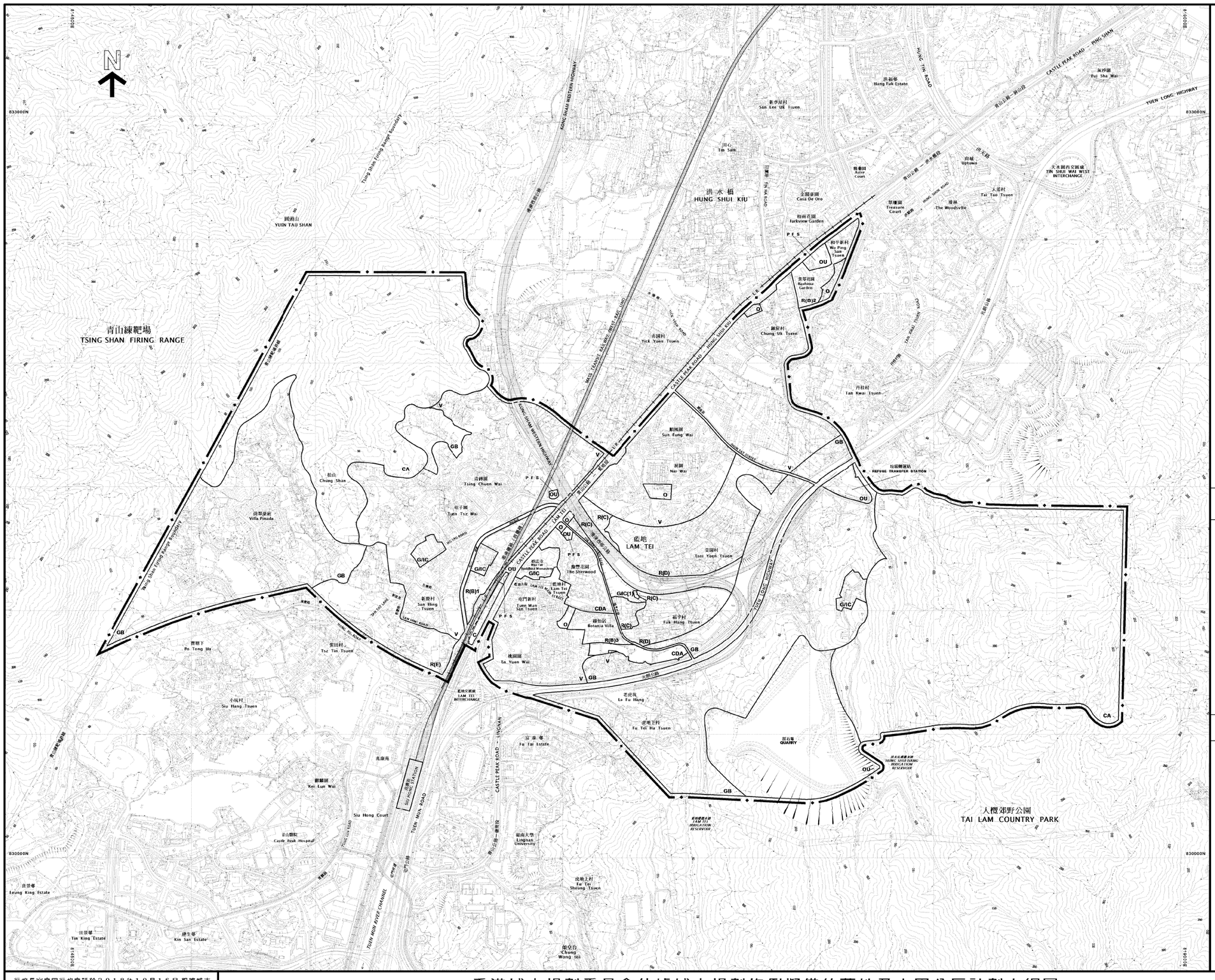


圖例
NOTATION

ZONES		地帶
COMMERCIAL	C	商業
COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
RESIDENTIAL (GROUP C)	R(C)	住宅（丙類）
RESIDENTIAL (GROUP D)	R(D)	住宅（丁類）
RESIDENTIAL (GROUP E)	R(E)	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
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
GREEN BELT	GB	綠化地帶
CONSERVATION AREA	CA	自然保育區

COMMUNICATIONS		交通
RAILWAY AND STATION (ELEVATED)	MTR STATION	鐵路及車站（高架）
LIGHT RAIL		輕鐵
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
PETROL FILLING STATION	P F S	加油站

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	0.69	0.15	商業
COMPREHENSIVE DEVELOPMENT AREA	6.99	1.47	綜合發展區
RESIDENTIAL (GROUP B)	9.54	2.01	住宅（乙類）
RESIDENTIAL (GROUP C)	2.52	0.53	住宅（丙類）
RESIDENTIAL (GROUP D)	20.36	4.29	住宅（丁類）
RESIDENTIAL (GROUP E)	11.56	2.43	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	102.78	21.64	鄉村式發展
GOVERNMENT, INSTITUTION OR COMMUNITY	5.78	1.22	政府、機構或社區
OPEN SPACE	1.93	0.41	休憩用地
OTHER SPECIFIED USES	29.66	6.25	其他指定用途
GREEN BELT	110.68	23.30	綠化地帶
CONSERVATION AREA	152.43	32.10	自然保育區
NULLAH	0.99	0.21	明渠
MAJOR ROAD ETC.	19.02	3.99	主要道路等
TOTAL PLANNING SCHEME AREA	474.93	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２０１８年１０月１６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 16 OCTOBER 2018

Signed Ms Wendy LEUNG 梁蘊儀女士 簽署
CLERK TO THE EXECUTIVE COUNCIL 行政會議秘書

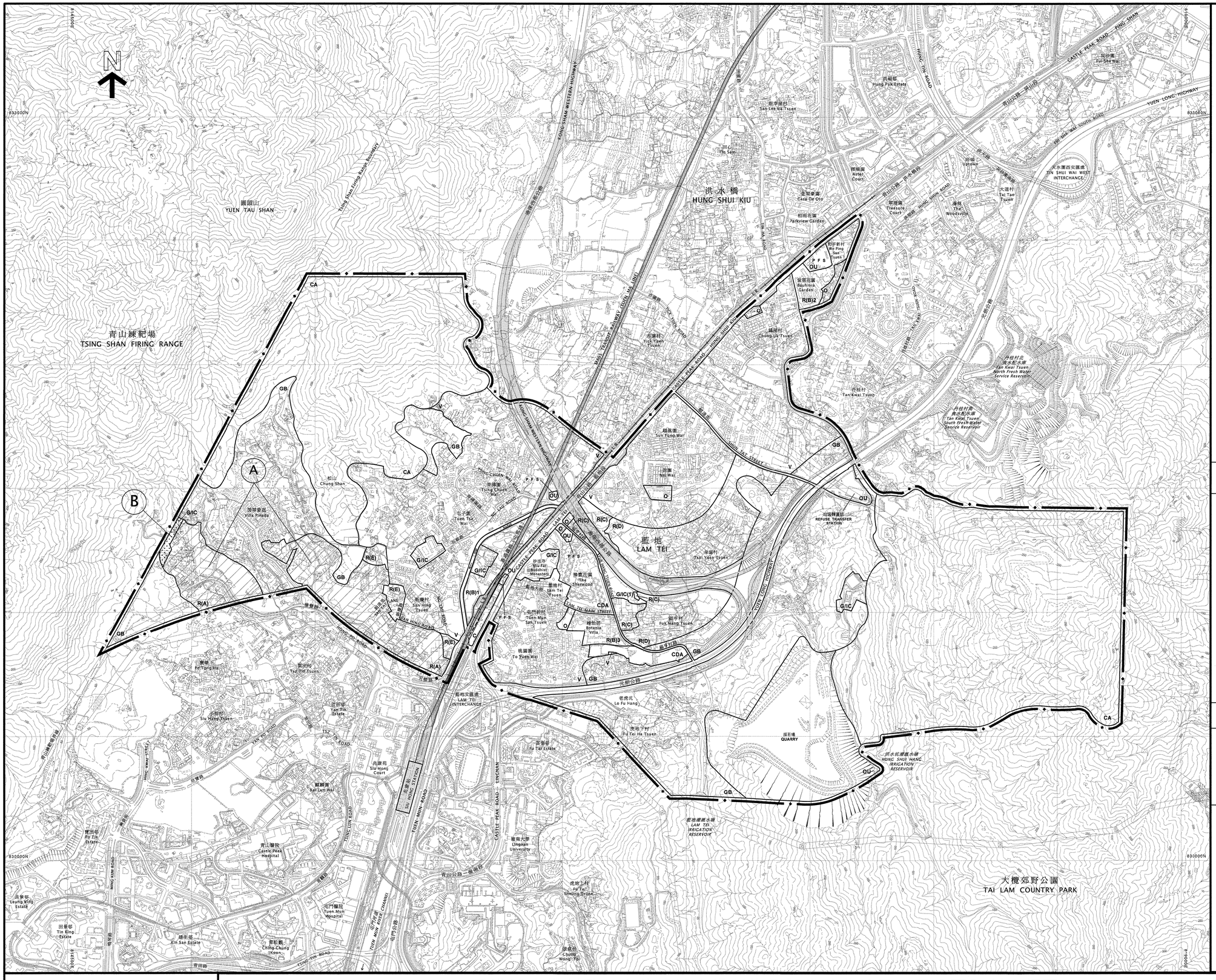
香港城市規劃委員會依據城市規劃條例擬備的藍地及亦園分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
LAM TEI AND YICK YUEN - OUTLINE ZONING PLAN

SCALE 1:7500 比例尺

米 METRES 200 0 200 400 600 800 1000 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/TM-LTYY/10**



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）
RESIDENTIAL (GROUP C)	R(C)	住宅（丙類）
RESIDENTIAL (GROUP D)	R(D)	住宅（丁類）
RESIDENTIAL (GROUP E)	R(E)	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
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
GREEN BELT	GB	綠化地帶
CONSERVATION AREA	CA	自然保育區
COMMUNICATIONS		**交通**
RAILWAY AND STATION (ELEVATED)	RAIL STATION	鐵路及車站（高架）
LIGHT RAIL	L R	輕鐵
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
PETROL FILLING STATION	P F S	加油站

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	APPROXIMATE AREA & % 大約面積及百分率		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	0.69	0.15	商業
COMPREHENSIVE DEVELOPMENT AREA	6.99	1.47	綜合發展區
RESIDENTIAL (GROUP A)	21.52	4.53	住宅（甲類）
RESIDENTIAL (GROUP B)	9.54	2.01	住宅（乙類）
RESIDENTIAL (GROUP C)	2.52	0.53	住宅（丙類）
RESIDENTIAL (GROUP D)	20.36	4.29	住宅（丁類）
RESIDENTIAL (GROUP E)	2.00	0.42	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	102.78	21.64	鄉村式發展
GOVERNMENT, INSTITUTION OR COMMUNITY	6.31	1.33	政府、機構或社區
OPEN SPACE	1.93	0.41	休憩用地
OTHER SPECIFIED USES	29.66	6.25	其他指定用途
GREEN BELT	98.19	20.67	綠化地帶
CONSERVATION AREA	152.43	32.10	自然保育區
NULLAH	0.99	0.21	明渠
MAJOR ROAD ETC.	19.02	3.99	主要道路等
TOTAL PLANNING SCHEME AREA	474.93	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/TM-LTYY/10 的修訂
AMENDMENTS TO APPROVED PLAN No. S/TM-LTYY/10

AMENDMENTS 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
AMENDMENT ITEM B 修訂項目 B 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藍地及亦園分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
LAM TEI AND YICK YUEN - OUTLINE ZONING PLAN

SCALE 1:7500 比例尺

米 METRES 200 0 200 400 600 800 1 000 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/TM-LTYY/10A**

~~APPROVED~~ *DRAFT* LAM TEI AND YICK YUEN OUTLINE ZONING PLAN NO. S/TM-LTYY/10*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) No action is required to make the use of any land or building which was in existence immediately before the first publication in the Gazette of the notice of the draft development permission area plan conform to this Plan, provided such use has continued since it came into existence. Any material change of such use or any other development (except minor alteration and/or modification to the development of the land or building in respect of such use which is always permitted) must be always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board.

(4) A use or development of any land or building permitted under an earlier draft or approved plan including development permission area plan for the area and effected or undertaken during the effective period of that plan is always permitted under this Plan. Any material change of such use or any other development (except minor alteration and/or modification to the completed development of the land or building which is always permitted) must be always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board.

(5) Except to the extent that paragraph (3) or (4) applies, any use or development falling within the boundaries of the Plan and also within the boundaries of the draft development permission area plan, unless always permitted in terms of the Plan, shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft development permission area plan without permission from the Town Planning Board.

(6) 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.

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

(8) The following uses or developments are always permitted on land falling within the boundaries of the Plan except (a) where the uses or developments are specified in Column 2 of the Notes of individual zones or (b) as provided in paragraph (9) in relation to areas zoned "Conservation Area":

(a) maintenance, repair or demolition of a building;

(b) provision, maintenance or repair of plant nursery, amenity planting, open space, rain shelter, refreshment kiosk, footpath, bus/public light bus/light rail stop or lay-by, cycle track, taxi rank, public utility pipeline, electricity mast, lamp pole, telephone booth, telecommunications radio base station, automatic teller machine and shrine;

(c) maintenance or repair of road, railway track, watercourse, nullah, sewer and drain;

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

(e) rebuilding of New Territories Exempted House;

(f) replacement of an existing domestic building, i.e. a domestic building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, by a New Territories Exempted House; and

(g) provision, maintenance or repair of a grave of an indigenous New Territories villager or a locally based fisherman and his family members for which permission has been obtained from Government.

(9) In areas zoned "Conservation Area",

(a) the following uses or developments are always permitted:

(i) maintenance or repair of plant nursery, amenity planting, sitting out area, rain shelter, refreshment kiosk, road, watercourse, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, shrine and grave;

(ii) 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

(iii) provision of amenity planting by Government; and

(b) the following uses or developments require permission from the Town Planning Board:

provision of plant nursery, amenity planting (other than by Government), sitting out area, rain shelter, refreshment kiosk, footpath, public utility pipeline, electricity mast, lamp pole, telephone booth and shrine.

(10) In any area shown as 'Road', all uses or developments except those specified in paragraphs (8)(a) to (8)(d) and (8)(g) above and those specified below require permission from the Town Planning Board:

road, toll plaza, on-street vehicle park, railway station and railway track.

(11) (a) Except in areas zoned "Conservation Area", temporary use or development of any land or building not exceeding a period of two months is always permitted provided that no site formation (filling or excavation) is carried out and that the use or development is a use or development specified below :

structures for carnivals, fairs, film shooting on locations, festival celebrations, religious functions or sports events.

(b) Except as otherwise provided in paragraph (11)(a), and subject to temporary uses for open storage and port back-up purposes which are prohibited in areas zoned "Conservation Area", temporary use or development of any land or building not exceeding a period of three years requires permission from the Town Planning Board. Notwithstanding that the use or development is not provided for in terms of the Plan, the Town Planning Board may grant permission, with or without conditions, for a maximum period of three years, or refuse to grant permission.

(c) Temporary use or development of land or building exceeding three years requires permission from the Town Planning Board in accordance with the terms of the Plan.

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

(13) In these Notes, unless the context otherwise requires or unless as expressly provided below, terms used in the Notes shall have the meanings as assigned under section 1A of the Town Planning Ordinance.

"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.

"New Territories Exempted House" means a domestic building other than a guesthouse or a hotel; or a building primarily used for habitation, other than a guesthouse or a hotel, the ground floor of which may be used as 'Shop and Services' or 'Eating Place', the building works in respect of which are exempted by a certificate of exemption under Part III of the Buildings Ordinance (Application to the New Territories) Ordinance (Cap. 121).

~~APPROVED~~ ***DRAFT*** LAM TEI AND YICK YUEN OUTLINE ZONING PLAN NO. S/TM-LTYY/10***A***

SCHEDULE OF USES

	Page
COMMERCIAL	1
COMPREHENSIVE DEVELOPMENT AREA	3
RESIDENTIAL (GROUP A)	***6***
RESIDENTIAL (GROUP B)	~~6~~***9***
RESIDENTIAL (GROUP C)	~~8~~***11***
RESIDENTIAL (GROUP D)	~~10~~***13***
RESIDENTIAL (GROUP E)	~~12~~***15***
VILLAGE TYPE DEVELOPMENT	~~14~~***17***
GOVERNMENT, INSTITUTION OR COMMUNITY	~~16~~***19***
OPEN SPACE	~~18~~***21***
OTHER SPECIFIED USES	~~19~~***22***
GREEN BELT	~~20~~***23***
CONSERVATION AREA	~~22~~***25***

COMMERCIAL

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

Planning Intention

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

(Please see next page)

COMMERCIAL (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 3.6 and a maximum building height of 12 storeys including car park (36m), or the plot ratio and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater.

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

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

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
	Eating Place Educational Institution Flat Government Refuse Collection Point Government Use (not elsewhere specified) House (other than rebuilding of New Territories Exempted House or replacement of existing domestic building by New Territories Exempted House permitted under the covering Notes) Institutional Use (not elsewhere specified) Library ~~Market~~ Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Residential Institution Rural Committee/Village Office School Shop and Services Social Welfare Facility Utility Installation for Private Project

Planning Intention

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

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks

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

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

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

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

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

(v) the 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;

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

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

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

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks (Cont'd)

(c) On land designated "Comprehensive Development Area" to the west of Fuk Hang Tsuen Road near Lam Tei Tsuen, 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 2.0, a maximum non-domestic plot ratio of 0.11 and a maximum building height of 15 storeys excluding car park (45m).

(d) On land designated "Comprehensive Development Area" to the north of Yuen Long Highway near Fuk Hang Tsuen, 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 0.54 and a maximum building height of 6 storeys over single-storey car park.

(e) In determining the maximum domestic and non-domestic plot ratios for the purposes of paragraph (c) above and the maximum plot ratio for the purpose of paragraph (d) 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. Any floor space that is constructed or intended for use solely as Government, institution or community facilities, as required by the Government, may also be disregarded.

(f) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and building height restrictions stated in paragraphs (c) and (d) 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	***Commercial Bathhouse/ Massage Establishment***
Flat	***Eating Place***
Government Use (not elsewhere specified)	***Educational Institution***
House	***Exhibition or Convention Hall***
Library	***Government Refuse Collection Point***
Market	***Hospital***
Place of Recreation, Sports or Culture	***Hotel***
Public Clinic	***Institutional Use (not elsewhere specified)***
Public Transport Terminus or Station (excluding open-air terminus or station)	***Office***
Public Vehicle Park (excluding container vehicle)	***Petrol Filling Station***
Religious Institution (Ancestral Hall only)	***Place of Entertainment***
Residential Institution	***Private Club***
School (in free-standing purpose-designed building only)	***Public Convenience***
Social Welfare Facility	***Public Transport Terminus or Station (not elsewhere specified)***
Utility Installation for Private Project	***Public Utility Installation***
	Religious Institution (not elsewhere specified)
	School (not elsewhere specified)
	Shop and Services (not elsewhere specified)
	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 bays and/or plant room:

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Convenience
Recyclable Collection Centre
School
Shop and Services
Training Centre

Planning Intention

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

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 6.5 and a maximum building height of 160mPD, or the plot ratio and height of the existing building, whichever is the greater.

(b) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as public vehicle parks, public transport facilities and Government, institution or community facilities, as required by the Government, may be disregarded.

(c) In determining the maximum plot ratio for the purposes of paragraph (a) above, the 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 the Government, shall be deducted from calculation of the site area.

(d) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room 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.

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

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~~ 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 Rural Committee/Village Office School (not elsewhere specified) Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for sub-urban medium-density residential developments in rural areas 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

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum plot ratio, site coverage and building height specified below, or the plot ratio, site coverage and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater.

			Maximum Building Height	
Sub-area	Maximum Plot Ratio	Maximum Site Coverage	No. of Storeys	Building Height
R(B)1	1.0	40%	4 storeys over single-storey car park	15m
R(B)2	1.26	40%	6 storeys over single-storey car park	21m
R(B)3	2.1	40%	12 storeys excluding car park	36m (excluding car park)

(b) In determining the maximum plot ratio and site coverage for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room 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.

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

RESIDENTIAL (GROUP C)

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

Planning Intention

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

(Please see next page)

RESIDENTIAL (GROUP C) (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 0.4 and a maximum building height of 3 storeys (9m) including car park, or the plot ratio, site coverage and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater.

(b) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room 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.

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

RESIDENTIAL (GROUP D)

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

(Please see next page)

RESIDENTIAL (GROUP D) (Cont'd)

Planning Intention

This zone is intended primarily for improvement and upgrading of existing temporary structures within the rural areas through redevelopment of existing temporary structures into permanent buildings. It is also intended for low-rise, low-density residential developments subject to planning permission from the Town Planning Board.

Remarks

(a) No addition, alteration and/or modification to or in-situ redevelopment of an existing temporary structure or an existing building (except to 'New Territories Exempted House' or to those annotated with #) shall result in a total development and/or redevelopment in excess of a maximum building area of 37.2m^2 and a maximum building height of 2 storeys (6m), or the building area and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater.

(b) No development including redevelopment for 'Flat' and 'House' uses, other than those to which paragraph (a) above shall apply, shall result in a development and/or redevelopment in excess of a maximum plot ratio of 0.2 and a maximum building height of 2 storeys (6m).

(c) In determining the maximum plot ratio for the purposes of paragraph (b) 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.

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

RESIDENTIAL (GROUP E)

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

Schedule I: for open-air development or for building other than industrial building

Ambulance Depot	Eating Place
Government Use (Police Reporting Centre, Post Office only)	Educational Institution
Rural Committee/Village Office	Flat
Utility Installation for Private Project	Government Refuse Collection Point
	Government Use (not elsewhere specified)
	House (other than rebuilding of New Territories Exempted House or replacement of existing domestic building by New Territories Exempted House permitted under the covering Notes)
	Institutional Use (not elsewhere specified)
	Library
	~~Market~~
	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
	Residential Institution
	School
	Shop and Services
	Social Welfare Facility
	Training Centre

(Please see next page)

RESIDENTIAL (GROUP E) (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 existing industrial development

Eating Place (Canteen only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Public Utility Installation
Recyclable Collection Centre
Rural Workshop
Utility Installation for Private Project
Warehouse (excluding Dangerous Goods Godown)
Office
Petrol Filling Station
Public Convenience
Public Vehicle Park (excluding container vehicle)
Shop and Services (ground floor only)
Vehicle Repair Workshop
Wholesale Trade

Planning Intention

This zone is intended primarily for phasing out of existing industrial uses through redevelopment for residential use on application to the Town Planning Board. Whilst existing industrial uses will be tolerated, new industrial developments are not permitted in order to avoid perpetuation of industrial/residential interface problem.

Remarks

(a) No new development (except 'New Territories Exempted House') shall exceed a maximum plot ratio of 1.0, a maximum site coverage of 40% and a maximum building height of 4 storeys over single-storey car park (15m).

(b) No addition, alteration and/or modification to or redevelopment of an existing building (except redevelopment to 'New Territories Exempted House') shall exceed the plot ratio, site coverage and building height restrictions stated in paragraph (a) above, or the plot ratio, site coverage and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater, subject to redevelopment to the plot ratio in the latter restriction shall be permitted only if the existing building is a domestic building.

(c) In determining the maximum plot ratio and site coverage for the purposes of paragraphs (a) and (b) 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.

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

VILLAGE TYPE DEVELOPMENT

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

(Please see next page)

VILLAGE TYPE DEVELOPMENT (Cont'd)

Planning Intention

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

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building (except development or redevelopment to those annotated with #) shall result in a total development and/or redevelopment in excess of a maximum building height of 3 storeys (8.23m) or the height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater.

