A	3.10	1	1				2065		513		513	0.00	2065			2065	0.249			62	62	0.524	54	23
SA	A,B	3.10	2	2			N	3990		849		849	0.00	3990			3990	0.213			53	82	0.524	54	27
RT	B	3.10	6	1	18			2065			103	103	1.00	1906			1906	0.054	0.054		13	13	0.524	18	59
LT	C	3.20	3	1	10		N	1935	121			121	1.00	1683			1683	0.072	0.072		18	18	0.524	18	55
RT	C	3.20	3	1	18			2075			62	62	1.00	1915			1915	0.032			8	18	0.524	12	68
P4,P7	D		4,7																	22		22			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 4 - Ma Tau Wai Rd / Tai Wan Rd		FILENAME :	Checked By:	OC	Jun-16
2024 Design AM Peak Hour Traffic Flows		J4_Ma Tau Wai Rd_Tai Wan Rd.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.423	
Loss time		L =	37	sec
Total Flow		=	2181	pcu
Co	= (1.5*L+5)/(1-Y)	=	104.8	sec
Cm	= L/(1-Y)	=	64.1	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	47.2	%
Cp	= 0.9*L/(0.9-Y)	=	69.8	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	52.3	%



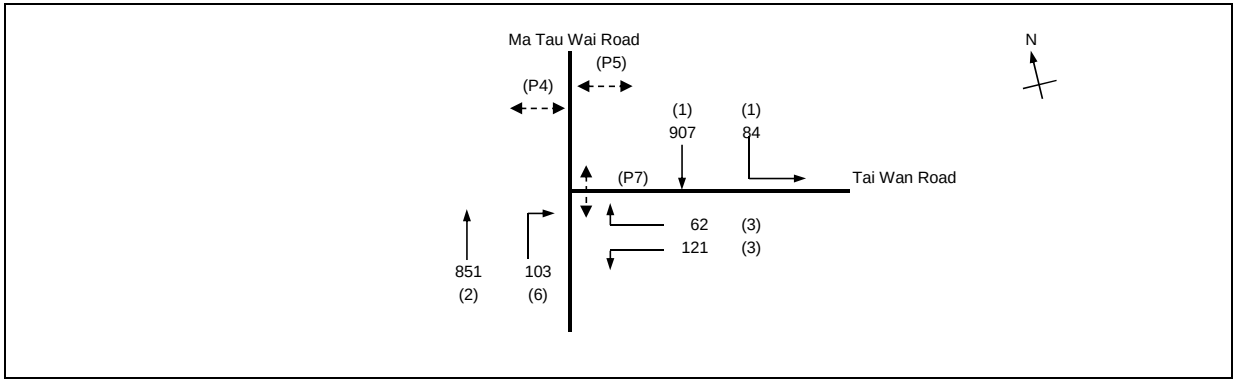
Stage A	Int = 7	Stage B	Int = 5	Stage C	Int = 3	Stage D	Int = 3

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	D	6.4	5	7	6	9	7
P5	B,C,D	6.3	5	7	0	49	7
P7	D	6.4	8	7	2	13	7

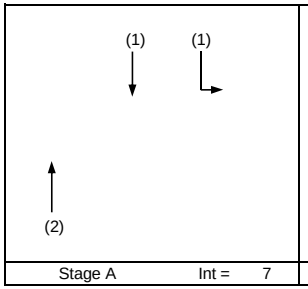
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	G (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT,SA	A	3.10	1	1	18		N	1925	86	493		579	0.15	1902			1902	0.304	0.304		67	67	0.591	60	22
SA	A	3.10	1	1				2065		629		629	0.00	2065			2065	0.304			67	67	0.591	66	22
SA	A,B	3.10	2	2			N	3990		718		718	0.00	3990			3990	0.180			40	85	0.591	54	36
RT	B	3.10	6	1	18			2065			97	97	1.00	1906			1906	0.051	0.051		11	11	0.591	18	66
LT	C	3.20	3	1	10		N	1935	114			114	1.00	1683			1683	0.068	0.068		15	15	0.591	18	61
RT	C	3.20	3	1	18			2075			45	45	1.00	1915			1915	0.024			5	15	0.591	6	86
P4,P7	D		4,7																	22		22			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

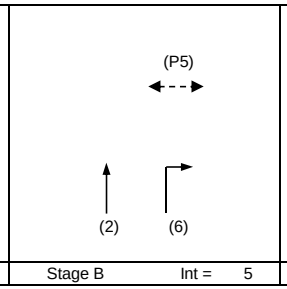
OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 4 - Ma Tau Wai Rd / Tai Wan Rd		FILENAME :	Checked By:	OC	Jun-16
2024 Design PM Peak Hour Traffic Flows		J4_Ma Tau Wai Rd_Tai Wan Rd.xls	Reviewed By:	OC	Jun-16



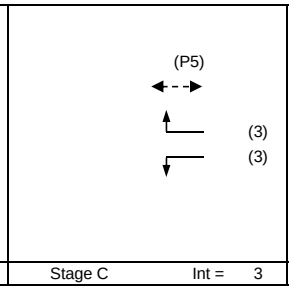
			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.376	
Loss time		L =	37	sec
Total Flow		=	2128	pcu
Co	= (1.5*L+5)/(1-Y)	=	97.0	sec
Cm	= L/(1-Y)	=	59.3	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	65.4	%
Cp	= 0.9*L/(0.9-Y)	=	63.6	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	71.1	%



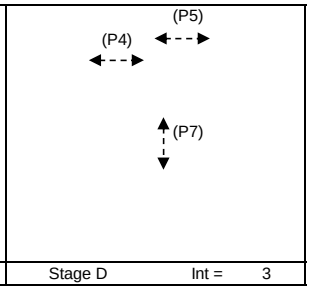
Stage A Int = 7



Stage B Int = 5



Stage C Int = 3



Stage D Int = 3

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	D	6.4	5	7	6	9	7
P5	B,C,D	6.3	5	7	0	54	7
P7	D	6.4	8	7	2	13	7

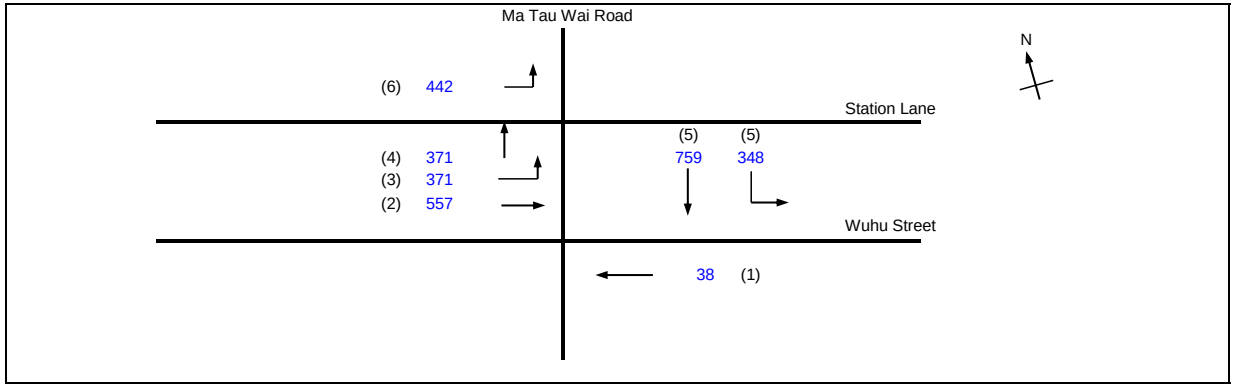
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	G (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT,SA	A	3.10	1	1	18		N	1925	84	390		474	0.18	1897			1897	0.250	0.250		62	62	0.526	48	23
SA	A	3.10	1	1				2065		516		516	0.00	2065			2065	0.250			62	62	0.526	54	23
SA	A,B	3.10	2	2			N	3990		851		851	0.00	3990			3990	0.213			53	82	0.526	54	27
RT	B	3.10	6	1	18			2065			103	103	1.00	1906			1906	0.054	0.054		13	13	0.526	18	59
LT	C	3.20	3	1	10		N	1935	121			121	1.00	1683			1683	0.072	0.072		18	18	0.526	18	55
RT	C	3.20	3	1	18			2075			62	62	1.00	1915			1915	0.032			8	18	0.526	12	69
P4,P7	D		4,7																	22		22			

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

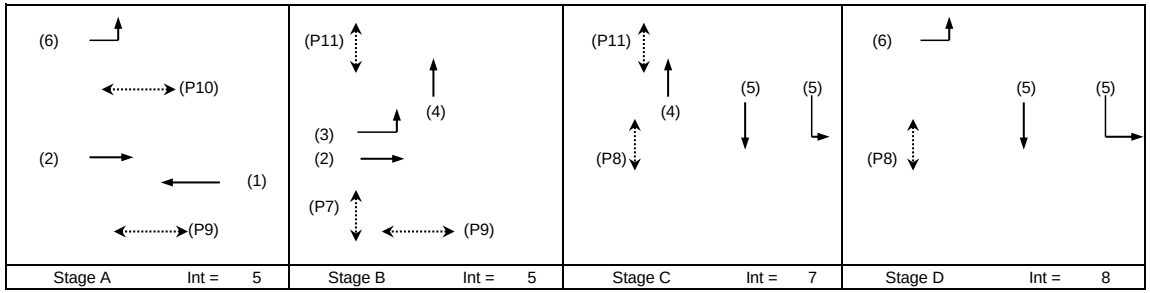
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kow	**2024 Ref AM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 5 - Ma Tau Wai Rd / Station Ln / Wuhu St		FILENAME :	Checked By:	OC	Jun-16
2024 Reference AM Peak Hour Traffic Flows		J5_Ma Tau Wai Rd_Wuhu St_Station Lane	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.605	
Loss time		L =	33	sec
Total Flow		=	2886	pcu
Co	= (1.5*L+5)/(1-Y)	=	138.0	sec
Cm	= L/(1-Y)	=	83.6	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	7.8	%
Cp	= 0.9*L/(0.9-Y)	=	100.7	sec
Ymax	= 1-L/C	=	0.746	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	11.0	%



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P7	B	5	5	5	7	24	5
P8	C,D	8	5	7	2	49	7
P9	A,B	9.2	5	8	10	34	8
P10	A	6.5	5	5	1	5	5
P11	B,C	10	5	8	2	58	8

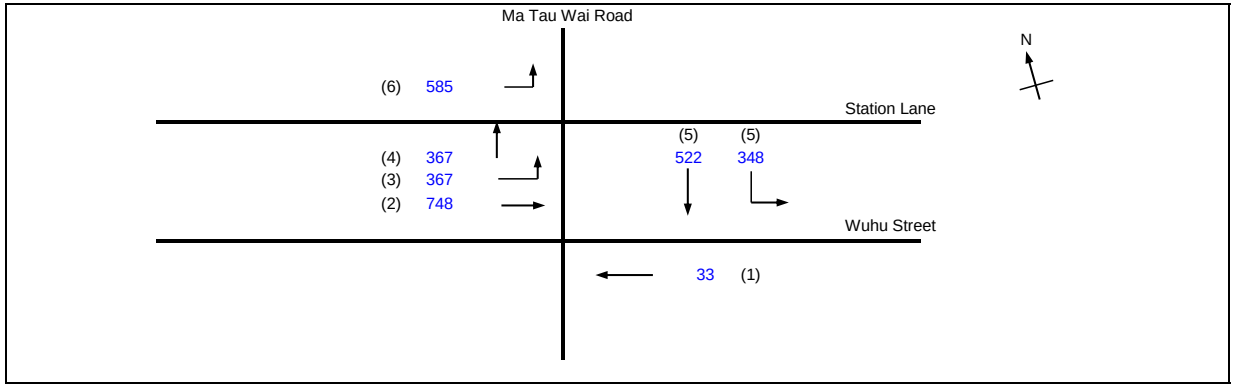
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				25					
LT	A,D	4.00	6	2	13		N	4170	442			442	1.00	3739			3739	0.118			19	40	0.811	42	61
SA	A	4.00	1	1			N	2015		38		38	0.00	2015			2015	0.019	0.019	8	3	11	0.811	12	205
SA	A,B	3.30	2	2				4170		557		557	0.00	4170			4170	0.134			21	52	0.811	51	57
LT	B	3.30	3	1	9		N	1945	371			371	1.00	1667			1667	0.222	0.222		36	36	0.811	60	55
SA	B,C	3.00	4	1			N	1915		371		371	0.00	1915			1915	0.194			31	63	0.811	60	57
LT	C,D	3.30	5	1	9		N	1945	348			348	1.00	1667			1667	0.209			33	58	0.811	60	57
SA	C,D	3.30	5	1	11			2085		759		759	0.00	2085			2085	0.364	0.364		58	58	0.811	90	35

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

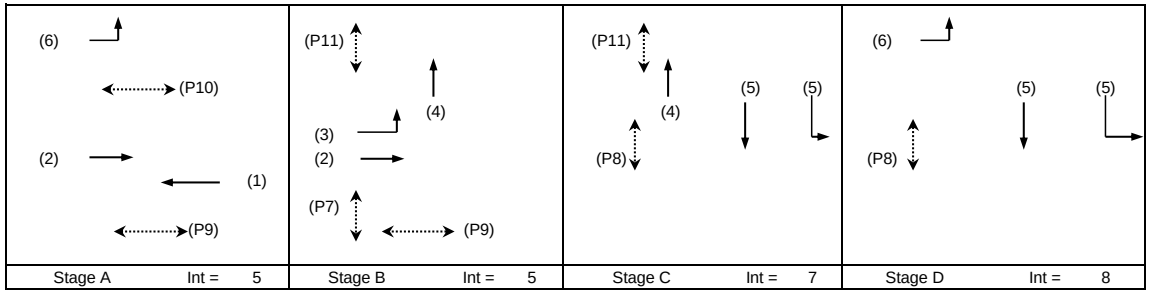
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kow	**2024 Ref PM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 5 - Ma Tau Wai Rd / Station Ln / Wuhu St		FILENAME :	Checked By:	OC	Jun-16
2024 Reference PM Peak Hour Traffic Flows		J5_Ma Tau Wai Rd_Wuhu St_Station Lane	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.487	
Loss time		L =	36	sec
Total Flow		=	2971	pcu
Co	= (1.5*L+5)/(1-Y)	=	115.0	sec
Cm	= L/(1-Y)	=	70.2	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	29.4	%
Cp	= 0.9*L/(0.9-Y)	=	78.4	sec
Ymax	= 1-L/C	=	0.723	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.6	%



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P7	B	5	5	5	7	31	5
P8	C,D	8	5	7	2	39	7
P9	A,B	9.2	5	8	10	44	8
P10	A	6.5	5	5	1	8	5
P11	B,C	10	5	8	2	65	8

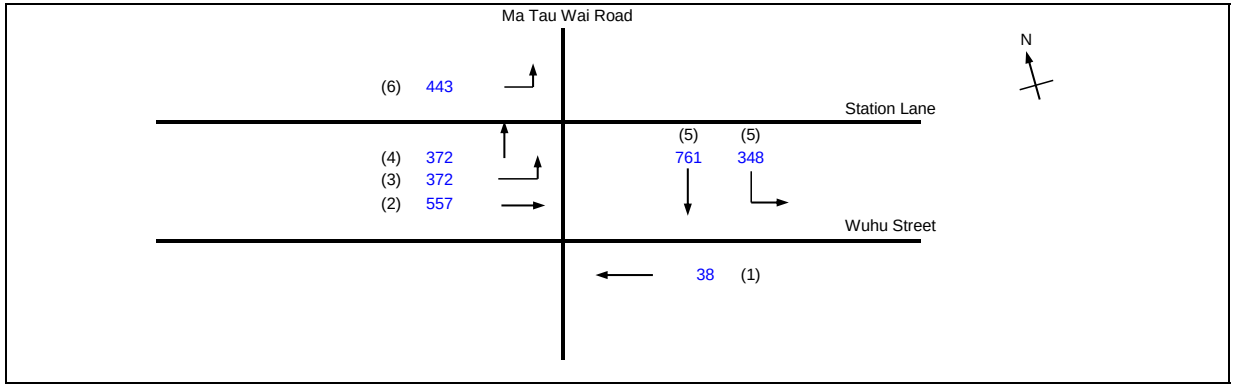
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				25					
LT	A,D	4.00	6	2	13		N	4170	585			585	1.00	3739			3739	0.157			30	43	0.673	48	45
SA	A	4.00	1	1			N	2015		33		33	0.00	2015			2015	0.016	0.016	11	3	14	0.673	6	126
SA	A,B	3.30	2	2				4170		748		748	0.00	4170			4170	0.179			35	62	0.673	57	41
LT	B	3.30	3	1	9		N	1945	367			367	1.00	1667			1667	0.220	0.220		43	43	0.673	48	40
SA	B,C	3.00	4	1			N	1915		367		367	0.00	1915			1915	0.192			37	70	0.673	54	43
LT	C,D	3.30	5	1	9		N	1945	348			348	1.00	1667			1667	0.209			40	48	0.673	48	42
SA	C,D	3.30	5	1	11			2085		522		522	0.00	2085			2085	0.251	0.251		48	48	0.673	66	35

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

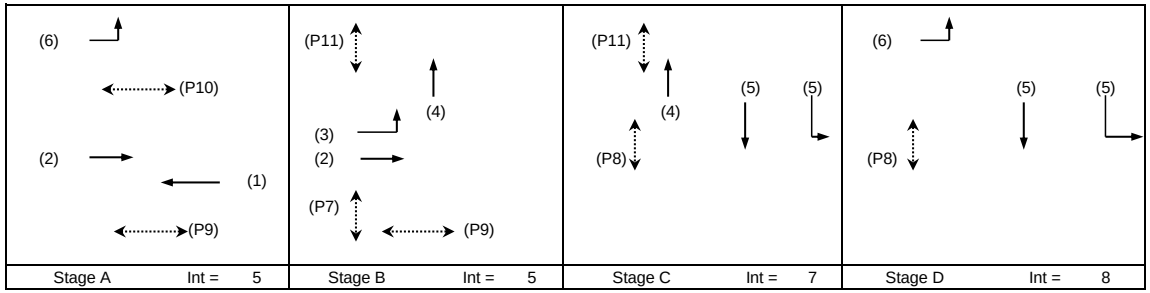
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kow	**2024 Des AM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 5 - Ma Tau Wai Rd / Station Ln / Wuhu St		FILENAME :	Checked By:	OC	Jun-16
2024 Design AM Peak Hour Traffic Flows		J5_Ma Tau Wai Rd_Wuhu St_Station Lane	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.607	
Loss time		L =	33	sec
Total Flow		=	2891	pcu
Co	= (1.5*L+5)/(1-Y)	=	138.5	sec
Cm	= L/(1-Y)	=	83.9	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	7.6	%
Cp	= 0.9*L/(0.9-Y)	=	101.2	sec
Ymax	= 1-L/C	=	0.746	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10.7	%



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P7	B	5	5	5	7	24	5
P8	C,D	8	5	7	2	49	7
P9	A,B	9.2	5	8	10	34	8
P10	A	6.5	5	5	1	5	5
P11	B,C	10	5	8	2	58	8

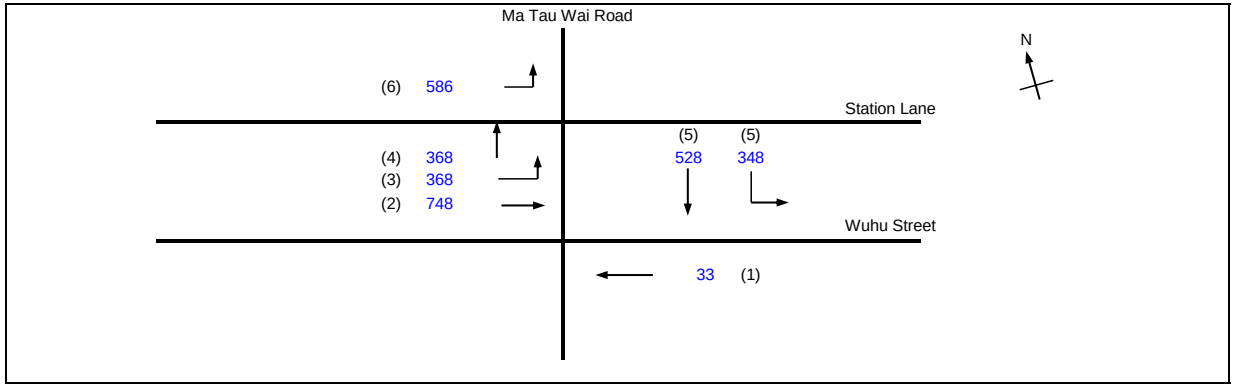
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				25					
LT	A,D	4.00	6	2	13		N	4170	443			443	1.00	3739			3739	0.119			19	40	0.813	42	61
SA	A	4.00	1	1			N	2015		38		38	0.00	2015			2015	0.019	0.019	8	3	11	0.813	12	207
SA	A,B	3.30	2	2				4170		557		557	0.00	4170			4170	0.134			21	52	0.813	51	57
LT	B	3.30	3	1	9		N	1945	372			372	1.00	1667			1667	0.223	0.223		36	36	0.813	60	55
SA	B,C	3.00	4	1			N	1915		372		372	0.00	1915			1915	0.194			31	63	0.813	66	57
LT	C,D	3.30	5	1	9		N	1945	348			348	1.00	1667			1667	0.209			33	58	0.813	60	57
SA	C,D	3.30	5	1	11			2085		761		761	0.00	2085			2085	0.365	0.365		58	58	0.813	90	36

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

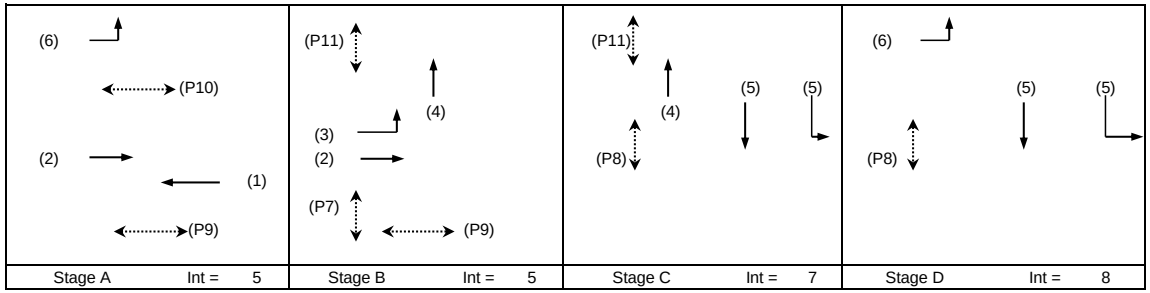
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kow	**2024 Des PM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 5 - Ma Tau Wai Rd / Station Ln / Wuhu St		FILENAME :	Checked By:	OC	Jun-16
2024 Design PM Peak Hour Traffic Flows		J5_Ma Tau Wai Rd_Wuhu St_Station Lane	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.490	
Loss time		L =	36	sec
Total Flow		=	2980	pcu
Co	= (1.5*L+5)/(1-Y)	=	115.8	sec
Cm	= L/(1-Y)	=	70.6	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	28.5	%
Cp	= 0.9*L/(0.9-Y)	=	79.1	sec
Ymax	= 1-L/C	=	0.723	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	32.7	%

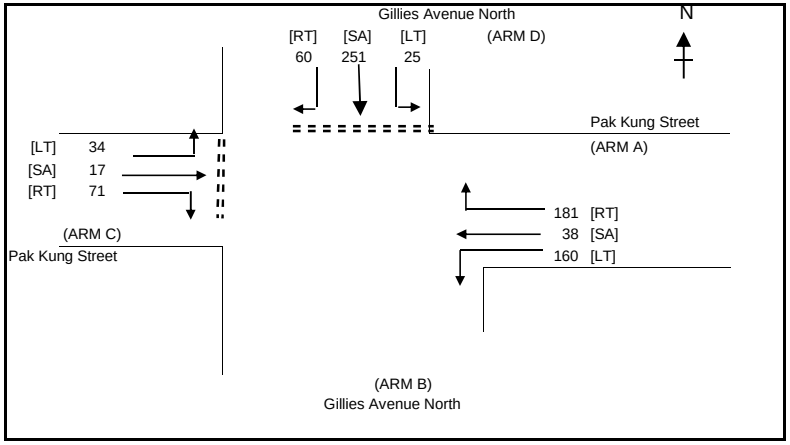


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P7	B	5	5	5	7	30	5
P8	C,D	8	5	7	2	40	7
P9	A,B	9.2	5	8	10	43	8
P10	A	6.5	5	5	1	8	5
P11	B,C	10	5	8	2	64	8

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				25					
LT	A,D	4.00	6	2	13		N	4170	586			586	1.00	3739			3739	0.157			30	43	0.678	48	45
SA	A	4.00	1	1			N	2015		33		33	0.00	2015			2015	0.016	0.016	11	3	14	0.678	6	128
SA	A,B	3.30	2	2				4170		748		748	0.00	4170			4170	0.179			34	61	0.678	57	42
LT	B	3.30	3	1	9		N	1945	368			368	1.00	1667			1667	0.221	0.221		42	42	0.678	48	40
SA	B,C	3.00	4	1			N	1915		368		368	0.00	1915			1915	0.192			37	69	0.678	54	43
LT	C,D	3.30	5	1	9		N	1945	348			348	1.00	1667			1667	0.209			40	49	0.678	48	42
SA	C,D	3.30	5	1	11			2085		528		528	0.00	2085			2085	0.253	0.253		49	49	0.678	66	35

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Ref AM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 6 - Gillies Avenue North / Pak Kung Street		FILENAME : Avenue North_Pak Kung Street.	CHECKED BY:	OC	Jun-16
2024 Reference AM Peak Hour Traffic Flows			REVIEWED BY:	OC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

GENERAL

W	=	7.30	(metres)		
W cr	=	0	(metres)	Y =	0.74815

MAJOR ROAD (ARM A)				MAJOR ROAD (ARM B)			
W a-d	=	3.50	(metres)	W c	=	7.00	(metres)
Vr a-d	=	50	(metres)	Vr b-c	=		(metres)
q a-b	=	160	(pcu/hr)	q b-a	=		(pcu/hr)
q a-c	=	38	(pcu/hr)	q b-c	=		(pcu/hr)
q a-d	=	181	(pcu/hr)	q b-d	=		(pcu/hr)

MINOR ROAD (ARM C)				MINOR ROAD (ARM D)			
W c-b	=	3.50	(metres)	W d-c	=	3.50	(metres)
W c-d	=	3.50	(metres)	W d-a	=	3.50	(metres)
Vl c-d	=	50	(metres)	Vl d-c	=	50	(metres)
Vr c-d	=	50	(metres)	Vr d-c	=	50	(metres)
Vr c-b	=	50	(metres)	Vr d-a	=	50	(metres)
q c-a	=	17	(pcu/hr)	q d-c	=	60	(pcu/hr)
q c-b	=	71	(pcu/hr)	q d-a	=	25	(pcu/hr)
q c-d	=	34	(pcu/hr)	q d-b	=	251	(pcu/hr)