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

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 Quarantine Centre (in Government building only) Broadcasting, Television and/or Film Studio Cable Car Route and Terminal Building Eating Place (Canteen, Cooked Food Centre only) Educational Institution Exhibition or Convention Hall Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Institutional Use (not elsewhere specified) Library Market Place of Recreation, Sports or Culture 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 Rural Committee/Village Office School Service Reservoir Social Welfare Facility Training Centre Wholesale Trade	Animal Boarding Establishment Animal Quarantine Centre (not elsewhere specified) Columbarium Correctional Institution Crematorium Driving School Eating Place (not elsewhere specified) Firing Range Flat Funeral Facility Helicopter Fuelling Station Helicopter Landing Pad Holiday Camp Hotel House (other than rebuilding of New Territories Exempted House or replacement of existing domestic building by New Territories Exempted House permitted under the covering Notes) Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Private Club Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Refuse Disposal Installation (Refuse Transfer Station only) Residential Institution Sewage Treatment/Screening Plant Shop and Services ***(not elsewhere specified)*** Utility Installation for Private Project Zoo

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

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.

Remarks

(a) On land designated "Government, Institution or Community (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 35,000m^2 and a maximum building height of 50 metres above Principal Datum, or the GFA and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan, whichever is the greater.

(b) In determining the maximum GFA for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room 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.

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

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 Public Convenience Sitting Out Area Zoo	Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp 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 "Quarry" only	
Quarry	Government Use Public Utility Installation
Planning Intention	
This zone is intended primarily for quarry use.	
For "Refuse Transfer Station" only	
Public Utility Installation Refuse Transfer Station	Government Use
Planning Intention	
This zone is intended primarily for the provision of refuse transfer station.	
For "Petrol Filling Station" only	
Petrol Filling Station	Government Use Public Utility Installation
Planning Intention	
This zone is intended primarily for the provision of petrol filling station.	

GREEN BELT

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

(Please see next page)

GREEN BELT (Cont'd)

Planning Intention

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

Remarks

Any ***diversion of stream,*** filling of land or excavation of land, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes (except public works co-ordinated or implemented by Government, and maintenance, repair or rebuilding works), shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft Lam Tei and Yick Yuen Outline Zoning Plan No. S/TM-LTYY/5 without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

CONSERVATION AREA

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use (other than Plant Nursery) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Wild Animals Protection Area	Barbecue Spot Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp House (Redevelopment only) Public Convenience Public Utility Installation Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Tent Camping Ground Utility Installation for Private Project

Planning Intention

This zoning is intended to protect and retain the existing natural landscape, ecological or topographical features of the area for conservation, educational and research purposes and to separate sensitive natural environment such as Country Park from the adverse effects of development.

There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.

Remarks

(a) No redevelopment, including alteration and/or modification, of an existing house shall result in a total redevelopment in excess of the plot ratio, site coverage and height of the house which was in existence on the date of the first publication in the Gazette of the notice of the draft development permission area plan.

(b) Any ***diversion of stream,*** filling of land or excavation of land, including that to effect a change of use to any of those specified in Columssns 1 and 2 above or the uses or developments always permitted under the covering Notes ***(except public works co-ordinated or implemented by Government, and maintenance or repair works)***, shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft Lam Tei and Yick Yuen Outline Zoning Plan No. S/TM-LTYY/4 without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

~~APPROVED~~ *DRAFT* LAM TEI AND YICK YUEN OUTLINE ZONING PLAN NO. S/TM-LTYY/10*A*

EXPLANATORY STATEMENT

~~APPROVED~~ ***DRAFT*** LAM TEI AND YICK YUEN OUTLINE ZONING PLAN NO. S/TM-LTYY/10***A***

EXPLANATORY STATEMENT

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~~APPROVED~~ *DRAFT* LAM TEI AND YICK YUEN
OUTLINE ZONING PLAN NO. S/TM-LTYY/10*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*** Lam Tei and Yick Yuen Outline Zoning Plan (OZP) No. S/TM-LTYY/10***A***. It reflects the planning intentions and objectives of the Town Planning Board (the Board) for various land-use zonings of the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURE

2.1 The land within the Lam Tei and Yick Yuen OZP was previously included in the draft Lam Tei and Yick Yuen Development Permission Area (DPA) Plan No. DPA/TM-LTYY/1 which was exhibited for public inspection under section 5 of the Town Planning Ordinance (the Ordinance) on 18 June 1993.

2.2 On 30 April 1996, the draft Lam Tei and Yick Yuen DPA Plan No. DPA/TM-LTYY/1 was approved by the then Governor in Council under section 9(1)(a) of the Ordinance.

2.3 On 13 March 1995, under the power delegated by the then Governor, the then Secretary for Planning, Environment and Lands, directed the Board, under section 3(1)(a) of the Ordinance, to prepare an OZP for the area of Lam Tei and Yick Yuen.

2.4 On 7 June 1996, the draft Lam Tei and Yick Yuen OZP No. S/TM-LTYY/1 was exhibited for public inspection under section 5 of the Ordinance. The OZP was subsequently amended and exhibited for public inspection under section 7 of the Ordinance to reflect the changing circumstances.

2.5 On 23 May 2000, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance, approved the draft Lam Tei and Yick Yuen OZP which was subsequently renumbered as S/TM-LTYY/3.

2.6 On 16 December 2003, the CE in C referred the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/3 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. ***The OZP was then amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.*** ~~On 4 June 2004, the draft Lam Tei and Yick Yuen OZP No. S/TM-LTYY/4 was exhibited for public inspection under section 5 of the Ordinance. On 15 April 2005, the draft Lam Tei and Yick Yuen OZP No.~~

~~S/TM-LTYY/5 was exhibited for public inspection under section 7 of the Ordinance.~~

2.7 On 14 March 2006, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Lam Tei and Yick Yuen OZP, which was subsequently renumbered as S/TM-LTYY/6.

2.8 On 8 July 2014, the CE in C referred the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/6 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The OZP was subsequently amended and exhibited for public inspection under section 5 of the Ordinance.

2.9 On 8 September 2015, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Lam Tei and Yick Yuen OZP, which was subsequently renumbered as S/TM-LTYY/8. ~~On 18 September 2015, the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/8 was exhibited for public inspection under section 9(5) of the Ordinance.~~

2.10 On 26 April 2016, the CE in C referred the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/8 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 6 May 2016 under section 12(2) of the Ordinance.~~ ***The OZP was subsequently amended and exhibited for public inspection under section 5 of the Ordinance.***

~~2.11 On 26 May 2017, the draft Lam Tei and Yick Yuen OZP No. S/TM-LTYY/9 was exhibited fsor public inspection under section 5 of the Ordinance. The amendment on the Plan involved the excision of the northern part from the planning scheme area for incorporation into the draft Hung Shui Kiu and Ha Tsuen OZP No. S/HSK/1. During the two-month exhibition period, a total of 5 valid representations were received. On 25 August 2017, the representations were published for three weeks for public comments and a total of 4 valid comments on the representations (comments) were received. On 17 April 2018, the Chief Executive, under section 8(2) of the Ordinance, agreed to extend the statutory time limit for the Board to submit the draft OZP to the CE in C for approval for a period of six months. After giving considerations to the representations and comments, the Board on 25 May 2018 decided not to propose any amendment to the draft OZP to meet the representations.~~

2.1~~2~~***1*** On 16 October 2018, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Lam Tei and Yick Yuen OZP, which was subsequently renumbered as S/TM-LTYY/10. On 26 October 2018, the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/10 ~~(the Plan)~~ was exhibited for public inspection under section 9(5) of the Ordinance.

2.12 On 3 November 2020, the CE in C referred the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/10 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 13 November 2020 under section 12(2) of the Ordinance.

2.13 On XX XXX 2021, the draft Lam Tei and Yick Yuen OZP No. S/TM-LTYY/11 (the Plan) was exhibited for public inspection under section 5 of the Ordinance.

The amendments on the plan mainly involved the rezoning of (i) two areas to the north of Hong Po Road, to the east of Tsing Shan Firing Range and to the west of Castle Peak Road – Lam Tei from "Residential (Group E)" ("R(E)") and "Green Belt" ("GB") to "Residential (Group A)" ("R(A)"); and (ii) an area to the east of Tsing Shan Firing Range from "GB" to "Government, Institution or Community" ("G/IC").

3. OBJECT OF THE PLAN

3.1 The object of the Plan is to indicate the broad land-use zonings for the Lam Tei and Yick Yuen area so that development and redevelopment within the area can be put under statutory planning control. It also provides the planning framework for preparing more detailed non-statutory plans which form the basis for public works planning and site reservation for various uses.

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

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

3.4 The boundary of the area is delineated having regard to physical and topographical features such as roads, drainage channels and hills. Therefore, the area boundary does not necessarily follow the Heung boundaries which are used for administration purpose only. Also, the name of the Plan is geographical in nature and would not cause implications on development rights, particularly Small House applications.

4. NOTES OF THE PLAN

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

4.2 For the guidance of the general public, a set of definitions that explains some of the terms used in the Notes may be obtained from the Technical Services

Division of the Planning Department ***(PlanD)*** and can be downloaded from the Board's website at http://www.info.gov.hk/tpb.

5. THE PLANNING SCHEME AREA

5.1 The ~~Planning Scheme Area (the~~ Area~~)~~ is about 474.93 ha. It is located in the south-western part of the North West New Territories (NWNT). It is bounded by Hung Shui Kiu New Development Area (NDA) and Yuen Tau Shan in the north, Tan Kwai Tsuen in the north-east, Tai Lam Country Park in the east and south-east, the Tsing Shan Firing Range in the west, Fu Tai Estate, Tsz Tin Tsuen and Po Tong Ha in the south. The boundary of the Area is shown in a heavy broken line on the Plan.

5.2 The Area is situated to the north of Tuen Mun New Town. It extends northwards to the edge of Hung Shui Kiu NDA and is characterised by a land-use pattern which is a mixture of ~~industrial workshops~~ ***brownfield operations*** and residential dwellings. Traditional villages and agricultural land uses exist side by side with squatter housing and ~~industrial workshops~~ ***brownfield operations*** in temporary structures. The existing road networks in the Area comprise Castle Peak Road and several other minor roads branching off from it. Yuen Long Highway ***(YLH)*** and the Kong Sham Western Highway (KSWH) traverse the Area from the north-east to south-west, and from the north-west to south-east respectively.

5.3 In recognition of the traditional burial right of the indigenous villagers, the existing burial grounds in the Area have been preserved.

5.4 The present conditions in the Area are unsatisfactory because of the proliferation of ~~container storage~~ ***brownfield operations*** and other non-compatible uses, poor vehicular access, stream pollution and general visual squalor and urban sprawl.

6. POPULATION

~~6.1~~ Based on the 2016 Population ~~b~~***B***y-census, the population of the Area was estimated by ~~the Planning Department~~ ***PlanD*** as about 22,150 persons. ***It is estimated that the total planned population of the Area would be about 89,100.***~~The population concentrates along Fuk Hang Tsuen Road, in and around nine recognized villages in the Area including Chung Uk Tsuen, Sun Fung Wai, Nai Wai, Tsing Chuen Wai, Tuen Tsz Wai, San Hing Tsuen, Lam Tei Tsuen, Tuen Mun San Tsuen (also known as Lam Tei San Tsuen) and To Yuen Wai as well as the non-indigenous villages such as Tsoi Yuen Tsuen, Fuk Hang Tsuen and Fu Tei Ha Tsuen.~~

~~6.2 Apart from usual natural growth in the existing villages, future expansion of population of the Area will be concentrated in the areas zoned for residential use along Castle Peak Road and areas to the north-east and north-west of Lam Tei Interchange. It is estimated that the planned population for the Area would be about 28,800 persons. There is no definite programme for this anticipated level of population built-up and the planned population growth and distribution will be~~

~~for long-term consideration.~~

7. OPPORTUNITIES AND CONSTRAINTS

7.1 Opportunities

7.1.1 The completion of Route 3, the New Territories Circular Road, ~~Yuen Long Highway~~ ***YLH***, the ~~West Rail (WR)~~ ***Tuen Ma Line (TML)*** and the Light Rail (LR) network has improved the accessibility of the Area. The KSWH provides a strategic road link for the Area. The Siu Hong Station of the ~~WR~~***TML*** is in close proximity to the southern boundary of the Area. This increases the development potential and provides opportunities for comprehensive development in the Lam Tei and Yick Yuen area.

7.1.2 According to the Agriculture, Fisheries and Conservation Department, a few pockets of agricultural land in the Area are still under active cultivation and they are mainly confined to market gardening.

7.2 Constraints

7.2.1 ~~There is an ongoing sewerage project, including~~ ***The*** construction of village sewerage along Lam Tei Main Street, for the Lam Tei area ***was completed in 2019***. ~~The contract was commenced in July 2015 with target completion in 2019 in phases.~~ The Drainage Improvement Works in Nai Wai was completed in May 2012. Before the basic infrastructure is completed, only low density and small-scale developments can be permitted subject to the provision of satisfactory arrangements for water supply, sewerage, drainage, flood mitigation and access facilities.

7.2.2 The ~~WR~~ ***TML***, LR and KSWH in the Area pose constraints to the developments along their alignments in terms of vehicular/pedestrian access and environmental impact. Mitigation measures will be required when nearby development proceeds.

7.2.3 There is an existing 400kV overhead power line running along the southern boundary of the Area. Furthermore, the alignment of the integral part of the Black Point 400kV Transmission System from Black Point to Sha Tin, runs across from Yick Yuen in the west passing through a narrow area between Chung Uk Tsuen and Sun Fung Wai to the east of the Area. According to the Hong Kong Planning Standards and Guidelines (HKPSG), only low-rise development can be allowed within the 50 metres wayleave corridor of the 400kV overhead power lines. Therefore, land-use designation on the OZP has to take account of this constraint.

7.2.4 There are nine recognized villages in the Area and land has to be reserved to meet the forecasted Small House demand.

7.2.5 The potential suburban development area in Lam Tei and Yick Yuen

should be confined to the plain area. The steep slopes of the Tsing Shan Firing Range and the Tai Lam Country Park are more suitable for conservation purposes.

7.2.6 The petrol filling station at Fuk Hang Tsuen Road is also a liquefied petroleum gas (LPG) filling station. The LPG filling station is regarded as a notifiable gas installation subject to the control of the Gas Safety Ordinance (Cap. 51). For developments in close proximity to the LPG filling station, the respective developers should conduct a detailed quantitative risk assessment to ascertain the risk levels posed by the LPG filling station and implement mitigation measures identified in the assessment to comply with the Government Risk Guidelines stated in the HKPSG.

8. GENERAL PLANNING INTENTION

8.1 The Area is ~~situated along the Tuen Mun and Yuen Long Corridor~~ ***located*** close to the Tuen Mun New Town. It extends northwards from the northern fringe of Tuen Mun New Town to Hung Shui Kiu NDA. Due to its geographical location and transport network, the general planning intention is to develop the Area for suburban development between the two existing urban centres of Tuen Mun New Town and Yuen Long Town. Castle Peak Road, the ~~WR~~ ***TML*** and the LR traverse the Area from north to south. With the convenience of the public transport network, ***high density/***relatively higher intensity of developments will be concentrated in the Lam Tei Local Centre area, along Castle Peak Road and near Lam Tei Interchange and public transport network. For areas further away from these centres and existing and planned infrastructural provisions, developments with less intensity will be envisaged. The general planning intention for the Area is:

(a) to encourage upgrading of the environment through comprehensively planned developments;

(~~a~~***b***) to designate suburban residential developments to appropriate locations along committed and planned infrastructure corridors;

(~~b~~***c***) to develop and maintain Lam Tei as a local centre in order to serve the residents in the Area;

(~~c~~***d***) to reserve sufficient land for village expansion;

(~~d~~***e***) to designate land for strategic road and railway link including the LR and the ~~WR~~ ***TML***; ***and***

~~(e) to encourage upgrading for the environment through comprehensively planned development by private sectors and infrastructural improvement works by Government departments; and~~

(f) to retain the countryside character of the upland portion of the Area.

8.2 In the designation of various zones in the Area, considerations have been given to the natural environment, physical landform, existing settlements, land status, availability of infrastructure, local development pressures, Territorial Development Strategy Review and the North West New Territories (Yuen Long District) Development Statement Study under the North West New Territories Development Strategy Review. Other than the above, buildings and places of historical interest have been preserved in the Area as far as possible.

9. LAND-USE ZONINGS

9.1 Commercial ("C") : Total Area : 0.69 ha

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

9.1.2 An elongated parcel of land to the east of San Hing Tsuen which is sandwiched by the LR and Castle Peak Road is zoned "C". At present, Lam Tei Vegetable Collection Depot and village type houses with commercial use are on this land. In order to be compatible with the character of the neighbourhood, developments in this zone are restricted to a maximum plot ratio of 3.6 and a maximum building height of 12 storeys including car park (36m). To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the above restrictions may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

9.2 Comprehensive Development Area ("CDA") : Total Area : 6.99 ha

9.2.1 This zone is intended for comprehensive development/redevelopment of the area for residential use with the provision of commercial, open space and other supporting facilities, if any. 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. Such zoning is to facilitate the phasing out of the sporadic rural industrial activities and temporary structures which have been incompatible with the adjoining developments. Although the existing uses are tolerated, any development/redevelopment proposals on sites under this zoning should be submitted to the Board in the form of a master layout plan for consideration, except as otherwise expressly provided that it is not required by the Board. When approved by the Board, a copy of the approved Master Layout Plan shall be made available for public inspection in the Land Registry pursuant to section 4A(3) of the Ordinance.

9.2.2 There are two sites zoned "CDA". The first site (about 5.08 ha) is located to the west of Fuk Hang Tsuen Road near Lam Tei Tsuen. The development shall not result in a total development or redevelopment

intensity in excess of a maximum domestic plot ratio of 2.0 for residential use and a maximum non-domestic plot ratio of 0.11 for commercial and retailing uses and a maximum building height of 15 storeys excluding car park (45m). The area is largely developed, now known as The Sherwood. ~~The rest of the area consists mostly of temporary structures.~~

9.2.3 The other area zoned "CDA" (about 1.91 ha) is located to the north of Yuen Long Highway near Fuk Hang Tsuen. To put the development under better control, the site is zoned "CDA". The development shall not result in a total development or redevelopment in excess of a maximum plot ratio of 0.54 and a maximum building height of 6 storeys over single-storey car park. ~~The site is predominantly vacant.~~

9.2.4 As the two "CDA" sites are located adjacent to existing main roads, noise mitigation measures such as the use of screening structures and the adoption of self-protective building layout would need to be implemented. To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the above restrictions for the two "CDA" sites may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

9.3 Residential (Group A) ("R(A)") : Total Area : 21.52 ha

9.3.1 The "R(A)" zone is intended primarily for high-density residential developments. Under this zoning, 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.

9.3.2 Two sites to the north of Tuen Mun New Town are intended for public housing developments. Government, institution or community (GIC) facilities including school(s) and social welfare facilities as well as public transport termini will be provided within these sites. These sites are subject to a maximum plot ratio of 6.5 and a maximum building height of 160mPD.

9.3.3 In determining the maximum plot ratio of the development and/or redevelopments, any floor space that is constructed or intended for use solely as public vehicle parks, public transport facilities and GIC facilities, as required by the Government, may be disregarded to facilitate the provision of these facilities.

9.3.4 An Air Ventilation Assessment – Expert Evaluation (AVA-EE) has been carried out for these sites and concluded that design measures, including building separations and setbacks, would alleviate the potential air ventilation impacts on the surrounding wind environment. A quantitative AVA shall be carried out at the detailed design stage. Requirements of the design measures and quantitative AVA shall be incorporated in the planning brief(s) for implementation as appropriate.

9.3.5 Planning brief(s) setting out the planning parameters and the design requirements of public housing development will be prepared to guide the future development.

9.3.6 To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the plot ratio and building height restrictions may be considered by the Board through the planning permission system. Each proposal will be considered on its individual merits.

9.~~3~~*4* Residential (Group B) ("R(B)") : Total Area : 9.54 ha

9.~~3~~*4*.1 This zone is intended primarily for sub-urban medium-density residential developments in rural areas where commercial uses serving the residential neighbourhood may be permitted on application to the Board.

9.~~3~~*4*.2 As the zoned areas are located adjacent to Castle Peak Road and Fuk Hang Tsuen Road, noise mitigation measures such as the use of screening structures and the adoption of self-protective building layout would need to be implemented.

9.~~3~~*4*.3 There are 3 sub-areas within this zone.

(a) Residential (Group B) 1 ("R(B)1"): Total Area: 4.04 ha

The parcel of land located between the Nullah and Castle Peak Road near San Hing Tsuen is zoned for "R(B)1". Residential developments within this zone are restricted to a maximum plot ratio of 1.0, a maximum site coverage of 40% and a maximum building height of 4 storeys over single-storey car park (15m).

(b) Residential (Group B) 2 ("R(B)2"): Total Area: 3.20 ha

The parcel of land located to the south-east of Hung Shui Kiu NDA namely Bauhinia Garden and Wo Ping San Tsuen is zoned for this purpose. Residential developments within this zone are restricted to a maximum plot ratio of 1.26, a maximum site coverage of 40% and a maximum building height of 6 storeys over single-storey car park (21m).

(c) Residential (Group B) 3 ("R(B)3"): Total Area: 2.30 ha

The parcel of land located at the junction of Fuk Hang Tsuen Road and Lam Tei Main Street is zoned for this purpose to reflect a completed residential development (i.e. Botania Villa). This residential scheme constitutes part of the Lam Tei Local Centre development. The residential developments within this zone are restricted to a maximum plot ratio of 2.1, a maximum site coverage of 40% and a maximum building height of 12 storeys (36m) excluding car park.

9.~~3~~***4***.4 To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the above restrictions may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

9.~~4~~***5*** Residential (Group C) ("R(C)") : Total Area : 2.52 ha

9.~~4~~***5***.1 This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board.

9.~~4~~***5***.2 Under this zoning, residential developments are restricted to a maximum plot ratio of 0.4 and a maximum building height of 3 storeys (9m) including car park. To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the above restrictions may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

9.~~4~~***5***.3 Four areas on the two sides of the KSWH near Fuk Hang Tsuen Road are zoned for this purpose. At present, these areas are occupied by temporary structures for domestic purpose and rural workshops. As these four areas are located adjacent to KSWH and Fuk Hang Tsuen Road, noise mitigation measures such as the use of screening structures and the adoption of self-protective building layout would need to be implemented.

9.~~5~~***6*** Residential (Group D) ("R(D)") : Total Area : 20.36 ha

9.~~5~~***6***.1 This zone is intended primarily for improvement and upgrading of existing temporary structures within the rural areas through redevelopment of existing temporary structures into permanent buildings. It is also intended for low-rise, low-density residential developments subject to planning permission from the Board. Within this zoned area, replacement or new houses are encouraged to be constructed in permanent materials. Replacement housing for temporary structures shall not result in a total redevelopment in excess of a maximum building area of 37.2m^2 and a maximum building height of 2 storeys (6m).

9.~~5~~***6***.2 Apart from the intention of residential upgrading, very low-rise and low-density residential development may be permitted on application to the Board. To be in line with the development intensity of existing domestic accommodation within the zoned area, residential development other than New Territories Exempted House shall not result in a total development in excess of a maximum plot ratio of 0.2, and a maximum building height of 2 storeys (6m). Generally, the applicant has to prove to the Board that the proposed development would have no or minimal adverse effects on the environment. To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the above restrictions may be considered by the Board through the planning permission system. Each proposal will be

considered on its individual planning merits.

9.~~5~~***6***.3 ***Areas surrounding Tsoi Yuen Tsuen and Fuk Hang Tsuen are zoned "R(D)".*** For the areas located adjacent to industrial establishments, necessary mitigation measures should be provided to minimize industrial/residential (I/R) interface problems.

~~9.5.4 Areas surrounding Tsoi Yuen Tsuen and Fuk Hang Tsuen are zoned "R(D)". At present, the areas are mainly occupied by temporary structures for both domestic purpose and rural workshops.~~

9.~~6~~***7*** Residential (Group E) ("R(E)") : Total Area ~~11.56~~ ***2.00*** ha

9.~~6~~***7***.1 This zone is intended primarily for phasing out of existing industrial uses through redevelopment for residential use on application to the Board. Whilst existing industrial uses will be tolerated, new industrial developments are not permitted in order to avoid perpetuation of I/R interface problem.

9.~~6~~***7***.2 ~~An~~ ***Three*** area***s*** to the south-west of San Hing Tsuen ~~is~~ ***are*** zoned "R(E)". The***se*** area***s*** ~~is~~ ***are*** at present intermixed with structures for residential use, open storage and workshops. Since it may not be possible to phase out all the industrial uses at once, it is important to ensure that the residential development will be environmentally acceptable and not subject to I/R interface problems. The applicant will be required to submit adequate information to demonstrate that the new development will be environmentally acceptable, and suitable mitigation measures, if required, will be implemented to address the potential I/R interface problems. In addition, the applicant will have to prove to the Board that the proposed development would have no or minimal adverse impact on the area in terms of environmental quality, land-use compatibility, infrastructural provision and traffic requirement.