GEOMETRIC FACTORS :

X b	=	0.868	X a	=	0.924
X c	=	1.173	X d	=	0.868
Z b	=	0.924	Z d	=	0.924
M b	=	0.868	M d	=	0.868

PROPORTION OF MINOR STRAIGHT AHEAD TRAFFIC :

r b-a	=	0.037		r d-c	=	0.132	
ql b-d	=	17.6	(pcu/hr)	ql d-b	=	142.195797	(pcu/hr)
qr b-d	=	16.35	(pcu/hr)	qr d-b	=	108.953481	(pcu/hr)

CAPACITY OF MOVEMENT :

Q b-a	=	405	(pcu/hr)	Q d-c	=	451	(pcu/hr)
Q b-c	=	657	(pcu/hr)	Q d-a	=	665	(pcu/hr)
Q c-b	=	728	(pcu/hr)	Q a-d	=	688	(pcu/hr)
Ql b-d	=	478	(pcu/hr)	Ql d-b	=	454	(pcu/hr)
Qr b-d	=	478	(pcu/hr)	Qr d-b	=	454	(pcu/hr)

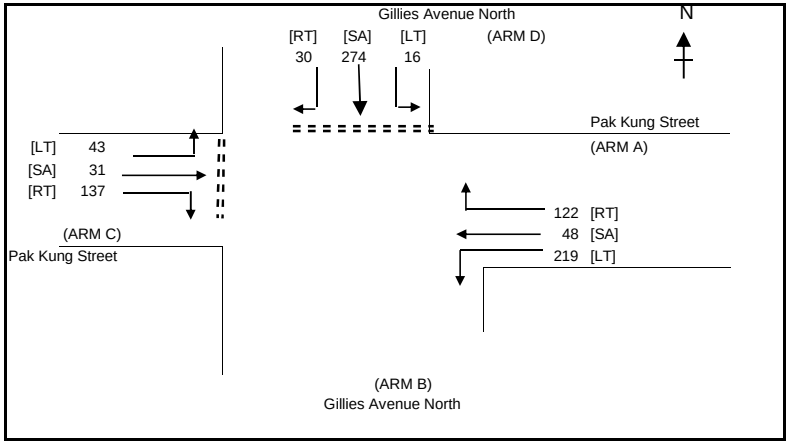
TOTAL FLOW = 835.8 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0409
DFC b-c	=	0.1073
DFC c-b	=	0.0000
DFCl b-d	=	0.0368
DFCr b-d	=	0.0342
DFC d-c	=	0.1324
DFC d-a	=	0.0370
DFC a-d	=	0.2635
DFCl d-b	=	0.3132
DFCr d-b	=	0.2400

CRITICAL DF(= 0.31

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Ref PM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 6 - Gillies Avenue North / Pak Kung Street		FILENAME : Avenue North_Pak Kung Street.	CHECKED BY:	OC	Jun-16
2024 Reference PM Peak Hour Traffic Flows			REVIEWED BY:	OC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

GENERAL

W	=	7.30	(metres)		
W cr	=	0	(metres)	Y =	0.74815

MAJOR ROAD (ARM A)				MAJOR ROAD (ARM B)			
W a-d	=	3.50	(metres)	W c	=	7.00	(metres)
Vr a-d	=	50	(metres)	Vr b-c	=		(metres)
q a-b	=	219	(pcu/hr)	q b-a	=		(pcu/hr)
q a-c	=	48	(pcu/hr)	q b-c	=		(pcu/hr)
q a-d	=	122	(pcu/hr)	q b-d	=		(pcu/hr)

MINOR ROAD (ARM C)				MINOR ROAD (ARM D)			
W c-b	=	3.50	(metres)	W d-c	=	3.50	(metres)
W c-d	=	3.50	(metres)	W d-a	=	3.50	(metres)
Vl c-d	=	50	(metres)	Vl d-c	=	50	(metres)
Vr c-d	=	50	(metres)	Vr d-c	=	50	(metres)
Vr c-b	=	50	(metres)	Vr d-a	=	50	(metres)
q c-a	=	31	(pcu/hr)	q d-c	=	30	(pcu/hr)
q c-b	=	137	(pcu/hr)	q d-a	=	16	(pcu/hr)
q c-d	=	43	(pcu/hr)	q d-b	=	274	(pcu/hr)

GEOMETRIC FACTORS :

X b	=	0.868	X a	=	0.924
X c	=	1.173	X d	=	0.868
Z b	=	0.924	Z d	=	0.924
M b	=	0.868	M d	=	0.868

PROPORTION OF MINOR STRAIGHT AHEAD TRAFFIC :

r b-a	=	0.069		r d-c	=	0.067	
ql b-d	=	23.06	(pcu/hr)	ql d-b	=	146.202039	(pcu/hr)
qr b-d	=	20.09	(pcu/hr)	qr d-b	=	127.794597	(pcu/hr)

CAPACITY OF MOVEMENT :

Q b-a	=	412	(pcu/hr)	Q d-c	=	450	(pcu/hr)
Q b-c	=	643	(pcu/hr)	Q d-a	=	677	(pcu/hr)
Q c-b	=	733	(pcu/hr)	Q a-d	=	688	(pcu/hr)
Ql b-d	=	484	(pcu/hr)	Ql d-b	=	464	(pcu/hr)
Qr b-d	=	484	(pcu/hr)	Qr d-b	=	464	(pcu/hr)

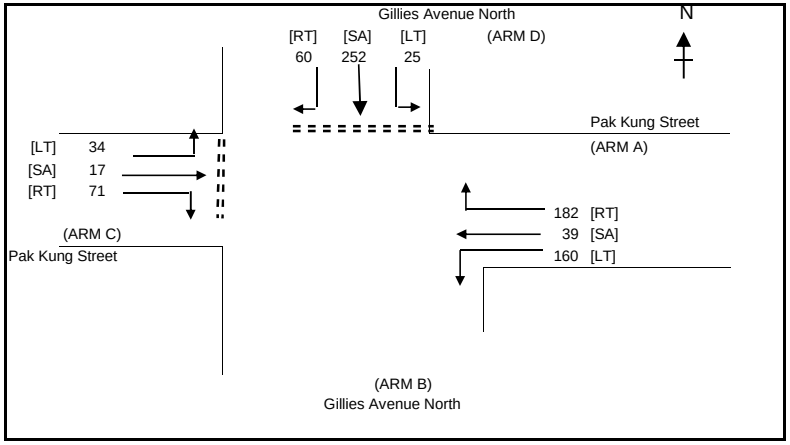
TOTAL FLOW = 921 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0751
DFC b-c	=	0.2137
DFC c-b	=	0.0000
DFCl b-d	=	0.0476
DFCr b-d	=	0.0415
DFC d-c	=	0.0672
DFC d-a	=	0.0238
DFC a-d	=	0.1773
DFCl d-b	=	0.3151
DFCr d-b	=	0.2754

CRITICAL DF(= 0.32

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Des AM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 6 - Gillies Avenue North / Pak Kung Street		FILENAME : Avenue North_Pak Kung Street.	CHECKED BY:	OC	Jun-16
2024 Design AM Peak Hour Traffic Flows			REVIEWED BY:	OC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

GENERAL

W	=	7.30	(metres)		
W cr	=	0	(metres)	Y =	0.74815

MAJOR ROAD (ARM A)				MAJOR ROAD (ARM B)			
W a-d	=	3.50	(metres)	W c	=	7.00	(metres)
Vr a-d	=	50	(metres)	Vr b-c	=		(metres)
q a-b	=	160	(pcu/hr)	q b-a	=		(pcu/hr)
q a-c	=	39	(pcu/hr)	q b-c	=		(pcu/hr)
q a-d	=	182	(pcu/hr)	q b-d	=		(pcu/hr)

MINOR ROAD (ARM C)				MINOR ROAD (ARM D)			
W c-b	=	3.50	(metres)	W d-c	=	3.50	(metres)
W c-d	=	3.50	(metres)	W d-a	=	3.50	(metres)
Vl c-d	=	50	(metres)	Vl d-c	=	50	(metres)
Vr c-d	=	50	(metres)	Vr d-c	=	50	(metres)
Vr c-b	=	50	(metres)	Vr d-a	=	50	(metres)
q c-a	=	17	(pcu/hr)	q d-c	=	60	(pcu/hr)
q c-b	=	71	(pcu/hr)	q d-a	=	25	(pcu/hr)
q c-d	=	34	(pcu/hr)	q d-b	=	252	(pcu/hr)

GEOMETRIC FACTORS :

X b	=	0.868	X a	=	0.924
X c	=	1.173	X d	=	0.868
Z b	=	0.924	Z d	=	0.924
M b	=	0.868	M d	=	0.868

PROPORTION OF MINOR STRAIGHT AHEAD TRAFFIC :

r b-a	=	0.037		r d-c	=	0.133	
ql b-d	=	17.6	(pcu/hr)	ql d-b	=	142.799061	(pcu/hr)
qr b-d	=	16.35	(pcu/hr)	qr d-b	=	109.350217	(pcu/hr)

CAPACITY OF MOVEMENT :

Q b-a	=	405	(pcu/hr)	Q d-c	=	450	(pcu/hr)
Q b-c	=	656	(pcu/hr)	Q d-a	=	665	(pcu/hr)
Q c-b	=	727	(pcu/hr)	Q a-d	=	688	(pcu/hr)
Ql b-d	=	477	(pcu/hr)	Ql d-b	=	453	(pcu/hr)
Qr b-d	=	477	(pcu/hr)	Qr d-b	=	453	(pcu/hr)

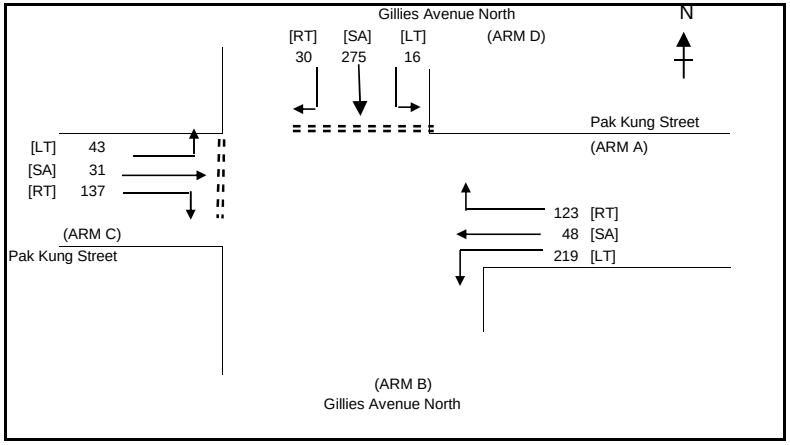
TOTAL FLOW = 838.8 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0409
DFC b-c	=	0.1075
DFC c-b	=	0.0000
DFCl b-d	=	0.0369
DFCr b-d	=	0.0343
DFC d-c	=	0.1327
DFC d-a	=	0.0370
DFC a-d	=	0.2649
DFCl d-b	=	0.3152
DFCr d-b	=	0.2414

CRITICAL DF(= 0.32

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Des PM Peak**	PROJECT NO.: 80641	PREPARED BY:	MM	Jun-16
Junction 6 - Gillies Avenue North / Pak Kung Street		FILENAME : Avenue North_Pak Kung Street.	CHECKED BY:	OC	Jun-16
2024 Design PM Peak Hour Traffic Flows			REVIEWED BY:	OC	Jun-16



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

GENERAL

W	=	7.30	(metres)		
W cr	=	0	(metres)	Y =	0.74815

MAJOR ROAD (ARM A)				MAJOR ROAD (ARM B)			
W a-d	=	3.50	(metres)	W c	=	7.00	(metres)
Vr a-d	=	50	(metres)	Vr b-c	=		(metres)
q a-b	=	219	(pcu/hr)	q b-a	=		(pcu/hr)
q a-c	=	48	(pcu/hr)	q b-c	=		(pcu/hr)
q a-d	=	123	(pcu/hr)	q b-d	=		(pcu/hr)

MINOR ROAD (ARM C)				MINOR ROAD (ARM D)			
W c-b	=	3.50	(metres)	W d-c	=	3.50	(metres)
W c-d	=	3.50	(metres)	W d-a	=	3.50	(metres)
Vl c-d	=	50	(metres)	Vl d-c	=	50	(metres)
Vr c-d	=	50	(metres)	Vr d-c	=	50	(metres)
Vr c-b	=	50	(metres)	Vr d-a	=	50	(metres)
q c-a	=	31	(pcu/hr)	q d-c	=	30	(pcu/hr)
q c-b	=	137	(pcu/hr)	q d-a	=	16	(pcu/hr)
q c-d	=	43	(pcu/hr)	q d-b	=	275	(pcu/hr)

GEOMETRIC FACTORS :

X b	=	0.868	X a	=	0.924
X c	=	1.173	X d	=	0.868
Z b	=	0.924	Z d	=	0.924
M b	=	0.868	M d	=	0.868

PROPORTION OF MINOR STRAIGHT AHEAD TRAFFIC :

r b-a	=	0.069		r d-c	=	0.067	
ql b-d	=	23.06	(pcu/hr)	ql d-b	=	146.756203	(pcu/hr)
qr b-d	=	20.09	(pcu/hr)	qr d-b	=	128.240433	(pcu/hr)

CAPACITY OF MOVEMENT :

Q b-a	=	411	(pcu/hr)	Q d-c	=	449	(pcu/hr)
Q b-c	=	643	(pcu/hr)	Q d-a	=	677	(pcu/hr)
Q c-b	=	732	(pcu/hr)	Q a-d	=	688	(pcu/hr)
Ql b-d	=	483	(pcu/hr)	Ql d-b	=	463	(pcu/hr)
Qr b-d	=	483	(pcu/hr)	Qr d-b	=	463	(pcu/hr)

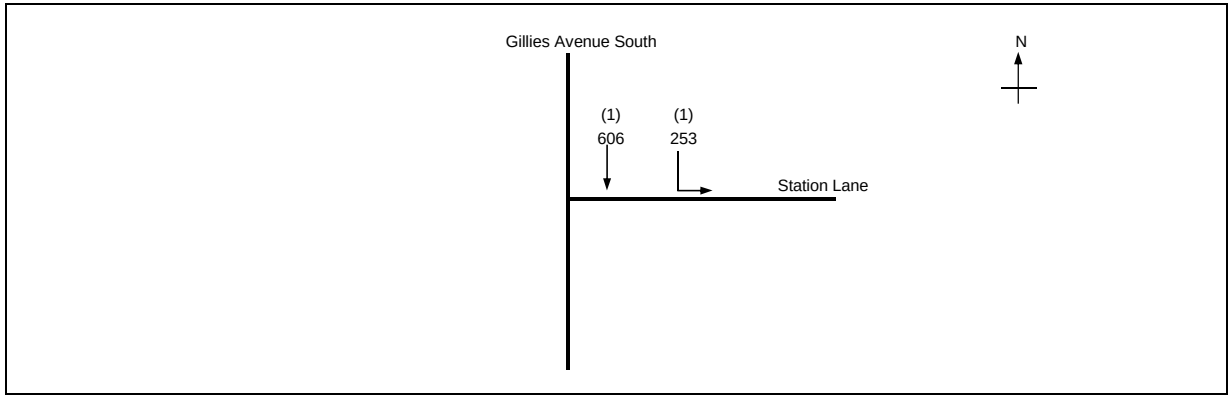
TOTAL FLOW = 923 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

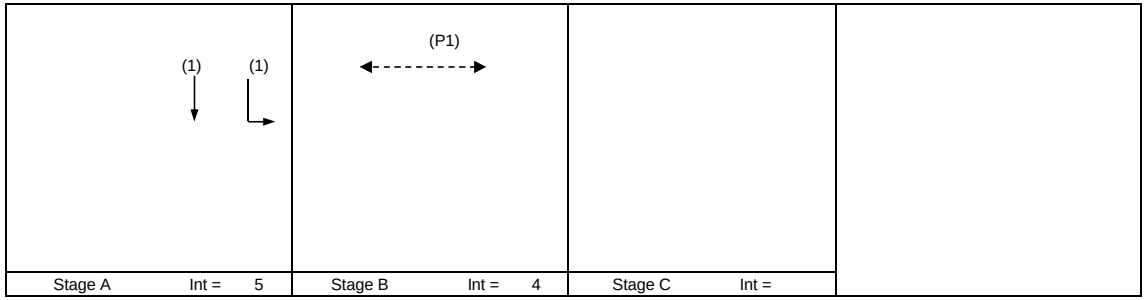
DFC b-a	=	0.0753
DFC b-c	=	0.2137
DFC c-b	=	0.0000
DFCl b-d	=	0.0477
DFCr b-d	=	0.0416
DFC d-c	=	0.0673
DFC d-a	=	0.0238
DFC a-d	=	0.1787
DFCl d-b	=	0.3170
DFCr d-b	=	0.2770

CRITICAL DF(= 0.32

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 7 - Gillies Avenue South / Station Lane		FILENAME :	Checked By:	OC	Jun-16
2024 Reference AM Peak Hour Traffic Flows		J7_Gillies Avenue South_Station Lane.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	2	
Cycle time		C =	130	sec
Sum(y)		Y =	0.331	
Loss time		L =	26	sec
Total Flow		=	860	pcu
Co	= (1.5*L+5)/(1-Y)	=	65.8	sec
Cm	= L/(1-Y)	=	38.9	sec
Yult		=	0.705	
R.C.ult	= (Yult-Y)/Y*100%	=	112.8	%
Cp	= 0.9*L/(0.9-Y)	=	41.1	sec
Ymax	= 1-L/C	=	0.800	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	117.4	%

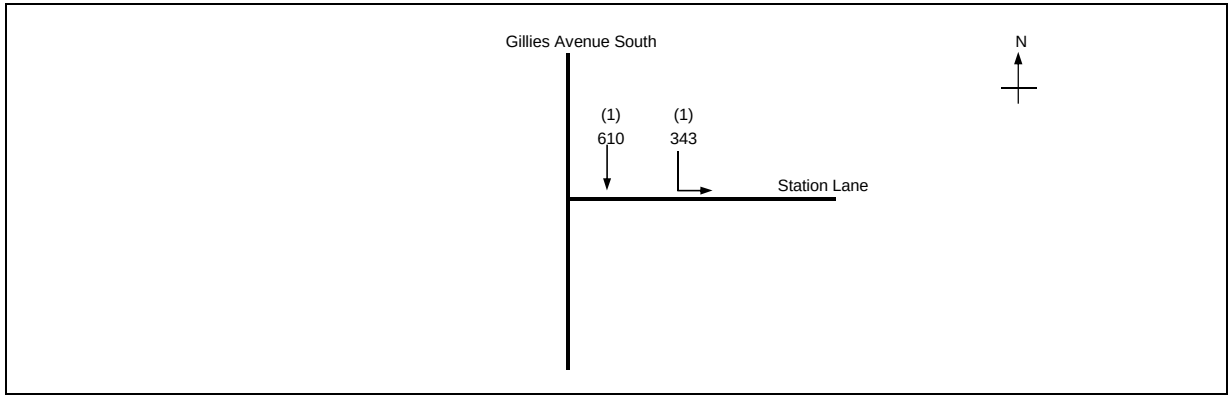


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	B	7.5	6	6	0	12	6

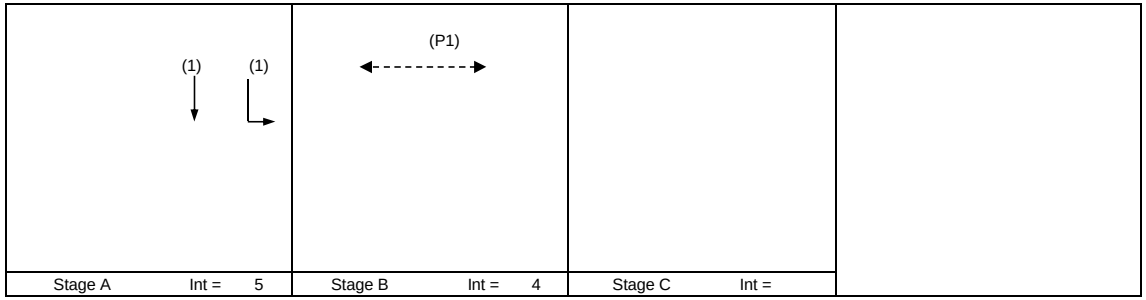
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				8					
LT/SA	A	3.50	1	1	10			2105	253			606	1.00	1830			1830	0.331	0.331		104	**104**	**0.414**	**24**	**4**
SA	A	3.50	1	1				2105		606		606	0.00	2105			2105	0.288			90	**104**	**0.414**	**36**	**8**
Ped	B																			18					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Ref PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 7 - Gillies Avenue South / Station Lane		FILENAME :	Checked By:	OC	Jun-16
2024 Reference PM Peak Hour Traffic Flows		J7_Gillies Avenue South_Station Lane.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	2	
Cycle time		C =	130	sec
Sum(y)		Y =	0.333	
Loss time		L =	26	sec
Total Flow		=	953	pcu
Co	= (1.5*L+5)/(1-Y)	=	66.0	sec
Cm	= L/(1-Y)	=	39.0	sec
Yult		=	0.705	
R.C.ult	= (Yult-Y)/Y*100%	=	111.6	%
Cp	= 0.9*L/(0.9-Y)	=	41.3	sec
Ymax	= 1-L/C	=	0.800	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	116.1	%

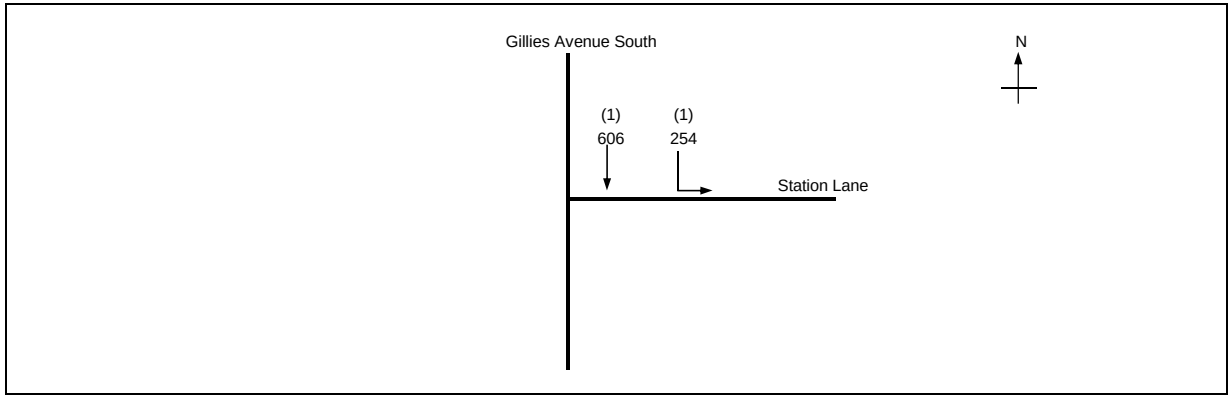


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	B	7.5	6	6	0	12	6

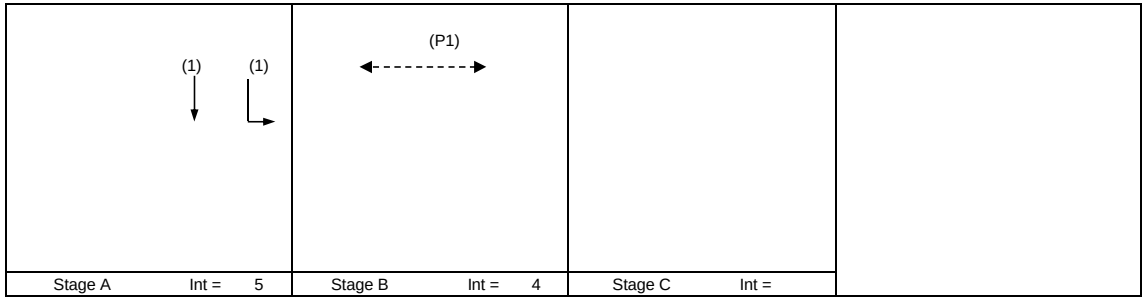
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				8					
LT/SA	A	3.50	1	1	10			2105	343			610	1.00	1830			1830	0.333	0.333		104	104	0.416	24	4
SA	A	3.50	1	1				2105		610		610	0.00	2105			2105	0.290			90	104	0.416	36	8
Ped	B																			18					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des AM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 7 - Gillies Avenue South / Station Lane		FILENAME :	Checked By:	OC	Jun-16
2024 Design AM Peak Hour Traffic Flows		J7_Gillies Avenue South_Station Lane.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	2	
Cycle time		C =	130	sec
Sum(y)		Y =	0.331	
Loss time		L =	26	sec
Total Flow		=	861	pcu
Co	= (1.5*L+5)/(1-Y)	=	65.8	sec
Cm	= L/(1-Y)	=	38.9	sec
Yult		=	0.705	
R.C.ult	= (Yult-Y)/Y*100%	=	112.8	%
Cp	= 0.9*L/(0.9-Y)	=	41.1	sec
Ymax	= 1-L/C	=	0.800	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	117.4	%