9.~~6~~***7***.3 New development within this zone is restricted to a maximum plot ratio of 1.0, a maximum site coverage of 40% and a maximum building height of 4 storeys over single-storey car park (15m). To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the above restrictions may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

9.~~7~~***8*** Village Type Development ("V") : Total Area : 102.78 ha

9.~~7~~***8***.1 The planning intention of this zone is to reflect existing recognized and other villages, and to provide land considered suitable for village expansion and reprovisioning of village houses affected by Government projects. Land within this zone is primarily intended for development of Small Houses by indigenous villagers. It is also intended to concentrate village type development within this zone for a more orderly development pattern, efficient use of land and provision of infrastructures and services. Selected commercial and community uses serving the needs of the

villagers and in support of the village development are always permitted on the ground floor of a New Territories Exempted House. Other commercial, community and recreational uses may be permitted on application to the Board.

9.~~7~~***8***.2 The boundaries of the "V" zones are drawn up having regard to the existing village environs, the anticipated Small House demands for the next ten years, topography, site constraints and the provision of public services. Village expansion areas and other infrastructural improvements will be guided by detailed layout plans whenever applicable.

9.~~7~~***8***.3 All recognized villages within the Area are zoned "V". These include San Hing Tsuen, Tuen Tsz Wai, Tsing Chuen Wai, Chung Uk Tsuen, Nai Wai, Sun Fung Wai, Lam Tei Tsuen, Tuen Mun San Tsuen and To Yuen Wai.

9.~~7~~***8***.4 As the zoned areas are located adjacent to Castle Peak Road, Shun Tat Street and Yuen Long Highway, noise mitigation measures such as the use of screening structures and the adoption of self-protective building layout would need to be implemented.

9.~~8~~***9*** Government, Institution or Community ("G/IC") : Total Area : ~~5.78~~ ***6.31*** ha

9.~~8~~***9***.1 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.

9.~~8~~***9***.2 The Director of Environmental Protection (DEP) should be informed of any noise sensitive users within the "G/IC" zone which might be subject to noise impact and noise mitigation measures may be required.

9.~~8~~***9***.3 There are ~~four~~ ***five*** sites zoned "G/IC" in the Area and three of them are existing uses. The first site is located at San Hing Tsuen covering an ex-primary school and Tze Tong. The second site covers the existing Miu Fat Buddhist Monastery and its affiliated secondary school. The third site is a waterworks installation located near Lam Tei Quarry. The last site located between the Nullah and Castle Peak Road is reserved for a primary school in the long term.

9.9.4 A site along the western boundary of the Area is zoned "G/IC" reserved for the provision of a fresh water service reservoir and a salt water service reservoir.

9.~~8~~***9.4~~5***A site to the east of Fuk Hang Tsuen Road is zoned "G/IC(1)". This area is intended for development of elderly care services. Developments within this sub-area are restricted to a maximum gross floor area of 35,000m^2 and a maximum building height of 50 metres above Principal Datum. To provide flexibility for innovative design adapted to the

characteristics of the site, minor relaxation of the above restrictions may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

9.~~9~~***10*** Open Space ("O") : Total Area : 1.93 ha

9.~~9~~***10***.1 This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

9.~~9~~***10***.2 The following areas are zoned "O":

(a) Chung Uk Children's Playground at Chung Uk Tsuen;

(b) Nai Wai Soccer Pitch at Nai Wai;

(c) Fuk Hang Playground on both sides of the junction of Fuk Hang Tsuen Road and Castle Peak Road;

(d) a public open space at Lam Tei Main Street; and

(e) a strip of land to the east of Bauhinia Garden opposite to Hung Shui Kiu NDA.

9.~~9~~***10***.3 Additional open space will be provided within the residential zonings and "CDA" zones. The designation of open space at Lam Tei Quarry after its decommissioning would be subject to review as detailed planning proceeds.

9.1~~0~~***1*** Other Specified Uses ("OU") : Total Area : 29.66 ha

This zone covers sites designated for specified uses.

(a) "OU" annotated "Quarry"

This zone is intended primarily for quarry use. The existing Lam Tei Quarry is zoned for this purpose to reflect the existing use of the site for quarry operation and its ancillary uses.

(b) "OU" annotated "Refuse Transfer Station"

This zone is intended primarily for the provision of refuse transfer station. A site at the end of Shun Tat Street and adjacent to Yuen Long Highway is zoned for this use and is currently occupied by the North West New Territories Refuse Transfer Station and its ancillary uses. The site is allocated to DEP.

(c) "OU" annotated "Petrol Filling Station"

This zone is intended primarily for the provision of petrol filling station. Four sites for five existing petrol filling stations (PFSs) are zoned for this

purpose to reflect the existing uses. Two PFSs are located to the north of Bauhinia Garden opposite to Hung Shui Kiu NDA. The third one is located near the junction of Castle Peak Road and Fuk Hang Tsuen Road in Lam Tei. The fourth one is located at the island site between Castle Peak Road and the LR while the fifth one is located near to the junction of Castle Peak Road and Ng Lau Road.

9.1~~1~~***2*** Green Belt ("GB") : Total Area : ~~110.68~~ ***98.19*** ha

9.1~~1~~***2***.1 The planning intention of this zone is primarily for defining the limits of urban and sub-urban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlets. There is a general presumption against development within this zone. The zoned areas may include foothills, lower hill slopes, spurs, isolated knolls, woodland, traditional burial ground or vegetated land which occur at the urban fringe. Limited developments may be permitted with or without conditions on application to the Board, and each application will be considered on its individual merits taking into account the relevant Town Planning Board Guidelines.

9.1~~1~~***2***.2 The "GB" zone covers an area to the north-west of Tsing Chuen Wai, and the south-western corner and south-eastern portion of the Area. The strip of land along the western side of Yuen Long Highway is also zoned "GB" in order to provide a buffer area for the adjoining uses.

9.1~~1~~***2***.3 As ***diversion of stream,*** filling of land and excavation of land may cause adverse drainage impacts on the adjacent areas and adverse impacts on the natural environment, permission from the Board is required for such activities.

9.~~1~~2***13*** Conservation Area ("CA") : Total Area : 152.43 ha

9.1~~2~~***3***.1 This zoning is intended to protect and retain the existing natural landscape, ecological or topographical features of the area for conservation, educational and research purposes and to separate sensitive natural environment such as Country Park from the adverse effects of development. There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted. The area under this zoning is mainly Government land and permitted burial grounds.

9.1~~2~~***3***.2 Uses related to conservation purposes such as nature reserve and nature trail are permitted as of right. However, significant new developments are not permitted in this zone. Only a selective range of uses such as public convenience and tent camping ground which would have insignificant impact on environment and infrastructural provision could be permitted upon approval by the Board.

9.1~~2~~***3***.3 The majority of the areas under this zoning are the flanks of the western

and eastern boundaries of the Area. They are sloping land adjoining Tai Lam Country Park and the Tsing Shan Firing Range.

9.1~~2~~***3***.4***As diversion of stream,*** ~~F~~***f***illing of land and excavation of land may cause adverse drainage impacts on the adjacent areas and adverse impacts on the natural environment. In view of the conservation value of the area within this zone, permission from the Board is required for such activities.

10. TRANSPORT AND COMMUNICATION

10.1 Road and Rail Networks

10.1.1 Castle Peak Road, an important local distributor, provides pedestrian and vehicular access to the Area. Several roads branch off from Castle Peak Road serving the Area are Fuk Hang Tsuen Road, Shun Tat Street, Lam Tei Main Street and San Hing Road. Parallel to Castle Peak Road is the LR network which connects the Area with Yuen Long Town and Tin Shui Wai New Town in the north and Tuen Mun New Town in the south. The completion of Route 3 and the ~~WR~~ ***TML*** also greatly improve the accessibility of the Area. The KSWH provides a strategic road which links the Shenzhen Bay Bridge (which is also known as the Hong Kong-Shenzhen Western Corridor) at its landing point in Ngau Hom Shek with the Yuen Long Highway at Lam Tei.

10.1.2 It is also one of the planning intentions that the junctions especially those along Castle Peak Road should be improved through comprehensive planning.

10.2 Transport Provision

The Area is at present served by both rail-based and road-based public transport including the ~~WR~~ ***TML***, LR, existing buses, public light buses and taxi services linking to Tin Shui Wai New Town and Yuen Long Town in the north and Tuen Mun New Town in the south.

11. UTILITY SERVICES

11.1 Water Supply

The existing ~~water treatment works~~ ***Water Treatment Works*** ~~capacity~~ available in NWNT ~~will soon be~~ ***has already been*** fully committed. Further treatment works capacity, if required, would be made available from the future extension to ~~Ngau Tam Mei~~ ***the*** Water Treatment Works ***in NWNT***. ***A site zoned "G/IC" located along the western boundary of the Area is reserved for the provision of a new fresh water service reservoir and a new salt water service reservoir.*** Extension of water supply system will be required if there is a substantial increase in the future water demand arising from large residential developments.

11.2 Sewerage and Sewage Treatment

At present, public sewer along Castle Peak Road is provided to serve the Area. The DEP has completed a consultancy study on the review of Tuen Mun Sewerage Master Plan in 2003. The study includes the formulation of a new Sewerage Master Plan to extend the public sewer to the Area in the long-term. Developments in the Area must make own provision for suitable and satisfactory on-site sewage treatment prior to the availability of public sewer with adequate capacity for connection. Connection to public sewer shall be made when public sewer with adequate capacity is in place and connection to public sewer is required by the DEP.

11.3 Electricity

The Area has long been supplied with electricity. It is anticipated that there will not be any problem in the provision of electricity supply to the Area.

11.4 Gas

Gas pipelines have already been laid along Yuen Long Highway and Castle Peak Road. Piped gas supply to the Area is dependent on the demand of future developments.

12. CULTURAL HERITAGE

12.1 Within the ***boundary of the*** Area, there ~~are graded~~ ***is a Grade 1*** historic building~~s~~, i.e. To Ancestral Hall at Tuen Tsz Wai ~~(Grade 1) and Entrance Gate of Sun Fung Wai (Grade 3)~~, as well as the Fu Tei Ha, Nai Wai Kiln, San Hing Tsuen, Tsing Chuen Wai and Tuen Tsz Wai Sites of Archaeological Interest. All of the above graded historic building~~s~~ and sites of archaeological interest are worthy of preservation.

12.2 The Antiquities Advisory Board (AAB) also released a list of new items in addition to the list of 1,444 historic buildings. These items are subject to grading assessment by the AAB. Details of the list of 1,444 historic buildings and the new items have been uploaded onto the website of the AAB at http://www.aab.gov.hk.

12.3 Prior consultation with the Antiquities and Monuments Office (AMO) ~~of the Leisure and Cultural Services Department~~ should be made if any development, redevelopment or rezoning proposals might affect the above graded historic buildings/structures, new items pending grading assessment, sites of archaeological interest and their immediate environs. If disturbance to the site(s) of archaeological interest is unavoidable, an archaeological impact assessment shall be conducted to evaluate the archaeological impact imposed by the proposed works. If necessary, a qualified archaeologist shall be engaged to apply for a licence from the Antiquities Authority under the Antiquities and Monuments Ordinance (Cap. 53) for an archaeological field investigation and proposed appropriate mitigation measures to the satisfaction of ~~the~~ AMO.

13. IMPLEMENTATION

13.1 The Plan provides a broad land-use framework for development control and implementation of planning proposals. More detailed plans will be prepared as a basis for public works planning and private developments.

13.2 At present there is no overall programme for the provision of infrastructure within the Area. The implementation process will be gradual and may stretch over a long period depending on the availability of resources. It will be undertaken through the participation of both the public and private sectors.

13.3 The provision of infrastructure, e.g. road widening and laying of services will be implemented through the Public Works Programme and Rural Public Works as and when resources are available. Private developments will be effected principally through private sector initiatives to develop or redevelop their properties in accordance with the zoned uses indicated on the Plan, provided that their proposals meet Government requirements.

14. PLANNING CONTROL

14.1 The types of permitted developments and uses within the Area are listed in the Notes to the Plan. Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted developments and uses within the same zone are always permitted and no separate permission is required.

14.2 Uses of land or building which were in existence immediately before the first publication in the Gazette of the notice of the draft DPA Plan and which are not in compliance with the terms of the Plan may have adverse impact on the environment, drainage and traffic of the Area. Although no action is required to make such use conform to the Plan, any material change of such use or any other development (except minor alteration and/or modification to the development of the land or building in respect of such use which is always permitted) must be always permitted in terms of the Plan or, if permission is required, in accordance with a permission granted by the Board. The Board will consider these applications on their individual merits. Those alteration and/or modification works which may lead to an environmental improvement or upgrading to the Area may be considered favourably by the Board.

14.3 Planning applications to the Board will be assessed on individual merits. In general, the Board, in considering the planning applications, will take into account all relevant planning considerations which may include the departmental outline development plans and layout plans, and the guidelines published by the Board. The outline development plans and the layout plans are available for public inspection at ~~the Planning Department~~ ***PlanD***. 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~~ ***PlanD***. 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, and the Technical Services Division and the relevant District Planning

Office of ~~the Planning Department~~ ***PlanD***. Applications should be supported by such materials as the Board thinks appropriate to enable it to consider the applications.

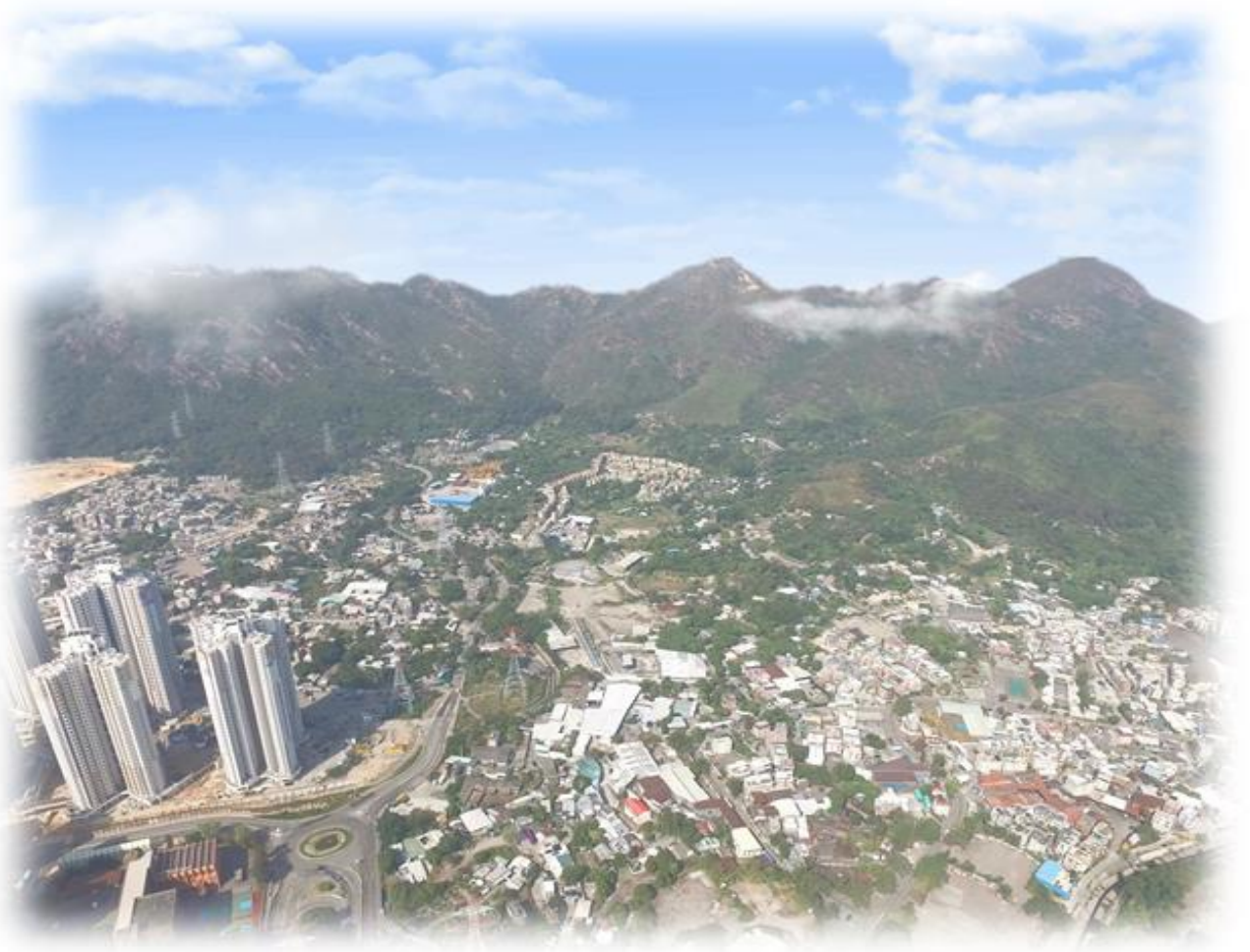
14.4 Any development, other than those referred to in paragraph 14.1 above or in conformity with this Plan or with the permission of the Board, undertaken or continued on or after 18 June 1993 on land included in a plan of the Lam Tei and Yick Yuen DPA, may be subject to enforcement proceedings under the Ordinance. Any ***diversion of stream and/or*** filling of land and excavation of land in the relevant zones on or after the exhibition of the specific plan referred to in the Notes of the relevant zones without the permission from the Board may also be subject to enforcement proceedings.

TOWN PLANNING BOARD
~~OCTOBER 2018~~ _____ ***2021***

Agreement No. CE 68/2017 (CE)
Site Formation and Infrastructural Works for the Development at San Hing Road and Hong Po Road, Tuen Mun - Feasibility Study

FINAL REPORT

198172/B&V/025/Issue 4
July 2021



CEDD 土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH

Agreement No. CE 68/2017 (CE)

Site Formation and Infrastructural Works for the Development at San Hing Road and Hong Po Road, Tuen Mun – Feasibility Study

---

Final Report

198172/B&V/025/Issue 4

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July 2021

DOCUMENT CONTROL	Agreement No. CE68/2017 (CE) Site Formation and Infrastructural Works for the Development at San Hing Road and Hong Po Road, Tuen Mun – Feasibility Study	No: **198172/B&V/025**
AMENDMENT RECORD		Prepared by: **B&V**
Final Report	Client: CEDD	Initial: **YLT**
		Date: **July 2021**

Pages	Date	Issue No	Description	Initials
All	October 2020	1	Issue to Government Departments for Comments	YLT
All	February 2021	2	Issue to Government Departments for Comments	YLT
All	June 2021	3	Issue to Government Departments for Comments	YLT
All	July 2021	4	Issue to Government Departments for Comments	YLT

*The Registered Recipient is responsible for destroying or marking as 'superseded' all superseded documents.

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Checked	Tony LEE		July 2021
Reviewed	Jeremy WONG		July 2021
Authorized	Edwin LO		July 2021

LIST OF ABBREVIATIONS

Abbreviation	Meaning
AMO	Antiquities and Monuments Office
API	Aerial Photograph Interpretation
AQO	Air Quality Objectives
AOI	Area of Influence
ASR	Air Sensitive Receiver
AVA	Air Ventilation Assessment
BDTM	Base District Traffic Model
C&D	Construction & Demolition
CDF	Channelized debris flow
CEDD	Civil Engineering and Development Department
CLP	China Light and Power Co Ltd.
CTS	Comprehensive Transport Study
DIA	Drainage Impact Assessment
DEA	Data envelopment analysis
DP	Designated Project
DSD	Drainage Services Department
EB	Eastbound
EIAO	Environmental Impact Assessment Ordinance
EMSD	The Electrical and Mechanical Services Department
EPD	Environmental Protection Department
FS	Feasibility Study
FW	Fresh Water
GB (Zoning)	Green Belt
GCC	General conditions of contract
GEO	Geotechnical Engineering Office
GFA	Gross Floor Area
GI	Ground Investigation
GLA	Government Land Allocations
GLL	Government Land License
GMB	Green Minibus
G/IC (Zoning)	Government, Institution or Community
HD	Housing Department
HKBN	Hong Kong Broadband Network Limited
HKCGC	Hong Kong and China Gas Company Limited (Towngas)
HKHA	Hong Kong Housing Authority
HKPSG	Hong Kong Planning Standards and Guidelines
HPR Site	Hong Po Road Site
HKT	Hong Kong Telecom
HyD	Highways Department
I, D&C	Investigation, Design and Construction

Abbreviation	Meaning
LandsD	Lands Department
LVIA	Landscape & Visual Impact Assessment
LCA	Landscape Characteristic Area
LOPSW P/S	Lok On Pai Salt Water Pumping Station
LR	Landscape Resource
LRT	Light Rail Transit
MTR	Mass Transit Railway
NB	Northbound
NEC	New Engineering Contract
NSR	Noise Sensitive Receiver
NTHS	Natural Terrain Hazard Study
NWNT	North West New Territories
OH Catchments	Open hillslope Catchments
OHL	Overhead Line
OPRS	On-site Pre-school Rehabilitation Services
OZP	Outline Zoning Plan
pcu	Passenger Car Unit
PES	Preliminary Environmental Study
PH	Public Housing
PFC	Public Fill Committee
PLB	Public Light Bus
PME	Powered Mechanical Equipment
PPOF	Person Per Occupied Flat
PH	Public Housing
PTI	Public Transport Interchange
PTTIA	Preliminary Traffic and Transportation Impact Assessment
R (Zoning)	Residential
RC	Reserve Capacity
RCHE	Residential Care Home for the Elderly
RFC	Ratio of Flow to Capacity
RSP	Respirable Suspended Particulates
SB	Southbound
SDM	Stormwater Drainage. Manual
SHR Site	San Hing Road Site
SHR Site Extension	San Hing Road Site Extension
SPS	Sewage Pumping Station
SI	Site Investigation
SSF	Subsidised Sale Flats
S/R	Service Reservoir
SW	Salt Water
SWL	Sound Power Level
TD	Transport Department

Abbreviation	Meaning
TML	Tuen Ma Line
TPZ	Tree Protection Zone
TGLA	Temporary Government Land Allocation
TGN37	Guidelines on Empirical Design of Flexible Barriers for Mitigating Natural. Terrain Open Hillslope Landslide Hazards
TPDM	Transport Planning & Design Manual
TPEDM	Territorial Population and Employment Data Matrices
TPRP	Tree Preservation and Removal Proposal
TSFR	Tsing Shan Firing Range
TSP	Total Suspended Particulates
VEB	Village Environ Boundary
VEP	Variation of Environmental Permit
VSRs	Visually Sensitive Receivers
V/C Ratio	Volume to Capacity Ratio
WB	Westbound
WIS	Western Interceptor Sewer
WRL	West Rail Line
WSD	Water Supplies Department

1 INTRODUCTION

1.1 Background

1.1.1 The Government is committed to increase the supply of land for housing development in a persistent manner to meet the keen housing demands of the public. To meet this policy objective, the sites at San Hing Road (SHR) and Hong Po Road (HPR) have been identified for potential public housing development. The Site Formation and Infrastructural Works for the Development at San Hing Road and Hong Po Road, Tuen Mun – Feasibility Study (the Study) commenced in February 2018 to ascertain the engineering feasibility and environmental acceptability of the proposed public housing development at these sites.

1.1.2 Black & Veatch Hong Kong Limited (B&V)[1] was commissioned by Civil Engineering and Development Department (CEDD) to examine the technical feasibility on developing public housing at SHR and HPR, Tuen Mun (the Project), location of which is shown in ***Figure No. 198172/B&V/FR/0101.***

1.1.3 The Proposed Development Area (PDA) mainly comprises SHR Site, SHR Site Extension, HPR Site, the proposed Road L7 and the realigned Hong Po Road. The PDA is situated in Tuen Mun between Lam Tei Light Rail Transit (LRT) Station and Siu Hong West Rail Line[2] / Light Rail Transit (WRL/ LRT) Interchange Station. SHR Site, SHR Site Extension and HPR Site are currently connected by Hong Po Road which is a single two-way road of 6m wide with substandard footpaths and road bends and is remote from the public transport network. On the south side of the PDA is Po Tong Ha and Tsz Tin Tsuen, while the west side is the Tsing Shan Firing Range (TSFR). The private housing site, Villa Pinada, which is a low density private residential development, is located to the north side of the PDA and is situated between HPR Site and SHR Site Extension.

1.1.4 The PDA currently falls within areas zoned "Residential (Group E)" ("R(E)") and "Green Belt" ("GB") on the approved Lam Tei and Yick Yuen Outline Zoning Plan (OZP) No. S/TM–LTYY/10 (the LTYY OZP) and "Residential (Group E) 1" ("R(E)1"), "GB", an area shown as 'Road' and slightly encroaches onto an area zoned "Village Type Development" ("V") on the approved Tuen Mun OZP No. S/TM/35 (the TM OZP).

1.1.5 The total study area under the Study is about 29.7 ha. Since it exceeds 20 ha, Environmental Impact Assessment (EIA) is required in accordance with the Item 1 under Schedule 3 of the EIA Ordinance (Cap. 499), i.e. "Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100,000". In this regard, the Study with an EIA Study is required to ascertain the engineering feasibility and environmental acceptability of the proposed public housing development.

1.1.6 While the sites at San Hing Road and Hong Po Road have the potential for public housing development, the proposed sites are subject to various development

[1] Currently named as "Binnies Hong Kong Limited"
[2] Currently named as "Tuen Ma Line"

constraints including inadequate infrastructure. A holistic review is required to confirm the feasibility of amending the land use of the sites for the proposed development. In order to support the subsequent proposed amendments to the OZPs by the Government, the Study will examine the feasibility on developing public housing and associated Government, Institutional and Community (GIC) facilities by conducting preliminary engineering and environmental assessments to formulate Infrastructure proposal, and the implementation strategies and programme for the infrastructure to suit the proposed public housing development.

1.2 Project Description

1.2.1 Throughout the study period under this Agreement, the boundaries of the proposed public housing sites have been refined for the purpose of optimizing land utilisation and addressing site constraints.

1.2.2 The aim of this Study is to assess the feasibility of site formation and infrastructural works to support the proposed public housing and school developments. The scope of the works in general include:

a) Site formation works;

b) Slope works and other geotechnical works;

c) Land decontamination works;

d) Roadworks (e.g. Proposed Road L7 and the realigned Hong Po Road);

e) Waterworks (including service reservoirs);

f) Sewerage works (including sewage pumping station);

g) Drainage works;

h) Landscaping works;

i) Public Transport Interchanges (PTIs);

j) Environmental mitigation measures;

k) Archaeological field survey and mitigation measures ; and

l) Other infrastructure works including utilities and road junction improvement works, etc.

1.2.3 A series of technical assessments need to be carried out under the Study to determine the feasibility of site formation and infrastructural works supporting the proposed public housing development. These assessments include, but not limited to:

a) Preliminary air ventilation assessment;

b) Preliminary traffic and transport impact assessment;

c) Preliminary pedestrian connectivity assessment;

d) Preliminary geotechnical assessment;

e) Preliminary site formation assessment;

f) Preliminary drainage impact assessment;

g) Preliminary sewerage impact assessment;

h) Preliminary water supply and utility impact assessment;

i) Preliminary sustainability assessment;

j) Preliminary land requirement study;

k) Environmental impact assessment study; and

l) Preliminary land contamination and remediation study.

1.3 Purpose and Structure of this Report

1.3.1 The purpose of this Final Report is to set out the key findings, recommendations and conclusions of the Study. It also includes the recommended scope of the site formation and infrastructural works.

1.3.2 The Final Report includes:

(a) findings, proposals and recommendations of the Study including the scope of the recommended site formation and infrastructural works;

(b) the results of the technical assessments; and

(c) the implementation strategy and frameworks, including recommendation on implementation and phasing for the infrastructure works.

1.3.3 The structure of the report is as follows:

- Section 1 introduces the project background, the main tasks and purpose of this report;

  Section 2 presents the preliminary development proposal;

- Sections 3 to 15 summarise the findings and recommendations of various technical assessments for the proposed public housing development, including air ventilation, traffic and transport, pedestrian connectivity, geotechnical, site formation, drainage, sewerage, water supply, utilities, sustainability, land requirement, environment, landscape and visual and land contamination and remediation;
- Section 16 presents a tentative implementation programme; and
- Section 17 provides the conclusion to the report.

2 PROPOSED DEVELOPMENT LAYOUT PLANS AND DEVELOPMENT PARAMETERS

2.1 General

2.1.1 This chapter describes the proposed layout plans and the development parameters for the proposed development sites.

2.2 Site Description

2.2.1 The Site mainly comprises the SHR Site, SHR Site Extension and HPR Site, the proposed Road L7 and the realigned Hong Po Road. The preliminary layouts of the proposed sites are illustrated in ***Figure No. 198172/B&V/FR/0201.*** To support the proposed development, a number of infrastructure works including site formation works, construction of public housing and schools, provision of social welfare facilities, construction of roads, construction of drainage, sewerage and waterworks facilities, and construction of landscaping works etc., will be implemented.

2.2.2 The Site currently comprises slopes, open storage, workshops, low–rise village houses settlements, agricultural area, ice–making factories, warehouses and temporary structures, graves, urns and permitted burial grounds. The existing / proposed ground levels are summarized in ***Table 2.1*** below:

Table 2.1 – Existing Ground Level and Proposed Site Formation Level of Proposed Development

Location	Existing Ground Level (mPD)	Proposed Site Formation Level (mPD)
SHR Site	Approx. 5.3 to 14.8	Approx. 6 to 12
SHR Site Extension	Approx. 9 to 16	Approx. 9.8 to 12.2
HPR Site	Approx. 14 to 40	Approx. 8 to 21

2.2.3 Tsing Shan Firing Range (TSFR) adjoins the north–western boundary of the Site. The Site is rural in nature and is characterized by brownfield operation intermixed with scattered low–rise/ village type developments. The Site is accessible by Hong Po Road, which is a single two–way road of 6m with substandard footpaths and road bends.

SHR Site

2.2.4 The SHR Site is located to the south of San Hing Tsuen and bounded by the San Hing Road to the north, Ng Lau Road to the east and Hong Po Road to the south. The SHR Site currently comprises brownfield operations intermixed with village type developments. The eastern part of the SHR Site falls within the Railway Protection Zone of MTR Corporation Limited. The Railway Protection Zone is shown in ***Figure No. 198172/B&V/FR/0202*.**

2.2.5 The existing village type developments are located very close to the brownfield sites and hence are affected by the brownfield operations to a certain extent. There are several drainage channels located within the SHR Site. CLP's 400kV Overhead Line (OHL) and the pylons are located to the south of SHR Site. The Tuen Mun Nullah is located at the east side of SHR Site. Details of the existing drainage system and

proposed drainage works will be discussed in **Section 8**.

SHR Site Extension

2.2.6 The SHR Site Extension is sandwiched by a well-established low rise residential development named Villa Pinada and northwestern boundary of the SHR Site. It is currently occupied by a marble factory and squatter structures. Immediately north of SHR Site Extension is the Permitted Burial Ground No. 6 (BURGD6).

2.2.7 There is an existing open channel running from the northwest to the south within the SHR Site Extension. A drainage channel is located at the south of the SHR Site Extension. These existing drainage channels would require proper diversion during the proposed site formation works. 400kV OHL and the pylons are located to the south side of the SHR Site Extension.

HPR Site

2.2.8 The HPR Site is located to the west of Villa Pinada and to the east of TSFR. To the north and west of HPR Site are the BURGD7 and BURGD8 respectively. The HPR Site is currently occupied by open storage, orchard and scattered residential dwellings. A DSD adit shaft building, which falls within the boundary of TSFR, is located to the northwest of the site.

2.3 Background of the Planning of Sites

2.3.1 Housing is one of the most important livelihood issues in Hong Kong to be addressed by the Government. Hence, increasing land supply for housing development has been one of the major focuses in the Policy Addresses for last few years. The 2011–2014 Policy Addresses had identified that increasing production of public housing as well as land supply for private housing development would be a key to tackle issues arising from the raising housing demand. Various measures had been recommended with an aim to expanding the land resources, which include exploring the possibility of converting agricultural land in some parts of the New Territories, currently used for industrial purposes or temporary storage into land for housing development. Under the Long Term Housing Strategy 2019, the split ratio of public / private housing of 70:30 is adopted continuously, and supply target for public housing is 301,000 for ten year from 2020/21 to 2029/30.

2.3.2 Currently, SHR Site mainly falls within an area zoned "Residential (Group E)" ("R(E)") on the LTYY OZP, with minor portion falls within an area zoned "Residential (Group E) 1" ("R(E)1") and an area shown as 'Road' on the approved Tuen Mun Outline Zoning Plan No. S/TM/35.

2.3.3 SHR Site Extension mainly falls within an area zoned "Green Belt" ("GB") on the LTYY OZP, with minor portion falls within an area zoned "GB" on the TM OZP.

2.3.4 HPR Site mainly falls within an area zoned "GB" on the LTYY OZP, with minor portion falls within an area zoned "GB" and an area shown as 'Road' on the TM OZP.

2.3.5 The details of the OZPs are shown in ***Figure No. 198172/B&V/FR/0203*.**

2.4 Proposed Development Layout Plans and Development Parameters

2.4.1 The PDA boundary has been refined in the feasibility study taking into account the site, land, traffic and transport, environmental, geotechnical and associated infrastructure constraints to develop an optimised development layout

2.4.2 The preliminary site layout plan is shown in ***Figure No. 198172/B&V/FR/0201***, and are described as follows: –

- The area between SHR Site Extension and HPR Site was adjusted along the boundary of the open storage and the village;
- The area between SHR Site and SHR Site Extension was excluded to minimize disturtance to existing graves;
- The area to the north of western side of SHR Site was excluded to minimize disturbance to existing graves; and
- The area at the eastern side of SHR Site was excluded due to the presence of existing pylon and to minimize disturbance to the existing residential clusters.

2.4.3 Based on the proposed development layouts, the development parameters for the proposed development, which are subject to review at later investigation and design stages, are summarized in **Table 2.2** *&* ***Table 2.3*** below:

Table 2.2 – Proposed Development Parameters#

Site	Zoning on the Current OZP	Proposed Land Use	No. of Flats/ Domestic Population	GIC Facilities (m^2)		Tentative Completion Year
SHR Site	"R(E)" and "GB" on the approved Lam Tei and Yick Yuen OZP No. S/TM-LTYY/10 & "R(E)", "GB","V" and area shown as 'Road' on the approved Tuen Mun OZP No. S/TM/35	Public Housing (PH)	9,400/ 26,300	100–p Child Care Centre (CCC)	1,166	2031
				Neighbourhood Elderly Centre (NEC)	1333.2	
				60–p Special Child Care Centre (SCCC)	902	
				On-site Pre-school Rehabilitation Services (OPRS) Office Base	363	
				Two 6-classrooms kindergartens	1,000	
				Retail	10,620	
				Others*	21,942.8	
				Total Non–Domestic GFA	**37,327.0**	
				Two 36 -classroom primary schools	14,000	
SHR Site Extension		Public Housing (PH)	1,700/ 4,700	Retail	1,000	2030
				Others*	6,298	
				Total Non–Domestic GFA	**7,298.0**	
				Two 36 -classroom primary schools	21,000	

Site	Zoning on the Current OZP	Proposed Land Use	No. of Flats/ Domestic Population	GIC Facilities (m^2)		Tentative Completion Year
				One 30-classroom secondary school		
HPR Site		Public Housing (PH)	10,500/ 30,000	Retail	8,000	2033
				150–p Residential Care Home for the Elderly (RCHE) + 30–p Day Care Unit (DCU)	4,406.6	
				Integrated Children and Youth Services Centre (ICYSC)	1,388.2	
				Neighbourhood Elderly Centre (NEC)	1333.2	
				Others*	21160.5	
				Two 9-classrooms kindergartens	1,520	
				Total Non–Domestic GFA	**37,808.5**	

Remarks:
subject to review at later investigation and design stages.
*allowed for provision of additional retail facilities or welfare facilities (to be reviewed in the detailed design stage).

Table 2.3 – Detail Breakdown of the GFA#

Development Parameters	SHR Site	SHR Site Extension	HPR Site
Overall Plot Ratio (PR)	6.5 (Assuming a domestic PR of 6 and a non-domestic PR of 0.5)		
Net Site Area	About 7.5 ha	About 1.5 ha	About 7.6 ha
Population per flat	About 2.8		
No. of Units	9,400	1,700	10,500
Max. Building Height (mPD)	About +150	About +150	About +150
No. of Domestic Storeys	32-46	43	43-44
School Provision	• Two 36-classroom primary schools	• Two 36-classroom primary Schools • One 30-classroom secondary school	-
Completion Year	2031	2030	2033

Remarks:
subject to review at later investigation and design stages.

3 PRELIMINARY AIR VENTILATION ASSESSMENT (AVA)

3.1 General

3.1.1 Qualitative assessment (Expert Evaluation) of wind environments with the proposed public housing development have been carried out based on the preliminary layout plan.

3.1.2 Preliminary AVA has been conducted for the Project to establish guiding principles in air ventilation terms and evaluate the proposed developments in accordance with the Technical Guide for AVA for developments in Hong Kong.

3.2 Summary on Site Wind Availability and Air Ventilation Performance

3.2.1 After reviewing the development layout, the existing conditions of adjacent areas, the far–field and near–field topography, the site wind availability including the major breezeways, and future developments in the surrounding areas, it is considered that there would be some potential air ventilation impacts on the areas in the vicinity of the Site when the cumulative effect is reviewed in annual (NNE, NE, E, SE, SSE, S) and summer (SSE, S, SSW, SW) prevailing wind conditions.

3.2.2 Air ventilation to the nearest large development Villa Pinada, San Hing Tsuen, Yan Tin Estate, the proposed schools within the Sites, San Tat Lane and San Hing Road would be affected at different degrees subject to either annual or summer prevailing wind conditions in NE to SW wind directions.

3.2.3 The effect of surrounding topography on the wind environment of the Site is investigated. It is considered that a majority portion of strong winds from prevailing directions of NE to SW will pass through the Site as the wind directions are aligned with the direction of the valley running more or less in the north–south direction. Part of the prevailing winds coming from SE, SSE and SW will be weakened by the shielding effects of the adjacent mountains; while magnifications in wind speed due to downhill air movement and valley wind is expected from some vegetative hill slopes and some valleys near the Site.

3.2.4 The effect of building morphology on the wind environment of the Site due to the committed developments in vicinity is investigated. The existing Siu Hong Court and Yan Tin Estate may obstruct S and SSE wind to the Site. Tsing Lun Road and Tsz Tin Road serve as breezeways which allow wind penetration to the Project Site. A summary of prevailing winds and major breezeways is shown on **Appendices A-1** and **A-2**.

3.2.5 The layouts of each Sites are shown on **Appendices A-3** to **A-5** and the good design features are summarized below:

<u>HPR Site</u>

3.2.6 Most of the building separation are at least 15m.

3.2.7 Localised wind corridors which facilitate prevailing winds coming from North-east and South-west directions:

- Between Blocks 1 and 2 which aligned in NE to SW direction

- Between Blocks 2 and 3 which aligned in NE to SW direction
- Between Blocks 8 and 9 which aligned in NE to SW direction

SHR Site Extension

3.2.8 The building gaps are designed in NE to SW direction which facilitate the penetration of prevailing wind from north-east and south-west quadrant.

3.2.9 Localised wind corridors which facilitate prevailing winds coming from North-east and South-west directions:

- Between the residential blocks and the proposed Primary School Site C at the east which aligned in NE to SW direction
- Between the residential blocks and the proposed Secondary school Site A which aligned in NE to SW direction

SHR Site

3.2.10 The building blocks (Blocks 5 to 9) are aligned in NE to SW direction which facilitate the penetration of prevailing wind from north-east and south-west quadrant.

3.2.11 Localised wind corridors which facilitate prevailing winds coming from North-east and South-west directions:

- Opening under the podium between Blocks 3 and 4 which allow wind penetration
- Between Blocks 6 and 7 which aligned in NE to SW direction
- Block 2 and Block 3 are taller than Block 1 by at least 25 meters to convey the upper wind down to the pedestrian level under prevailing E direction annual wind

3.2.12 Considering the wind performance in prevailing wind directions, the following issues are identified:

(a) The leeward side of the inner site area within HPR Site under annual and summer wind conditions;

(b) The extended podium to the south east of Blocks 2 and 11 of HPR Site is predicted to lower the performance of the potential wind path between Blocks 1 and 2;

(c) The leeward side of the inner site area within SHR Site Blocks 5 to 9 under annual and summer wind conditions;

(d) The extended podium to the south east of Block 9 is predicted to lower the performance of the potential wind path between Blocks 5 and 8 of SHR Site under NE to SW wind;

(e) Villa Pinada, the largest development in the surrounding area, would be affected in summer prevailing wind conditions subject to SSE and S winds. Its access road from the proposed Road L7 and the houses along the access would also be affected in annual prevailing wind conditions;

(f) Proposed Primary School Site B (as shown in Appendix A) would be affected under summer wind conditions subject to SW and SSW winds;

(g) Proposed Primary School Sites D & E (as shown in Appendix A) would be affected under annual wind conditions (SE & SSE wind) and summer wind conditions (SSE wind);

(h) San Hing Tsuen would be affected under summer wind conditions(SW, SSW and S);

(i) Air ventilation to discrete sections of the proposed Road L7 may be affected in annual prevailing conditions subject to NNE and NE winds; and

(j) The downhill wind from Yuen Tau Shan would be less available in the development area as compare to the existing conditions.

3.3 Recommendations

3.3.1 In order to minimise the potential ventilation impacts, the conceptual layout of the proposed housing development has been carefully designed after a qualitative assessment of wind performance of the sites in consideration of the existing condition and the proposed indicative schemes.

3.3.2 It is recommended to maintain the building separation and localized wind corridors mentioned in 3.2.6 to 3.2.11 as to facilitate the wind penetration. Moreover, the extended podium structures mentioned in 3.2.12 are suggested to be removed to enhance the performance of the potential wind paths under different prevailing wind conditions. The proposed mitigation measures are shown in ***Figure No. 198172/B&V/FR/0301*.**

3.3.3 It is also recommended to maximize the building block separations as far as practicable in the detailed design stage. Furthermore, quantitative study is suggested to quantify the air ventilation performance.

3.3.4 In addition, the following design principles to improve urban climate are specified for considerations at detailed design stage:

(a) Building permeability (in accordance with APP–152 Sustainable Building Design Guidelines requirement);

(b) Maintain podium free design as far as practicable;

(c) Building setback (in accordance with APP–152 Sustainable Building Design Guidelines requirement);

(d) Greenery target of 30% while 20% as a minimum;

(e) Avoid continuous long facades; and

(f) Reference could also be made to recommendations of design measures in the

Hong Kong Planning Standards and Guidelines.

3.3.5 This evaluation is qualitative assessment only. Further quantitative AVA is required at detailed design stage for design optimization, so as to assess the ability of wind penetration and to recommend design guidelines for future development from air ventilation perspective.

3.3.6 Initial Study (IS) by Computational Fluid Dynamics (CFD), is recommended to quantify the air ventilation performance. Should the proposed mitigation measures cannot be incorporated into the future design, the quantitative AVA is to prove that the future schemes perform no worse than those with the listed mitigation measures.

3.3.7 Mitigation measures, either planning measures (e.g. provision of amenity area/greening zone) or engineering measures e.g. (installation of shelter/canopy to alleviate downwashed winds) shall be investigated to address wind comfort at pedestrian level.

3.4 Summary

3.4.1 From the air ventilation point of view, no insurmountable issue is anticipated for the proposed development with the incorporation of good building design features.

4 PRELIMINARY TRAFFIC AND TRANSPORT IMPACT ASSESSMENT (TTIA)

4.1 General

4.1.1 This chapter provides a summary of the key findings in the Preliminary TTIA. The existing and planned road networks and traffic impacts due to the proposed developments are presented.

4.2 Existing Road Networks

4.2.1 The potential public housing sites are located at the north of Hong Po Road and the west of Castle Peak Road near Lam Tei Interchange.

4.2.2 Hong Po Road is currently a local access road connecting to the existing developments such as Villa Pinada. It connects to Tsing Lun Road and Ng Lau Road which further leads to Lam Tei Interchange.

4.3 Existing Traffic Conditions

4.3.1 An AOI was established in order to assess the traffic and transport impact arising from the proposed developments. Manual classified traffic count surveys at the concerned junction were conducted on a typical weekday in June 2018 during the AM (07:30 – 09:30) and PM (17:00 – 19:00) peak periods. The locations of these key junctions and road links within AOI are presented in ***Figure Nos. 198172/B&V/FR/0401*** and ***0402*** respectively. The AM and PM peak periods were identified to be 08:00 – 09:00 and 17:30 – 18:30 respectively.

4.4 Approach for Traffic Forecast

Overview

4.4.1 In order to carry out the traffic forecast, the base year and future year traffic models for weekday AM & PM peaks are developed using the 2014–based Territorial Population Employment Data Matrices (TPEDM), 2015 Base District Traffic Model (BDTM), 2017 Annual Traffic Census (ATC) Report and latest planning assumptions for providing traffic forecast.

4.4.2 Taking into consideration the target population intake of SHR Site development (i.e. year 2031), SHR Site Extension development (i.e. year 2030) and HPR Site (i.e. year 2033). Year 2031 and 2036 are adopted for the traffic impact assessment of interim stage upon the population intake of SHR Site and SHR Site Extension, and 3 years after full intake of population respectively.

4.5 Proposed Access Arrangements and Public Transport Facilities

Preliminary Road Layout

Proposed Road L7

4.5.1 Proposed Road L7 is proposed to be connected to the realigned Hong Po Road which links Lam Tei Interchange and Ming Kum Road, providing a direct east-west transport corridor. The concept of the proposed Road L7 is to provide an alternative access route to the proposed development sites so as to minimize the traffic impact to the

surrounding road network.

4.5.2 Without the proposed Road L7, all the traffic generated by the proposed developments to the south could only travel via Tuen Mun Road through Lam Tei Interchange or Tsing Lun Road. The proposed Road L7 could diversify the development traffic to/from the south to Ming Kum Road or Tsun Wen Road and hence alleviate the traffic impact to the road network.

4.5.3 The proposed Road L7 can serve as an alternative route to bypass Tuen Mun Road (Fu Tei Section), bringing traffic relief to a certain extent owing to the growing development in the NWNT.

Realigned Hong Po Road

4.5.4 Realignment and modification of Hong Po Road is proposed to align with the alignment of proposed Road L7. The realigned section of Hong Po Road will be a 10.3m wide two-way carriageway with footpath on both sides.

Vehicular Access Arrangement

4.5.5 The vehicular accesses for HPR Site are proposed at both southeast and southwest side of the site at Hong Po Road. Signalised junctions are proposed at the southeast side whereas run–in/out arrangement is proposed at the southwest side to connect the vehicular accesses with public road.

4.5.6 Three vehicular access points are proposed for SHR Site. An access road is proposed to bisect SHR Site and SHR Site Extension. The vehicular access of SHR Site is located at the west side of the site connecting to the access road, whereas the vehicular access of SHR Site Extension is located at the east side of the site connecting to the same access road. Similar to the vehicular access for HPR Site, it is proposed to provide a left turn filter lane on the exit arm of site access to channelise the left turning traffic for this junction. Connection to the major road network is expected through this proposed access road to Hong Po Road.

4.5.7 The vehicular access for School Sites next to SHR Site is proposed on the south side of SHR Site at Hong Po Road connecting to a cul-de-sac .

4.5.8 The remaining vehicular access for SHR Site is proposed at Ng Lau Road. It is located at the northern end of the site so as to maximise the sightline of Ng Lau Road eastbound to the vehicular access.

4.5.9 The details of the access arrangement and public transport facilities is shown in **Appendix B**.

Public Transport Facilities

4.5.10 For SHR Site, the PTI is proposed at the south of the SHR Site access by a one–way access road connecting to Tsing Lun Road. Four bus bays will be provided within the SHR PTI for the provision of future franchised buses. One Green Minibus (GMB) bay and one taxi bay are recommended to provide comprehensive coverage of the public transport services to accommodate the demand from SHR Site. The one–way traffic arrangement would allow bus traffic turn in/out of the terminus without any conflicting traffic movement.