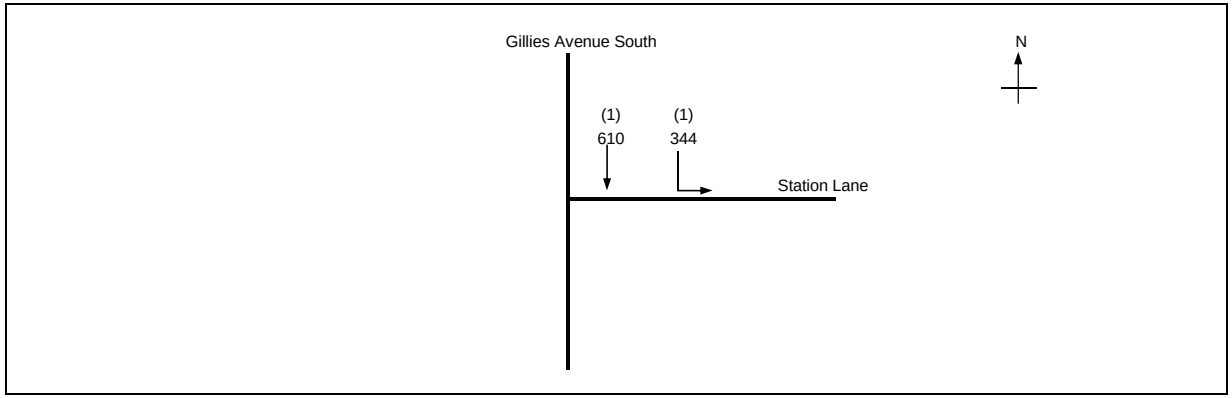


Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	B	7.5	6	6	0	12	6

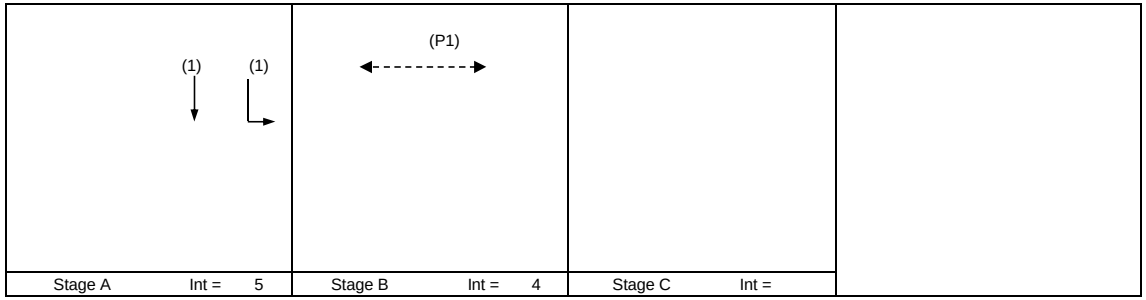
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				8					
LT/SA	A	3.50	1	1	10			2105	254			606	1.00	1830			1830	0.331	0.331		104	**104**	**0.414**	**24**	**4**
SA	A	3.50	1	1				2105		606		606	0.00	2105			2105	0.288			90	**104**	**0.414**	**36**	**8**
Ped	B																			18					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	2024 Des PM Peak	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 7 - Gillies Avenue South / Station Lane		FILENAME :	Checked By:	OC	Jun-16
2024 Design PM Peak Hour Traffic Flows		J7_Gillies Avenue South_Station Lane.xls	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
No. of stages per cycle		N =	2	
Cycle time		C =	130	sec
Sum(y)		Y =	0.333	
Loss time		L =	26	sec
Total Flow		=	954	pcu
Co	= (1.5*L+5)/(1-Y)	=	66.0	sec
Cm	= L/(1-Y)	=	39.0	sec
Yult		=	0.705	
R.C.ult	= (Yult-Y)/Y*100%	=	111.6	%
Cp	= 0.9*L/(0.9-Y)	=	41.3	sec
Ymax	= 1-L/C	=	0.800	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	116.1	%



Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	B	7.5	6	6	0	12	6

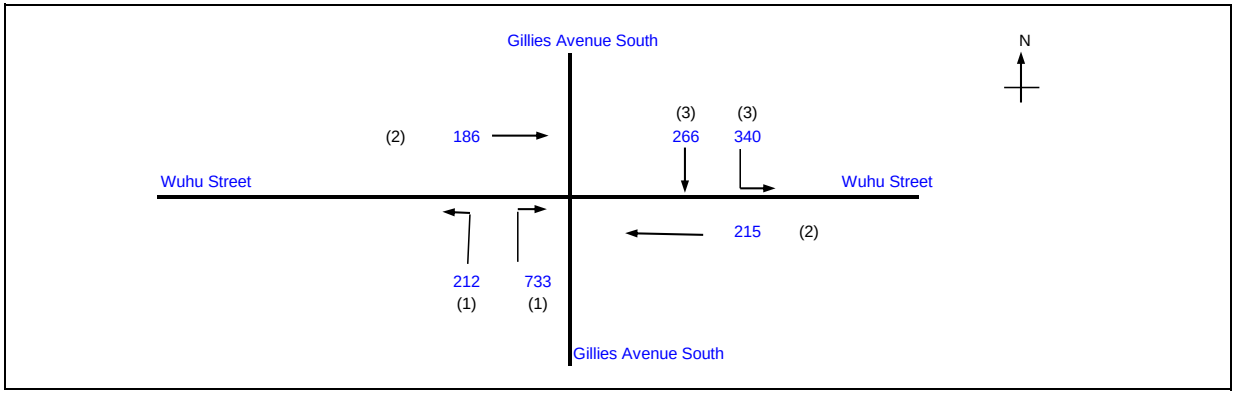
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				8					
LT/SA	A	3.50	1	1	10			2105	344			610	1.00	1830			1830	0.333	0.333		104	**104**	**0.416**	**24**	**4**
SA	A	3.50	1	1				2105		610		610	0.00	2105			2105	0.290			90	**104**	**0.416**	**36**	**8**
Ped	B																			18					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

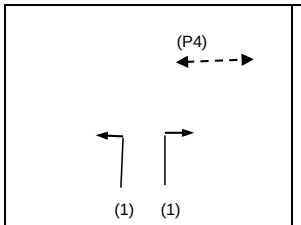
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

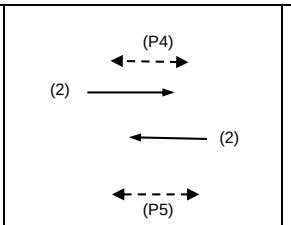
		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Ref AM Peak**		
Junction 8 - Gillies Avenue South / Wuhu Street	PROJECT NO.: 80641 — Prepared By:	MM	Jun-16
2024 Reference AM Peak Hour Traffic Flows	FILENAME : J8_Gillies Avenue South_Wuhu Street.xls — Checked By:	OC	Jun-16
	Reviewed By:	OC	Jun-16



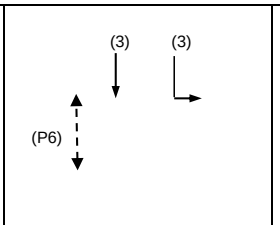
			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	130	sec
Sum(y)		Y =	0.426	
Loss time		L =	14	sec
Total Flow		=	1952	pcu
Co	= (1.5*L+5)/(1-Y)	=	45.3	sec
Cm	= L/(1-Y)	=	24.4	sec
Yult		=	0.795	
R.C.ult	= (Yult-Y)/Y*100%	=	86.5	%
Cp	= 0.9*L/(0.9-Y)	=	26.6	sec
Ymax	= 1-L/C	=	0.892	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	88.4	%



Stage A Int = 5



Stage B Int = 6



Stage C Int = 6

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	11	6	9	1	21	9
P5	B	12	8	10	2	14	10
P6	C	12	5	10	6	19	10

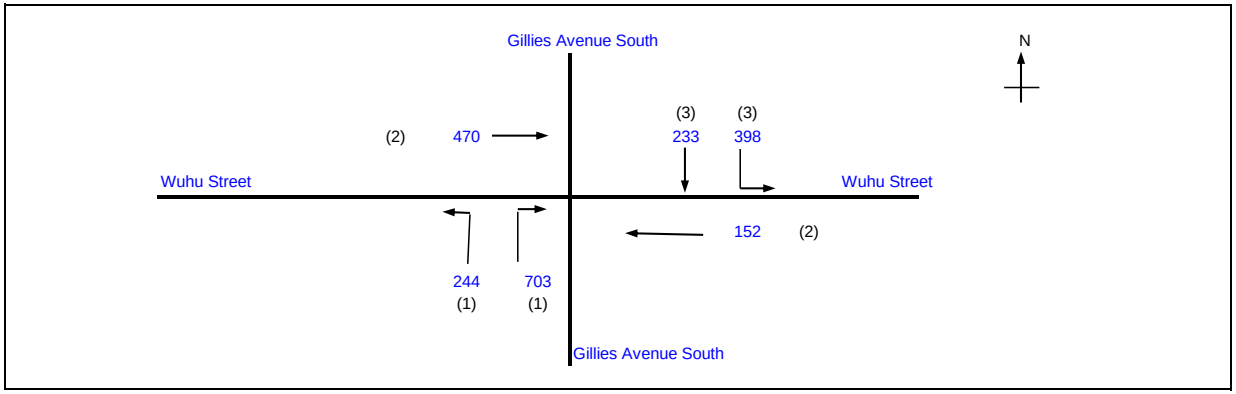
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA(EB)	B	3.50	2	1			N	1965		186		186	0.00	1965			1965	0.095	0.095		26	26	0.478	30	45
SA(WB)	B	3.30	2	2			N	4030		215		215	0.00	4030			4030	0.053			15	26	0.478	18	52
LT	C	3.30	3	2	9.0		N	4030	340	0		340	1.00	3454			3454	0.099	0.128		27	35	0.478	27	43
SA	C	3.30	3	1				2085		266		266	0.00	2085			2085	0.128			35	35	0.478	42	39
LT	A	3.00	1	1	9.0		N	1915	212			212	1.00	1641			1641	0.129	0.204		35	55	0.478	30	39
LT/RT	A	3.00	1	1	11.0			2055			369	369	1.00	1808			1808	0.204			56	55	0.478	42	26
RT	A	3.00	1	1	10.0			2055			364	364	1.00	1787			1787	0.204			55	55	0.478	42	26

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

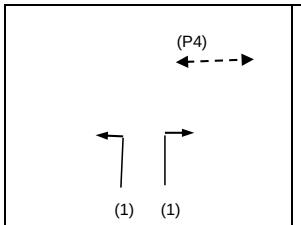
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

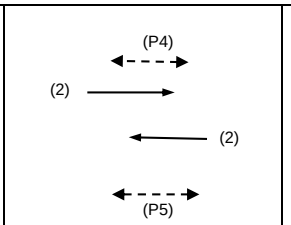
			INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Ref PM Peak**	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
Junction 8 - Gillies Avenue South / Wuhu Street		FILENAME :	Checked By:	OC	Jun-16
2024 Reference PM Peak Hour Traffic Flows		J8_Gillies Avenue South_Wuhu Street.xls	Reviewed By:	OC	Jun-16



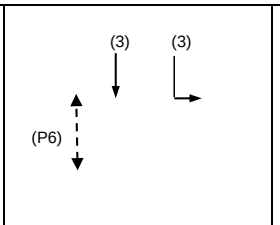
			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	130	sec
Sum(y)		Y =	0.550	
Loss time		L =	24	sec
Total Flow		=	2200	pcu
Co	= (1.5*L+5)/(1-Y)	=	91.2	sec
Cm	= L/(1-Y)	=	53.4	sec
Yult		=	0.720	
R.C.ult	= (Yult-Y)/Y*100%	=	30.9	%
Cp	= 0.9*L/(0.9-Y)	=	61.8	sec
Ymax	= 1-L/C	=	0.815	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.4	%



Stage A Int = 5



Stage B Int = 6



Stage C Int = 6

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	11	6	9	1	41	9
P5	B	12	8	10	2	34	10
P6	C	12	5	10	6	16	10

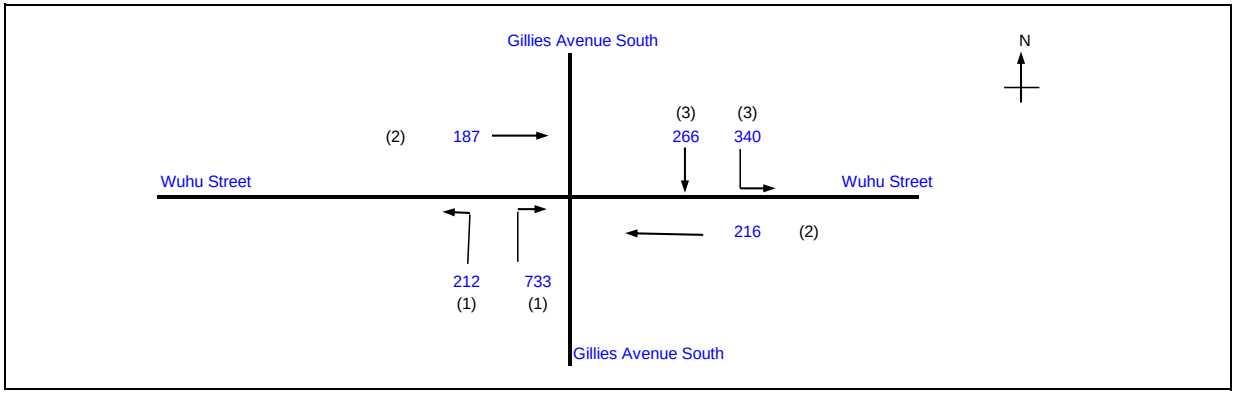
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA(EB)	B	3.50	2	1			N	1965		470		470	0.00	1965			1965	0.239	0.239		46	46	0.675	60	37
SA(WB)	B	3.30	2	2			N	4030		152		152	0.00	4030			4030	0.038			7	46	0.675	15	69
LT	C	3.30	3	2	9.0		N	4030	398	0		398	1.00	3454			3454	0.115	0.115	10	22	32	0.675	33	51
SA	C	3.30	3	1				2085		233		233	0.00	2085			2085	0.112			21	32	0.675	42	56
LT	A	3.00	1	1	9.0		N	1915	244			244	1.00	1641			1641	0.149	0.196		29	38	0.675	36	51
LT/RT	A	3.00	1	1	11.0			2055			353	353	1.00	1808			1808	0.195			38	38	0.675	54	43
RT	A	3.00	1	1	10.0			2055			350	350	1.00	1787			1787	0.196			38	38	0.675	48	43

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Des AM Peak**		
Junction 8 - Gillies Avenue South / Wuhu Street	PROJECT NO.: 80641	Prepared By:	MM	Jun-16
2024 Design AM Peak Hour Traffic Flows	FILENAME : J8_Gillies Avenue South_Wuhu Street.xls	Checked By:	OC	Jun-16
		Reviewed By:	OC	Jun-16



			Existing Cycle Time	
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Cycle time		C =	130	sec
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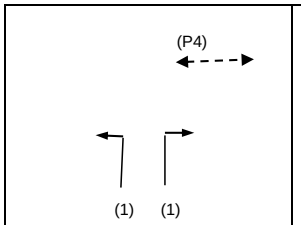
Loss time		L =	14	sec
Total Flow		=	1954	pcu
Co	= (1.5*L+5)/(1-Y)	=	45.4	sec
Cm	= L/(1-Y)	=	24.4	sec
Yult		=	0.795	
R.C.ult	= (Yult-Y)/Y*100%	=	86.3	%
Cp	= 0.9*L/(0.9-Y)	=	26.6	sec
Ymax	= 1-L/C	=	0.892	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	88.2	%



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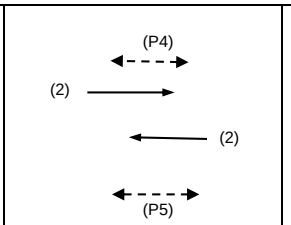
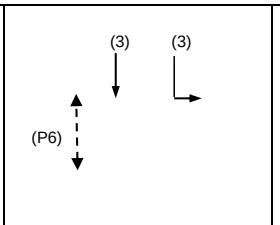


Stage B Int = 6



Stage C Int = 6

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	11	6	9	1	21	9
P5	B	12	8	10	2	14	10
P6	C	12	5	10	6	19	10

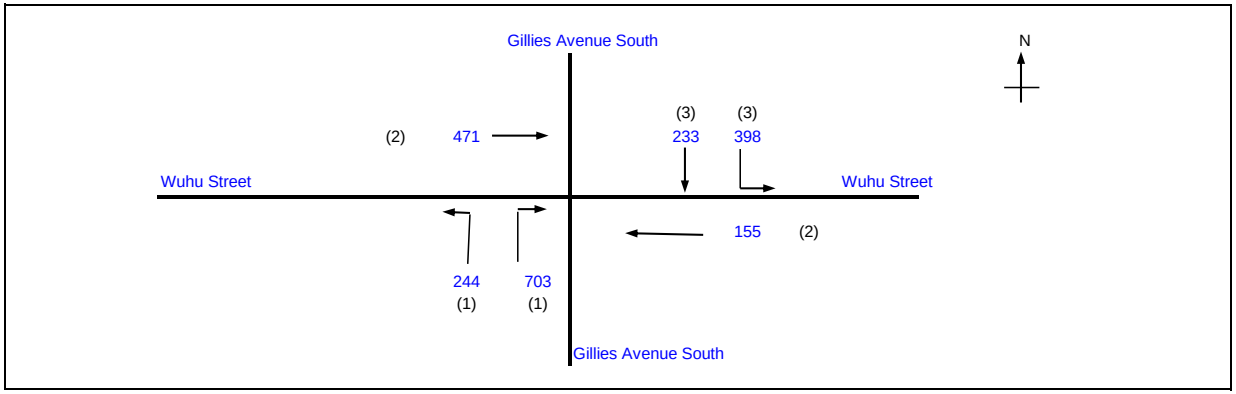
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA(EB)	B	3.50	2	1			N	1965		187		187	0.00	1965			1965	0.095	0.095		26	26	0.478	30	45
SA(WB)	B	3.30	2	2			N	4030		216		216	0.00	4030			4030	0.054			15	26	0.478	18	52
LT	C	3.30	3	2	9.0		N	4030	340	0		340	1.00	3454			3454	0.099	0.128		27	35	0.478	27	43
SA	C	3.30	3	1				2085		266		266	0.00	2085			2085	0.128			35	35	0.478	42	39
LT	A	3.00	1	1	9.0		N	1915	212			212	1.00	1641			1641	0.129	0.204		35	55	0.478	30	39
LT/RT	A	3.00	1	1	11.0			2055			369	369	1.00	1808			1808	0.204			55	55	0.478	42	26
RT	A	3.00	1	1	10.0			2055			364	364	1.00	1787			1787	0.204			55	55	0.478	42	26

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
Rezoning Proposal for the Elderly Housing Development at Lee Kung Street in Hung Hom, Kowloon	**2024 Des PM Peak**		
Junction 8 - Gillies Avenue South / Wuhu Street	PROJECT NO.: 80641 — Prepared By:	MM	Jun-16
2024 Design PM Peak Hour Traffic Flows	FILENAME : J8_Gillies Avenue South_Wuhu Street.xls — Checked By:	OC	Jun-16
	Reviewed By:	OC	Jun-16



			Existing Cycle Time	
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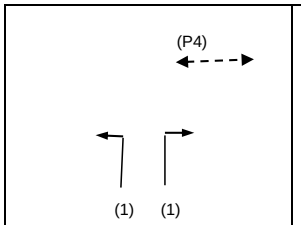
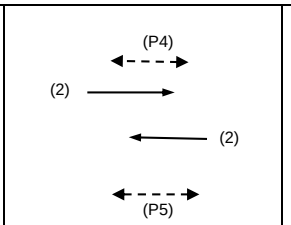
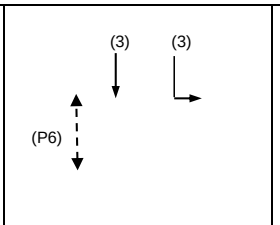
Loss time		L =	24	sec
Total Flow		=	2204	pcu
Co	= (1.5*L+5)/(1-Y)	=	91.3	sec
Cm	= L/(1-Y)	=	53.4	sec
Yult		=	0.720	
R.C.ult	= (Yult-Y)/Y*100%	=	30.7	%
Cp	= 0.9*L/(0.9-Y)	=	61.8	sec
Ymax	= 1-L/C	=	0.815	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.2	%



Stage A Int = 5



Stage B Int = 6

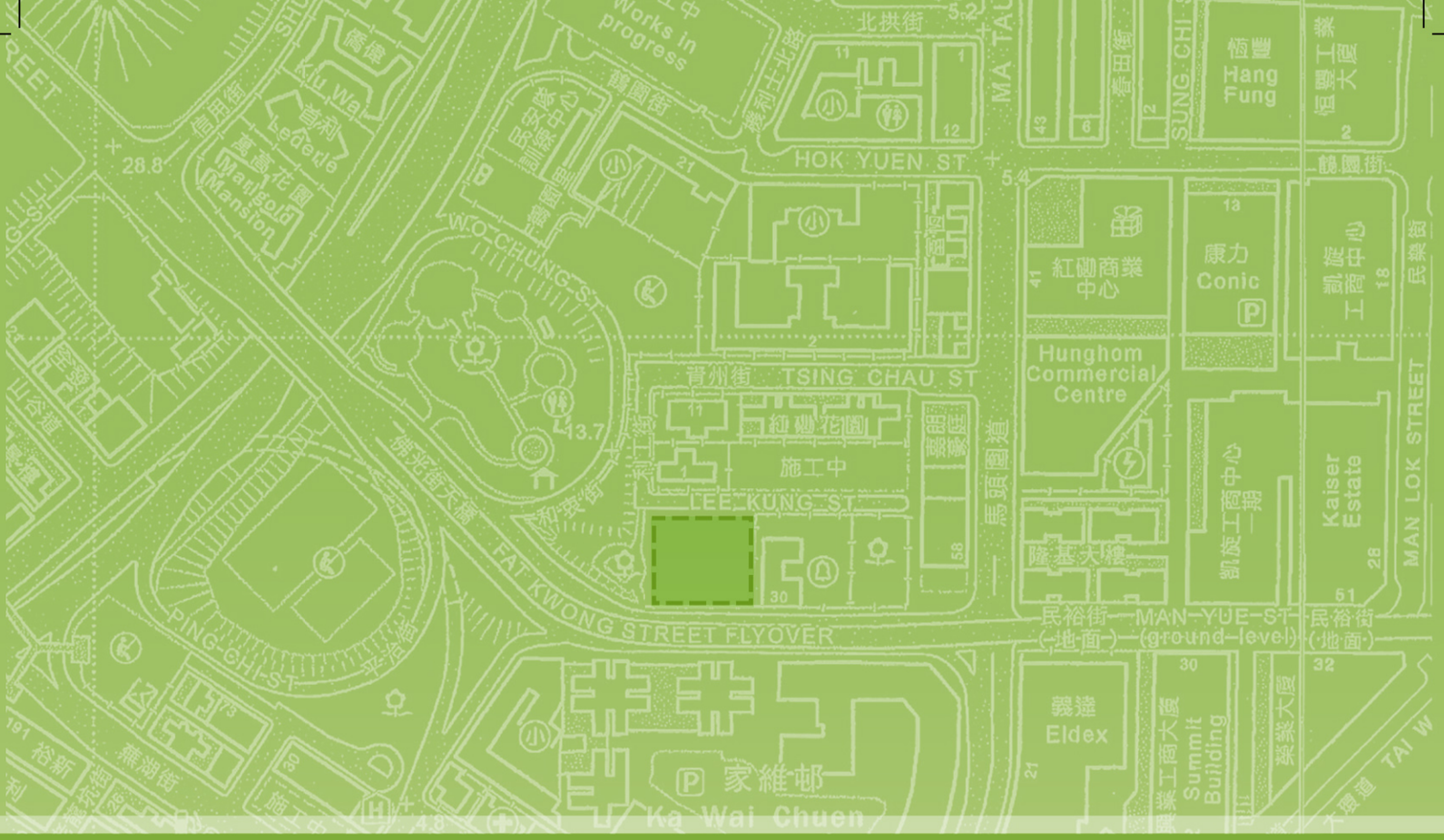


Stage C Int = 6

Pedestrian Phase	Stage	Width (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P4	A,B	11	6	9	1	41	9
P5	B	12	8	10	2	34	10
P6	C	12	5	10	6	16	10

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
SA(EB)	B	3.50	2	1			N	1965		471		471	0.00	1965			1965	0.240	0.240		46	46	0.675	60	37
SA(WB)	B	3.30	2	2			N	4030		155		155	0.00	4030			4030	0.039			7	46	0.675	15	69
LT	C	3.30	3	2	9.0		N	4030	398	0		398	1.00	3454			3454	0.115	0.115	10	22	32	0.675	33	51
SA	C	3.30	3	1				2085		233		233	0.00	2085			2085	0.112			21	32	0.675	42	56
LT	A	3.00	1	1	9.0		N	1915	244			244	1.00	1641			1641	0.149	0.196		29	38	0.675	36	51
LT/RT	A	3.00	1	1	11.0			2055			353	353	1.00	1808			1808	0.195			38	38	0.675	54	43
RT	A	3.00	1	1	10.0			2055			350	350	1.00	1787			1787	0.196			38	38	0.675	48	43

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m



Annex I

Translate Version of the extracted minutes of 21st Housing and Infrastructure Committee of the Kowloon City District Council held on 4 June 2015

Translated Version of the extract of minutes of 21st Housing and Infrastructure Committee of the Kowloon City District Council held on 4 June 2015

Proposed Elderly Housing Project at Lee Kung Street in Hung Hom in Kowloon

4. **Mr. TSANG Tak-ming, Patrick, General Manager (Planning and Development), Hong Kong Housing Society** seek Members' views on the proposed Elderly Housing Project at Lee Kung Street in Hung Hom in Kowloon. He pointed out that the Hong Kong Housing Society (HS) was proactively developing various housing programmes in meeting the housing needs of different sectors of the community. Considering the continuous grow in the elderly population and the lack of elderly housing with comprehensive healthcare services in Hong Kong, the HS proposed developing housing units with the provision of recreation, rehabilitation, and healthcare services for elderly people aged 60 or above who could live independently under the Senior Citizen Residences (SEN) Scheme at Lee Kung Street in Hung Hom in Kowloon by making reference to the concept of "ageing in place". The SEN Scheme would facilitate the elderly to live in a non-hostel environment at an affordable cost. The housing units under the Scheme are disposed of under a "long lease" arrangement and the elderly could live in the unit and free of payment of rental upon paying a lump sum "Entry Contribution". During their tenancy, the elderly need only to pay monthly management fees which include basic services. They could also enjoy the care and medical services provided by the operator on a user-pays basis The proposed building would comprise of about 300 housing units, a care and attention home for the aged, as well as rehabilitation and healthcare facilities for serving both the residents and the elderly in the district. The HS would submit the proposal of amending the Outline Zoning Plan to the Planning Department (PD) for converting the site currently zoned as "Government, Institution or Community" to "Residential (Group A)" and to lift the height restriction of the building to 110 meters above the principal datum. Once the rezoning proposal was approved by the Town Planning Board (TPB), the Outline Zoning Plan would be amended in accordance with the Town Planning Ordinance.

5. **Mr. SIU Miu-man** supported the SEN Scheme. Besides, he suggested lowering the threshold of application with a view to taking care of the elderly in need.

6. **Mr. YANG Wing-kit** informed the meeting that a letter from members of the public objecting the SEN Scheme had been received before the meeting. While he supported the rezoning proposal of the concerned site to "Residential (Group A)", he

expressed concerns on the actual demand for such kind of housing units, setting of the amount of "Entry Contribution" and ways of addressing the noise problems arising from the development. In addition, he opined that the HS could consider building flats under the Sandwich Class Housing Scheme on the subject site.

7. **Ms. SIU Yuen-sheung, BBS, JP** indicated support for the elderly housing project but was of the view that the HS could lower the amount of "Entry Contribution" for helping those elderly with less financial resources. In addition, she suggested increasing the number of beds of the proposed care and attention home at the building.

8. **Ir Dr. CHENG Lee-ming** said that the persistently low interest rates had weakened the financial position of the middle class and hence the housing policy should not be tilted in favour of people of the lower income class. He supported the implementation of the SEN Scheme by the HS which would allow middle income elderly people enjoy life at old age. However, he opined that the HS might suffer a financial loss in the long run in light of the longer average life expectancy of Hong Kong people. Besides, he was of the view that the HS could apply for an increase of the site's plot ratio with a view to building more housing units and enhancing the facilities to meet different needs of elderly.

9. **Dr. WONG Yee-him** supported the SEN Scheme and considered that it could achieve the concept of "ageing at home".