4.5.11 The HPR PTI is proposed at the southern side of HPR Site with access at Hong Po Road. Six bus bays are proposed to be provided within the HPR PTI. One GMB bay and one taxi bay are recommended to provide comprehensive coverage of the public transport services to accommodate the demand from SHR Site Extension and HPR Site. To shorten the walking distance from HPR Site to the HPR PTI, ramp and stair are suggested to connect the HPR access road and the northern footpath of the PTI.

4.6 Operational Traffic Impact Assessment

4.6.1 Junction capacity and road link assessment for design year 2031 and 2036 for reference scenarios are carried out. The operational Traffic Impact Assessment identifies critical issues and recommends the associated traffic improvement schemes to alleviate the identified traffic problems as necessary.

Road Capacity Assessment

4.6.2 Road link capacity is assessed for the key road links within the AOI. The assessment results for both the reference and design scenarios of design years 2031 and 2036. The results are presented in ***Table 4.1*** and ***Table 4.2*** respectively.

Table 4.1 – Road Link Performance for Year 2031

Index	Road Link	Direction	Link Capacity (pcu/hr)	V/C Ratio			
				2031 Reference		2031 Design	
				AM	PM	AM	PM
L1	Yuen Long Highway (Lam Tei Interchange Section)	EB	4000	0.93	0.91	0.93	0.91
		WB	4000	0.97	0.96	0.97	0.96
L2	Tuen Mun Road (Lam Tei Interchange – Tsing Tin Road Section)	NB	6100	0.94	0.95	0.98	0.97
		SB	6100	1.05	0.96	1.09	0.98
L3	Tsing Lun Road (Section between Ng Lau Road and Lam Tei Interchange)	EB	2800	0.70	0.59	0.80	0.64
		WB	2800	0.51	0.48	0.69	0.57
L4	Lam Tei Interchange (Entry Arm from Tuen Mun Road)	NB	3600	0.11	0.18	0.20	0.21
	Lam Tei Interchange (Exit Arm to Tuen Mun Road)	SB	1800	0.36	0.11	0.50	0.17
L5	Proposed Road L7 (Section bet ween Road L54D and Hong Po R oad Site Access)	EB	900	N/A	N/A	0.29	0.28
		WB	900	N/A	N/A	0.14	0.14
L6	Tsing Tin Road (Section between Tsun Wen Road and Tuen Mun Road)	EB	4800	0.42	0.30	0.42	0.30
		WB	4800	0.35	0.33	0.35	0.33
L7	Lam Tei Interchange (Exit Arm to Castle Peak Road)	NB	2800	0.47	0.45	0.49	0.46
	Lam Tei Interchange (Entry Arm from Castle Peak Road)	SB	2800	0.41	0.38	0.43	0.39
L8	Tsing Lun Road (Section between Hong Po Road and Siu Hong Road)	NB	2800	0.60	0.72	0.62	0.72
		SB	2800	0.55	0.49	0.58	0.49

Index	Road Link	Direction	Link Capacity (pcu/hr)	V/C Ratio			
				2031 Reference		2031 Design	
				AM	PM	AM	PM
L9	Castle Peak Road – Lam Tei	NB	2800	0.68	0.76	0.69	0.77
		SB	2800	0.76	0.80	0.79	0.81
L10	Castle Peak Road – Lingnan	NB	2800	0.15	0.20	0.23	0.25
		SB	2800	0.29	0.29	0.29	0.29

Table 4.2 – Road Link Performance for Year 2036

Index	Road Link	Direction	Link Capacity (pcu/hr)	V/C Ratio			
				2036 Reference		2036 Design	
				AM	PM	AM	PM
L1	Yuen Long Highway (Lam Tei Interchange Section)	EB	4000	0.98	1.03	0.98	1.03
		WB	4000	0.98	1.05	0.98	1.05
L2	Tuen Mun Road (Lam Tei Interchange – Tsing Tin Road Section)	NB	6100	0.96	1.02	1.04	1.07
		SB	6100	0.98	1.01	1.06	1.04
L3	Tsing Lun Road (Section between Ng Lau Road and Lam Tei Interchange)	EB	2800	0.76	0.61	0.95	0.69
		WB	2800	0.46	0.51	0.77	0.71
L4	Lam Tei Interchange (Entry Arm from Tuen Mun Road)	NB	3600	0.07	0.16	0.23	0.25
	Lam Tei Interchange (Exit Arm to Tuen Mun Road)	SB	1800	0.29	0.06	0.55	0.17
L5	Proposed Road L7 (Section between Road L54D and Hong Po Road Site Access)	EB	900	N/A	N/A	0.59	0.40
		WB	900	N/A	N/A	0.46	0.27
L6	Tsing Tin Road (Section between Tsun Wen Road and Tuen Mun Road)	EB	4800	0.45	0.37	0.46	0.37
		WB	4800	0.39	0.38	0.40	0.39
L7	Lam Tei Interchange (Exit Arm to Castle Peak Road)	NB	2800	0.48	0.44	0.50	0.45
	Lam Tei Interchange (Entry Arm from Castle Peak Road)	SB	2800	0.43	0.41	0.44	0.42
L8	Tsing Lun Road (Section between Hong Po Road and Siu Hong Road)	NB	2800	0.67	0.72	0.71	0.74
		SB	2800	0.56	0.54	0.61	0.55
L9	Castle Peak Road – Lam Tei	NB	2800	0.71	0.75	0.73	0.76
		SB	2800	0.85	0.86	0.90	0.88
L10	Castle Peak Road – Lingnan	NB	2800	0.14	0.14	0.26	0.24
		SB	2800	0.34	0.36	0.34	0.36

4.6.3 The assessment results show that all the above road links will be operated within capacity (i.e. V/C ratios below 1.0) in year 2031 and 2036 except Yuen Long Highway (Lam Tei Interchange Section) (L1) and Tuen Mun Road (Lam Tei Interchange -Tsing Tin Road Section) (L2), which have V/C ratio between 1.0 and 1.2.

4.6.4 For L1, the V/C ratio with and without the proposed development in year 2036 is the

same in this report. The cumulative traffic impact is mainly contributed by other planned development in the vicinity. With the implementation of other potential improvement works to the Yuen Long Highway proposed under other projects, it is anticipated that the overloading situation of this strategic route will be alleviated in the long-term. The traffic impact on this strategic road link due to the development should be timely reviewed in subsequent stages of the proposed development in conjunction with other traffic/transport infrastructure studies conducted by the Government.

4.6.5 For L2, the proposed development will slightly affect the performance of this strategic road link in year 2036. The cumulative traffic impact is also contributed by other planned developments in the vicinity, such as Tuen Mun Area 54 (TM54) Development, Hung Shui Kiu NDA, Yuen Long South Development, etc. The section of Tuen Mun Road between Lam Tei Interchange and Tsing Tin Road is bounded by the columns of the overhead Light Rail track, flyover and footbridge on both sides of the road which impose constraint to the widening of this road section. With the implementation of planned transport infrastructure projects such as Route 11 and Tuen Mun Bypass or alternatives, it is anticipated that the overloading of this strategic route will be alleviated in long-term. The traffic impact on this strategic road link due to the development should be timely reviewed in subsequent stages of the proposed development in conjunction with other traffic/ transport infrastructure studies conducted by the Government.

Critical Junction Assessment

4.6.6 Based on the forecasted peak hour traffic flows, the operational performance of the identified critical junctions have been assessed for scenarios with the proposed development under the design year 2031 & 2036. The results are summarized in ***Table 4.3*** & ***Table 4.4*** respectively.

Table 4.3 – Junction Performace for Year 2031

Index	Junction	Junction Type	Reserve Capacity (RC)/ Ratio of Flow to Capacity (RFC)			
			2031 Reference		2031 Design	
			AM	PM	AM	PM
J1	Lam Tei Interchange / Castle Peak Road – Lingnan	Signal	5%	0%	–10%	–10%
J2	Lam Tei Interchange	Roundabout	0.58	0.44	0.73	0.51
J3	Tsing Lun Road / Ng Lau Road	Signal	45%	80%	40%	80%
J4	Tsing Lun Road / Hong Po Road	Roundabout	0.58	0.54	0.88	0.71
J5	Tsing Lun Road / Siu Hong Road	Signal	50%	65%	45%	65%
J6	Tsing Lun Road / Tsz Tin Road/ Access Road to Siu Hong Court	Signal	10%	20%	10%	20%
J7	Tsing Lun Road / Tsing Chung Koon Road	Signal	35%	20%	30%	20%
J8	Tsun Wen Road / Tsing Lun Road	Signal	50%	30%	45%	30%
J9	Tsing Tin Road / Tsun Wen Road	Signal	40%	55%	40%	55%
J10	Tin King Road / Ming Kum Road / Tsing Tin Road	Signal	45%	45%	40%	40%
J11	Tsun Wen Road / Leung Wan Street	Signal	45%	45%	40%	45%
J12	Hing Kwai Street / Tsun Wen Road / Ming Kum Road	Signal	40%	55%	30%	35%

Index	Junction	Junction Type	Reserve Capacity (RC)/ Ratio of Flow to Capacity (RFC)			
			2031 Reference		2031 Design	
			AM	PM	AM	PM
J13	Proposed Road L7 / Hing Fu Street	Signal	45%	90%	25%	55%
J14	Proposed Road L7 / Road L54A	Signal	>100%	>100%	50%	50%
J15	Proposed Road L7 / Road L54D	Signal	>100%	65%	40%	40%
J16	Proposed Road L7 / Hong Po Road Site Access	Signal	n/a	n/a	n/a	n/a
J17	Proposed Road L7 / SHR Site Access Road	Signal	n/a	n/a	75%	>100%
J18	Tsing Lun Road Near Tuen Mun Hospital	Signal	20%	20%	20%	15%
J19	Tsing Lun Road Near Siu Hong Court	Signal	20%	20%	20%	20%
J20	Propsoed Road L7 / SHR Extension Site Access	Priority	n/a	n/a	0.68	0.39
J21	Tin King Road / Ming Kum Road	Signal	5%	0%	–10%	–10%

Note:
RC: Reserve Capacity for signalised junctions; RFC: Ratio of Flow to Capacity for priority junctions and roundabout. Figures for Reserve Capacity are rounded to nearest 5%.

Table 4.4 – Juncction Performance for Year 2036

Index	Junction	Junction Type	Reserve Capacity (RC)/ Ratio of Flow to Capacity (RFC)			
			2036 Reference		2036 Design	
			AM	PM	AM	PM
J1	Lam Tei Interchange / Castle Peak Road – Lingnan	Signal	–10%	–10%	–30%	–25%
J2	Lam Tei Interchange	Roundabout	0.52	0.44	0.80	0.62
J3	Tsing Lun Road / Ng Lau Road	Signal	55%	80%	15%	65%
J4	Tsing Lun Road / Hong Po Road	Roundabout	0.54	0.58	1.02	0.89
J5	Tsing Lun Road / Siu Hong Road	Signal	35%	65%	30%	60%
J6	Tsing Lun Road / Tsz Tin Road/ Access Road to Siu Hong Court	Signal	10%	15%	5%	10%
J7	Tsing Lun Road / Tsing Chung Koon Road	Signal	20%	15%	15%	15%
J8	Tsun Wen Road / Tsing Lun Road	Signal	30%	20%	25%	20%
J9	Tsing Tin Road / Tsun Wen Road	Signal	15%	40%	15%	40%
J10	Tin King Road / Ming Kum Road / Tsing Tin Road	Signal	50%	45%	45%	40%
J11	Tsun Wen Road / Leung Wan Street	Signal	20%	30%	15%	30%
J12	Hing Kwai Street / Tsun Wen Road / Ming Kum Road	Signal	30%	50%	5%	20%
J13	Proposed Road L7 / Hing Fu Street	Signal	35%	75%	5%	35%
J14	Proposed Road L7 / Road L54A	Signal	>100%	>100%	15%	25%
J15	Propsoed Road L7 / Road L54D	Signal	50%	40%	0%	15%
J16	Proposed Road L7 / HPR Site Access	Signal	n/a	n/a	30%	50%
J17	Propsoed Road L7 / SHR Site Access Road	Signal	n/a	n/a	25%	80%
J18	Tsing Lun Road Near Tuen Mun Hospital	Signal	25%	20%	20%	15%
J19	Tsing Lun Road Near Siu Hong Court	Signal	25%	25%	25%	20%
J20	Propsoed Road L7 / SHR Extension Site Access	Priority	n/a	n/a	0.87	0.45
J21	Tin King Road / Ming Kum Road	Signal	10%	–5%	–15%	–20%

Note:
RC: Reserve Capacity for signalised junctions; RFC: Ratio of Flow to Capacity for priority junctions and roundabout. Figures for Reserve Capacity are rounded to nearest 5%.

4.6.7 As shown in the above tables, it can be seen that all the assessed key junctions will be operating with ample reserve capacities, except for the junction of Lam Tei Interchange / Castle Peak Road – Lingnan (J1) and Tin Kin Road / Ming Kum Road (J21) which would be overloaded in year 2031 with the proposed developments.

4.6.8 In year 2036, the assessed key junctions would generally operate with ample reserve capacity, except for the junction of Lam Tei Interchange / Castle Peak Road – Lingnan (J1), Tsing Lun Road / Hong Po Road (J4), Proposed Road L7/ Road L54D (J15) and Tin Kin Road / Ming Kum Road (J21) would be overloaded with the proposed developments. The junction of Tsing Lun Road / Tsz Tin Road/ Siu Hong Court (J6), Tsun Wen Road / Ming Kum Road (J12) and Proposed Road L7 / Hing Fu Street (J13) would be operating close to or at capacity in year 2036.

Recommended Junction Improvement Measures

4.6.9 The Preliminary Traffic and Transport Impact Assessment has recommended the following junction improvement measures. The proposed improvement schemes are shown in **Appendix C**:

- Lam Tei Interchange / Castle Peak Road – Lingnan (J1);
  In addition to the junction works at J1 under TM54 development, modification works of the junction layout is proposed to further alleviate the traffic condition of J1. It is proposed to convert the second farside lane of Castle Peak Road – Lingnan northbound from straight ahead movement to left turning movement to facilitate the increase of traffic due to the proposed developments. Besides, the left turning lane of Castle Peak Road – Lingnan southbound is proposed to split phase with the other movements.
- Tsing Lun Road / Hong Po Road (J4);
  It is proposed to widen the the entry arm of Tsing Lun Road westbound carriageway to increase the capacity of this approach arm to ease the capacity of J4.
- Tsing Lun Road / Tsz Tin Road / Access Road to Siu Hong Court (J6);
  To alleviate the traffic condition of J6, it is proposed to convert the farside lane of Tsing Lun Road southbound from right turning movement to straight-ahead and right turning movement. The northbound carriageway of Tsing Lun Road would be reduced to two lanes, where left turning cum straight-ahead and right turning cum straight-ahead movement would be provided for the nearside and farside lane respectively.
- Hing Kwai Street/ Tsing Wen Road / Ming Kum Road (J12);
  To improve the junction improvement of J12, it is proposed to widen the carriageway of Hing Kwai Street southbound to provide an additional left turning lane. The corresponding section of eastern kerb of Hing Kwai Street will be setback.
- Proposed Road L7 / Hing Fu Street (J13);
  To improve the junction improvement of J13, it is proposed to widen the carriageway of proposed Road L7 southbound to provide an additional traffic lane. The corresponding section of eastern and western kerb of proposed Road L7 will be setback. The nearside lane of Hing Fu Street eastbound is proposed to convert from left turning to left turning and right turning movement.

- Proposed Road L7 / Road L54D (J15); and
  It is proposed to widen the carriageway of proposed Road L7 southbound to provide an additional traffic lane. The corresponding section of eastern kerb of proposed Road L7 will be setback.
- Tin King Road / Ming Kum Road (J21).
  To ease the traffic condition of J21, it is proposed to convert the farside lane of Ming Kum Road southbound to right turning movement only to provide split phase for right turning and straight-ahead movement. The farside lane of Tin King Road eastbound is proposed to convert from right turning movement to left turning and right turning movement.

4.6.10 With the proposed junction improvement measures, the junction performance at junctions J1, J4, J6, J12, J13, J15 and J21 have been reassessed and the results are summarized in ***Table 4.5*** below. The junctions mentioned above will be operating within capacity in year 2031 and 2036.

Table 4.5 – Junction Performance with Improvement

Index	Junction	Junction Type	Reserve Capacity (RC)/ Ratio of Flow to Capacity (RFC)			
			2031 Design (with improvement)		2036 Design (with improvement)	
			AM	PM	AM	PM
J1	Lam Tei Interchange / Castle Peak Road – Lingnan	Signal	45%	35%	20%	20%
J4	Tsing Lun Road / Hong Po Road	Roundabout	0.75	0.61	0.88	0.76
J6	Tsing Lun Road / Tsz Tin Road/ Access Road to Siu Hong Court	Signal	20%	20%	15%	15%
J12	Hing Kwai Street / Tsun Wen Road / Ming Kum Road	Signal	50%	40%	25%	25%
J13	Proposed Road L7 / Hing Fu Street	Signal	45%	55%	15%	35%
J15	Proposed Road L7 / Road L54D	Signal	65%	65%	25%	40%
J21	Tin King Road / Ming Kum Road	Signal	20%	25%	20%	15%

4.7 Parking Provisions

4.7.1 Parking provisions for the development sites would be estimated according to the latest parking standards in Hong Kong Planning Standards and Guidelines (HKPSG). It is proposed to provide the upper bound of the parking provisions under the latest standards in the HKPSG as far as practicable.

4.8 Public Transport Assessment

4.8.1 The area adjacent to SHR site are well served by public transport facilities including MTR, LRT, franchised bus and GMB. However, SHR Site Extension and HPR Site are remote from the existing public transport network.

4.8.2 The public transport demand for the proposed developments is estimated based on the person trip rates surveyed at similar nearby developments and the modal split of the corresponding District Council Constituency Area making reference to the result of 2016 Population By-census. Based on the estimated public transport demand for the proposed developments, the feeder bus service to MTR Station, LRT service, bus

service and WRL service have been reviewed.

Review on Feeder Service to MTR Station

4.8.3 As the walking distance between SHR Site, SHR Site Extension and HPR Site is more than 500m from Siu Hong Station, it is suggested to provide feeder bus routes to Siu Hong Station PTI (North) and Tuen Mun Town Centre departing from HPR PTI and SHR Site bus layby. These routes are suggested to serve HPR Site, SHR Site and SHR Site Extension to and from Siu Hong Station and the town centre.

Review on LRT Service

4.8.4 It is estimated that approximately 4,885 passengers per hour at peak hour would be generated by the proposed public housing development to use the LRT services. It is suggested to provide feeder bus routes to Siu Hong Station PTI (North) departing from HPR PTI and SHR Site bus layby. These routes are suggested to serve HPR Site, SHR Site and SHR Site Extension to and from Siu Hong Light Rail Station.

Review on Bus Service

4.8.5 With the assumption that bus passengers of SHR Site would go to SHR PTI, the estimated peak bus passenger demand generated from SHR Site is 3,085. Considering that re-routing the existing bus routes to stop at SHR PTI during the peak hours would increase the bus travel time and have an adverse impact to the existing passengers, new bus routes providing regular bus services are recommended to provide direct services to Kowloon and Hong Kong Island which allow for connection to other districts via Tuen Mun Bus-Bus Interchange, subject to the decision of Transport Department and bus companies at later stage.

4.8.6 With the assumption that bus passengers of SHR Site Extension and HPR Site would go to HPR PTI, the estimated peak bus passenger demand generated from SHR Site Extension and HPR Site is 3,540. New regular / special terminating routes servicing HPR Site / SHR Site Extension to other districts via Tuen Mun Road Bus-bus Interchange are proposed, subject to the decision of Transport Department and bus companies at later stage.

Review on WRL Service

4.8.7 It is estimated that approximately 4,685 passengers per hour at peak hour would be generated by the proposed public housing developments to use the WRL services. The passenger demand from the proposed public housing developments would induce only a marginal inrease in the maximum hourly passenger flow during the AM peak at the WRL.

4.9 Summary

4.9.1 With the implementation of the proposed improvement works, it is anticipated the proposed development will not induce insurmountable problem to the traffic network from traffic point of view.

5 PRELIMINARY PEDESTRIAN CONNECTIVITY ASSESSMENT (PCA)

5.1 General

5.1.1 This chapter will assess the need and feasibility of providing continuous, barrier–free system in the form of at–grade or grade–separated pedestrian links for inter–connecting amongst the proposed public housing sites to the proposed PTIs and nearby public transport systems including WRL/ LRT/ Bus.

5.2 Existing Pedestrian Flows

5.2.1 A pedestrian count survey was carried out on a typical weekday in June 2018 during AM peak (07:30 – 09:30) and PM peak (17:00 – 19:00) to investigate the existing pedestrian flow pattern at the existing pedestrian network.

5.2.2 The observed AM peak period was identified between 08:00 and 09:00. Therefore, only the AM peak pedestrian flows are presented in this report to present the conservative results

5.2.3 According to the survey result, there are low pedestrian activities at the local streets within the study area.

5.3 Existing, Planned and Proposed Nearby Pedestrian Network

5.3.1 The following critical existing / planned / proposed footpaths / crossing will be assessed:

- Existing San Hing Road Footpath;
- Existing Siu Hong Road Footpath;
- Existing Tsing Lun Road northern footpath near the Tsing Lun Road roundabout;
- Existing Hong Po Road footpath section east of Villa Pinada;
- Existing Hong Po Road footpath section west of Villa Pinada;
- Existing Stairs and footbridge crossing Tsing Lun Road (hereinafter called as "**FB1**");
- Proposed footbridge alongside the Tsing Lun Road Northern Footpath and connecting to the existing footbridge FB1 (hereinafter called as "**FB2**");
- Proposed walkway connecting FB1 and the footbridge at Siu Hong Court near Siu Hong Court Bus Terminus (hereinafter called as "**CW1**");
- Proposed realigned Hong Po Road between the HPR Site PTI and SHR Site PTI;
- Proposed access road from HPR Residential Site to HPR PTI;
- Proposed access road from HPR Residential Site to the realigned Hong Po Road;
- Proposed access road from SHR Site Extension Residential Site to the realigned Hong Po Road;

- Proposed access road from SHR Site Extension Residential Site to SHR Residential Site;
- Proposed access road from SHR Residential Site to Siu Hong Station;
- Proposed access road leading from the realigned Hong Po Road to Tsing Lun Road;
- Proposed access road leading from Tsing Lun Road to Siu Hong Station; and
- Proposed access road leading from Siu Hong Road to Siu Hong Station.

5.3.2 In additional, there are several accesses proposed to maintain pedestrian linkage to existing land lots.

A. Proposed access to Tsz Tin Tsuen from the realigned Hong Po Road;

B. Proposed access to Villa Pinada from the realigned Hong Po Road; and

C. Proposed footpath from the existing village houses at the north of SHR Site Extension to the proposed access road to the school sites at SHR Site Extension.

5.4 Reference Pedestrian Flows

5.4.1 Under the latest planned road alignment in Siu Hong Road and Tsing Lun Road, the existing pedestrian network surrounding Siu Hong Court would be changed upon the population intake of TM54. The changes are extracted from the TM54 Review and are summarized in below:

(1) Junction of Tsing Lun Road / Siu Hong Road would become a signalized junction with crossing facilities at all arms of the junction;

(2) A new footpath alongside the LRT tracks and Siu Hong Court has been proposed by Housing Department; and

(3) A vertical mechanical transport system (including escalators and elevator) would be constructed and integrated with the existing stairs and footbridge connecting Siu Hong Road and Siu Hong Station PTI (North).

5.4.2 The 2036 reference pedestrian flows are derived based on the existing pedestrian pattern and pedestrian flows (factored up by TPEDM growth), and future pedestrian pattern and pedestrian flows estimated from planned adjacent development in the vicinity (e.g. TM54).

5.5 Pedestrian Flow Paths and Pedestrian Connectivity Assessment

5.5.1 The pedestrian demands in the peak hours are derived from the pedestrian flows generated by public transport passengers from SHR Site Extension, SHR Site and HPR Site, as well as the pedestrians from TM54 Sites 1&1A, onto the reference pedestrian flows.