10. **Mr. LO Chiu-kit** raised the objection to the SEN Scheme and pointed out that the HS had already launched the "Ageless Community" (AC) Scheme to encourage young members of a family to take care of the elderly members with a view to promoting social cohesion and cross-generational harmony, However, the waiting lists for the AC Scheme in Ka Wai Chuen continue to grow due to the lack of sufficient housing units for allocation. The SEN Scheme and the AC Scheme shared the similar objective of enabling the elderly in the district to live independently and, at the same time, stay close to their children or other family members to facilitate mutual care. He also opined that while the site at Lee Kung Street adjacent to Ka Wai Chuen would be granted to the HS at a nominal land premium of HK$1,000, the proposed SEN Scheme should not be regarded as a self-financing project. He suggested constructing public housing units in the subject site instead. Nevertheless, he would re-consider his stance on the proposed SEN Scheme if the HS agreed to earmark a portion of the housing units to be built for allocation to the applicants of the AC

Scheme.

11. **Mr. YUM Kwok-tung, Pius** had reservations on the SEN Scheme. Given that the grassroots elders suffered even more when compared with the middle class elders as they had to queue up for places of homes for the aged, he opined that the HS could increase the number of beds of the care and attention home in the proposed development or consider contemplate the operation of the home on a self-financing mode. Furthermore, he enquired the PD about their views on the SEN Scheme.

12. **Mr. PUN Chi-man** expressed concerns that the elders living in the building at the proposed site would suffer from noise problem. Besides, he concurred that the housing needs of the grassroots was more pressing than that of the middle class elders.

13. **Ms. MOK Ka-han, Rosanda** said that it was the responsibility of Members to provide comments on the development scheme of the HS, including the enhancement of facilities for bringing benefits to more members of the public. She also expressed her disagreement to the Chairman's view that Members who objected to the SEN Scheme represented that they did not care about the interests of the middle class elders.

14. **Mr. CHO Wui-hung** supported the SEN Scheme which would take care of the middle class elders. Yet he agreed that the HS could explore the possibility of increasing the number of housing units to be provided and at the same time offering additional services.

15. **Mr. LUK King-kwong** was of the view that, in terms of priority, the site at Lee Kung Street should be reserved for the construction of public housing to meet the public's pressing needs of housing.

16. The **Chairman** enquired the HS about the benefits of the SEN Scheme to the community and suggested giving priority to elders of Kowloon City District for applying the Scheme.

17. **Ms. LAM Sau-ha**, **Senior Town Planner, Kowloon 2, Planning Department**, responded that the Transport and Housing Bureau had provided policy support to the HS on the proposed SEN Scheme. While the PD was supportive to the SEN Scheme in principle, they were still required to study the concerned amendments

to the technical requirements. Besides, the PD would continue to assist the relevant departments to identify suitable sites to meet various housing needs of the society.

18. **Mr. TSANG of the Hong Kong Housing Society** gave a consolidated response as follows :

(a) The HS formulated various kinds of housing plans, with different eligibility thresholds, to meet the housing needs of different sectors of elders in the community. For the elderly from low income group, the HS provided them with rental public housing and residential units, implemented the "Ageing-in-Place" Scheme in 14 housing estates, as well as configured accessibility facilities at units for elders in need. The HS also directed community resources to cater for needs of elders in relation to medical and nursing care.

(b) The elderly housing project at Tanner Hill developed under the Joyous Living Scheme was targeted at higher income elders with no asset limits while Cheerful Court, Jolly Place and Lee Kung Street project under the SEN Scheme were built to serve elders of the middle income group. While the elders under the SEN Scheme could provide a relatively lower "Entry Contribution", they were subject to pass the mean test.

(c) According to a survey conducted by the University of Hong Kong, the elders in general appreciated the SEN Scheme. The housing units of Cheerful Court and Jolly Place were all let out and over 600 applications were placed on the waiting lists. The HS would work with the policy bureaux in setting out the arrangements for application for residence at Lee Kung Street project and exploring the feasibility of according priority to elders living in Kowloon City District as proposed by Members.

(d) In addition to housing units, the Lee Kung Street project would include a care and attention home, rehabilitation and healthcare facilities for providing proper care for the elderly in the district. While the HS would endeavour to enhance the design of the project and increase the capacity of the care and attention home, it was envisaged that the number of beds to be increased would be limited due to the site constraints.

(e) The HS noted that the average waiting time for the homes for the aged

was as long as 36 months at present. Nevertheless, the principle and objective of the SEN Scheme and the homes for the aged were different as the former was aimed at delaying the ageing process of elders with a view to avoiding their early admission into the homes for the aged. While the main mission of the HS was to provide housing for citizens in accordance with the relevant Incorporated Ordinance, it was not feasible to operate care and attention homes independently.

(f) The HS was an independent non-profit organisation operating on a self-financing mode and had to bear the financial loss incurred from its development plans. Nevertheless, the HS would strive to achieve a balance between revenue and expenditure.

19. **Ms. YIP Sin-man, Senior Planner, Urban Designer of Urbis Limited** replied that the HS had consulted the relevant government departments with respect to various issues including traffic flow, noise mitigation, air quality, landscaping requirements, building height restriction etc. and modifications were already made to the design on the basis of the suggestions and requirements. Having regard to the noise problem in Fat Kwong Street, the HS had specially plotted the orientation and disposition of the building and would install the latest soundproof windows.

20. In conclusion, the **Chairman** noted that some Members showed support for the Scheme while some expressed objection.

21. **Mr. LO Chiu-kit** requested the PD to relay the views of Members to the TPB in details instead of in summary.

22. After discussion, the **Chairman** requested the Secretary to forward the minutes of the meeting to the PD for reflecting Members' views to the TPB.

To: BY FAX and BY EMAIL

Secretariat of the Kowloon City District Council ("KCDC")
(kcdcadm@kcdc.had.gov.hk/ 2621 5943)

Housing and Infrastructure Committee of the KCDC
Mr PUN Kwok-wah (g12hoisham-kln@yahoo.com.hk/ 2330 6460), Chairman
Mr CHO Wui-hung (left.hk@gmail.com/ 8148 3417), Vice-Chairman
Ir Dr CHENG Lee-ming (itlcheng@gmail.com/ 2713 9969)
Mr KWAN Ho-yeung (kwanhoyeungdc@gmail.com/ 2760 0770)
Ir CHEUNG Yan-hong, MH (yhcheung_hk@yahoo.com/2365 8778)
Mr HE Huahan (han.hk@hotmail.com/ 3678 9679)
Mr LAI Kwong-wai (kennylaikw@gmail.com)
Mr LAM Pok, Jimmy (lampoktkw2016@gmail.com/ 2303 1232)
Mr LAM Tak-shing (hunghom@dab.org.hk/ 2363 2992)
The Hon. Starry LEE Wai-king, JP (leewaikingdc@gmail.com/ 2330 6621)
Miss LEUNG Yuen-ting (yukeleung@gmail.com/ 2399 0177)
Mr LO Chiu-kit (frankcklo@gmail.com/ 2365 9332)
Mr LUK King-kwong (homt@dab.org.hk/ 2242 0715)
Mr NG Po-keung (ngpokeung22@hotmail.com/ 2365 6767)
Mr SIU Leong-sing (kdr@adpl.org.hk/ 3905 6311)
Mr SIU Tin-hung, Terence (mtwsiu@gmail.com/ 2713 0098)
Mr TING Kin-wa (kw@likogroup.com.hk/ 3007 9028)
Mr YANG Wing-kit (kitsonyang@yahoo.com.hk/ 2330 6401)
Mr YEUNG Chun-yu (ronaldyeung@adpl.org.hk/ 2711 9151)
Mr YUE Chee-wing, Admond (admondyueg17@gmail.com)

5 February 2016

Dear Sirs,

Re: Proposed Senior Citizen Residences Project at Lee Kung Street, Hung Hom

We are a group of owners of La Lumiere situated at No. 9 Lee Kung Street, Hung Hom (the "Property"). We refer to our earlier letter sent to your Council dated 9 June 2015 regarding our objection to the proposed Senior Citizen Residences project to be located at Lee Kung Street, Hung Hom ("Project"). Our previous letter is hereby enclosed for your easy reference (Attachment 1). We write further now to express our views on the said Project and would especially draw the Housing and Infrastructure Committee's ("Committee") attention to our views below.

Objection to the Project in general

First of all, we have doubts on the idea of providing more of these senior citizen residences. From the media we learned that sale of previous similar residences were not well received (Attachment 2). We understand that your Council members also expressed concerns previously on the demand for such residences. It is therefore questionable whether the Project will achieve meaningful results for the community as a whole and whether the land is in fact suitable for such Project given that it will involve a change in the land use zoning and application has to be made to the Town Planning Board. We consider that your Council should re-consider thoroughly whether such Project should be supported. We maintain our stance that there are many other pieces of in Hung Hom or nearby districts land (e.g. the empty land near Harbour Place or Harbourfront Horizon All-Suite Hotel) where it is more suitable for the Senior Citizen Residences to be built and possibly with less impact to the neighborhood.

Object to the Height Restriction

Secondly, we wish to point out that the height restriction the Project is 11 floors under OZP NO. S/K9/24 gazette on 15/10/2010. The Project will involve an application for relaxation of the height restriction of the land to 34 floors (3.4 times the original land use) and build on a 1:8 land ratio providing 309 flats for the elderly (see newspaper clips at Attachment 3). As discussed in our previous letter, this will adversely affect the surrounding building environment and public interest which should be strongly

objected. More importantly, wall effect (屏風效應) of the Project will block the visual corridor in the OZP and deteriorate the air flow in this compact area. As you can envisage, coupled with the Ma Tau Wai Redevelopment Project, the wall building effect to be caused by all the new buildings will be very serious and interests of Kowloon City district citizens living in the nearby area will be severely jeopardized.

Thus, we take a strong view that if the Project proceeds, there should be no relaxation of height restriction for the building to be built. Having considered the low demand for these senior citizen residences, the adverse effects on the air flow and the trouble it takes to apply for the relaxation of the height restriction, we submit that if the Project is to be pursued, it should strictly follow the OZP and thus only be a 11 storey building with the permitted plot ratio. For your reference, we enclose a set of drawings containing the statutory information and also showing the possible wall effect of the Project (Attachment 4). We will take the necessary actions to protect our rights and object the Project through the statutory procedure under the Town Planning Ordinance (Cap.131).

Conclusion

Based on the above, we reiterate our objection to the Project and in particular, **we are especially concerned on the intended relaxation of the height restriction for the Project.** While we note that the Project may promote better living and care for our elder generation, we are also very concerned of the adverse effects on air flow and views it will cause and would definitely bring forward our objection if the Hong Kong Housing Society applies for the relaxation of the height restriction of the land.

We note that the Committee and KCDC will meet on 3 March 2016 and 17 March 2016 respectively to discuss. We shall be grateful if this letter is placed for the Committee's and Council's consideration and in public comments on the Project, taking into account and/or reflecting our above views. We hope that the KCDC will fight for our position given that the Hong Kong Housing Society intends to make their application to the TPB in second quarter of 2016. The Committee and Council should appreciate that the La Lumiere accommodates more than 100 households in the Kowloon City area (which is quite substantial) who will be residing starting from the last quarter of 2016 and as interested stakeholders our views should not be neglected.

In addition, we believe that as the Committee and Council you have the duty to listen to views from different interested parties of the district on such Project. We are

keen to know the Council's responses and feedback to the above and the proposed actions which you would take. Should you have any responses, please kindly send it to the email address: lalumierehk@gmail.com.

We appreciate your full attention on this matter and look forward to learning your feedback very shortly.

Yours faithfully,
on behalf of
A group of owners of La Lumiere

Attachment 1

To: Mr. LAU Wai-wing (lauwaiwing_g17@yahoo.com.hk/ 2766 3989)
Mr PUN Kwok-wah (g12hoisham-kln@yahoo.com.hk/ 2330 6460)
Mr NG Fan-kam (tonyng2011@gmail.com/ 8148 2033)
Mr YUM Kwok-tung, Pius (hhm@adpl.org.hk/ 2627 1627)
Secretariat of the Kowloon City District Council (kcdcadm@kcdc.had.gov.hk/ 2621 5943)

BY FAX and BY EMAIL
9 June 2015

Dear Sirs,

Re: Proposed Senior Citizen Residences Project at Lee Kung Street, Hung Hom

I am writing to enquire about the status of the proposed Senior Citizen Residences project to be located at Lee Kung Street, Hung Hom and express our strong objection to such project. I am an owner of La Lumiere situated at No. 9 Lee Kung Street, Hung Hom (the "Property"). As you may be aware, the Property was developed by Cheung Kong Property Development Limited and was sold in early March 2015. The Property is still being constructed at the moment and is scheduled to be completed by end of 2016.

According to recent news, we learned that the Hong Kong Housing Society ("HKHS") proposes to build the third project of Senior Citizen Residences at a piece of land on Lee Kung Street which is currently occupied as a car park (the "Land"). The Land is situated in close proximity to our Property. According to media information, the intended residence will comprise of 34 floors and built on a 1:8 land ratio providing 307 flats for the elderly.

While we express no comment on the idea of providing more senior citizen residences (as there are doubts as to the effectiveness and costs of similar projects), we do not agree that the Land is a suitable venue for building such residence. According to the existing statutory plan, the Land is currently zoned as for Government, Institution and Community use with a height restriction of 10 storeys. The proposed development of the Senior Citizen Residences involves the re-zoning of land use and a relaxation of height restriction to 34 floors (which is 3.4 times the original land use). The Land is adjacent to other existing building of a similar heights (including but not limited to Customs Staff Quarters, Ka Wai Estate, Hung Hom Gardens, Carlton Courts, La

Lumiere and the Ma Tau Wai Redevelopment Project (as further elaborated below)) and the constructions of another high rise building in the said Land will not only seriously affect the view but also the air flow and exposure to sunshine of the adjacent neighborhood, inevitably causing wall building effect (屏風效應) and aggravating air and noise pollutions in the area. In fact, the Land is so close to the Customs Staff Quarters, Ka Wai Estate, La Lumiere and Ma Tau Wai Redevelopment Project (the distance between which is less than 15 meters) that most of the existing flats/units of those nearby building facing towards the Land, will be facing very closely to the new proposed flats/units of the Senior Citizen Residences. This will detrimentally affect the living quality (both noise, air, view) of existing nearby residence. In case that you may not be aware, the old buildings (about 3-4 storeys) currently located at the intersection of Ma Tau Wai Road and Fat Kwong Street had recently been acquired by a single owner and there are plans in progress to redevelop those old buildings into new property development up to a height of 100 meters ("Ma Tau Wai Redevelopment Project"). Based on the latest statutory plan, the intersection of Ma Tau Wai Road and Fat Kwong Street is already zoned as residential area with a height restriction of 100 meters. This means that Ma Tau Wai Redevelopment Project will not involve any re-zoning of land use nor relaxation of height restriction and hence it is highly foreseeable that the Ma Tau Wai Redevelopment Project will be carried out eventually and it is just a matter of time that the wall building effect of the area will be worsened. This factor should be taken into consideration when evaluating the impact of the proposal development of Senior Citizen Residences.

I also express doubt and concerns as to the timing of the proposal released by HKHS and the unfairness caused to recent buyers of La Lumiere. As you may understand, La Lumiere was sold out in March 2015. Coincidentally, the proposal was released by HKHS in May 2015, which is shortly after the sale. Given the level of details (there are concrete designs of the appearance of the Senior Citizen Residence in the proposal) and depth of the proposal that HKHS has made, I strongly believe that HKHS had already begun its feasibility studies on the proposal way before the sale of La Lumiere. If this is the case, I seriously wonder why HKHS did not inform the public and more importantly, potential buyers, of its plan prior to the sale of La Lumiere but only shortly after such sale. Given the close proximity of the Land to La Lumiere, all potential buyers must have carried out due diligence on the neighbourhood and known that the height restriction on the Land is 10 storeys. There is a legitimate expectation of all the buyers of La Lumiere that any future development of the Land will only have minimal impact on the noise, air flow, view and land value of its own property due to the zoning and height restriction. Any

9. Why didn't HKHS make any announcement on its studies or at least, inform Cheung Kong Property Development Limited before the sale of La Lumiere?
10. Is it possible that the developer may have already known there is such plan undergoing? Are there any insider information, mis-selling or breaches of the Residential Properties (First-hand Sales) Ordinance?

I write to alert you that I object to the building of such intended residence by the HKHS. Before writing this letter, I have also contacted and consulted a few other buyers of La Lumiere who are in general agreement with this letter and we are going to object to the project of HKHS vigorously. In fact, I believe that my view above does not only represent my personal view but the views of many other interested parties who live in the district. As a District Council member we believe that you have the duty to listen to views from different interested parties of the district on such proposal of intended residence. On behalf of the buyers of La Lumiere, I am keen to know the District Council's responses to the above and the proposed actions which you would take. Should you have any responses, please kindly send it to the email address: **lalumierehk@gmail.com**.

We appreciate your full attention on this matter and look forward to learning your feedback very shortly.

Yours faithfully,

Mr. Tang Chun On

future rezoning and relaxation of the height restriction of the Land pursuant to HKHS's proposal will cause injustice to all recent buyers of La Lumiere and any such decisions are amenable to potential judicial review challenges. I also wonder if Cheung Kong Property Development Limited would have already known of the fact that HKHS had been undergoing such proposal before the sale and there could potentially be mis-selling or potential breaches of the Residential Properties (First-hand Sales) Ordinance.

I believe that there are many other pieces of in Hung Hom or nearby districts land (e.g. the empty land near Harbour Place or Harbourfront Horizon All-Suite Hotel) where it is more suitable for the Senior Citizen Residences to be built and possibly with less impact to the neighborhood.

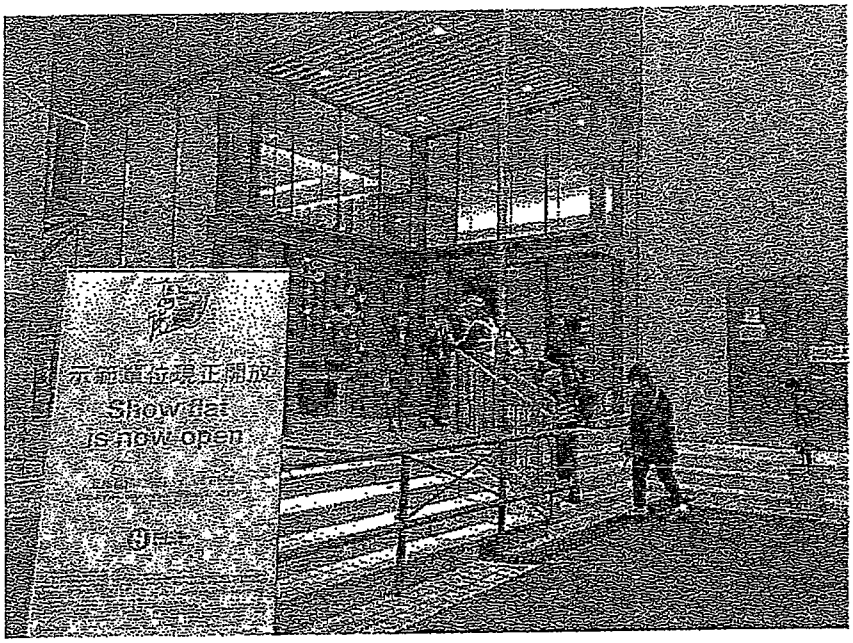
In light of the above, as an interested stakeholder in the area, there are quite a number of important questions to be asked. Subject to your valuable views, appropriate follow-up actions and responses may be required from relevant authorities.

1. What is the current status of the proposed project? What steps and procedures will it need to go through? What is the proposed timeline?
2. According to the news report, the HKHS had already submitted the proposal to the Kowloon City District Council for its considerations. What are the purposes of such submission to the Kowloon City District Council? What actions will Kowloon City District Council take?
3. How is the Kowloon City District Council going to find out the views of the interested parties and reach out to those living nearby? Will there be any public consultation and public participation in the process? What is the timeline for this public consultation process?
4. On what basis will the Kowloon City District Council makes its decision? Will it represents the residents living nearby?
5. Will the approval of Town Planning Board be required in the re-zoning? Will the Town Planning Board take into account the views of the Kowloon City District Council?
6. How long has the HKHS begun its studies on this project? I assume that such a big project can take up to a few months.
7. Why does HKHS think the Land is an appropriate venue for the construction of the Senior Citizen Residence?
8. What factors have HKHS taken into account when making such a proposal? In particular, have they taken the Ma Tau Wai Redevelopment Project into account?

Attachment 2

嵩悅收393申請 195單位"無人吼"

2015-12-23 02:55:22 | 大公網



圖：房屋協會富貴長者屋"嵩悅"昨日截止申請\資料圖片

【大公報訊】記者曾敏捷報道：房屋協會富貴長者屋"嵩悅"昨日截止申請，共收到393份申請，即使全數認租，仍剩33%即195個單位"無人吼"，稍後會以"先到先得"形式招租。前長策會成員、公屋聯會主席王坤估計，"嵩悅"租住權賣貴、市場租住房屋選擇多以及近期美國加息等都影響認租反應，認為房協往後應集中資源發展資助房屋。

單身申請佔68%

房協首個非資助長者屋"嵩悅"昨日中午截止申請，共收到393份申請表。申請者平均年齡為72歲，其中65歲至79歲人士約佔六成，而申請者以單身人士較多，佔68%。

房協行政總裁兼執行總幹事黃傑龍表示，在示範單位開放期間，共錄得逾1.3萬名市民參觀，反映市場有一定需求，但由於"嵩悅"是個嶄新的優質長者房屋項目，市場需要較長時間瞭解，認為申請數字屬預期之內。

房協將於下月五日以電腦抽籤方式，決定揀選單位的先後次序，預計於農歷年後開始按先後次序邀請申請人揀選單位，及安排視察所揀選的單位。準租户可於確定單位後的10個工作天內簽訂租約及服務合約，同時繳付所需費用。"嵩悅"共有588個單位，全部只租不賣，住户須先繳付租住權費，可以終身租約形式入住。房協將按申請者年齡、單位市值租金、面積等釐定租住權費，租住權費由最平172萬元至高達1958萬元不等。

前長策會成員、公屋聯會主席王坤認為，計劃反應與房協最初預期有落差，估計與"嵩悅"的租住權賣貴、市場租住房屋選擇多以及近期美國加息都有影響，"現在酒店式住宅選擇多，加上美國加息市場預期樓市下調，?人諗諗?，可能寧願買樓"，他認為房協往後應集中資源發展資助房屋。

責任編輯：大公網

Attachment 3

2015年05月28日

房協擬紅磡再建長者屋

繼牛頭角彩頤居後，房協推出第3個「長者安居樂」項目。資料圖片

【本報訊】房協計劃推出第3個資助長者屋項目，將落戶於九龍紅磡利工街，提供307個單位，單位實用面積由260多平方呎至480多平方呎不等，並提供有44個床位的護理安老院舍。九龍城區議員任國棟料計劃會受歡迎，但認為地盤位處消防局旁，擔心對低層住戶有影響，亦希望房協不會將管理費訂得太高。

只需一筆過付費租住

九龍城區議會下月初討論有關項目，根據房協資料，項目是繼將軍澳樂頤居及牛頭角彩頤居後，房協第3個「長者安居樂」項目，屬資助性質的長者屋，可為60歲或以上、有能力獨立生活的長者，以長期租約形式提供單位，只需繳付一筆過費用，毋須再付任何租金便可入住單位，但需要交管理費。

項目擬建於利工街一個停車場，地盤面積約1.8萬多平方呎，大廈樓高32層，建307個單位，約52%單位屬370多平方呎的一房單位，四成為面積約260多平方呎的開放式單位，其餘為480多平方呎兩房單位。大廈亦設護理安老院、復康中心及醫療中心等設施。房協計劃在諮詢區議會後，再向城規會申請將該幅政府、機構或社區用地改劃為住宅（甲類）用地，並申請放寬高度限制。

記者鍾雅宜

上一則
張大千《雲山居隱》估值2,200萬

下一則
鳩鳴乜乜乜：老來要尊嚴　先儲500萬

1 2 3

04:55pm
04:46pm
04:40pm 【李八方online】
449
04:27pm
1,063
04:23pm 「立春」天氣
2,951
04:18pm
3,706
03:54pm
2,208
03:52pm

影片 即時 要聞 娛樂 國際 財經 果籽 副刊 賽馬

Attachment 3

紅磡2020年推長者屋

【本報訊】房屋協會第三個長者安居樂住屋項目選址紅磡利工街，房協行政總裁兼執行總幹事黃傑龍昨表示，有關計劃已獲運輸及房屋局、九龍城區議會支持，明年首季將向城市規劃委員會提出規劃申請，有望於二〇二〇年推出三百個單位。

房協擬將紅磡一幅「政府、機構或社區用地」改劃為住宅用途，興建第三個長者安居樂住屋計劃，擬建的大廈樓高約卅四層，其中高層為兩房單位，面積約四百多平方呎，共有二十五個；中低層則為三百多平方呎一房單位，佔一百六十個；另有約一百二十二個面積約二百多平方呎的開放式單位。

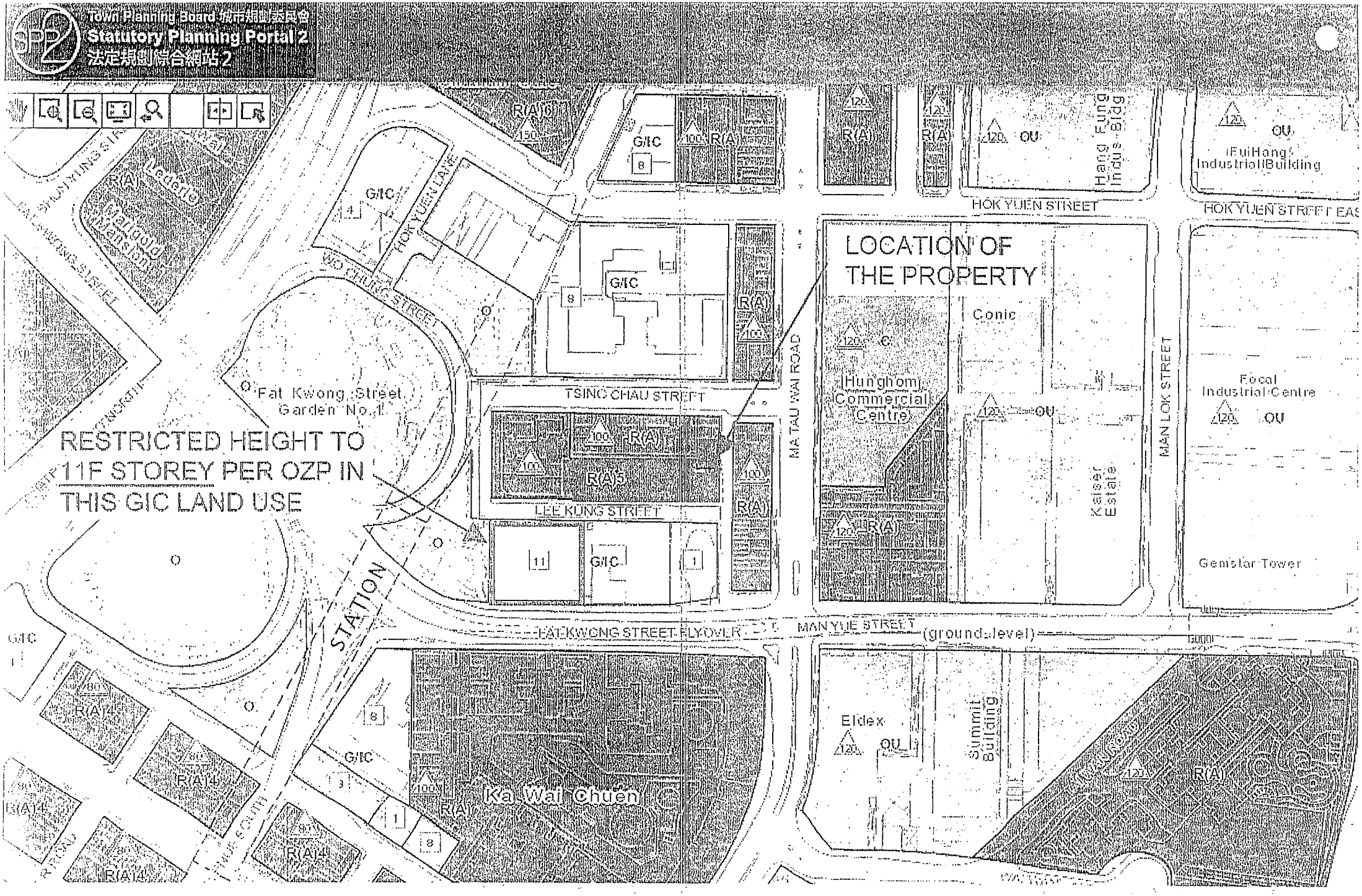
房協暫未有類似「喬悅」項目

另外，房協位於北角丹拿山的首個非資助富貴長者屋「喬悅」，上周二起以現樓方式接受六十歲或以上香港居民申請租住，黃傑龍表示，「喬悅」累計收到一百五十三份申請，暫未再有同類的項目，要視乎今次反應再行決定。