5.5.2 Level of Service (LOS) is used to assess the performance of footpaths, stairs and footbridge. The description of the LOS obtained from the TPDM published by TD is summarized in ***Table 5.1***.

Table 5.1 – Description of Pedestrian Facility LOS

LOS	Flow Rate (ped/min/m)		Description
	Footpath	Stairs	
A	<16	<16	Pedestrians basically move in the desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrian are unlikely.
B	16–23	16–20	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23–33	20–26	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33–49	26–36	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse–flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49–75	36–49	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross– and reverse–movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	>75	>49	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross–and–reverse movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Source: TPDM Volume 6 Chapter 10 – Pedestrian Action Plan

Pedestrian Network of HPR Site, SHR Site Extension and SHR Site

5.5.3 The 2-way pedestrian flow paths of HPR Site, SHR Site Extension and SHR Site are shown in ***Figure Nos. 198172/B&V/FR/0501*** and ***0502***. The pedestrian flow paths (i.e. red arrows) simulate the different routes the pedestrians might take when accessing to the HPR PTI, SHR PTI, Lam Tei LRT Station or Siu Hong Station. It was also assumed some pedestrians would access between TM54 Site 1&1A and HPR PTI via proposed Road L7.

5.5.4 To mitigate the impact of the existing signalized crossing at junction of Tsing Lun Road/ Ng Lau Road on the Tsing Lun Road roundabout and to alleviate the pedestrian condition of northern Siu Hong Road footpath, a footbridge system (FB2) with staircase, lifts and escalators is proposed to connect the open space next to the proposed SHR SPS at SHR Site to the existing footbridge near Ng Lau Road (FB1). A covered walkway (CW1) and modification of existing walkway, if necessary, are proposed to connect the existing footbridge near Ng Lau Road and the Siu Hong

Station. The proposed footbridge system will improve the pedestrian connectivity and its attractiveness would encourage the pedestrians to access to Siu Hong Station. The proposed footbridge system is shown in ***Figure No. 198172/B&V/FR/0502***.

5.5.5 The pedestrian flow paths and the corresponding LOS are summarized in ***Table 5.2.*** Based on the assessment results, all of the footpaths/ footbridge will achieve LOS(C) or above. Therefore, sufficient walking space will be available during peak hours and individual's walking speed and direction would not be constrained.

Table 5.2 – Pedestrian Flow Paths and LOS Assessment

Footpath/ Footbridge	**Location**	**Effective width (m)[(1)(2)]**	LOS
P0	Proposed Road L7	3	A
P1a	Left footpath connecting HPR PTI and HPR Site	3.5	B
P1b	Right footpath connecting HPR PTI and HPR Site	3.5	B
P2	HPR Site southern footpath connecting to realigned Hong Po Road	5	A
P3	HPR northern footpath (between access road to HPR site and Villa Pinada)	3	B
P4	Realigned Hong Po Road northern footpath (between access road to Villa Pinada and SHR Site Extension)	3	B
P5	Western footpath of the access road to SHR Site Extension connecting to the realigned Hong Po Road	5	B
P6	Northern footpath of the access road of SHR Site Extension connecting to the school sites	2.7	B
P7	The outermost path of the access road of SHR Site Extension connecting to SHR Site	2	A
P8	Western footpath of SHR Site connecting to the realigned Hong Po Road	3	B
P9	Realigned Hong Po Road northern footpath near SHR Site	3.5	A
P10	Realigned Hong Po Road next to SHR Site	4	A
P11	Footpath between the two sections of SHR Site connecting to the realigned Hong Po Road	4.5	B
P13	Footpath between the two sections of SHR Site connecting to the realigned Hong Po Road	4.5	B
P14	Footpath located in the north of the right primary school of SHR Site	3	B

Footpath/ Footbridge	Location	Effective width (m)[1][2]	LOS
P15	Footpath located in the north direction of the right section of SHR Site	1.75	B
P16	Footpath inside the SHR Site leading to SHR PTI	4	A
P17	Footpath inside SHR Site within the proposed SPS boundary	3.5	B
P18	Western footpath of Tsing Lun Road (between Tsing Lun Road roundabout and Siu Hong Road)	1.75	A
P19	Northern footpath of Siu Hong Road	2	C
P20	Southern footpath of Siu Hong Road	2	B
P21	Northern footpath of Siu Hong Road	1.4	C
P22	Footpath between Siu Hong Court and LRT track	1.78	B
P25	Northern footpath of realigned Ng Lau Road	2	A
P26	Northern footpath of Ng Lau Road	3	A
P27	Northern footpath of Ng Lau Road	2	A
P28	Access road to Lam Tei LRT Stop eastern footpath (between Ng Lau Road and Lam Tei Stop)	2	C
FB1[3]	Existing footbridge near Ng Lau Road	3	C
FB2[3]	Proposed footbridge alongside Tsing Lun Road northern footpath connecting to existing FB1	3	A
CW1	Proposed covered walkway and modification of existing walkway, if necessary connecting the existing FB1 to the existing vertical mechanical transport system (including escalators and elevator) to Siu Hong Station	3	C

Notes:

1. Clear Width = horizontal clearance excluding the distance from kerb to railing (if any).
2. Effective Width = Clear width – dead width (0.5m at each side of walkway.)
3. The design width of the footbridge will be further discussed with relevant government department in the detail design stage. For assessing the proposed pedestrian facilities, a minimum clear width of 4m is adopted in the assessment as conservative. (The clear width of existing FB1 is 4m)

Other Recommendations

5.5.6 Pedestrian crossing points have been proposed at key road junctions and pedestrian desire routes to ensure safe and convenient pedestrian facilities are provided to serve the future community.

5.5.7 Pedestrian walkways and cycle tracks will be constructed along the proposed Road L7 and the realigned Hong Po Road to promote green commuting. The proposed cycle tracks will be connected to the nearby residential areas (e.g. Tuen Mun New Town) and public transport facilities (e.g. Lam Tei LRT Station and Siu Hong Station) where practicable. Upgrading/modification works to existing footbridge at Ng Lau Road and associated covered walkway are proposed to improve the walking environment and

promote green commuting. All these measures are proposed to facilitate walking and cycling across the PDA and in the wider community. This would also in turn help to reduce road-based traffic and hence their associated vehicular noise and pollutants emission.

5.5.8 Covered walkway is proposed for Footpaths P3, P4, P5, P8, P9, P10, P11, P13, P14, P16 , P17 and CW1 as shown in ***Figure Nos. 198172/B&V/FR/0501*** and ***0502*** to enhance the walking environment.

5.5.9 Proposed accesses will be provided to maintain pedestrian linkage to the existing houses in the vicinity of the proposed public housing developments including:

A. Proposed access to Tsz Tin Tsuen from the realigned Hong Po Road;

B. Proposed access to Villa Pinada from the realigned Hong Po Road; and

C. Proposed footpath from the existing village houses at the north of SHR Site Extension to the proposed access road to the school sites at SHR Site Extension.

5.6 Summary

5.6.1 With the implementation of the proposed pedestrian system and associated improvement works, it is anticipated that all of the footpaths/ footbridge under assessment would be operated within capacity. The proposed development will not induce insurmountable problem to the pedestrian network from traffic point of view.

6 PRELIMINARY GEOTECHNICAL ASSESSMENT (GA)

6.1 General

6.1.1 This chapter aims to summarize the geological and geotechnical information about the housing sites and their vicinity, identify potential geotechnical impacts that may arise from the proposed developments, and recommend the necessary improvements or upgrading works, if any.

6.2 Ground Condition

6.2.1 Based on the review of geological profiles, the details of the proposed sites are shown as follows:

6.2.2 HPR Site is underlain by a layer of fill (various from 0m to 3.1m thick), alluvium (various from 0m to 3.5m thick) or colluvium (various from 0.5m to 2.6m thick), completely decomposed Tuffite/ Tuff Breccia/ Tuff/ Siltstone/ Meta–Andesite (various from 6.6m to 21.3m thick), and highly decomposed Tuffite/Tuff (various from 0.25m to 1.0m thick). Bedrock is encountered at a depth varying from +37.8mPD to –14.6mPD.

6.2.3 SHR Site Extension is underlain by a layer of fill (various from 2.0m to 2.5m thick), alluvium (various from 0m to 2.0m thick), completely decomposed Tuff/ Siltstone/ Tuffaceous Siltstone/Tuff Breccia/Tuffite (various from 15.6m to 22.0m thick), and highly decomposed Rhyolite/ Tuff Breccia/ Tuff/ Tuffaceous Siltstone (various from 0m to 7.9m thick). Bedrock is encountered at a depth varying from –9.8mPD to –17.8mPD.

6.2.4 SHR Site is underlain by a layer of fill (various from 0m to 9.1m thick), alluvium (various from 1.5m to 6.2m thick), completely decomposed Tuffaceous Siltstone/ Siltstone/ Tuff/ Tuff Breccia/ Tuffite (various from 7.2m to 31.7m thick) and highly decomposed Rhyolite/ Tuff Breccia/ Tuff/ Tuffaceous Siltstone (various from 0.5m to 6.2m thick). Bedrock is encountered at a depth varying from –4.4mPD to –36.1mPD.

6.2.5 Proposed Road L7 is underlain by a layer of fill (various from 0m to 3.6m thick), alluvium (various from 1.5m to 3.6m thick) or colluvium (various from 1.5m to 5.1m thick), completely decomposed Meta–tuff/ Andesite/ Tuff/ Tuffite/ Tuff Breccia (various from 6.7m to 22.2m thick), and highly decomposed Andesite/ Meta–tuff/ Tuffite/ Tuff/ Tuffaaceous Siltstone/ Rhyolite (various from 0.5m to 5.8m thick). Bedrock is encountered at a depth varying from +15.6mPD to –19.5mPD.

6.2.6 The inferred geological profile of the proposed development is presented in ***Figure Nos. 198172/B&V/FR/601, 601a to d.***

6.3 Groundwater Regime

6.3.1 Groundwater monitoring records for relevant existing vertical drillholes have been retrieved and inspected. The highest groundwater level in the vicinity of the HPR Site, the SHR Site, the SHR Site Extension, and along the alignment of the proposed Road L7 is found to be +19.61mPD (in drillhole 48524/DH1), +7.26mPD (in drillhole 42914/DH186), +9.26mPD (in drillhole 63271/DH01) and +27.47 mPD (in drillhole

32517/BH1) respectively. The corresponding highest groundwater level is 1.71m, 2.08m, 0.98m and 8.96m below the ground surface, respectively.

6.3.2 5 nos. of piezometers with Halcrow Buckets were installed at the 5 proposed drillholes for monitoring of groundwater table. Groundwater was encountered at the 5 drillholes. Response tests after piezometer installation and the subsequent groundwater monitoring for 7 consecutive days have been carried out from September 2019 to December 2019. The groundwater table is at a level approximately from +8.55 mPD to +27.80 mPD.

6.3.3 Groundwater shall be further monitored at standpipes or piezometers during the later design and construction stage. Groundwater may be encountered during construction of the proposed works. Shoring or properly designed excavation and lateral support system will be required to maintain stability of the trenches or working pits. Dewatering and working pits may also be necessary.

6.4 Geotechnical Consideration and Constraints

6.4.1 According to the existing GI record, the proposed sites are covered by 0m to 9.1m of fill layer and 0m to 6.2m of alluvium layer or 0m to 5.1m of colluvium. These superficial material are sandy in nature and should not be highly compressible material, it is considered feasible for supporting light duty retaining structures. No steep rock head depression are founded in existing borehole record, deep foundation for the proposed development is considered feasible.

6.4.2 However, given the borehole record for the Site is very limited, the site should be further characterized by more GI conducted in later stage of the Project. From the current available information, no adverse geological and geotechnical features are observed. The proposed works for the housing development is considered feasible.

6.5 Existing Man–made Slopes and Retaining Walls

6.5.1 17 registered man–made features are identified to be located within HPR Site, 3 registered man–made features are identified to be located within SHR Site, 2 registered man–made features are identified to be located within SHR Site Extension and 4 registered man–made features are identified to be located within the proposed Road L7. Failure of these slopes may affect the nearby infrastructure and future development. Therefore, further assessment is recommended. The details of the registered man–made features are summarized in ***Table 6.1*** below and shown in ***Figure No. 198172/B&V/FR/0602.***

Table 6.1 – Existing Registered Man–Made Features Identified to be Potentially Affected by the Proposed Works

Location	Geotechnical Feature No.	Proposed to be Further Assessed/Demolished/ Modified
SHR Site	6NW–C/R 71	To be modified
	6NW–C/R 97	Further assessment is required
	6NW–C/FR 162	Demolished under site formation works of project CV/2011/01
SHR Site Extension	6NW–C/C 53	To be modified
	6NW–C/R49	To be modified
HPR Site	5NE–D/C 7	To be modified
	5NE–D/C 97	To be modified
	5NE–D/C 103	To be modified
	5NE–D/C 104	To be demolished
	5NE–D/C 105	To be demolished
	5NE–D/F 3	To be modified
	5NE–D/F 25	To be modified
	5NE–D/R 5	To be demolished
	5NE–D/R 6	To be demolished
	5NE–D/R 7	To be demolished
	5NE–D/R 9	To be demolished
	6NW–C/C 9	To be modified
	6NW–C/C 13	To be demolished
	6NW–C/C 68	To be modified
	6NW–C/C 69	To be modified
	6NW–C/F 8	To be modified
	6NW–C/F 9	To be modified
Proposed Road L7	5NE–D/C119	To be modified
	5NE–D/C 126	To be modified
	5NE–D/FR 34	To be modified
	5NE–D/R 11	To be modified

6.5.2 After a series of site visit by the use of existing access, it is found that there are 8 non-registered geotechnical features within/ in close proximity to the site boundary which will be potentially be affected by the proposed development. The locations of these non-registered geotechnical features are shown in ***Figure No. 198172/B&V/FR/0602.*** Nevertheless, all the features are less than 1.5m high with the angle of elevation less than 15 degrees. ***Table 6.2*** summarises the non-registered geotechnical features that are identified to be potentially affected by the proposed works.

Table 6.2 – Existing Non-Registered Geotechnical Features Identified to be Potentially Affected by the Proposed Works

Location	Geotechnical Feature No.	Proposed to be Demolished/ Retained
HPR Site	Slope A	To be demolished
	Slope B	To be demolished
	Slope C	To be demolished
	Slope D	To be retained
	Slope E	To be retained
SHR Site	Slope F	To be demolished
	Slope G	To be modified
	Slope H	To be demolished

6.5.3 To facilitate the future development, new features will be constructed within the proposed developments.

6.6 Natural Terrain Hazards Study (NTHS)

6.6.1 This NTHS is prepared to study, identify and evaluate all potential risks arising from natural terrain hazards including boulder fall hazards for the proposed developments and the infrastructure and assess the need for hazard mitigation measures in accordance with guidelines given in GEO Report No. 138 and other government guidance.

6.6.2 Screenings were carried out to determine the need for NTHS in accordance with "Alert Criteria" stated in GEO Report No. 138 (Second Edition, 2016). Based on the results of the screenings, no NTHS is required for SHR Site, SHR Site Extension, the northern and southwestern parts of HPR Site and proposed Road L7. The preliminary footprints of Catchment A, A1, B and C are shown in ***Figure No. 198172/B&V/FR/0603***. The results are listed in ***Table 6.3*** below:

Table 6.3 – Screening Results for Natural Terrain Hazards Assessment

Catchment	Alert Criteria		Need for NTHS [Satisfying (1) AND (2) => Yes; otherwise => NO]
	(1) Angular elevation of natural terrain ≥ 20^0	(2) Within 50 m of ground sloping at > 15^0	
A	Yes	Yes	Yes
A1	No	Yes	No
B	Yes	Yes	Yes
C	Yes	Yes	Yes

6.7 Preliminary Natural Terrain Hazard Assessment

Debris Mobility Modelling (DMM)

6.7.1 A total of 9 cases of DMM were carried out in this study to assess the mobility and the runout distance of Open Hillslope Landslide (OHL) and Channelized Debris Flow (CDF). A summary of the results are shown in ***Table 6.4*** below:

Table 6.4 – Summary of Debris Mobility Modelling

Catchment	Section	Case No.	Hazard Type	Rheological Model	Source Volume (m^3)		Maximum Velocity (MS^{-1})	Debris Runout Distance (m)	Debris Reached Boundary
					Initial	Final			
A	A	A1	CDF	Voellmy	56.32	56.32	11.32	536.78	Yes
	B	B1	CDF	Voellmy	55.67	55.67	12.34	471.30	Yes
	C	C1	CDF	Voellmy	56.30	56.30	19.79	372.14	Yes
B	D	D1	OHL	Frictional	55.57	55.57	13.81	154.42	No
		D2	OHL	Frictional	42.02	42.02	7.64	36.22	No
	E	E1	CDF	Voellmy	55.40	55.40	16.12	144.30	No
		E2	CDF	Voellmy	43.78	43.78	6.38	29.8	No
C	F	F1	OHL	Frictional	42.43	42.43	12.90	72.30	No
		F2	OHL	Frictional	42.53	42.53	4.85	24.53	No

6.7.2 The results show that debris of the potential natural hazard of Catchment A would travel and reach the boundary of the proposed development. Debris at Catchment B and C could not reach the site boundary probably due to an abandoned quarry located at the lower terrain of Catchment B and C and acted as a platform.

6.8 Mitigation Strategy

6.8.1 Based on the revised Design Event Approach framework and requirements as outlined in GEO Report No. 138 (2nd Edition), The design requirements / level of hazard mitigation for the hillside catchments within the Study Area were determined based on the combination of catchment type and facility group of the at–risk facility. The finding is summarised in ***Table 6.5***.

Table 6.5 – Summary of Design Requirements

CATCHMENT	HILLSIDE CATCHMENT CLASSIFICATION	PRESENCE OF HAZARD?	HAZARD TYPE	FACILITY GROUP	MEET QUALIFYING CRITERIA (TGN 37)	LEVEL OF MITIGATION REQUIREMENTS
A	Channelized Depression	Yes	CDF	1	No	Level 2

Note:
(1) Level 1 – Primary protection based on empirical provisions for OH catchments.
(2) Level 2 – Enhanced protection with enhanced measures designed by analysis.

6.8.2 Natural terrain hazard mitigation measure is therefore required for Catchment A. Active mitigation measure (Rigid barrier) along the slope toe within the site boundary is proposed to mitigate the potential channelized debris flow and boulder fall hazards of Catchment A.

6.8.3 In view of the above findings, a schematic layout of recommended mitigation strategy for CDF (Channelized debris flow), RF (Rock fall), and BF (Boulder fall) hazards has been proposed and presented in ***Figure Nos. 198172/B&V/FR/0604a*** and ***b.***

6.8.4 The findings of the NTHS and the proposed mitigation measures should be reviewed in later stage of the project when more geological /geotechnical information is collected from detailed field mapping and ground investigation.

6.8.5 TSFR is located adjacent to the proposed development site and the proposed Natural Terrain Hazards Mitigation Measures. To avoid encroachment onto the TSFR, it is recommended to construct fencing and warning signs along the boundary between

firing range and the site.

6.9 Summary

6.9.1 In view of the preliminary findings from the geotechnical assessment, no insurmountable issue is anticipated for the proposed development in the geotechnical aspect.

7 PRELIMINARY SITE FORMATION ASSESSMENT (SFA)

7.1 General

7.1.1 This section is to recommend suitable formation level, profile and designs of the proposed sites and recommend the works required for the proposed sites.

7.1.2 The constraints for site formation of SHR Site ,SHR Site Extension, HPR Site and proposed Road L7 are discussed in the SFA Report. Different types of earth–retaining system are proposed to support and achieve the formation of the proposed sites. It is considered that the site formation and infrastructural works for the proposed development in this site are technically feasible.

7.2 Site Formation Design Consideration

Design Philosophy

7.2.1 A balanced cut and fill approach is adopted as far as practicable in designing the proposed site formation level. This could reduce the construction vehicular trips due to import or disposal of fill materials and minimize the possible dust emission during the trips.

7.2.2 The existing area of SHR Site has a gentle topography. The ground level of the site ranges from approximately +14.8mPD at northern side to +5.3mPD at southern side, and to +10mPD at eastern side. The Site is proposed to be formed as a single platform.

7.2.3 The existing area of SHR Site Extension has a gentle topography. The ground level of the site ascends from +9mPD at the southern corner to +16mPD at the northern corner. The Site is proposed to be formed as a single platform.

7.2.4 The existing area of HPR Site has an uneven topography. The ground level of the site ascends from +14mPD at southeastern corner to +40mPD at northwestern corner. In view of the significant level difference, the HPR Site is proposed to be formed in two stepped platforms.

7.2.5 A gentle gradient of 1% to 3% would be formed within the platforms to provide adequate fall for stormwater drainage. Temporary peripheral drains/ channels would be provided around the proposed site areas to collect surface runoff for discharge to the nearby drainage facilities.

7.2.6 The proposed road formation levels are designed to satisfy all road and traffic requirements. Also, the road formation levels take account of existing and planned utilities, including drains, sewers and cables etc., beneath the roads. To protect the underground installations, adequate cover (1 m minimum) to underground installations is allowed in designing the road formation level.

Existing Structures

7.2.7 Although all the existing buildings and structures within the proposed site areas will be dismantled during the site formation works, cluster of squatter structures, such as area to the east of HPR Site and area to the north of SHR Site Extension, will be retained. It is essential to ensure the flooding risk in the vicinity of the proposed sites would not be increased. Therefore, surface channels would also be installed along the

site boundary to ensure the surface runoff in the vicinity would be properly drained to the downstream drainage facilities.

Existing Drainage Facilities

7.2.8 The Development would potentially cause the following impact to the surface runoff:

- Change in land use from unpaved to paved surface would increase the amount of runoff entering into the drainage system;
- Change in formation level and cross-fall within the Site would alter the overland flow pattern and discharge point into the drainage system resulting in modification of the existing catchment plan; and
- Formation of the proposed development would cut off the flow of some existing streams.

7.2.9 The surface runoff of the Site is proposed be discharged to the existing drainage network adjacent to the Site. Necessary upgrading works will be proposed to cater the additional runoff arising from the change in land use.

7.2.10 It is essential to ensure the flooding risk in the vicinity of the Site would not be increased. Therefore, surface channels would also be installed along the site boundary to ensure the surface runoff in the vicinity would be properly drained to the downstream drainage facilities.

7.2.11 The potential drainage impact caused by the proposed Development and details of the proposed drainage system will be discussed in Section 8.

Existing Sewage Facilities

7.2.12 The sewage generated from SHR Site, SHR Site Extension and HPR Site will be conveyed to the proposed sewage pumping station at SHR Site via gravity sewers and subsequently discharging to the sewage pumping station in Tuen Mun Area 54 (TM54 SPS).

7.2.13 Since the proposed trunk sewer and the twin–cell 4,000m(W) x 2,000m(H) stormwater box culvert would both run along the proposed realigned Hong Po Road, the alignment of box culvert shall be taken into account during the design of the trunk sewer and vice versa.

Existing Utilities

7.2.14 The existing CLP's 400kV OHL and pylons are running along the southern boundary of SHR Site, SHR Site Extension and HPR Site. These facilities shall be taken into account during the planning of site formation and infrastructure works. The disturbance to the existing OHL and pylons shall be kept to minimal during construction and operation stages.

7.2.15 Close coordination with CLP shall be carried out during the construction stage and the code of practices published by relevant departments and CLP shall be strictly followed.

7.3 Proposed Site Formation Works

Proposed Site Formation Works at SHR Site

7.3.1 Subject to the gentle topographic nature of the eastern section of SHR Site, this section will be formed at the level between +6.0mPD to +7.6mPD by slope grading.

7.3.2 Considering the western part of the SHR Site which is generally flat, the site will be formed at the level between +7.5mPD to +12.0mPD by slope grading. The proposed works are presented in ***Figure No. 198172/B&V/FR/0701***.

Proposed Site Formation Works at SHR Site Extension

7.3.3 Subject to the gentle topographic nature of the SHR Site Extension, this section will be formed at the level between +9.8mPD to +12.2mPD by slope grading.

7.3.4 In SHR Site Extension, each school site will be formed with uniform level with slight slope grading. The proposed formation levels of the proposed secondary school, western primary school and eastern primary school are +12.2mPD, +12mPD and +10.5mPD respectively.