現時房協有二十個出租屋邨，黃傑龍指八個屋邨樓齡逾四十年，房協計劃分階段重建及復修。房協明年首季將與房屋委員會合併推出資助出售房屋，申請資格將與房委會相同，但價格較高。

上一則：電動巴自焚 調查需10日

下一則：疑受賣債 21歲女吊頸亡



THE OUTLINE ZONING PLAN STATUTORY PLANNING

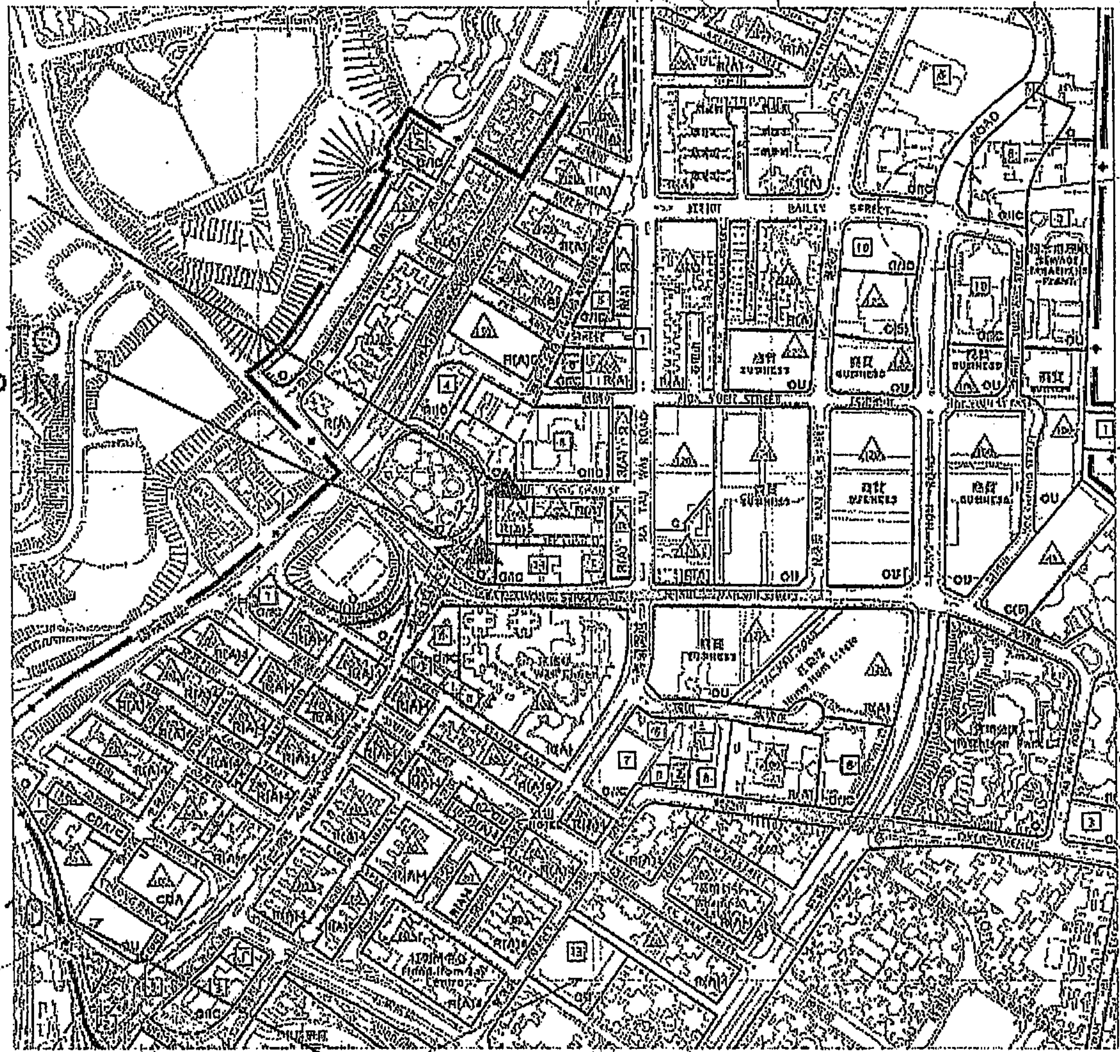
關乎發展項目的分區計劃大綱圖 OUTLINE ZONING PLAN RELATING TO THE DEVELOPMENT

LOCATION OF THE PROPERTY

RESTRICTED HEIGHT TO 11F STOREY PER OZP IN THIS GIC LAND USE

◎ 此地帶位於發展項目界線500米範圍以外，並納入尖沙咀(九龍規劃區第1區)分區計劃大綱核准圖編號S/K1/28。
The area falls outside 500 metres from the boundary of the Development and is covered by the approved Kowloon Planning Area No.1 - Tsim Sha Tsui Outline Zoning Plan No.S/K1/28.

OZP NO. S/K9/24 WAS GAZETTED ON 15/10/2010

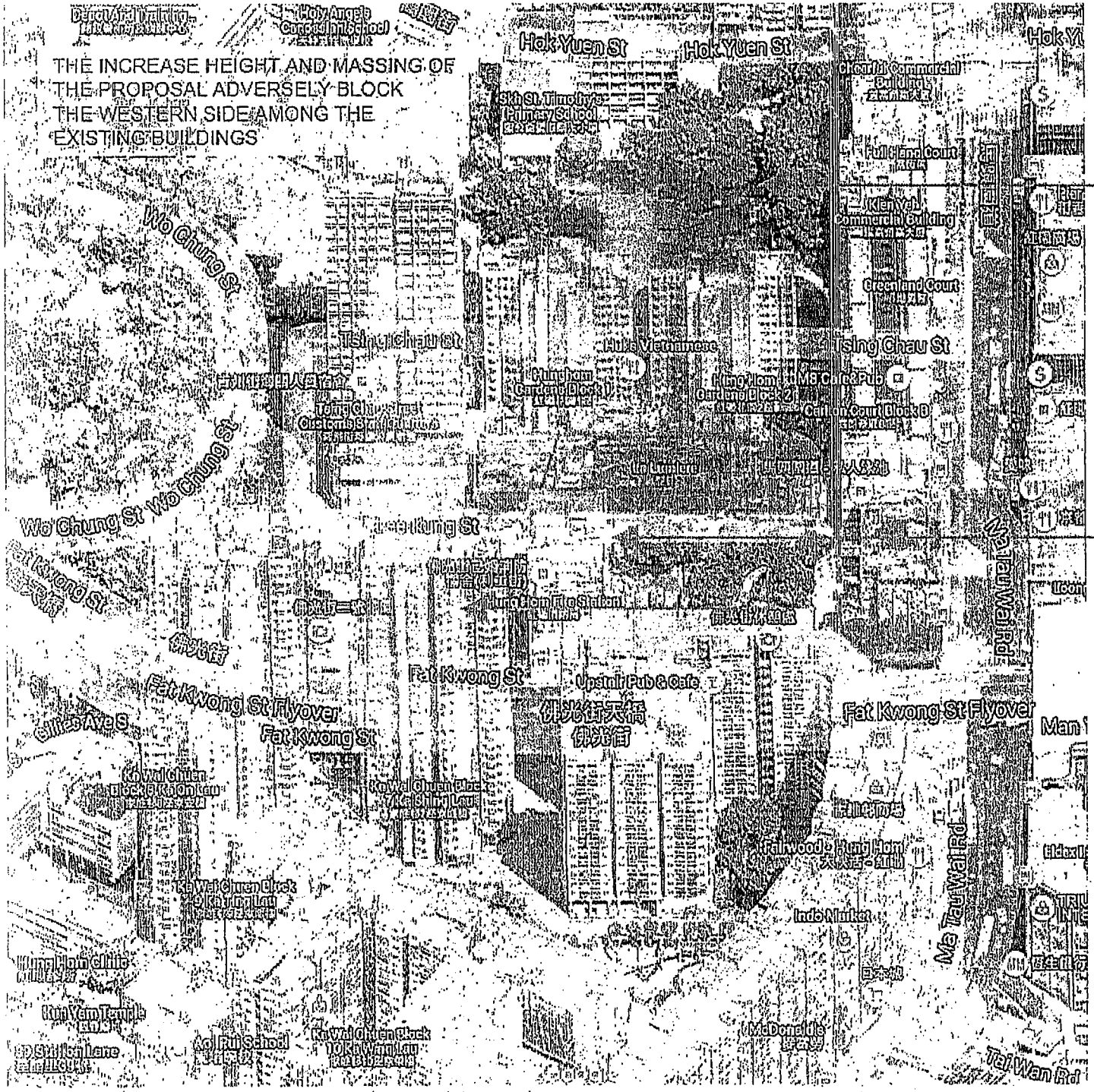


圖例 NOTATION

地帶		ZONES
商業	C	COMMERCIAL
綜合發展區	CDA	COMPREHENSIVE DEVELOPMENT
住宅(甲類)	R(A)	RESIDENTIAL
住宅(乙類)	R(B)	RESIDENTIAL
政府、機構或社區	G/IC	GOVERNMENT OR COMMUNITY
休憩用地	O	OPEN SPACE
其他指定用途	OU	OTHER SPECIFIED
未決定用途	U	UNDETERMINED
交通		COMMUNICATIONS
鐵路及車站(地下)		RAILWAY AND (UNDERGROUND)
主要道路及路口		MAJOR ROAD
高架道路		ELEVATED ROAD
其他		MISCELLANEOUS
規劃範圍界線		BOUNDARY OF SCHEME
建築物高度管制區界線		BUILDING HEIGHT ZONE BOUNDARY
最高建築物高度(在主水平基準上若干米)	80	MAXIMUM BUILDING HEIGHT (IN METRES ABOVE DATUM)
《註釋》內訂明最高建築物高度限制	★	MAXIMUM BUILDING HEIGHT RESTRICTION ON THE NOTES
最高建築物高度(樓層數目)	8	MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)

摘錄自憲報公佈日期為2010年10月15日之紅磡(九龍規劃區第9區)分區計劃大綱核准圖編號S/K9/24。
Extracted from approved Kowloon Planning Area No.9 - Hung Hom Outline Zoning Plan No. S/K9/24 gazetted on 15th October 2010.

THE OUTLINE ZONING PLAN SHOWN IN SALE BROCHURE (FEB 2015)

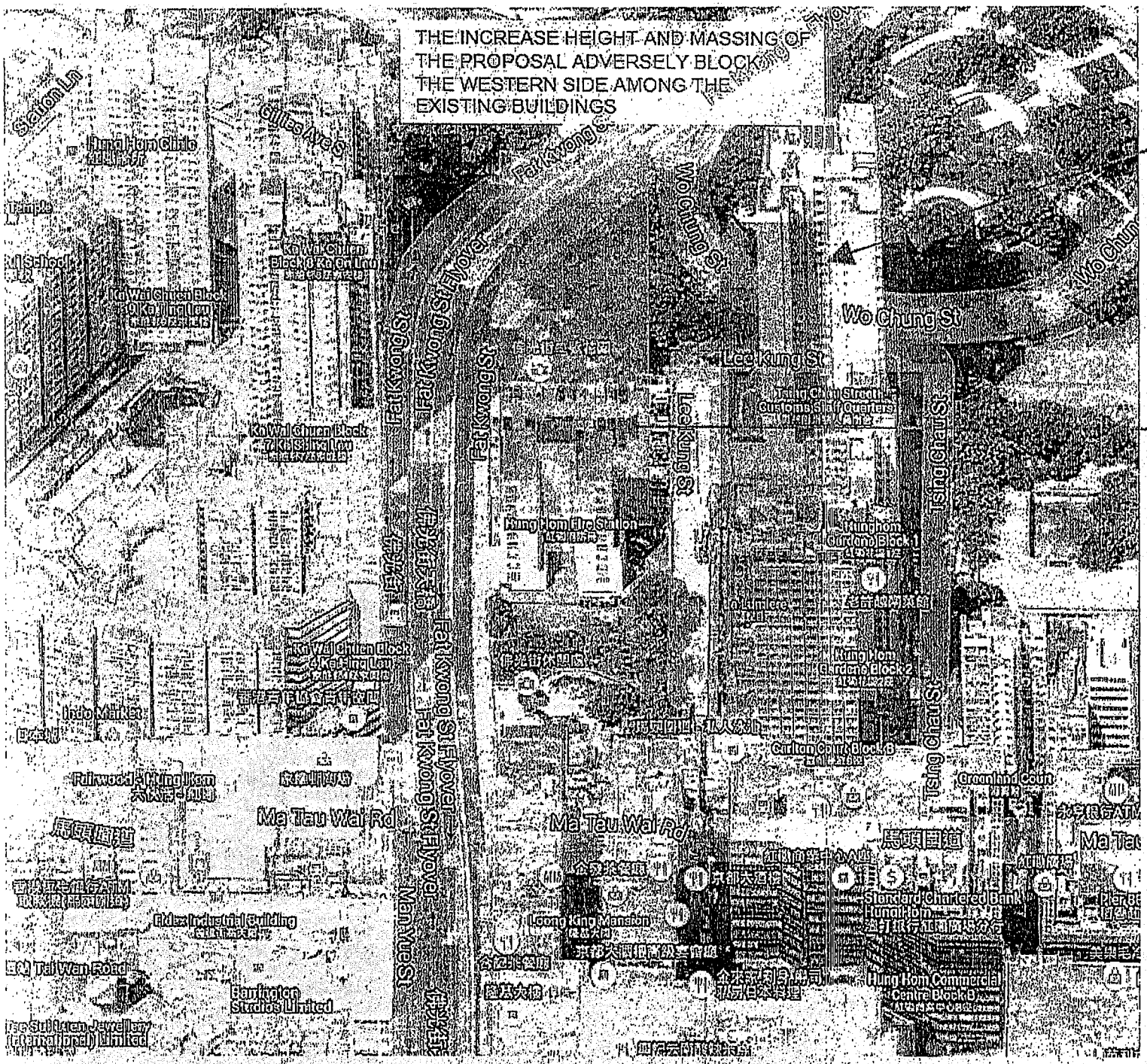


LOCATION OF THE PROPERTY AND PERMITTED HEIGHT TO MAXIMUM 100M.

RESTRICTED HEIGHT TO 11F STOREY PER OZP IN THIS GIC LAND USE. THE OZP NO. S/K9/24 WAS GAZETTED ON 15/10/2010. THE HEIGHT OF BUILDING SHOULD NOT BE HIGHER THAN THE EXISTING FIRE STATION WITH THE SAME 11F HEIGHT RESTRICTION.

THE PROPOSED RELAX-ATION ON THE BUILDING HEIGHT TO 34F AND 100M (THE PINK PORTION) WILL ADVERSELY AFFECT THE SURROUNDING BUILDING ENVIRONMENT AND PUBLIC INTERES WHICH SHOULD BE OBJECTED.

THE HEIGHT RESTRICTION TO GIC LAND IN OUTLINE ZONING PLAN



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THE HEIGHT RESTRICTION TO GIC LAND IN OUTLINE ZONING PLAN

Extract of the Minutes of HIC KCDC Meeting on 4.6.2015

九龍紅磡利工街的擬建長者房屋發展計劃
(九龍城房建會文件第33/15號)

4. 香港房屋協會總經理(物業策劃及發展)曾德明先生就九龍紅磡利工街的擬建長者房屋發展計劃諮詢委員意見。他指出香港房屋協會(下文簡稱「房協」)積極發展多項房屋計劃，以滿足不同階層的住屋需要。鑑於未來長者人口將持續上升，及現時本港缺乏具完善醫護服務的長者住屋供應，房協建議於九龍紅磡利工街地興建「長者安居樂」住屋單位，為六十歲或以上，有能力獨立生活的長者提供配備康樂、醫療，以及護理及復康綜合服務的住屋，讓他們享有可以負擔的安老生活，在非院舍環境下讓長者「居家安老」。該計劃的單位以「長期租約」形式推出，長者在繳付「租住權費」後即可租住單位，其後毋需再付任何租金，他們只需繳交管理費，當中已包含基本服務，長者亦可以用者自付原則享用營辦商提供的護理或醫療服務。擬建大樓除提供約300個單位外，並會包含安老院、復康及醫護服務等設施，以服務住客及支援區內長者。房協將向規劃署提交就分區計劃大綱圖的改劃建議，把現有的「政府、機構或社區」地帶改劃為「住宅(甲類)」地帶，並放寬現有的建築物高度限制至主水平基準以上 110 米。若有關改劃建議獲得城市規劃委員會(下文簡稱「城規會」)同意，有關大綱圖會根據城市規劃條例作出修訂。

5. **蕭妙文議員**表示支持房協提出的「長者安居樂」住屋計劃，惟他建議將申請入住該住屋計劃的門檻降低，以照顧經濟能力較低的長者。

6. **楊永杰議員**指出於會議前收到市民來信，表示反對「長者安居樂」住屋計劃。他表示支持將有關用地改劃為「住宅(甲類)」用途，惟他關注有關計劃的需求、「租住權費」的釐定，以及解決噪音問題的方法。此外，他建議房協考慮於該地段興建夾心階層房屋。

7. **蕭婉嫦議員**表示支持興建長者房屋計劃，惟她希望房協能夠將「租住權費」降低，幫助經濟能力較低的長者。此外，她建議增加擬建護理安老院床位的數目。

8. **鄭利明議員**表示中產人士面對持續低利息的情況，經濟能力不斷下滑，政府的房屋政策不應只向低層傾斜，故他支持房協推行「長者安居樂」住屋計劃，幫助中產長者安享晚年。惟他擔心在人均壽命不斷延長的情況下，房協需承擔虧損。此外，他建議房協申請提高該地段的地積比率，增加單位數目及優化服務，以應付不同長者的需要。

9. **黃以謙議員**表示支持「長者安居樂」住屋計劃，認為該計劃可實踐「家居養老」的概念。

10. **勞超傑議員**反對「長者安居樂」住屋計劃，指出房協為推廣社區和諧及「長幼共融」，鼓勵子女照顧家中長者，推出「三代同堂長幼共融居住計劃」，但由於家維邨沒有足夠單位，輪候的住戶數目因而不斷增加。而「長者安居樂」住屋計劃與「三代同堂長幼共融居住計劃」目的實質相近，皆為讓區內長者在選擇獨立生活之餘，亦有機會靠鄰子女及其他家庭成員，方便相互照顧。勞議員指出由於政府只向房協象徵式收取一千元作地價，有關項目並非全由房協出資，因此應該將家維邨側的利工街地段用作興建公共房屋。他表示倘若房協同意將一定「長者安居樂」住屋計劃單位撥作紓緩「三代同堂長幼共融居住計劃」，會再考慮是否支持該計劃。

11. **任國棟議員**對房協提出的「長者安居樂」住屋計劃有保留，認為相對於中產長者，基層長者多年來飽受輪候安老院舍宿位的苦況，故他建議房協增加護理安老院床位數目或考慮以自負盈虧的方式營辦安老院舍。此外，他查詢規劃署對有關計劃的意見。

12. **潘志文議員**關注該項目將面對的噪音問題，居住在大廈內的長者將深受影響。此外，他同意相對中產長者，基層市民的房屋需要更形迫切。

13. **莫嘉嫻議員**表示委員有責任就房協的有關計劃提出建議，包括優化設施，以照顧更多市民，故她不同意主席認為委員反對有關計劃，等於不支持照顧中產長者的論述。

14. **左匯雄議員**表示支持「長者安居樂」住屋計劃，照顧中產長者，惟他同意房協可探討增加單位數目，及提供更多服務的可行性。

15. **陸勁光議員**表示基於優次的原則，認為利工街地段應用作興建公共房屋，照顧市民的迫切需要。

16. **主席**查詢計劃對社區的裨益，並建議房協考慮給予九龍城區長者優先參加有關計劃的名額。

17. **規劃署高級城市規劃師/九龍2林秀霞女士**回覆，表示房協已獲得運輸及房屋局政策上的支持，而規劃署亦原則上支持該計劃，惟仍須審視有關技術層面的修訂。然而，署方會繼續致力協助相關部門尋找合適土地，以滿足社會上不同需要。

18. 香港房屋協會曾先生就相關的查詢/意見作出綜合回應，重點如下：

(一) 房協有不同類型的房屋計劃，以滿足不同階層長者的房屋需要，其申請資格和門檻各有不同。針對低收入階層的長者，房協提供出租屋邨及出租長者單位，並於轄下14條屋邨推行「樂得耆所」計劃，以及為有需要長者住户的單位加裝無障礙設施，並策動社區資源照顧長者在醫療護理的需要。

(二) 位於丹拿山的「雋逸生活」住屋計劃針對較高收入長者，並無資產限制。而「彩頤居」、「樂頤居」及利工街項目為「長者安居樂」住屋計劃，對象是中等收入長者服務，設有資產審查，租住權費亦相對較低。

(三) 根據香港大學的調查，「長者安居樂」住屋計劃普遍獲得長者支持。「彩頤居」及「樂頤居」所有單位已租出，等候名單已累積超過600個申請。房協會與政策局研究利工街項目的申請安排，及考慮議員的建議給予九龍城區長者優先參加計劃名額的可行性。

(四) 除住屋單位，該項目亦包括護理安老院、復康及醫護服務等設施，可支援區內長者。房協會研究優化項目設計，增加護理安老院床位數目。惟由於利工街地盤面積所限，可增加的床位數目仍屬有限。

(五) 房協得悉現時平均輪候安老院舍需時36個月，惟「長者安居樂」住屋計劃目的是延緩年老過程，避免長者提早入住安老院舍，故此住屋計劃的宗旨和目標以及對象與安老院舍有所不同。而且根據憲章，房協的使命主要是為市民提供房屋，並不能獨立營運安老院舍。

(六) 房協是獨立的非牟利機構，以自負盈虧的模式運作，將須承擔計劃可能帶來的虧損，惟房協仍會盡力達致項目的收支平衡。

19. 雅邦規劃設計有限公司高級規劃師/都市設計師葉倩雯女士回覆，指出房協已就計劃的交通流量、噪音緩解、空氣質素、綠化要求、建築物高度限制等議題，

諮詢相關政府部門，並已就有關建議和要求改動設計。此外，房協亦已因應佛光街的噪音問題，特別設定樓宇的方向，並採用最新的隔音窗戶。

20. 主席總結討論，指出有部分委員支持，亦有部分委員表示反對有關計劃。

21. 勞超傑議員要求規劃署如實向城規會反映委員的所有意見，不應將其作總結的形式匯報。

22. 經討論後，主席請秘書將會議記錄轉交規劃署，以向城規會反映。

Provision of Open Space and Major Community Facilities in Hung Hom Area

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Existing and Planned Provision	
Local Open Space	10 ha per 100,000 persons	13.05ha	12.84	14.52	+1.47ha
District Open Space	10 ha per 100,000 persons	13.05ha	6.14	11.58	-1.47ha
Sports Centre	1 per 50,000 to 65,000 persons	2	1	1	-1
Sports Ground/ Sports Complex	1 per 200,000 to 250,000 persons	1	0	0	-1
Swimming Pool Complex - standard	1 complex per 287,000 persons	0	1	1	+1
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24	2	3	3	+1
Integrated Family Services Centre	1 for 100,000 to 150,000 persons	1	1	1	0
Library	1 district library for every 200,000 persons	1	1	1	0
Special Clinic/ Polyclinic	1 whenever a regional or district hospital is built	Not Applicable (NA)	0	0	NA
Clinic/Health Centre	1 per 100,000 persons	2	2	2	0
District Police Station	1 per 200,000 to 500,000 persons	0	0	0	0

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Existing and Planned Provision	
Divisional Police Station	1 per 100,000 to 200,000 persons	1	0	0	-1
Post Office	Accessible within 1.2 Km in urban or within 3.2 Km in rural	NA	2	2	NA
Secondary School	1 whole-day classroom for 40 persons aged 12 -17	145 classrooms	85	115	-30 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6 - 11	209 classrooms	198	198	-11 classrooms
Kindergarten/ Nursery	26 classrooms for 1,000 children aged 3 to 6	61 classrooms	94	94	+33 Classrooms

Note:

1. The population of the Area in 2011 was about 126,300.
2. The planned population of the Area (including the rezoning proposals) would be about 130,550 (usual residents and mobile residents). This is the basis for assessment of open space. If transient population (e.g. tourists) is included, the figure would be about 153,690.
3. Planned provision includes existing provision and planned but not yet developed facilities.
4. Open space assessment is based on planned population of 130,550 persons.
5. Some facilities do not have set requirement under HKPSG, e.g. elderly facilities, community hall, study room, etc. They are not included in this table.
6. Some facilities are assessed on a wider district basis by the relevant departments, e.g. district open space, secondary school, primary school, sports ground. The shortfall in the OZP area could be addressed by the provision in the adjoining area within the Kowloon City District, subject to the assessment of concerned departments.
7. Some facilities do not require reservation of a standalone site, e.g. post office, kindergarten / nursery, and their shortfall is to be handled by concerned departments.