7.3.5 Regarding the proposed public access road serving the school sites, L–shaped retaining walls of about 3.0 to 4.9m retaining height are proposed along the northern boundary of the proposed road to preserve the existing road located at a higher elevation immediately to the north. The proposed works are presented in ***Figure No. 198172/B&V/FR/0701***.

Proposed Site Formation Works at HPR Site

7.3.6 Since the western part of the HPR Site is hilly and the eastern part is generally flat, the site will be formed in various platforms which rise diagonally from the southeast to the northwest direction. The uppermost platform will be formed at the level between +21.0mPD to +27.0mPD. The lowest platform will be formed at the level between +8.0mPD to +12.0mPD. An estate road at the level between +16.5mPD to +21.0mPD will be formed by retaining structures separating the two platforms.

7.3.7 Considering the access to the existing DSD adit shaft building, the gradient and connectivity of the proposed estate road within the housing development to proposed PTI and further to the realigned HPR road, retaining structures are proposed along the western boundary of HPR Site.

7.3.8 The construction of bored pile walls (approximately retained height ranging from 10m – 15m) along the western boundary of HPR Site will serve as permanent retaining structures and will be completed before the commencement of excavation of site formation works.

7.3.9 After the bored pile wall is completed, excavation will be carried out in the site up to the specified site formation level. Open cut and temporary retaining structures will be used for excavation during the construction of permanent L–shaped retaining walls (approximately retained height ranging from 2m – 10m) and gravity retaining walls (approximately retained height ranging from 0m – 3m) within the site.

7.3.10 The proposed works within HPR Site are presented in ***Figure No. 198172/B&V/FR/0701***.

Proposed Site Formation Works on Proposed Road L7

7.3.11 When determining the longitudinal profile of proposed Road L7, the profile of the realigned Hong Po Road and L54D was considered as the proposed Road L7 is proposed to be connected to the realigned Hong Po Road and Road L54D to form a looped road network. Furthermore, considering the road safety, the gradient of the proposed Road L7 shall comply with Transport Planning and Design Manual (TPDM). As such, it is unavoidable that the longitudinal profile of proposed Road L7 is generally lower than the existing ground profile.

7.3.12 The village zone, existing graves and existing pylons also impose a certain degree of constraint to the design of proposed Road L7. In order to overcome these constraints, different types of earth-retaining system are proposed along the northbound and southbound of the carriageway, including bored pile wall (approximate retained height ranging from 10m – 15m), L-shaped retaining wall and cut slope with soil nail. The approximate retained height of the L-shaped retaining wall are recommended to be ranged from 2m – 10m.

7.4 Earthwork Inventory

7.4.1 An estimation on the quantities of excavated materials and imported fill for each proposed site and the associated roadworks are shown in ***Table 7.1*** below:

Table 7.1 – Summary of Estimated Quantities of C&D Materials Generated During Site Formation

Phases	Inert C&D Material (m^3)	Non–inert C&D Material (m^3)	Reused on Site (m^3)	Disposed Offsite (m^3)		Tentative Disposal Period
				Inert	Non–inert	
SHR Site Extension (Residential Site)	8,300	1,900	8,300	0	1,900	2025 Q2 – 2026 Q4
SHR SPS	200	500	200	0	500	2026 Q4 – 2028 Q2
Realigned Hong Po Road	800	1,900	800	0	1,900	2026 Q4 – 2028 Q1
Proposed Road L7	72,500	3,500	68,000	4,500	3,500	2026 Q2 – 2028 Q3
SHR Site – Residential Site	71,900	6,400	61,050	10,850	6,400	2025 Q4 – 2028 Q1
HPR Site	308,700	9,200	117,800	190,900	9,200	2026 Q4 – 2029 Q3
School Site at SHR Site	3,700	2,400	3,700	0	2,400	2026 Q4 – 2028 Q3
School Site at SHR Site Extension	12,900	4,800	12,900	0	4,800	2026 Q4 – 2029 Q3
Infrastructure Works	70,650	7,850	43,700	26,950	7,850	2027 Q1 – 2030 Q3
Total	**549,650**	**38,450**	**316,450**	**233,200**	**38,450**	**–**

7.4.2 Early consultation with EPD and Public Fill Committee of CEDD is required to identify the feasible sites for dumping the unsuitable material and imported fill material.

7.4.3 The proposed site formation works would be constructed in parallel with the associated infrastructure works for the development, including roadworks, drainage and sewerage works. Temporary drainage works with proper desilting facilities would be provided, as appropriate, during the construction to avoid possible water pollution and increase in flooding risk.

7.4.4 It is recommended to carry out a more detailed site formation / geotechnical assessment in the detailed design stage when the design parameters are confirmed.

7.5 Summary

7.5.1 According to the findings of the preliminary site formation assessment, no insurmountable issue is anticipated for the proposed site formation works of the proposed developments.

8 PRELIMINARY DRAINAGE IMPACT ASSESSMENT (DIA)

8.1 General

8.1.1 This chapter aims to assess potential drainage impacts that may arise from the proposed developments, and recommends the necessary improvement or upgrading works, if any.

8.2 Existing Drainage Condition

8.2.1 An unnamed stream course, hereby named as Chung Shan Creek [CSC54], conveys runoff from Chung Shan to the San Hing Nullah near Tsing Lun Road. HPR Site, SHR Site Extension and SHR Site are located in the south–east section of CSC54.

8.2.2 The contributing catchment of CSC54 has an area of approx. 1.87 km^2, which is located along Hong Po Road. The existing catchment plan of the study area is shown in ***Figure No. 198172/B&V/FR/0801.***

8.2.3 A portion of the CSC54 in the south of SHR Site had been upgraded to a 7 m wide rectangular drainage channel under Contract No. DC/2001/05 – Completion Works for Rural Planning and Improvement Strategy – Minor Rural Improvement Works Package 4 Phase 1 – TM–004 Chung Shan Drainage Improvement, Tuen Mun.

8.2.4 This 7 m wide rectangular drainage channel is connected to a downstream twin–cell 4000 x 2000 box culvert under Contract No. CV/2011/01 – Site Formation and Infrastructural Works near Tsing Lun Road and Tsz Tin Road in TM54, and subsequently to a 4000 x 3000 twin–cell box culvert. The runoff will eventually be discharged to the two single–cell 4000 x 3000 box culverts for discharging into the San Hing Nullah, which is located upstream of the Tuen Mun Nullah.

8.3 Assessment Approach

8.3.1 The proposed development at HPR Site, SHR Site Extension and SHR Site would potentially have the following hydraulic impact to the downstream stormwater drainage system:

- Change in land use from unpaved to paved surface would increase the amount of runoff entering into the stormwater drainage system.
- Change in formation level and cross–fall in the Study Area would alter the overland flow pattern and discharge point into the stormwater drainage system
- Formation of the proposed development would cut off the flow of the existing stream CSC 54 which might result in flooding at some low–lying area .

8.3.2 InfoWorks CS Version 11.0 has been adopted for assessing the potential drainage impact arising from the proposed development under this Assignment.

8.3.3 The design criteria for flood level depends on a combination of rainstorm event, tidal level, climate change, as well as the catchment characteristics. With reference to Table 11 of SDM, the determination of the flood level is provided in ***Table 8.1*** below:

Table 8.1 – Determination of Flood Level in the Fluvial–Tidal Zone

Flood Level Return Period	Case a	Case b
50 years	50–year rain + 10–year sea level	10–year rain + 50–year sea level
200 years	200–year rain + 10–year sea level	10–year rain + 200–year sea level

8.3.4 A new drainage system would be constructed to convey the runoff from the proposed developments and upstream catchments to Tuen Mun Nullah.

8.3.5 The proposed drainage pipes, manholes, catch pits, u–channels and box culverts throughout the proposed development area are shown in ***Figure No. 198172/B&V/FR/0802*** and summarized as follows:

- 2,000 mm (H) x 3,000 mm (W) box culvert along the eastern boundary of HPR Site;
- 2,000 mm (H) x 3,000 mm (W) box culvert along the proposed access road by the northern and eastern sides of SHR Site Extension;
- 2,000 mm (H) x 4,000 mm (W) box culvert along the realigned Hong Po Road between HPR Site and SHR Site;
- Twin 2,000 mm (H) x 4,000 mm (W) box culverts along the realigned Hong Po Road between SHR Site to BC–5 under Contract No. CV/2011/01; and
- Proposed drainage pipes and periperal U–channels to collect surface runoff connecting to the proposed major drains above.

8.3.6 U–channels would be installed for proper conveyance of the stormwater runoff to the adjacent downstream drainage system. Sand traps are suggested for installation at the inlet of the drainage pipe and box culvert to minimise blockage and maintenance requirement.

8.3.7 Drainage reserves are required for proper maintenance of the drainage pipes and box culvert to be handed over to DSD.

8.3.8 Based on the hydraulic assessment, there is no adverse drainage impact to the downstream drainage system arising from the proposed developments upon commissioning of the proposed drainage works.

8.4 Recommendation

8.4.1 The proposed drainage works is provided in ***Figure No. 198172/B&V/FR/0802***. The proposed drainage layout is considered adequate in conveying the stormwater runoff to the downstream Tuen Mun Nullah. Interior peripheral U–channels would be installed to properly convey stormwater runoff from the Site to the downstream drainage system. The proposed U–channel catchment plan within the PDA is shown in ***Figure No. 198172/B&V/FR/0803***. The proposed hydraulic network after development is shown in ***Figure No. 198172/B&V/FR/0804***.

8.4.2 An existing stream, which is a tributary to CSC54, is likely to be impeded by the development of SHR Site Extension. A 2,000 mm (H) x 3,000 mm (W) box culvert would be constructed to divert the concerned stream to the proposed twin 2,000 mm (H) x 4,000 mm (W) box culvert along the realigned Hong Po Road. The downstream

of this diversion point would be backfilled during site formation for the development of SHR Site. The alignment of the diversion drains should be laid along the proposed access road for the schools and connected to the drainage system at the proposed roundabout located to the southeast of SHR Site. In addition, internal peripheral U–channels would be installed to convey the runoff from the development area to the downstream drainage system. Peripheral U–channels would also be installed inside the site boundary to collect runoff to avoid potential ponding due to the development of SHR Site Extension. The details of the abovementioned diversion is shown in ***Figure No. 198172/B&V/FR/0804***.

8.4.3 Three existing streams, which are tributaries to CSC54, are likely to be impeded by the development of HPR Site. The two northern streams would be connected to the proposed 2,000mm (H) x 4,000 mm (W) box culvert at the realigned Hong Po Road via a proposed 2,000 mm (H) x 3,000 mm (W) box culvert. The western stream would connect to the proposed drainage pipe along the realigned Hong Po Road via the proposed drainage pipe along the maintenance access road along the south western side of HPR Site.

8.5 Summary

8.5.1 Following the implementation of the proposed drainage works, no insurmountable issue is anticipated for the proposed developments from drainage viewpoints.

9 PRELIMINARY SEWERAGE IMPACT ASSESSMENT (SIA)

9.1 General

9.1.1 This chapter aims to assess potential sewerage impacts that may arise from the proposed developments, and recommends the necessary improvement or upgrading works, if any.

Existing and Planned Sewerage System

9.1.2 Ongoing and planned sewerage projects in the Tuen Mun sewage catchment have been reviewed and the relevant parties liaised to establish the baseline sewerage conditions in the vicinity of the proposed developments.

9.1.3 The latest development parameters of the proposed SHR Site, SHR Site Extension and HPR Site, along with the latest information on the existing and planned sewerage network in Tuen Mun were obtained and reviewed.

9.1.4 The hydraulic model of the ultimate development scenario from the approved TM54 SIA Review under Agreement No. CE 55/2007(DS) was adopted.

9.1.5 The proposed SHR SPS would collect sewage from SHR Site, SHR Site Extension and HPR Site for conveyance to the downstream sewerage system.

9.1.6 Only minor sewerage impact to the downstream is anticipated. In particular, the sewers at the upstream of the TM54 SPS (Sections M15.1, M16.1, M17.1, M18.1 & M19.1) are proposed to be upgraded from DN750 to DN900 and the capacity of the TM54 SPS is proposed to be upgraded from 0.59 m^3/s to 0.82 m^3/s in order to handle the sewage generated from the northern Tuen Mun catchment including the planned development in TM54 and the updated Sites. The required/ anticipated completion time of the upgrading of TM54 SPS is proposed to be completed by September 2030.

9.1.7 Based on SIA assessment, it is concluded that both the TM54 and WIS SPS would have sufficient freeboard at the wet well to cater for the peak design flow event and no flooding occurs along the upstream and downstream sewerage of the SPSs. Hence, downstream of TM54 SPS (i.e. rising mains and gravity sewers etc.) are not required to be upgraded.

9.1.8 With the proposed upgrading of the TM54 SPS, the twin 500 diameter rising mains, downstream of TM54 SPS would operate with a peak velocity of 1.83 m/s which is considered adequate for sewage rising mains. Therefore, only minor modification of internal pipework within the SPS is anticipated. The current Environmental Permit (EP) of TM54 SPS comprises the construction and operation of a SPS with a capacity of 90,000 m^3/day; hence, upgrading of the TM54 SPS would not require a variation of EP.

9.1.9 Hence, downstream of TM54 SPS (i.e. rising mains and gravity sewers etc.) are not required to be upgraded.

9.1.10 The Pillar Point Sewage Treatment Works (STW) at further downstream has adequate capacity to cater for the sewage flow to be generated from updated development in TM54 and the proposed SHR Site, SHR Extension Site and HPR Site.

9.2 Approach and Methodology

9.2.1 A sewerage hydraulic model submitted and approved by EPD in the TM54 SIA Review was adopted for this SIA with an objective to examining the potential sewerage impact arising from the proposed developments.

9.2.2 The adopted sewerage hydraulic model was originally developed on the sewage catchment of Tuen Mun under Agreement No. CE 55/2007 (DS) – Village Sewerage in Tseung Kwan O and Tuen Mun (Ka Loon Tsuen and Lung Kwu Tan). Under CE 55/2007 (DS), various design scenarios were assessed, which included the years of 2008, 2016, 2021, 2031 and ultimate development scenario. The population estimation for this hydraulic model was based on the 2006–based Territory Population and Employment Data Matrix (TPEDM).

9.2.3 The hydraulic model was checked against the latest record plans, as–built and construction drawings, and information on SPSs obtained from DSD. The hydraulic model was re–run with the revised population and employment planned for the proposed development to assess the potential sewerage impact.

9.2.4 The sewage generated from the proposed developments will convey to the proposed TM 54 SPS for discharge to the WIS at Ming Kum Road and subsequently to the Pillar Point STW. New sewers are proposed to connect the proposed SHR SPS. A twin 450 diameter rising mains are proposed to connect the SHR SPS to TM 54 SPS. The proposed local sewerage network is shown in ***Figure No. 198172/B&V/FR/0901***. Upon checking of the hydraulic performance as shown in ***Table 9.1*** below**,** the proposed local sewerage network has adequate handling capacity to convey the sewage flow from the SHR Site, SHR Site Extension and HPR Site to the proposed SHR SPS. The sewage flow would then be conveyed via the TM54 SPS to WIS.

Table 9.1 – Hydraulic Performance of SPSs

Site Name	ADWF (m^3/s)	Contributing Population	Peaking Factor for SPS	Peak Flow for SPS (m^3/s)
SHR SPS				
SHR Site	0.0636	20,349		
SHR Site Extension	0.01314	4,206		
HPR Site	0.07050	22,559		
Subtotal	0.147	47,115	3.04	0.45
Subtotal (with 15% contingency)	**0.169**	**54,182**	**3.01**	**0.51**
GRAVITY TO WIS				
Site 1 & 1A	0.027	8,617		
Site 3/4 (West)	0.046	14,719		
Site 5	0.0069	2,226		
TM54 SPS				
Site 2	0.029	9,417		
Site 3/4 (East)	0.034	10,812		
Site 4A (South)	0.009	3,002		
Site 4A (East)	0.002	538		
Site 4A (West)	0.001	321		
Village	0.029	9,174		

Site Name	ADWF (m^3/s)	Contributing Population	Peaking Factor for SPS	Peak Flow for SPS (m^3/s)
SHR SPS				
Sewerage				
Subtotal	**0.104**	**33,265**	**3.00**	**0.31**
Total	**0.273**	**87,446**	**2.92**	**0.80**

9.3 Estimated Sewage Flow

9.3.1 Local sewerage ranging from 300 mm to 750 mm diameter pipes would be designed to convey the sewage flow generated from the Sites to the SHR SPS for subsequently conveyance to the downstream TM54 SPS.

9.3.2 The associated rising mains to convey sewage from the SHR SPS to the downstream TM54 SPS are proposed along Hong Po Road and Tsing Lun Road. With the implementation of the proposed sewerage works and the proposed upgrading of TM54 SPS, no adverse sewerage impact is expected.

9.3.3 The proposed gravity sewers and twin rising mains for the sewage pumping station at SHR Site are shown in ***Figure No. 198172/B&V/FR/0901.***

9.3.4 The average dry weather flow generated from by each phase of the development is shown in ***Table 9.2.***

Table 9.2 – Average Dry Weather Flow

Site Name	Contributing Population	Unit Flow Factor (l/d)	Average DWF (m^3/s)
SHR Site	26,300 residents	190	0.05784
	1,447 employees	280	0.00469
	2,304 students	40	0.00107
SHR Site Extension	4,700 residents	190	0.01034
	469 employees	280	0.00152
	2,784 students	40	0.00129
HPR Site	30,000 residents	190	0.06597
	1,319 employees	280	0.00427
	540 students	40	0.00025

9.4 Recommendation

9.4.1 The network of proposed local sewerage is provided in ***Figure No. 198172/B&V/FR/0901***. The proposed local sewerage network has adequate handling capacity to convey the sewage flow from the SHR Site, SHR Site Extension and HPR Site to the proposed SHR SPS. The sewage flow would then be conveyed via the TM54 SPS to WIS.

9.4.2 The design capacity of the pumping station of the WIS, TM54 and SHR Site are shown in ***Table 9.3.***

Table 9.3 – Hydraulic Performance of SPSs

Sewage Pumping Station	Maximum Sewage Flow SPS (m^3/s)	Design Capacity (m^3/s)	Upgraded Design Capacity (m^3/s)/(m^3/day)
SHR SPS	0.51	0.52	0.52/44,928
TM54 SPS	0.80	0.59	0.82/70,848
WIS SPS	1.24	1.52	-

9.4.3 As shown in ***Table 9.3,*** the design capacity of TM54 SPS would need to be further upgraded. It is recommended to upgrade TM54 SPS from a design capacity of $0.59m^3/s$ to approximately $0.82m^3/s$.

9.4.4 The design capacity of the proposed SHR SPS is proposed to be $0.52m^3/s$ with 2 duty and 1 standby pump system.

9.5 Summary

9.5.1 Following the implementation of the proposed sewerage works, no insurmountable issue is anticipated for the proposed developments from sewerage viewpoints.

10 PRELIMINARY WATER SUPPLY AND UTILITY IMPACT ASSESSMENT (WSUIA)

10.1 General

10.1.1 This chapter aims to assess the potential water supply and utility impacts that may arise from the proposed developments, and recommends the necessary improvements or upgrading works, if any.

10.1.2 The capacity of the existing water supply facilities were assessed taken into account the additional water demand generated from the SHR Site, SHR Site Extension and HPR Site in the vicinity.

10.2 Existing Water Supply Systems

Fresh Water Supply

10.2.1 Tuen Mun Water Treatment Works (TMWTW) and Au Tau Water Treatment Works (ATWTW) are the source of fresh water supply to Tuen Mun North Fresh Water Service Reservoir (TMNFW S/R) and Tan Kwai Tsuen South Fresh Water Service Reservoir (TKTSFW S/R).

10.2.2 The fresh water supply for the existing area within the PDA is presently fed by TMNFW S/R via a network of trunk mains and distribution mains.

Salt Water Supply

10.2.3 Salt water supply for the existing area within the PDA are presently fed by Tuen Mun Salt Water Pumping Station (TMSW P/S) and Tuen Mun North Salt Water Service Reservoir (TMNSW S/R) via a network of trunk mains and distribution mains.

10.3 Water Demand of the Development

10.3.1 The estimated fresh water and salt water demands of SHR Site Extension, SHR Site and HPR Site are summarized in ***Table 10.1***. The fresh and salt water demands have been calculated in accordance with DI No. 1309.

Table 10.1 – Summary of Estimated Water Demand

Site	Fresh Water Demand	Salt Water Demand
SHR Site Extension	1,328.6 m^3/day	412.1 m^3/day
SHR Site	7,063.4 m^3/day	1,934.9 m^3/day
HPR Site	7,992.3 m^3/day	2,142.3 m^3/day

10.4 Impact to Proposed Developments on Water Supply

Fresh Water Supply

10.4.1 According to the Planning Report No. 3/2010 prepared by WSD, the TMNFW S/R has a storage capacity of 60,564 m^3. It is anticipated that the TMNFW S/R will not have sufficient capacity to cater for the total forecasted fresh water demand of the proposed housing developments generated from this Project (SHR Site, SHR Site Extension and HPR Site), TM54, San Hing Tsuen, and along the Tuen Mun/ Yuen Long corridor and the whole north–western Tuen Mun. Therefore, WSD proposed that the water supply to Tuen Mun/ Yuen Long corridor and part of north–western Tuen Mun are to be taken up by the existing TKTSFW S/R.

10.4.2 After the implementation of shifting the fresh water supply zones, the TMNFW S/R would have adequate capacity to cope with the increase in fresh water demand arising from the proposed housing development in Tuen Mun Area 29 (Area 29), TM 54 and San Hing Tsuen.

10.4.3 According to a recent review with Water Supplies Department (WSD), it is advised that TMNFW S/R and TKTSFW S/R would not have spare capacity for providing fresh water supply for the whole proposed developments. Alternative water supply schemes were considered, and details are discussed in ***Section 10.5.***

Salt Water Supply

10.4.4 Based on the Planning Report No. 3/2010 prepared by WSD, after the commissioning of LOPSW P/S and other associated water works, the existing TMNSW S/R and TMSW P/S would have adequate capacities to cope with the ultimate salt water demand of Tuen Mun including the increase in salt water demand arising from the proposed housing developments at Area 29, TM54 and San Hing Tsuen.

10.4.5 According to a recent review with Water Supplies Department (WSD), it is advised that TMNSW S/R would not have spare capacity for providing salt water supply for the whole proposed developments. Alternative salt water supply schemes were considered, and details are discussed in ***Section 10.5***.

10.4.6 A capacity assessment of the existing fresh and salt water service reservoirs was conducted to estimate the spare capacity in order to identify the appropriate water supply arrangement for the proposed developments. The summary of the capacity assessment are shown on ***Table 10.2*** & ***Table 10.3*** for fresh water and salt water supply.

Table 10.2 – Summary of Fresh Water Supply Schemes

Site	Source of FW Supply	Formation Level (mPD)	Residual Head at Connection Point (m) [1]	Invert Level (mPD)	Top Water Level (mPD)	Design / Spare Capacity (m^3)	Required Capacity (m^3)
SHR Site Extension	• TMNFW S/R	10.0	31.1	82.3	89.7	3,753	1,062.9
SHR Site	• Existing/ Potentially Relocated TKTSFW S/R in Lam Tei and adjoining areas under WSD's cavern project	6.0	39.6	60.0	67.0	-[2]	5,650.7
HPR Site	• HPRFW S/R	8.0	22.2	32.0	38.5	6,916	6,793.5

Notes:
[1] a minimum residual pressure of 20-metre head should be provided for fresh water supply
[2] Subject to the latest design of the relocated TKTSFW S/R under WSD's cavern project

Table 10.3 – Summary of Salt Water Supply Schemes

Site	Source of SW Supply	Formation Level (mPD)	Residual Head at Connection Point (m) *	Invert Level (mPD)	Top Water Level (mPD)	Design / Spare Capacity (m^3)	Required Capacity (m^3)
SHR Site Extension	• HPRSW S/R	10.0	21.9	32.0	38.5	1,300	1,122.4
SHR Site		6.0	23.8				
HPR Site		8.0	26.1				

Note:
*a minimum residual pressure of 15-metre head should be provided for salt water supply

10.4.7 The total storage capacity required to meet the additional water demand of the developments is estimated to be 75% of the fresh water mean daily demand (MDD) for service reservoir of interconnected supply zone, 85% of fresh water MDD for service reservoir of isolated supply zone and 25% of the salt water MDD. An 5% of Fresh Water MDD shall be added for supply zone with critical consumers. 6,600m^3/d for 8 hours is required fire–fighting water supply for the housing sites.