勞超傑 律師 信箋

九龍城區議會民選議員(家維區)
Kowloon City District Councillor (Ka Wai District)

Mr. Frank LO Chiu-Kit

Unit1, UG/F, Hung Sing House, Hung Hom Estate, Hung Hom, Kowloon.
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Attachment IX of
MPC Paper No. 15/16

九龍城區區議會轄下
房屋及基礎建設委員會
何顯明主席：

有關:查詢房協擬於紅磡利工街興建「富貴」長者屋的最新情況

早前房協表示擬於紅磡利工街興建一棟備有安老院及相關院舍服務的「富貴」長者屋，其對象為一些擁有一定數目資產的中產長者。有鑒於房協最近於北角推出類似項目的租務情況反映欠佳，本人欲查詢房協會否重新檢討擬於利工街興建「富貴」長者屋的項目。

就有關事宜，本處要求有關當局派代表出席會議交代上述事宜進展及最新情況，及以期就上述利工街土地的用途進行討論。

九龍城區議會
家維區民選區議員
勞超傑議員
2016年6月7日

HONG KONG
HOUSING SOCIETY
香港房屋協會

本函檔號: PT/ML/LKGS-PP/ay

九龍城區區議會轄下
房屋及基礎建設委員會
何顯明主席

何主席：

有關查詢房協擬於紅磡利工街興建資助長者房屋的最新情況

九龍城區議會轄下房屋及基礎建設委員會秘書處，於本年六月八日將勞超傑議員就紅磡利工街資助長者房屋項目的查詢轉交香港房屋協會(“房協”)。現房協就有關查詢謹覆如下：

房協擬於紅磡利工街興建的長者房屋發展計劃是屬於房協「長者安居樂」住屋計劃下，繼將軍澳「樂頤居」和牛頭角「彩頤居」後的第三個資助長者房屋項目，它與位於北角丹拿山的非資助長者房屋項目實屬不同類型的計劃。兩者的重要差別之處是利工街項目屬於資助性質，房協只需向政府支付象徵式地價，項目的對象是中產長者，申請人須通過資產審查以確保符合規定的限制；至於丹拿山項目則屬非資助性質，房協須付十足市值地價，而項目的對象是較具經濟能力的長者，對於申請人並無資產限制。

關於租住權費方面，由於利工街的長者房屋屬資助性質，故其租住權費須由政府審批，而丹拿山項目因屬非資助性質，租住權費毋需政府審批，有關費用亦當較資助項目為高，兩者不可相提並論。

擬發展的利工街資助長者房屋項目，與房協的「彩頤居」及「樂頤居」屬同一性質的資助長者房屋項目。該兩個項目於過去多年的入住率均為100%，現時約有700個輪候申請，平均輪候時間為五年。由於「長者安居樂」住屋計劃需求殷切，故此房協希望利工街規劃申請能盡快審批。根據進度，該項目預計於2016年第四季向城規會提出申請修改紅磡分區計劃大綱核准圖。

如 貴委員會尚有任何查詢，歡迎來函房協。

香港房屋協會
總經理(物業策劃及發展)

曾德明

曾德明

二零一六年六月十五日

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KOWLOON CITY DISTRICT COUNCIL
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城市規劃委員會主席
黃偉綸先生, J.P.

黃先生:

反對房協擬於紅磡利工街發展「長者安居樂」住屋計劃

本人謹代表九龍城區議會轄下房屋及基礎建設委員會(下文簡稱「房建會」) 就香港房屋協會(下文簡稱「房協」)擬於紅磡利工街發展「長者安居樂」住屋計劃，向城市規劃委員會反映議員的意見。

房建會於 2016 年 6 月 23 日舉行的第 4 次會議上，就房協擬向貴 委員會申請將九龍紅磡利工街，由「政府、機構或社區」用地改劃為「住宅(甲類)」用途，以發展「長者安居樂」住屋計劃作出討論。在會議上，多位議員表示反對上述項目，並要求將該幅由政府資助的土地用作興建公營房屋。

隨函附上有關的會議記錄摘要，以供參閱。

九龍城區議會轄下
房屋及基礎建設委員會主席

何顯明

2016 年 8 月 25 日

九龍城區議會轄下
房屋及基礎建設委員會第4次會議記錄摘要

日　期：2016年6月23日(星期四)
時　間：下午2時30分
地　點：九龍城民政事務處會議室
出席者：
主　席：何顯明議員, MH
副主席：吳奮金議員
委　員：鄺葆賢議員
梁婉婷議員
左滙雄議員　(於下午3時22分出席)
鄭利明議員　(於下午5時19分離席)
勞超傑議員　(於下午2時53分出席)
林德成議員　(於下午3時00分出席)
林博議員　(於下午3時03分出席)
余志榮議員　(於下午3時00分出席)
楊振宇議員　(於下午5時28分離席)
何華漢議員
楊永杰議員
關浩洋議員
張仁康議員, MH　(於下午5時27分離席)
黎廣偉議員
李慧琼議員, JP　(於下午2時52分出席)
(於下午4時53分離席)
蕭亮聲議員　(於下午5時00分離席)
邵天虹議員
吳寶強議員　(於下午3時15分出席)
(於下午4時08分離席)
潘國華議員

秘　書：葉偉剛先生　九龍城民政事務處一級行政主任(區議會)

缺席者：陸勁光議員

有關:查詢房協擬於紅磡利工街興建「富貴」長者屋的最新情況
(九龍城房建會文件第50/16號)

勞超傑議員簡介文件第50/16號，並希望香港房屋協會(下文簡稱「房協」)解釋「資助性質」及「非資助性質」長者房屋項目的具體分別，以及考慮本港在現時缺乏土地的情況下，是否仍然適合推出利工街的長者房屋項目。

2. 香港房屋協會高級經理(物業策劃及發展)李志昌先生回應，簡介「資助性質」及「非資助性質」項目之分別，並指出房協的房屋項目針對不同的服務對象。公營房屋主要服務低收入長者，而利工街的項目則希望照顧中產長者的住屋需要。面對人口老化問題，預計於2030年，每4名香港人有1位為65歲以上的長者，應對他們的房屋需求亦十分殷切。「資助性質」的長者房屋目前仍有700名長者輪候申請，即使加入利工街項目約300個單位亦不足以應付未來的需求，故希望委員支持房協推行上述「資助性質」長者房屋項目。

3. 勞超傑議員提出以下意見/查詢：(一) 垂詢申請入住「資助性質」長者房屋項目的入息及資產限制；(二) 樂頤居及彩頤居同樣為「資助性質」長者房屋，要求房協提供有關的租金水平；(三) 現時長者輪候公營房屋的時間比輪候「資助性質」長者房屋的時間更長；以及(四) 基層市民較中產長者更需要公營房屋，故房協應將由政府資助的利工街地段用作興建公營房屋，以協助社會上最有需要的人士，並優先照顧正輪候調遷的家維邨現有住戶。

4. 楊永杰議員指出房協位於北角丹拿山的長者房屋項目因租務情況欠佳，需不斷放寬其租住權費用上限。他又表示雖然「資助性質」長者房屋目前的輪候長者數目達700人，但由房協無法確認最終的實際入住數目，珍貴的土地資源可能因此被浪費，故建議利用該地段興建公營房屋，紓緩現時區內的擠迫戶輪候調遷情況。

5. 邵天虹議員指出真善美邨亦因缺乏公屋單位，積壓大量的輪候上樓及等待調遷申請，房協作為半公營機構，應該將由政府資助的利工街土地用作興建公營房屋。

6. 林德成議員表示房協在北角丹拿山的長者房屋銷情不佳，社會普遍認為「非資助性質」長者房屋不具迫切性，故希望房協集中興建公營房屋，為低下階層提供可負擔的居所。並特別為居住在舊樓及劏房的長者改善居住環境。

7. 香港房屋協會李志昌先生回覆，指出房協設有不同的項目應對社會上不同階層的住屋需要，部分不符合公營房屋申請資格的舊樓業主，可利用逆按揭計劃進入「資助性質」的長者房屋項目，以改善居住環境。此外，房協已備悉委員提出的意見。

8. 勞超傑議員指出房協即將向城規會遞交修改紅磡分區計劃大綱草圖申請，推展利工街的長者房屋項目，故建議以房建會名義致函城規會及運輸及房屋局，表達房建會反對此項目，並要求將該幅由政府資助的土地用作興建公營房屋。

9. 經討論後，委員會同意勞超傑議員的建議。主席要求秘書處於稍後作出跟進。

DESIGN INTENT DRAWING

(SUBJECT TO REVISIONS PER REQUIREMENTS UNDER STATUTORY CONTROL AND ANY LEASE CONDITIONS)
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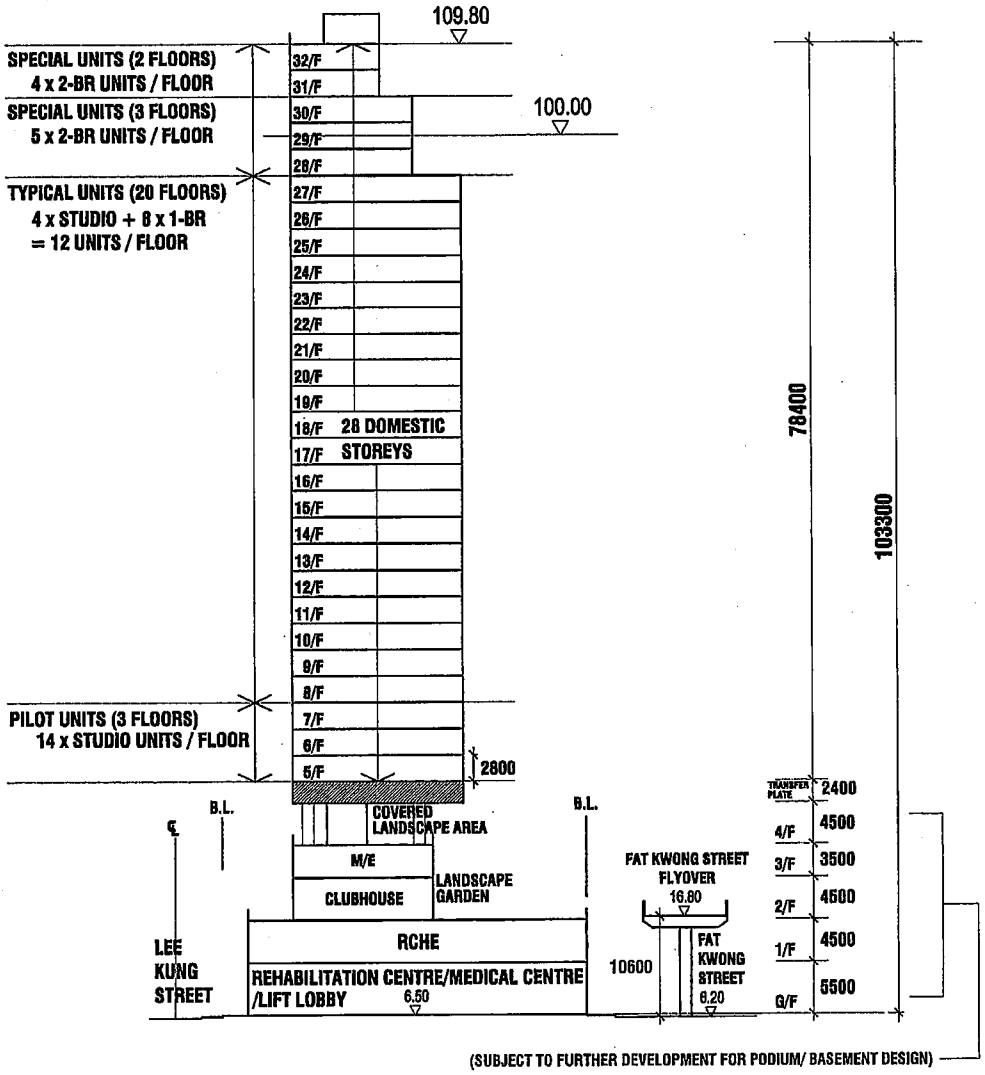
2015-07-07

58 NOS OF BED SCHEME



DEVELOPMENT PARAMETER

	PROVIDED
SITE AREA	1,680m²
SITE CLASSIFICATION	-
PLOT RATIO DOMESTIC NON-DOMESTIC	 7.44 1.05
GFA DOMESTIC NON-DOMESTIC CLUBHOUSE	 12499 1764 2.4% / 300m²
SITE COVERAGE	490.911m² < 559.944m² 33.33% / 559.944m² (DOMESTIC > 61M)
MAX. BUILDING HEIGHT	109.80 MPD (2.8M/ FLOOR)
FLAT MIX	NO. %
STUDIO	122 40.0%
1-BEDROOM	160 52.5%
2-BEDROOM	23 7.5%
	305 100%

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SCHEMATIC SECTION

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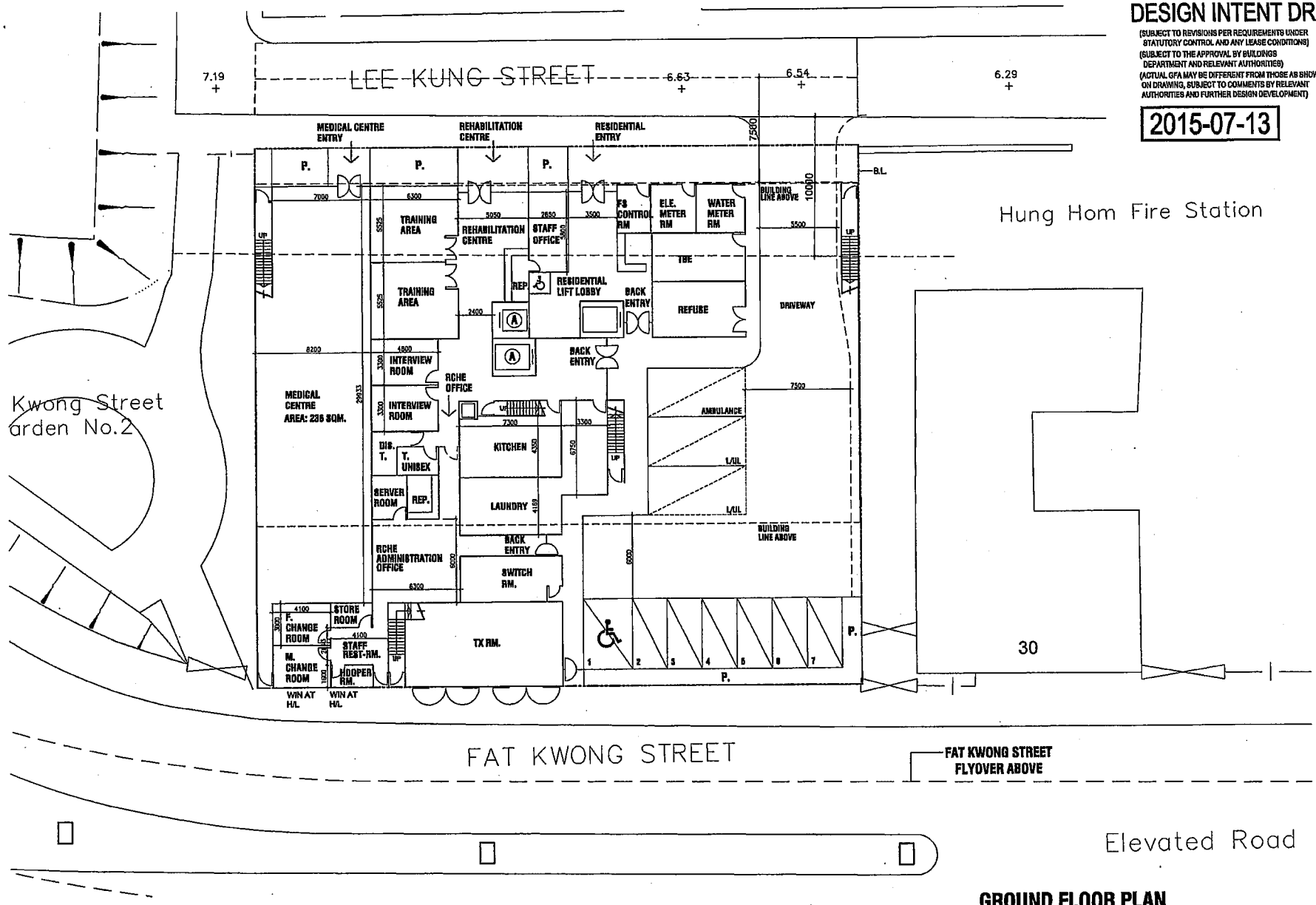
(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	1



DESIGN INTENT DRAWING

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(SUBJECT TO THE APPROVAL BY BUILDINGS DEPARTMENT AND RELEVANT AUTHORITIES)
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2015-07-13

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

GROUND FLOOR PLAN

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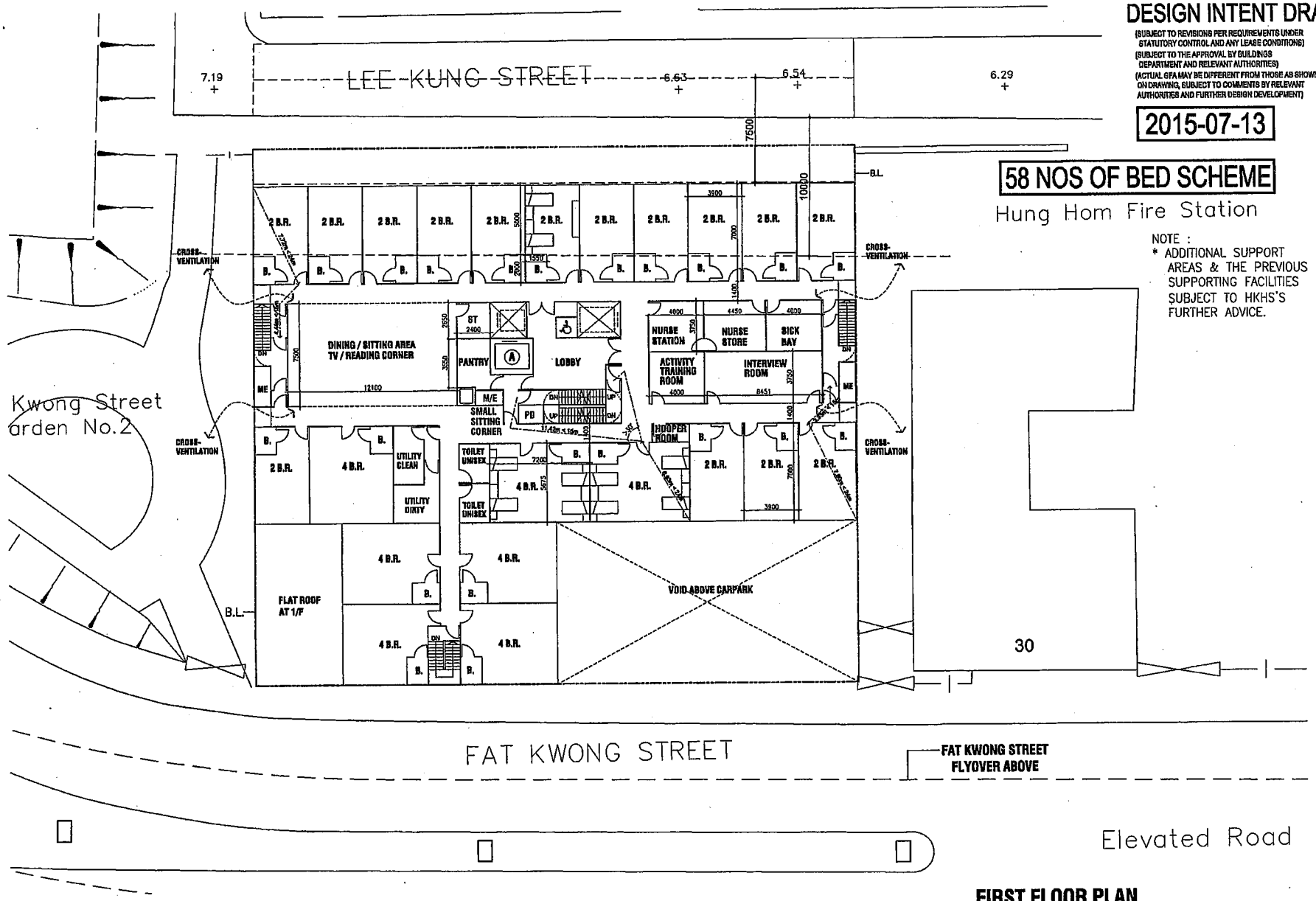
(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	2



DESIGN INTENT DRAWING

(SUBJECT TO REVISIONS PER REQUIREMENTS UNDER STATUTORY CONTROL AND ANY LEASE CONDITIONS)
(SUBJECT TO THE APPROVAL BY BUILDINGS DEPARTMENT AND RELEVANT AUTHORITIES)
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2015-07-13

58 NOS OF BED SCHEME

Hung Hom Fire Station

NOTE :
* ADDITIONAL SUPPORT AREAS & THE PREVIOUS SUPPORTING FACILITIES SUBJECT TO HKHS'S FURTHER ADVICE.

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

FIRST FLOOR PLAN

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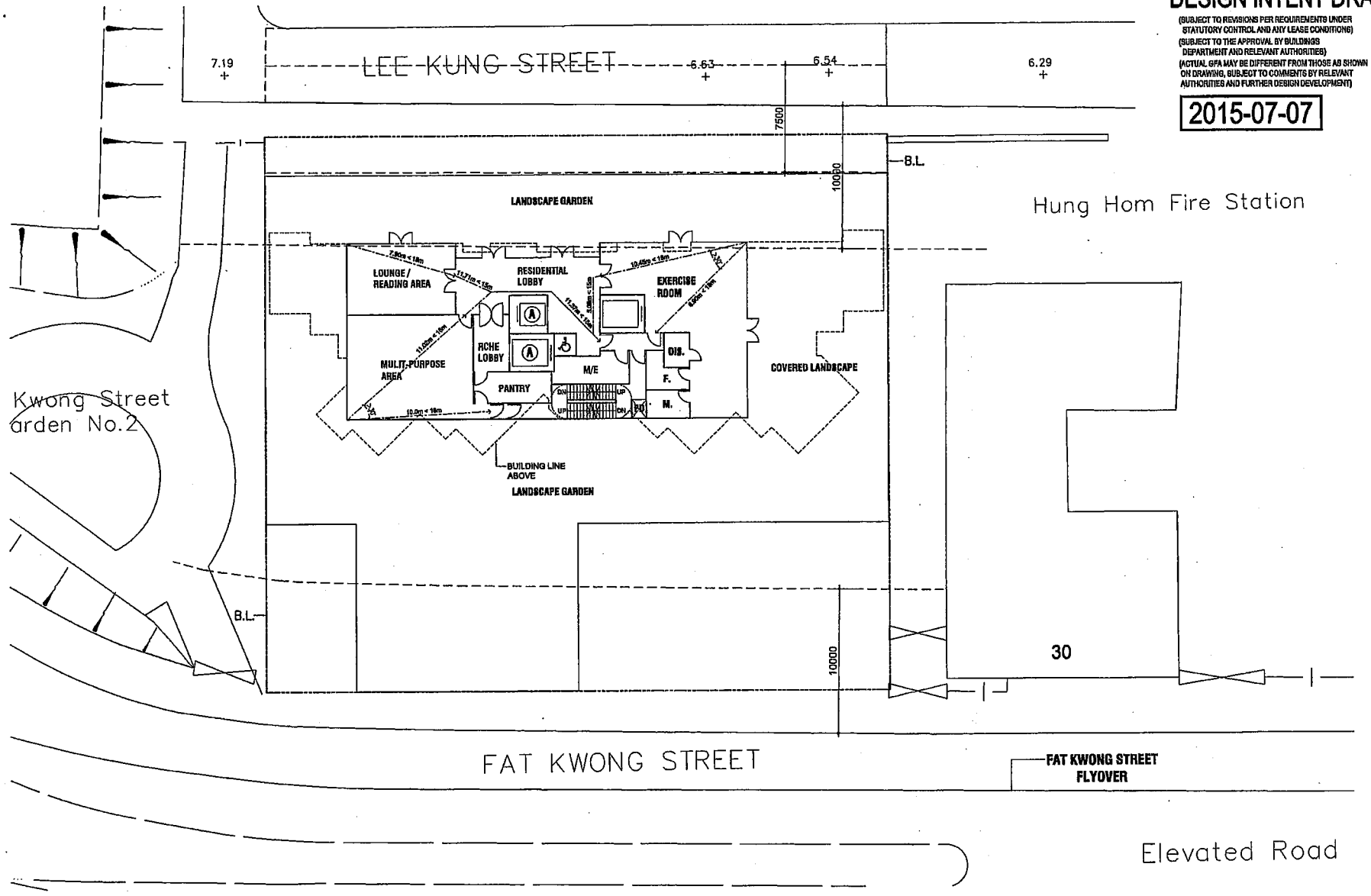
(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	3



FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	4

DESIGN INTENT DRAWING

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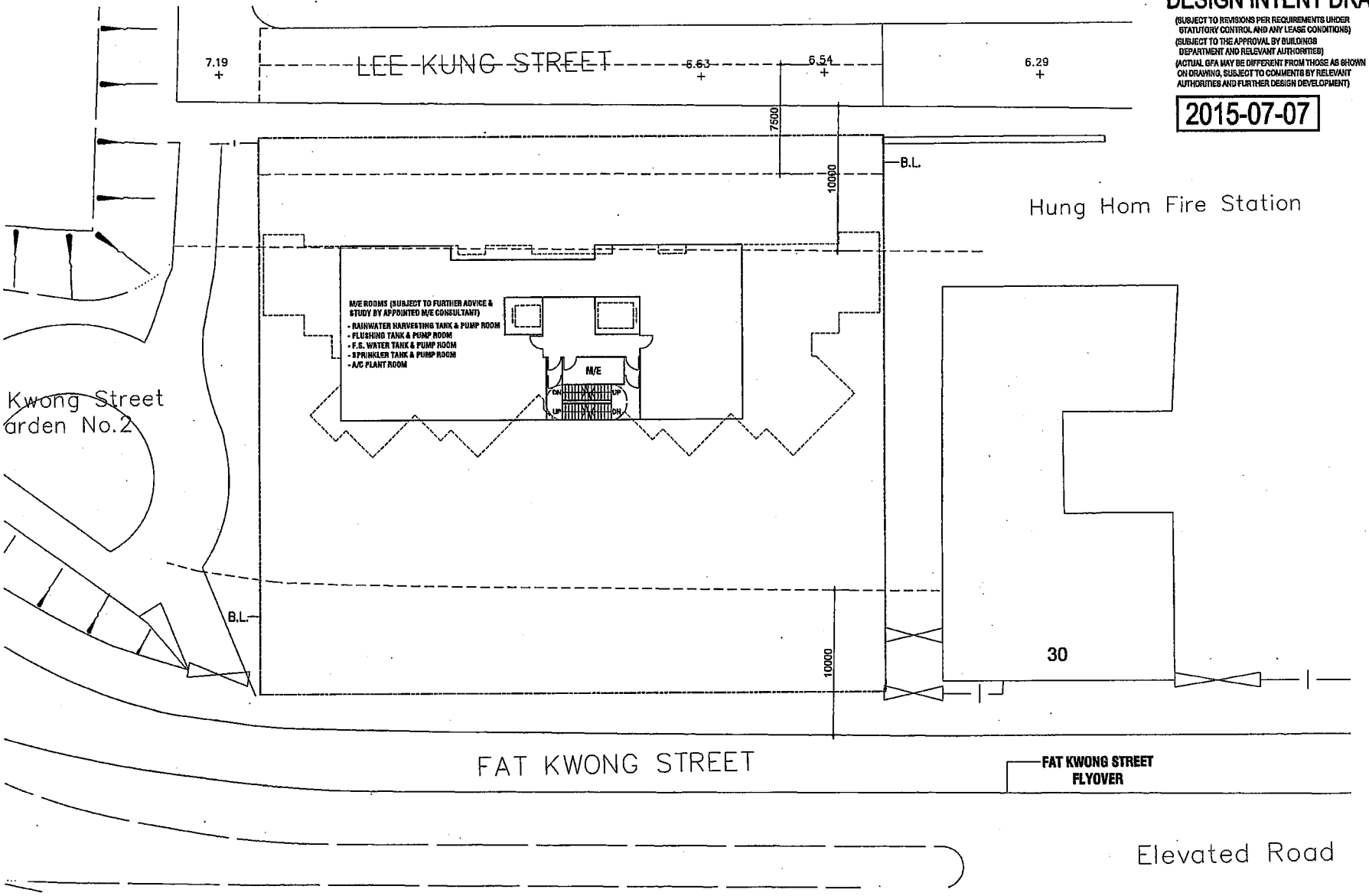

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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

THIRD FLOOR PLAN

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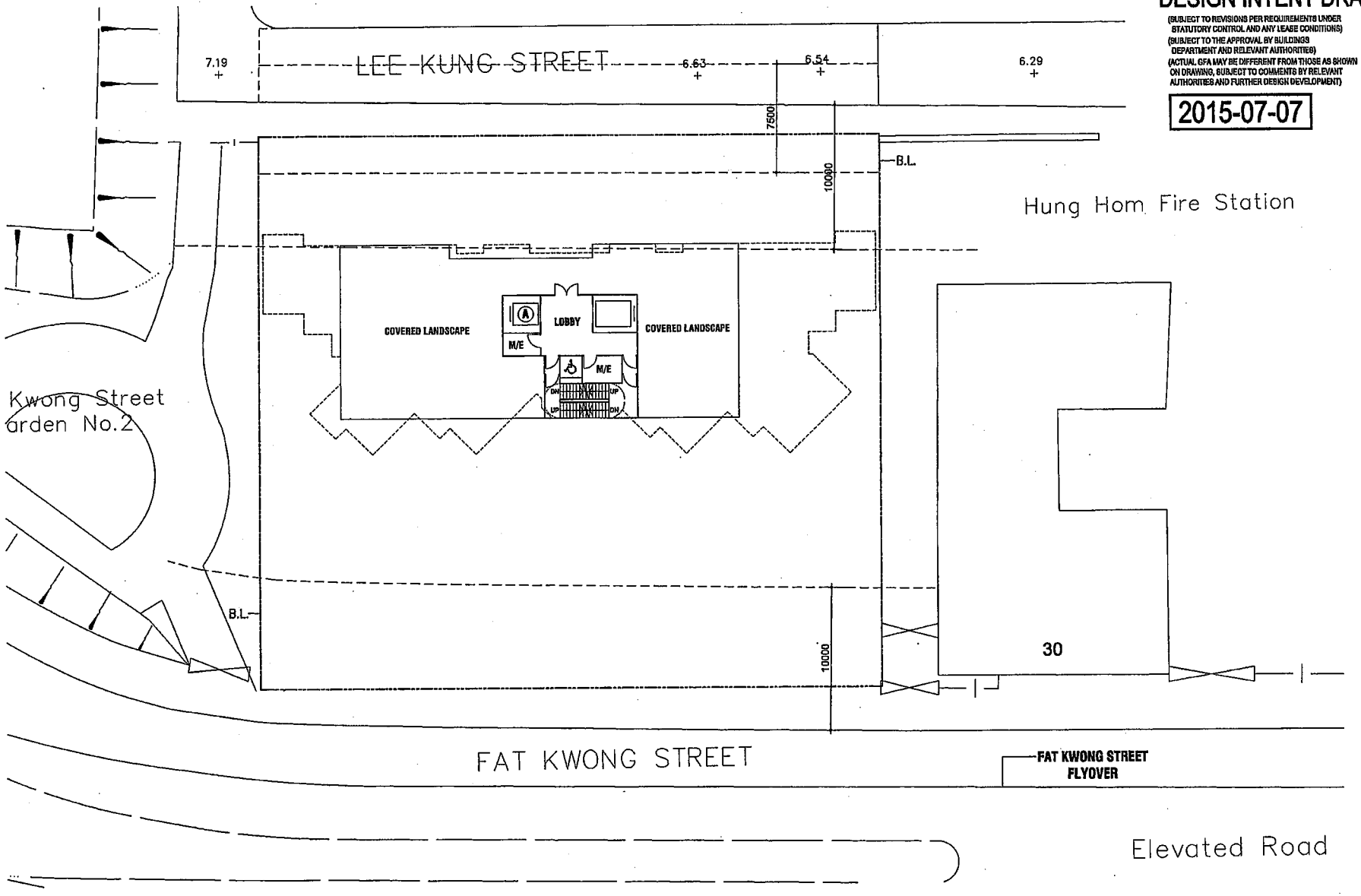
(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	5



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

4/F PLAN

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(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
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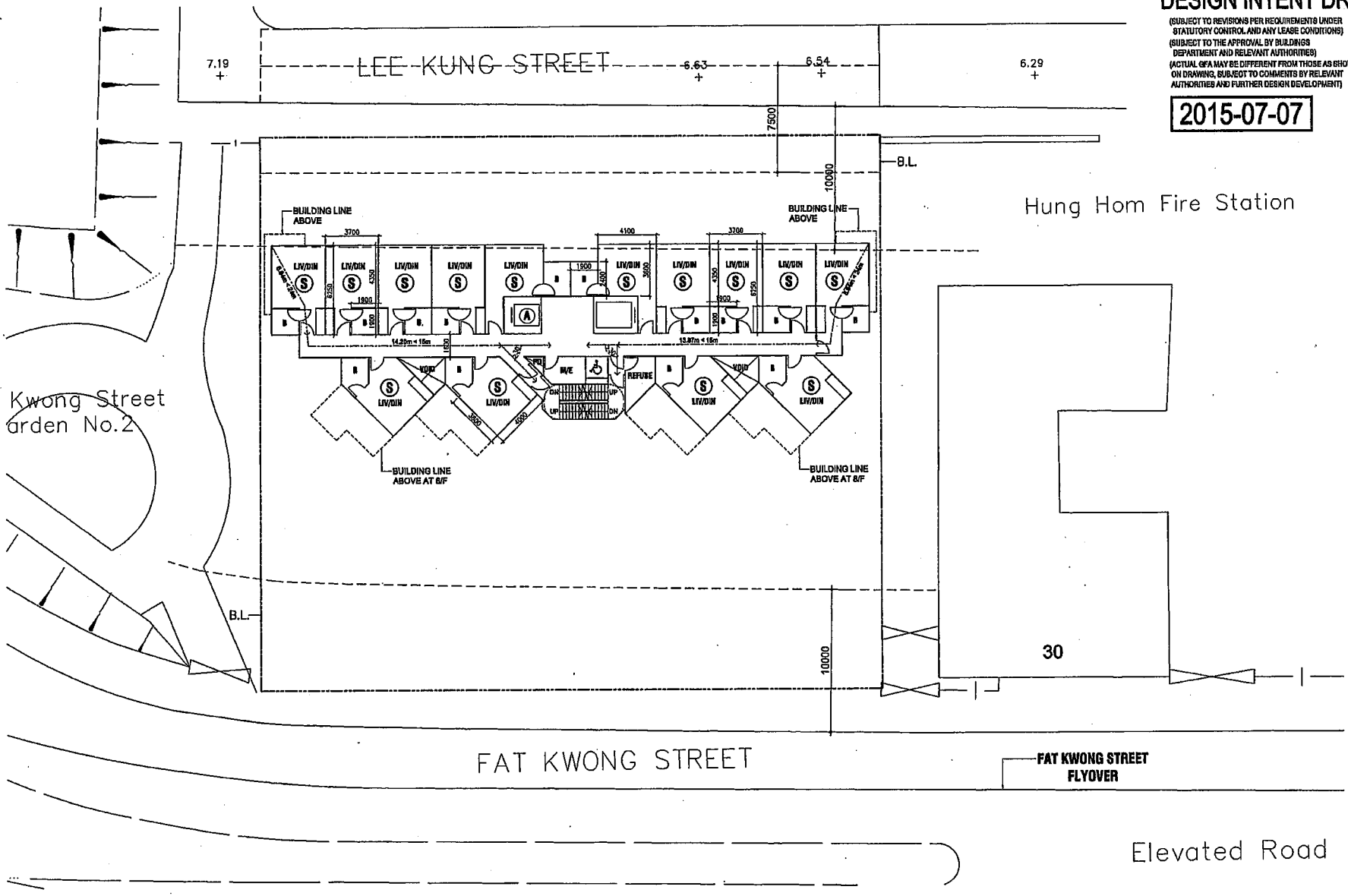

DESIGN INTENT DRAWING

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2015-07-07

FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

PILOT UNIT FLOOR PLAN (5/F-7/F)

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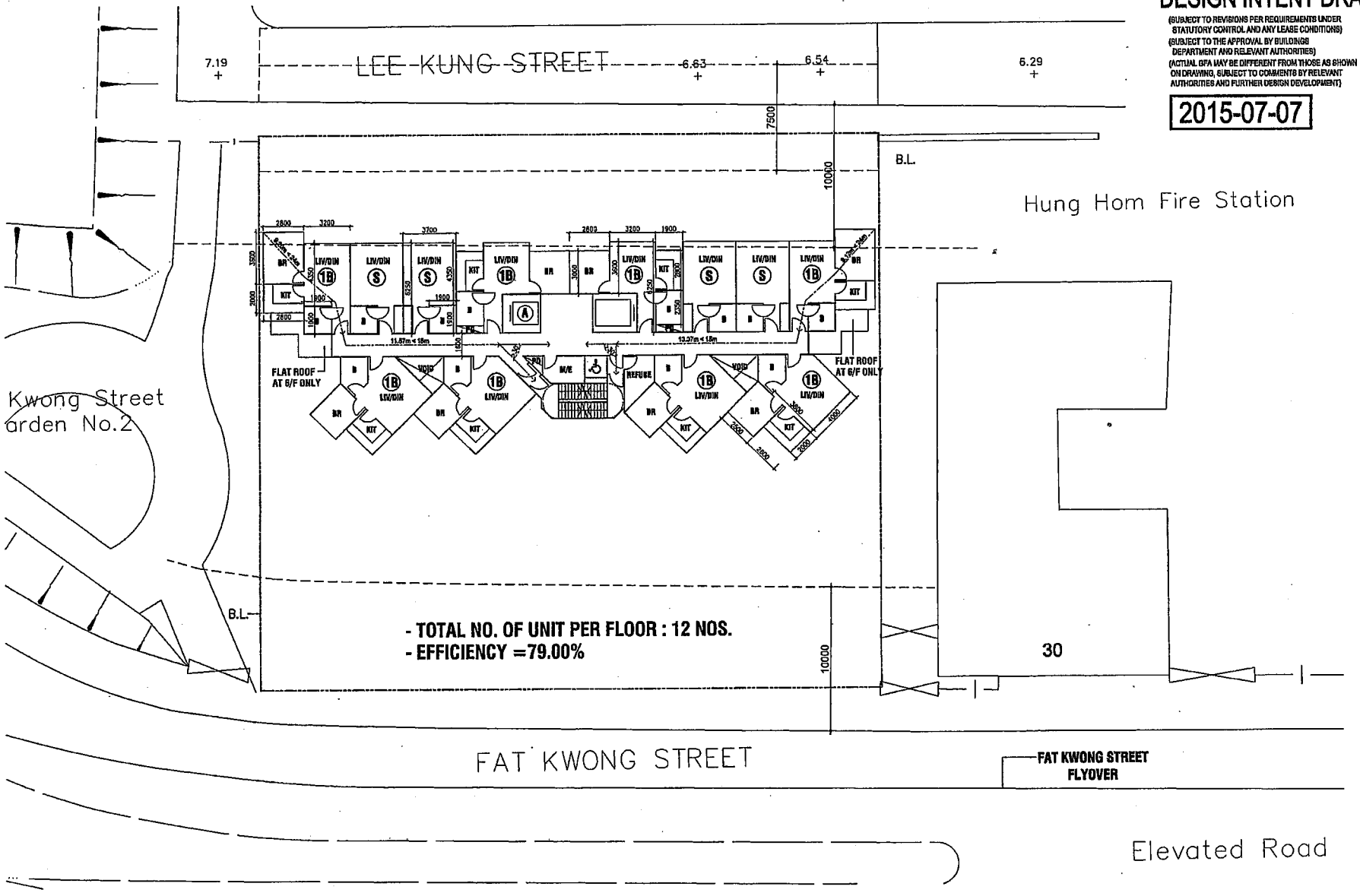
（資料來源：由香港房屋協會提交）
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	7

DESIGN INTENT DRAWING

(SUBJECT TO REVISIONS PER REQUIREMENTS UNDER STATUTORY CONTROL AND ANY LEASE CONDITIONS)
(SUBJECT TO THE APPROVAL BY BUILDINGS DEPARTMENT AND RELEVANT AUTHORITIES)
(ACTUAL GFA MAY BE DIFFERENT FROM THOSE AS SHOWN ON DRAWING, SUBJECT TO COMMENTS BY RELEVANT AUTHORITIES AND FURTHER DESIGN DEVELOPMENT)

2015-07-07



FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

TYPICAL UNIT FLOOR PLAN (8/F-27/F)

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(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	8

DESIGN INTENT DRAWING

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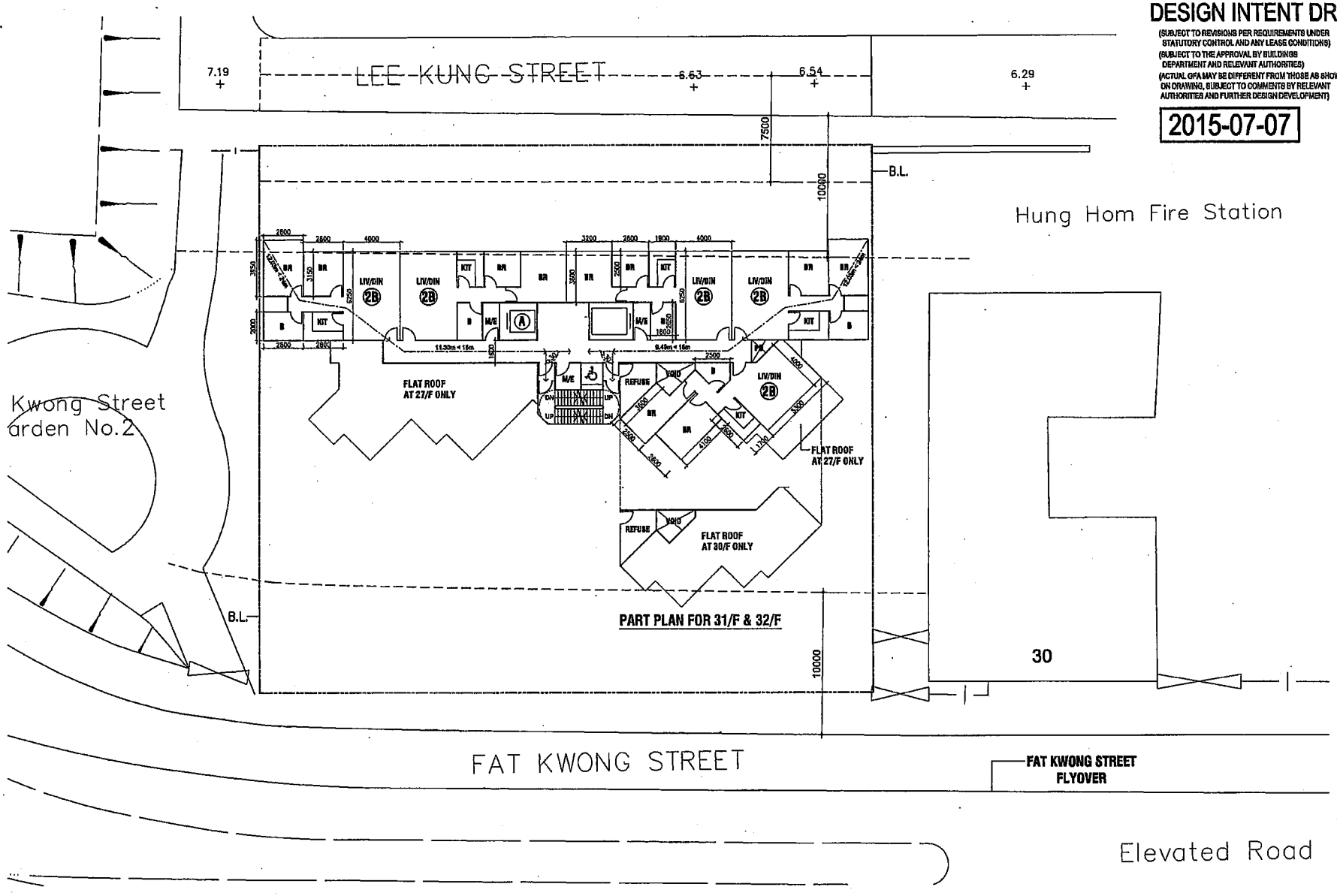
2015-07-07



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FEASIBILITY STUDY FOR HONG KONG HOUSING SOCIETY
ELDERLY HOUSING DEVELOPMENT AT LEE KUNG STREET, HUNG HOM, KOWLOON.

SPECIAL UNIT FLOOR PLAN (28/F-32/F)

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（資料來源：由香港房屋協會提交）
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
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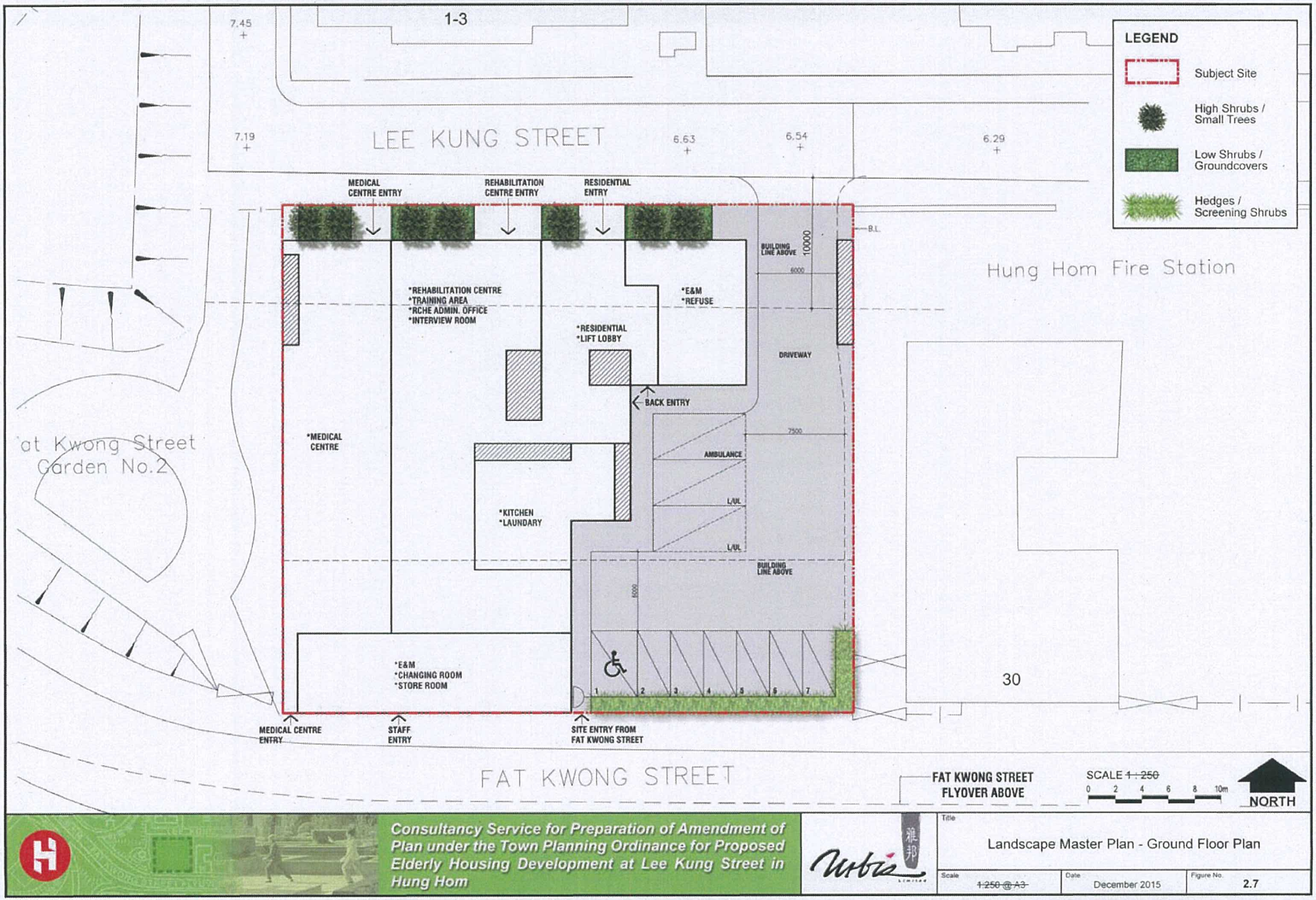

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(Source: Submitted by Hong Kong Housing Society)

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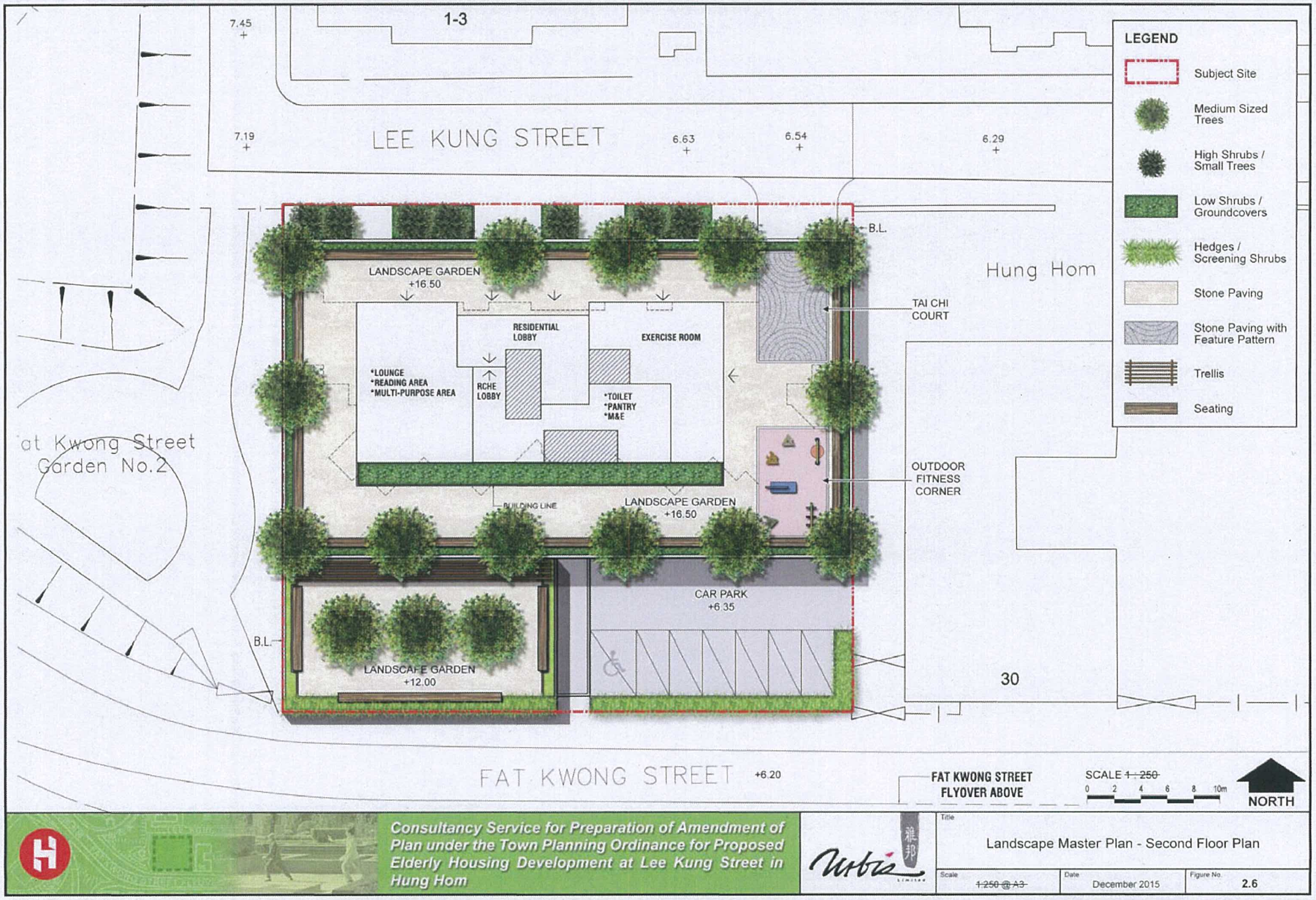
M/K9/16/9	10



（資料來源：由香港房屋協會提交）
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	11

Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: Landscape Master Plan - Roof Floor Plan

Scale	Date	Figure No.
~~1:250 @ A3~~	December 2015	2.5

（資料來源：由香港房屋協會提交）
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
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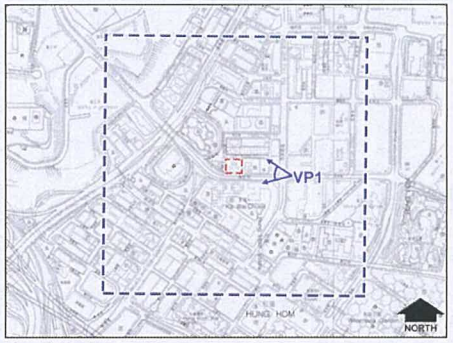
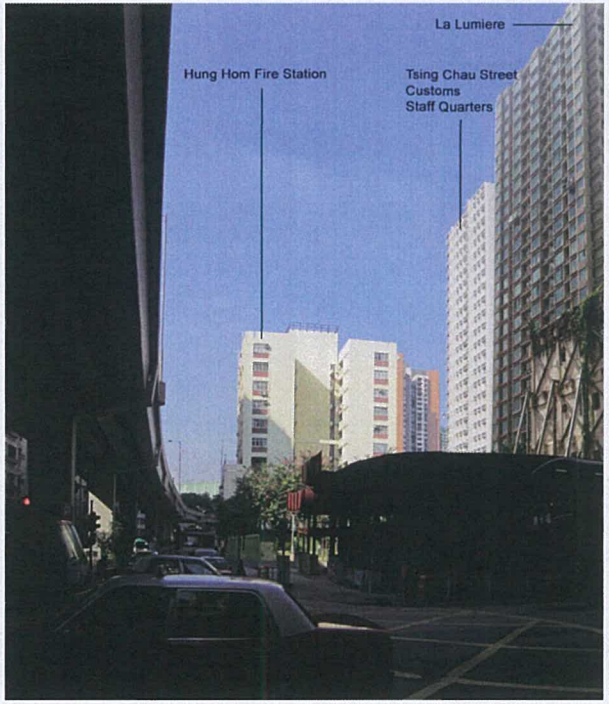
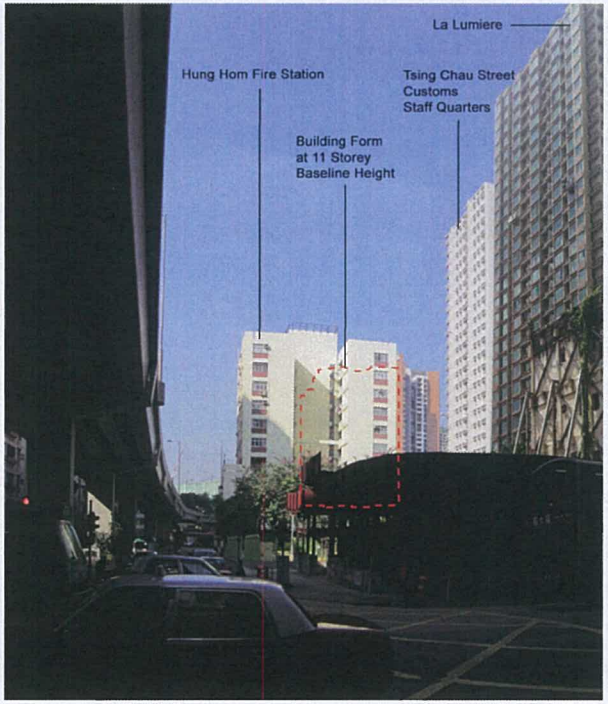


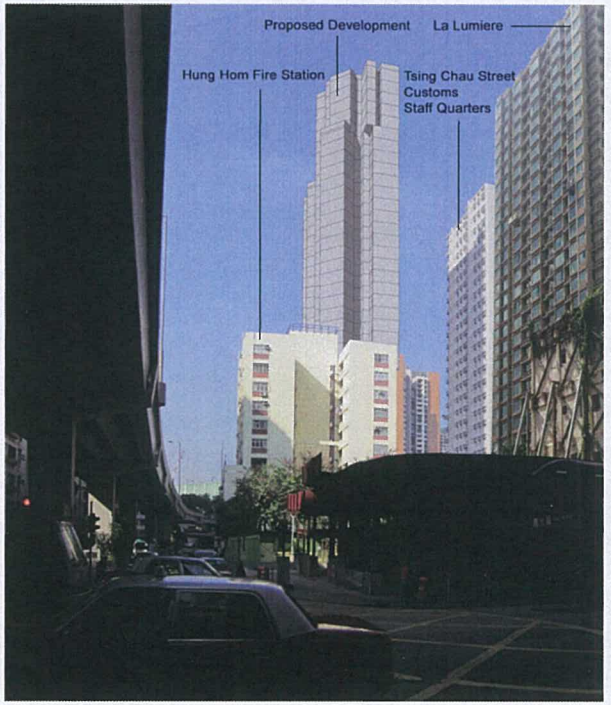
Key Plan



Existing Conditions



Baseline Development



Proposed Development

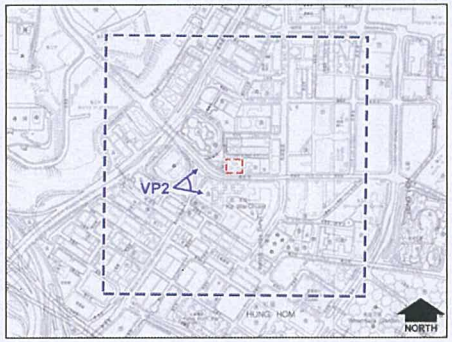
Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: View Point 1 - View from Ma Tau Wai Road (Looking West)

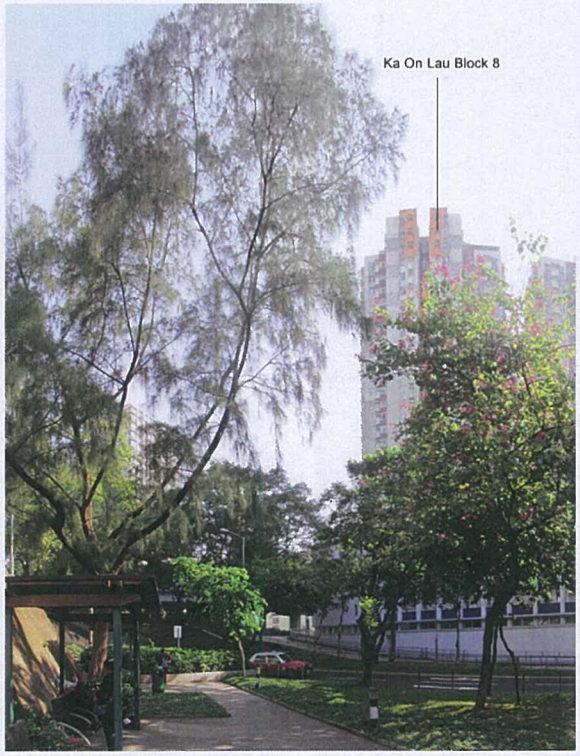
Scale	Date	Figure No.
N.T.S.	August 2016	4

（資料來源：由香港房屋協會提交）
(Source: Submitted by Hong Kong Housing Society)

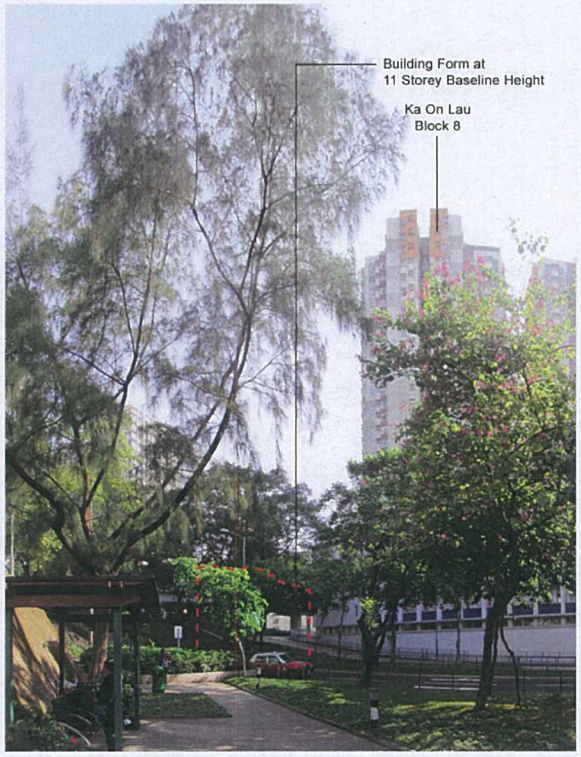
參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	13



Key Plan



Existing Conditions



Baseline Development

Proposed Development

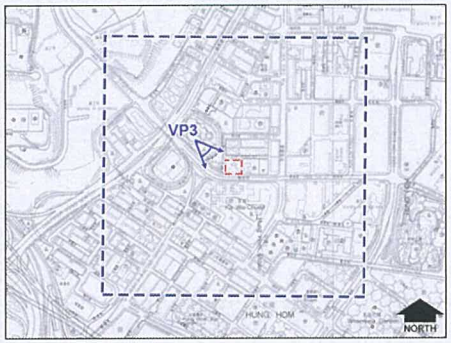
Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: View Point 2 - View from Station Lane Sitting-out Area (Looking Northeast)

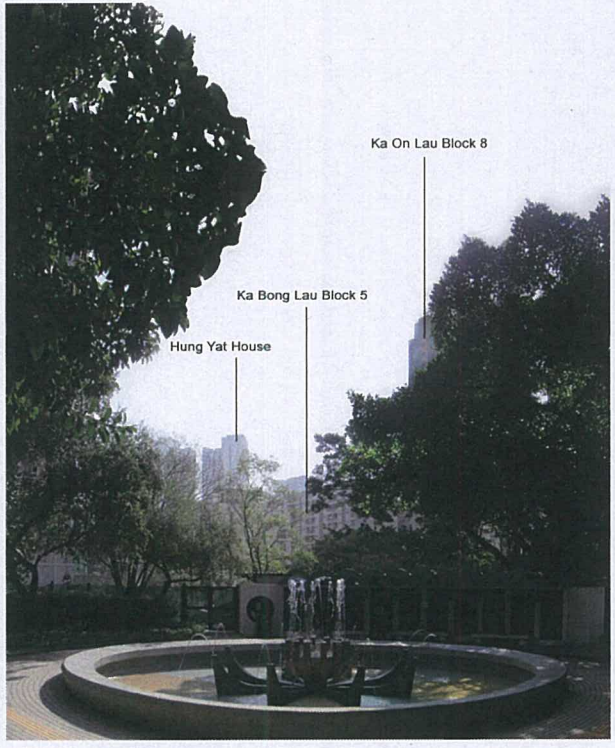
Scale	Date	Figure No.
N.T.S.	March 2016	5

（資料來源：由香港房屋協會提交）
(Source: Submitted by Hong Kong Housing Society)

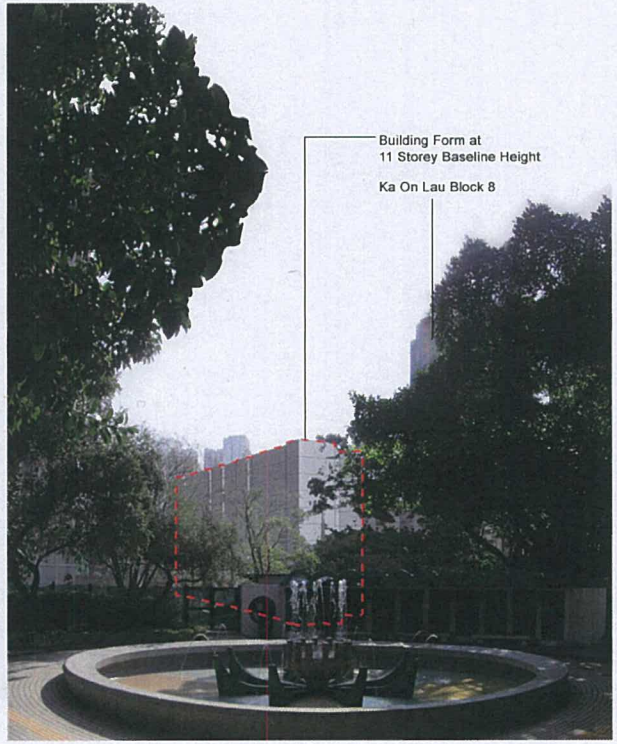
參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	14



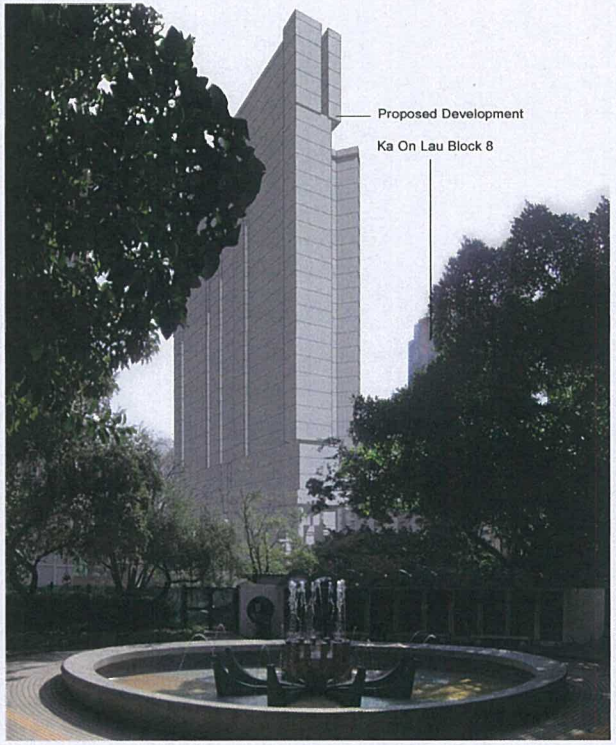
Key Plan



Existing Conditions



Baseline Development



Proposed Development

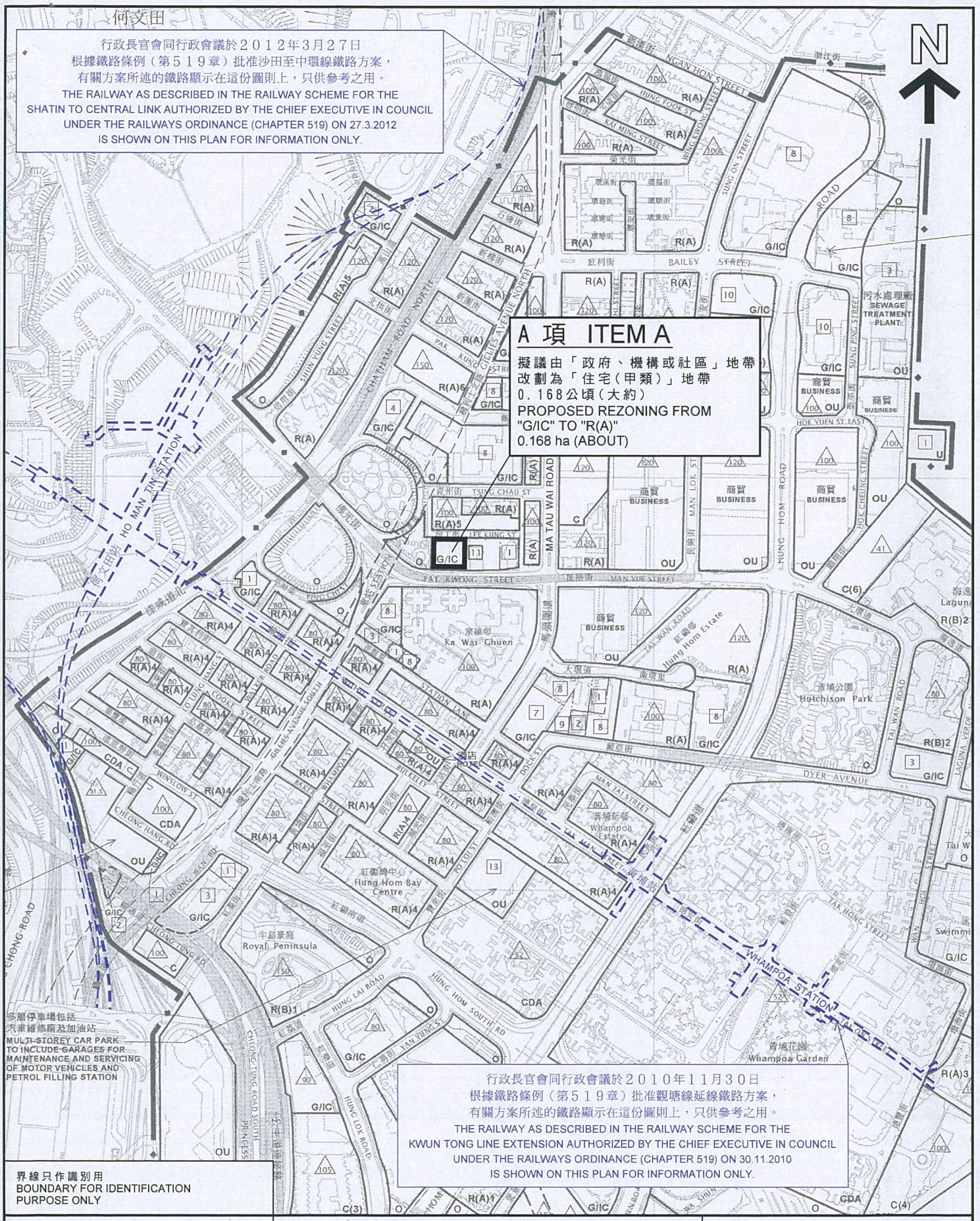
Consultancy Service for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Elderly Housing Development at Lee Kung Street in Hung Hom

Title: View Point 3 - View from Fat Kwong Street Park (Looking Southeast)

Scale	Date	Figure No.
N.T.S.	March 2016	6

(資料來源：由香港房屋協會提交)
(Source: Submitted by Hong Kong Housing Society)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K9/16/9	15



本摘要圖於2016年8月18日擬備，
所根據的資料為於2010年10月5日
核准的分區計劃大綱圖編號S/K9/24

EXTRACT PLAN PREPARED ON 18.8.2016
BASED ON OUTLINE ZONING PLAN No.
S/K9/24 APPROVED ON 5.10.2010

位置圖 LOCATION PLAN

紅磡分區計劃大綱核准圖編號 S/K9/24 的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED HUNG HOM OUTLINE ZONING PLAN No. S/K9/24

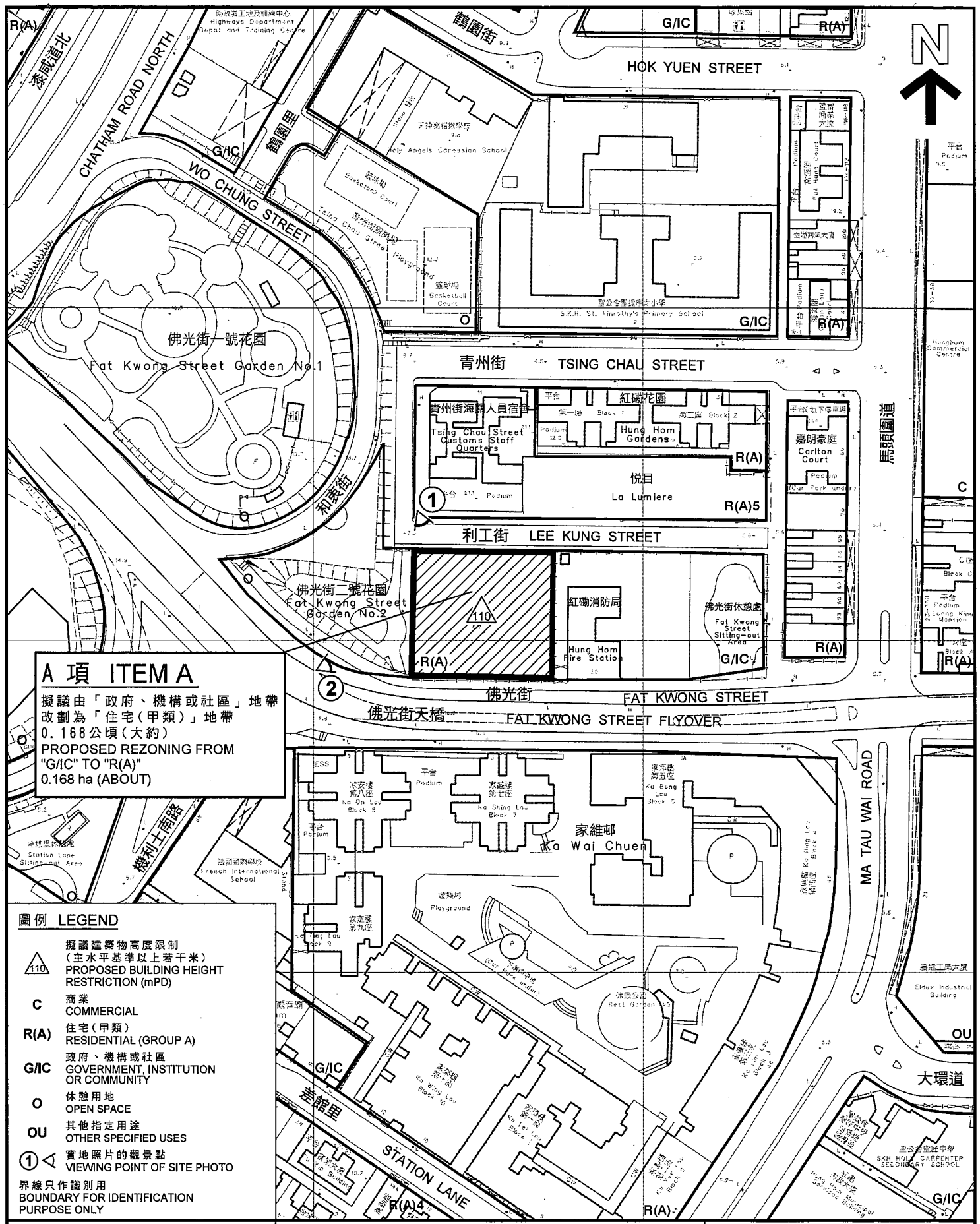
SCALE 1 : 6 000 比例尺

米 METRES 100 0 100 200 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K9/16/9

圖 PLAN
1



A 項 ITEM A

擬議由「政府、機構或社區」地帶改劃為「住宅（甲類）」地帶
0.168公頃（大約）
PROPOSED REZONING FROM "G/IC" TO "R(A)"
0.168 ha (ABOUT)

圖例 LEGEND

110	擬議建築物高度限制（主水平基準以上若干米） PROPOSED BUILDING HEIGHT RESTRICTION (mPD)
C	商業 COMMERCIAL
R(A)	住宅（甲類） RESIDENTIAL (GROUP A)
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
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2016年8月18日擬備，所根據的資料為測量圖編號 11-NW-2B

EXTRACT PLAN PREPARED ON 18.8.2016 BASED ON SURVEY SHEET No. 11-NW-2B

平面圖 SITE PLAN

紅磡分區計劃大綱核准圖編號 S/K9/24 的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED HUNG HOM OUTLINE ZONING PLAN No. S/K9/24

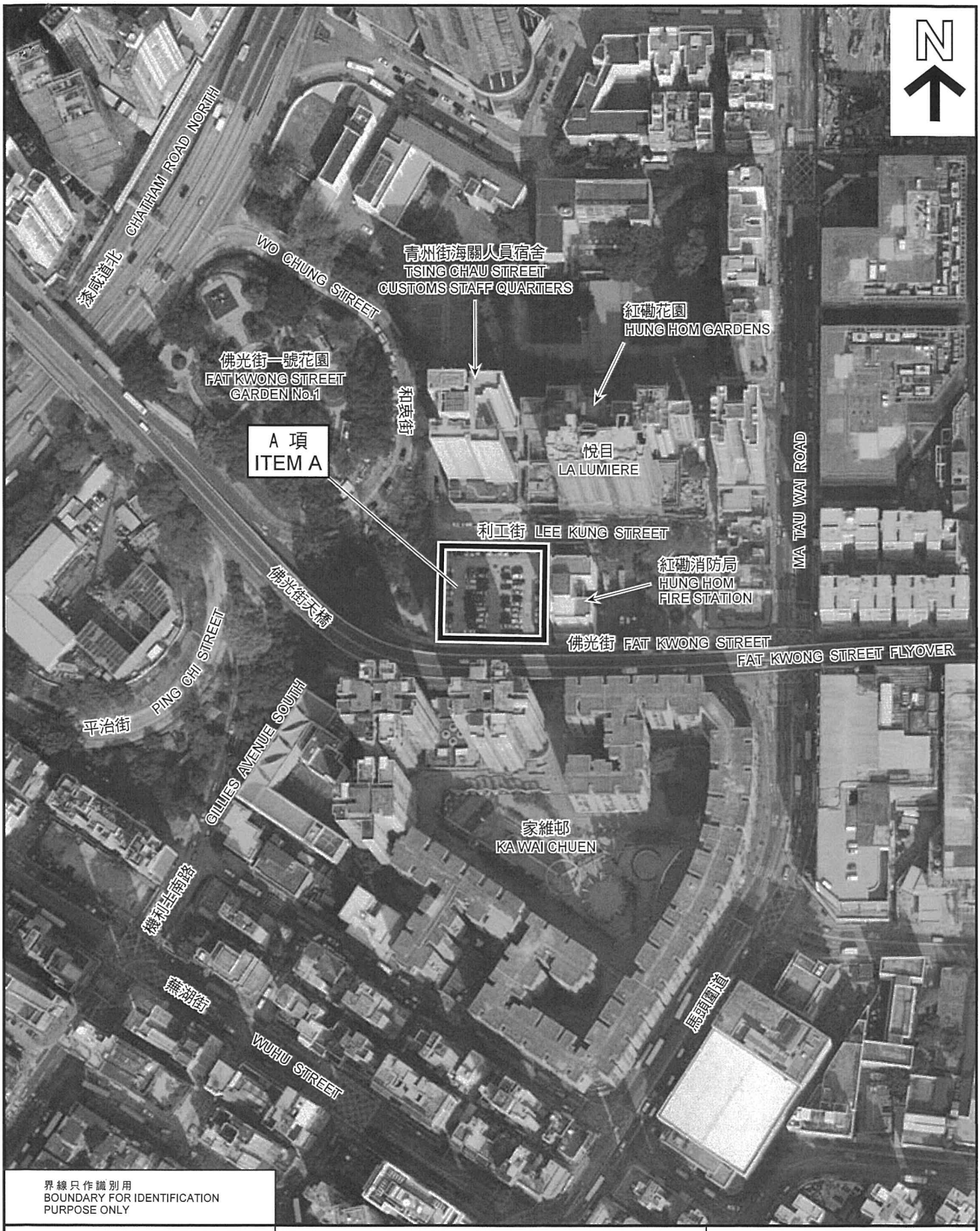
SCALE 1 : 1 500 比例尺

米 METRES 25 0 25 50 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號 REFERENCE No.
M/K9/16/9

圖 PLAN
2



界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2016年8月17日擬備，所根據的資料為地政總署於2016年1月8日拍得的航攝照片編號CS63210

PLAN PREPARED ON 17.8.2016 BASED ON AERIAL PHOTO No. CS63210 TAKEN ON 8.1.2016 BY LANDS DEPARTMENT

航攝照片 AERIAL PHOTO

紅磡分區計劃大綱核准圖編號 S/K9/24 的擬議修訂
PROPOSED AMENDMENTS TO THE APPROVED HUNG HOM OUTLINE ZONING PLAN No. S/K9/24

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K9/16/9

圖 PLAN
3

①

②

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

A 項
ITEM A

本圖於2016年8月18日擬備，
所根據的資料為攝於
2016年8月16日的實地照片

PLAN PREPARED ON 18.8.2016
BASED ON SITE PHOTOS
TAKEN ON 16.8.2016

實地照片 SITE PHOTOS

紅磡分區計劃大綱核准圖編號 S/K9/24 的擬議修訂
PROPOSED AMENDMENTS TO THE
APPROVED HUNG HOM OUTLINE ZONING PLAN No. S/K9/24

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K9/16/9

圖 PLAN
4