10.5 Recommendations for Fresh Water Supply

10.5.1 The proposed fresh watermains are shown in ***Figure Nos. 198172/B&V/FR/1001*** *to* ***1003 a, b & c.*** The details of the proposed fresh watermains scheme 1 are discussed as below:

SHR Site Extension – Existing TMNFW S/R

10.5.2 The fresh water supply to SHR Site Extension would be sourced from the TMNFW S/R via the proposed fresh water mains along the realigned Hong Po Road. The layout of the fresh water mains to cater for the fresh water demand to SHR Site Extension is shown in ***Figure Nos. 198172/B&V/FR/1001*** *to* ***1003 a, b & c.***

SHR Site – Existing/Potentially Relocated TKTSFW S/R into Strategic cavern areas in Lam Tei

10.5.3 The fresh water supply to SHR Site is proposed to be sourced from the existing TKTSFW S/R or potentially relocated TKTSFW S/R in strategic cavern areas (SCVA) which is planned to accommodate the existing and proposed service reservoirs in Lam Tei and adjoining area. The layout of the fresh water mains to cater for the fresh water demand to SHR Site is shown in ***Figure Nos. 198172/B&V/FR/1001*** *to* ***1003 a, b & c.***

HPR Site – HPRFW S/R

10.5.4 Originally the shifting of supply zone from TMNFW S/R to TKTSFW S/R, TMNFW S/R would have sufficient spare storage capacity to meet the fresh water demand arisen from HPR Site. However, after reviewing the latest fresh water demand of the new/ planned developments in north-western Tuen Mun, TMNFW S/R would be fully committed to other current development.

10.5.5 A new HPR Fresh Water Service Reservoir (HPRFW S/R) with an approximate capacity of 6,916 m^3 is proposed to cater for the future fresh water demand at HPR Site. The fresh water mains would be constructed along the access road to DSD's adit shaft building and the realigned Hong Po Road. The HPRFW S/R would be connected to the TMNFW S/R via fresh water mains along Ming Kum Road and proposed Road L7. The layout of the fresh water mains to cater for the fresh water demand to HPR Site is shown in ***Figure Nos. 198172/B&V/FR/1001*** *to* ***1003 a, b & c.***

10.5.6 An alternative arrangement of constructing the proposed HPRFW S/R at the northwestern side of HPR Site with an approximate capacity of 13,955 m^3 to cater for the future fresh water demand arising from all three Sites have been explored and would be further developed at later stage if programme mismatch of fresh water supply from future TKTSFW S/R is found.

10.5.7 A review of the fresh water supply arrangement would be carried out in later stage.

10.6 Recommendations for Salt Water Supply

10.6.1 The proposed salt watermains are shown in ***Figure Nos. 198172/B&V/FR/1004*** *to* ***1005 a & b.*** The details of the proposed salt watermains has been illustrated below:

SHR Site Extension

10.6.2 The salt water supply to SHR Site, SHR Site Extension and HPR Site are proposed to be served by the TMSW P/S and TMNSW S/R. However, the results of the capacity assessments showed that the TMNSW S/R would not have enough capacity to cater for the salt water demand of SHR Site Extension, SHR Site and HPR Site. As such, the TMSW P/S is proposed to be the source of salt water supply to SHR Site Extension.

10.6.3 A new HPR Salt Water Service Reservoir (HPRSW S/R), with a capacity of approximately 1,300 m^3, is proposed at the north–western side of HPR Site to provide salt water and serve as a buffer for maintaining salt water supply. The HPRSW S/R would be connected with the TMSW P/S via the salt water mains on proposed Road L7. Salt water supply to SHR Site Extension would be transported via the salt water mains along the access roads to DSD's adit shaft building and the realigned Hong Po Road. The layout of HPRSW S/R and the proposed salt water mains to cater for the salt water supply to SHR Site Extension are shown in ***Figure Nos. 198172/B&V/FR/1004*** *to* ***1005 a & b.***

SHR Site

10.6.4 Similarly, the salt water supply to SHR Site would be sourced from the TMSW P/S, which would be connected with the HPRSW S/R via the salt water mains on proposed Road L7. Salt water supply to SHR Site would be transported via the salt water mains along the access roads to DSD's adit shaft building and the realigned Hong Po Road. The layout of the salt water mains to SHR Site is shown in ***Figure Nos. 198172/B&V/FR/1004*** *to* ***1005 a & b.***

HPR Site

10.6.5 Similarly, the salt water supply to HPR Site would be sourced from the TMSW P/S, which would be connected with the HPRSW S/R via the salt water mains on proposed Road L7. Salt water supply to HPR Site would be transported via the salt water mains along the access roads to DSD's adit shaft building and the realigned Hong Po Road. The layout of the salt water mains to HPR Site is shown in ***Figure Nos. 198172/B&V/FR/1004*** *to* ***1005 a & b.***

10.7 Existing Utilities

10.7.1 Based on the information provided by relevant Government departments and utility undertakers, there are limited existing utilities in the development boundary. It is considered that the existing utility service is not sufficient to support the future population in the Development. A summary of the preliminary review on the existing utilities is provided in ***Table 10.4***.

Table 10.4 – Review on Existing Utilities

Government Department/ Utility Undertaker	Existing UU in the vicinity of the Sites (Yes/No)	Adequacy of Existing UU to support the Development (Yes/No)
DSD	Yes	No
WSD	Yes	No
TD	Yes	No
HyD, Lighting	Yes	No

Government Department/ Utility Undertaker	Existing UU in the vicinity of the Sites (Yes/No)	Adequacy of Existing UU to support the Development (Yes/No)
EMSD	Yes	No
CLP	Yes	No
Wharf T&T Ltd.	Yes	No
New World Telephone Company Ltd	Yes	No
HKCGC	Yes	No
HKT	Yes	No
HKBN	Yes	No

10.8 Findings and Recommendations on Utilities

10.8.1 Major utility undertakers, including Hong Kong & China Gas Co. Ltd., CLP Power Hong Kong Ltd., Wharf T&T Ltd., Hong Kong Cable Television Ltd., Hong Kong Telecommunications Ltd. and Hong Kong Broadband Network Ltd., have preliminarily confirmed that they could provide their respective services to support the Development. Detailed provision of utilities would be further considered during the later detailed design stage. Nevertheless, no major constraints for re–provision of existing utilities or laying of new utilities are anticipated. ***Table 10.5*** summarises the responses from the major utility undertakers.

Table 10.5 – Review on Proposed Utilities

Utility Undertaker	Provision of Service for the Development (Yes/No)	Remarks
CLP	Yes	The alignment of the facilities could be altered in the future to meet the requirements.
Wharf T&T Ltd.	Yes	The Development would be served by the cable fitted from the Tuen Mun Hub. The proposed duct system inside the Development Area would be constructed in conjunction with new road construction stage.
New World Telephone Company Ltd	TBD	No response was received.
HKCGC	Yes	Medium pressure and low pressure gas pipes along the proposed roads and gas governor kiosks would be installed along the proposed roads at suitable locations within the

Utility Undertaker	Provision of Service for the Development (Yes/No)	Remarks
		Development Area.
HKT	Yes	Underground plant would be constructed along Hong Po Road to serve the Development.
HKBN	Yes	Underground duct route (2x107 mm UPVC ducts) could be installed for the Development.
Hutchison Global Communication Ltd.	TBD	No response was received.

10.8.2 With the extension of the existing networks by the service providers (in public areas) and HKHA (within the Site), it is concluded that the utility support to the development is technically feasible.

10.8.3 It is noted that the provision of utilities from some utility undertakers, such as telecommunication service providers, could not be confirmed at this stage of the Study. Further liaisons and coordination with relevant Government departments and utility undertakers should be carried out during the later detailed design stage to ensure that sufficient utility services would be provided before the population intakes of the developments.

10.9 Summary

10.9.1 From water supply and utilities viewpoints, no insurmountable issue is anticipated for the proposed development.

11 PRELIMINARY SUSTAINABILITY ASSESSMENT (SA)

11.1 General

11.1.1 The objective of the Preliminary SA are listed as follows:

a. Use the Computer–Aided Sustainability Evaluation Tool (CASET) as evaluation frameworks to evaluate and assess the infrastructure;

b. Devise and modify the set of guiding principles, parameters and evaluation criteria to assess the sustainability implications;

c. Conduct preliminary assessment on possible environmental impacts during construction and operational stages;

d. Conduct preliminary assessment on the implications to the local community as well as to Hong Kong at large;

e. Evaluate and analyse the sustainability implications; and

f. Identify the key sustainability issues.

11.1.2 A summary of various aspects of the review are presented in the section below:

11.2 Approaches for Sustainability Assessment

11.2.1 Computer–Aided Sustainability Evaluation Tool (CASET) was used to evaluate the sustainability implications of the infrastructure proposed under the Project.

11.2.2 A set of guiding principles from CASET is listed as follows:

- Economy
- Health and Hygiene
- Natural Resources
- Society and Social Infrastructure
- Biodiversity
- Leisure and Cultural Vibrancy
- Environmental Quality; and
- Mobility
- A list of characterisation includes:
- Art / Culture / Recreation / Entertainment
- Conservation, Environment and Agriculture
- Demographics
- Economics
- Education
- Energy
- Health and Living Conditions

- Housing
- Industry
- Land and Infrastructure
- Transport
- Waste and Waste Water

11.3 Scenario

11.3.1 Considerations are compared between the "with development" and "without development" scenario. For instance, the "without development" scenario represents the baseline condition of the parameter prior to the implementation of the Project while the "with development" scenario would include the Project.

11.3.2 The "with development" scenario is defined as the proposed public housing and schools developments and their associated infrastructure works (site formation, drainage and sewerage infrastructural works, road works, environmental mitigation measures, water supply and utilities services works) at HPR Site, SHR Site and SHR Site Extension.

11.3.3 Majority of the HPR Site and SHR Site is situated in the areas currently zoned as "Green Belt (GB)" and/or "Residential (Group E)", in which re–zoning is required prior to implementation of the proposed public housing development.

11.3.4 The site formation works include slope cutting, earth filling works as well as geotechnical works/structures. The proposed infrastructures, i.e. roadworks, drainage (drains and box culvert), water supply (service reservoirs and water mains), sewerage (gravity sewers, rising mains and pumping station) etc. will be constructed to cater for the increase in future demand due to population intake in 2030, 2031 and 2033 for SHR Site Extension, SHR Site and HPR Site respectively.

11.3.5 Environmental mitigation measures, such as noise barrier, would be proposed if necessary, to minimise environmental and public disturbance.

11.3.6 The CASET parameters have been assessed qualitatively and quantitatively where possible. The results are summarized in ***Table 11.1*** below:

Table 11.1 – Summary of Anticipated Impacts for each Sustainability Parameter

Parameters	Qualitative Changes	Expected Range of Change in Conditions
Carbon Dioxide Emitted Per Year	Decrease	Very Small Deterioration
Construction Waste	Decrease	Very Small Deterioration
Cost–benefit	Increase	Small Improvement
Criteria Air Pollutants	Decrease	Small Deterioration
Eco–value Habitats	Decrease	Small Deterioration
Energy Consumption	Decrease	Very Small Deterioration
Excessive Noise	Decrease	Small Deterioration
Fixed Capital	Increase	Small Improvement
Freight Costs	Increase	Small Improvement
Freshwater Supplied and Consumed	Decrease	Small Deterioration
Income Differential	Remain	–
Job Creation/ Loss	Increase	Very Small Improvement
Landfill Capacity	Decrease	Very Small Deterioration
Local Freshwater	Remain	–
Municipal Solid Waste	Decrease	Very Small Deterioration
Open Space Shortfall	Increase	Small Improvement
Protected and Managed Habitats	Decrease	Small Deterioration
River Water Quality	Remain	–
Significant Landscape Features (Area)	Decrease	Small Deterioration
Significant Landscape Features (point)	Decrease	Small Deterioration
Travel Distance	Remain	–
Travel Speed	Remain	–

11.3.7 The sustainability assessment at this stage indicates that with the implementation of the Project, the main benefits would be improvement in housing and living conditions, economy, leisure and society and social infrastructure. These benefits come in the form of improved health and well–being of residents, positive economic return, and enhancement to social involvement.

11.3.8 The associated transport infrastructure would improve the connectivity between the development sites and the periphery regions to the rest of Hong Kong. On the other hand, negative impacts come mainly in the form of environmental degradation, with deterioration in natural resources.

11.3.9 Overall, the benefits produced by the Project outweigh the residual negative impacts especially considering the long term. Therefore, with the implementation of the proposed mitigation measures to minimize the negative impacts, the Project is considered sustainable.

12 PRELIMINARY LAND REQUIREMENT STUDY (LRS)

12.1 General

12.1.1 This chapter aims to summarize the key land requirement issues due to the proposed developments.

12.2 Land Resumption

12.2.1 The Site contains a total area of 29.7 ha and about 12.8 ha belongs to Government land (43%). The area of the affected private land within the Development Area is approximately 16.9 hectare. The detailed breakdown of the area of the affected land is summarized in ***Table 12.1*** below:

Table 12.1 – Total Area of Private Land Lots to be Affected

Site	Approx. Area of Land Lots Affected (m^2)
HPR Site	41,510
SHR Site Extension (residential)	17,670
SHR Site Extension (school sites)	14,440
SHR Site (residential)	72,120
SHR Site (school sites)	12,050
Proposed Road L7	570
Realigned Hong Po Road	10,510
Total	168,870

12.2.2 There are approximately 249 licenses structure expected to be affected by the proposed developments. The number of affected licenses structure at each site are shown in ***Table 12.2*** below:

Table 12.2 – Existing Licenses to be Affected

Site	Number of affected licenses
SHR Site (residential)	107
SHR Site (school sites)	14
SHR Site Extension(residential)	17
SHR Site Extension (school sites)	45
HPR Site	60
Proposed Road L7	3
Realigned Hong Po Road	3
Total	**249**

12.2.3 There are in total about 384 private land lots needed to be resumed for the proposed developments. The number of affected private land lots are shown in ***Table 12.3*** below:

Table 12.3 – Existing Private Land Lots to be Affected

Site	Number of affected land lots
SHR Site	161
SHR Site Extension	75
HPR Site	112
Proposed Road L7	4
Realigned Hong Po Road	32
Total	**384**

12.3 Graves, Kam Taps (Urns) or Shrines

12.3.1 The existing graves and urns that will be potentially affected by the proposed developments are summarized in ***Table 12.4*** below:

Table 12.4 – Existing Graves/ Urns to be Affected

Site	Number of Graves/ Urns Affected
SHR Site	0
SHR Extension	2
HPR Site	5
Proposed Road L7	26 (8 were inaccessible and 7 could not be located)

12.4 Affected Houses

12.4.1 Existing houses within the land resumption boundary have been identified based on examination of aerial photos and observation from site visits in February 2019. The estimated total number of affected houses is 83.

12.5 Affected Agricultural Lands and Orchards

12.5.1 Continuous pieces of agricultural lands and orchards are identified within the land resumption boundary. These agricultural areas penetrate through the village and different type of business areas. The approximate area of the affected agricultural lands and orchards is summarized in ***Table 12.5*** below:

Table 12.5 – The Area of Affected Agricultural Lands and Orchards

Site	Site Area (m^2)	Gov. Land Area (m^2)	Private Land Area (m^2)	Agricultural Lands and Orchards	
				Area Affected on Gov. Land (m^2) (Approx. % of Land Affected)	Area Affected on Private Land (m^2) (Approx. % of Land Affected)
HPR Site	87,950	46,450	41,510	31,430 (67.60%)	5,330 (12.80%)
SHR Site Extension (residential)	23,640	5,970	17,670	3,930 (65.70%)	9,000 (51.00%)
SHR Site Extension (school sites)	24,010	9,570	14,440	9,180 (95.90%)	11,600 (80.00%)
SHR Site (residential)	91,360	19,230	72,120	5,050 (26.30%)	16,650 (23.10%)
SHR Site (school sites)	14,170	2,120	12,050	0 (0.00%)	0 (0.00%)
Proposed Road L7	18,190	17,630	570	13,390 (76.00%)	140 (24.20%)
Realigned Hong Po Road	23,180	12,670	10,510	3,030 (23.90%)	1,910 (18.20%)

Site	Site Area (m^2)	Gov. Land Area (m^2)	Private Land Area (m^2)	Agricultural Lands and Orchards	
				Area Affected on Gov. Land (m^2) (Approx. % of Land Affected)	Area Affected on Private Land (m^2) (Approx. % of Land Affected)
Total	282,500	113,640	168,870	66,010 (58.00%)	44,630 (26.40%)

12.5.2 The land requirements are estimated based on the preliminary design and will be subject to review during the detailed design stage. It will be revised and updated, if necessary, in accordance with the latest development of the Project.

12.6 Summary

12.6.1 A preliminary land requirement study has been conducted to identify the land requirements of the proposed site formation and infrastructural works. It is anticipated that there would be no insurmountable issue from the land acquisition viewpoint.

13 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

13.1 General

13.1.1 EIA have been conducted as part of the feasibility study to assess the overall acceptability of any adverse environmental consequences that are likely to arise because of the proposed developments.

13.1.2 The EIA report (Development at San Hing Road and Hong Po Road, Tuen Mun (Application No. EIA-263/2020)) has been approved with a condition under Section 8(3) of the EIA Ordinance (Register No. : AEIAR - 227/2020).

13.2 Environmental Impact Assessment Ordinance (EIAO)

13.2.1 The total study area under the Study is about 29.7ha. Since the total study area exceeds 20 ha,an Environmental Impact Assessment (EIA) is required in accordance with the Item 1 under Schedule 3 of the EIA Ordinance (EIAO) (Cap. 499), i.e. "Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100,000".

13.2.2 For any future change(s) after the approval of this EIA report, the following steps will be taken:

(a) Should the change(s) involve a designated project item under Schedule 2 of the EIAO, the requirements under the EIAO will be complied with; and

(b) Should the change(s) not involve any designated project items under Schedule 2 of the EIAO, prevailing planning mechanisms and standards will be followed and relevant EIA findings will be conformed to.

13.2.3 To implement the Project, there is one proposed work classified as DP under Schedule 2 of the EIAO. The details are shown in and ***Table 13.1*****.**

Table 13.1 – Summary of Schedule 2 Designated Project

Item Ref. No.	Ref. Category No.	Descriptions of DP under EIAO	Works Component
DP1	F.3 (b) of Part 1 Schedule 2	A Sewage Pumping Station with an installed capacity of more than 2,000 m^3 per day and a boundary of which is less than 150m from an existing or planned residential area	Construction of a sewage pumping station (SPS) with a design capacity of 14,629 m^3/day at SHR Site and is less than 150m from an existing / planned residential area

13.3 Air Quality Impact

Key Assessment Scope and Key Criteria

13.3.1 The air quality impact assessment was conducted in accordance with the requirements in Annexes 4 and 12 of the Technical Memorandum on EIA Process (EIAO-TM) and the requirements in Section 3.4.3 and Appendix B of the EIA Study Brief. The assessment area for the air quality impact is defined by a distance of 500m from the boundary of the Project Site during construction phase and 500m from the boundary of the PDA and road junction improvement works during operation phase.

13.3.2 Quantitative assessments using the relevant air models approved by EPD have been conducted for both construction and operation phases. Cumulative air quality impact has also been determined in the impact assessments.

Construction Phase

13.3.3 Potential construction dust impact would be generated from site clearance, land decontamination, site formation works and roadworks. Quantitative fugitive dust assessments have been conducted. The major concurrent projects include Site 4A (South), Site 4A (East) and Site 5 of the TM54 Development and Area 29 West Development. With the implementation of mitigation measures specified in the Air Pollution Control (Construction Dust) Regulation together with the recommended dust suppression measures including watering once per hour on active works areas, exposed areas and haul roads and other site management measures such as, good site practices, and environmental monitoring and audit (EM&A) programme, the predicted Total Suspended Solid (TSP), Respiratory Suspended Solid (RSP) and Fine Suspended Solid (FSP) at representative air sensitive receivers (ASRs) would comply with the criteria stipulated in the Air Quality Objectives (AQOs) and EIAO-TM. The predicted concentrations for key representative pollutants after implementation of mitigation measures are summarised in ***Table 13.2***.

Table 13.2 – Summary of Predicted Cumulative Construction Dust Impact (After Implementation of Mitigation Measures)

	Pollutant Concentration (μg/m³)					Compliance
	TSP	RSP		FSP		
	1-hr	24-hr (10th highest)	Annual	24-hr (10th highest)	Annual	
Existing ASRs	202 - 434	83 - 98	36 - 46	62 - 68	25 - 27	Yes
AQOs/ EIAO-TM Criteria	500	100	50	75	35	--

Operation Phase

13.3.4 Key existing, planned and committed air pollution sources during operation phase are the vehicular emission from open sections of existing roads, proposed roads and proposed junction improvement works within the assessment area. Cumulative air quality impact at the representative ASRs would also be expected due to the background pollutant concentrations, portal emissions from the noise enclosure at Tsing Lun Road and industrial emissions from the identified chimneys within the assessment area. Key representative air pollutants include Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), RSP and FSP.

13.3.5 Quantitative assessment has been conducted and the assessment results concluded that the predicted cumulative air quality impacts in Year 2029 and Year 2033 on all ASRs would comply with the AQOs. Results in Year 2029 and Year 2033 are summarised in ***Table 13.3*** and ***Table 13.4*** respectively. Therefore, no adverse air quality impact during operation phase is anticipated.

Table 13.3 – Summary of Predicted Concentrations of Representative Air Pollutants during Operation Phase in Year 2029

	Pollutant Concentration (µg/m³)								Compliance
	NO_2		RSP		FSP		SO_2		
	1-hr (19th highest)	Annual	24-hr (10th highest)	Annual	24-hr (10th highest)	Annual	10-min (4th highest)	24-hr (4th highest)	
Existing ASRs	104 - 139	23.7 – 37.4	82 - 89	35.6 - 37.6	62 - 67	25.3 – 26.7	n/a	n/a	Yes
Planned ASRs	104 - 128	24.3 – 36.9	83 - 86	36.0 – 36.8	62 - 64	25.6 – 26.3	122 - 145	28 - 31	Yes
AQOs/ EIAO-TM Criteria	200	40	100	50	75	35	500	125	--

Table 13.4 – Summary of Predicted Concentrations of Representative Air Pollutants during Operation Phase in Year 2033

	Pollutant Concentration (µg/m³)								Compliance
	NO_2		RSP		FSP		SO_2		
	1-hr (19th highest)	Annual	24-hr (10th highest)	Annual	24-hr (10th highest)	Annual	10-min (4th highest)	24-hr (4th highest)	
Existing ASRs	104 - 128	23.6 – 32.6	82 - 89	35.6 - 37.6	62 - 67	25.3 – 26.7	n/a	n/a	Yes
Planned ASRs	105 - 125	24.6 – 33.2	83 - 85	36.0 – 36.5	62 - 64	25.6 – 26.1	122 - 145	28 - 31	Yes
AQOs/ EIAO-TM Criteria	200	40	100	50	75	35	500	125	--

13.3.6 Potential odour impact arising from the operation of the proposed SHR SPS and future refuse collection points (RCPs) has been assessed in this EIA. With the installation of deodourising units with 99.5% odour removal efficiency and incorporation of appropriate design measures at the proposed SHR SPS, and proper ventilation and deodorizing design system installed at the future RCPs together with implementation of good housekeeping, it is anticipated that there would be no adverse odour impact from the proposed SHR SPS and future RCPs at the nearby ASRs.

13.4 Noise Impact

Key Assessment Scope and Key Criteria

13.4.1 The noise impact assessment was conducted in accordance with the requirements set out under Annexes 5 and 13 of the EIAO-TM, and Section 3.4.4 and Appendix C of the EIA Study Brief. The assessment area for noise impact is generally defined by a distance of 300m from the Project Site (i.e. the PDA boundary and the associated infrastructure works).

Construction Phase

Construction Noise

13.4.2 Construction noise associated with the use of powered mechanical equipment (PME) for various stages of construction has been assessed. With the implementation of practical mitigation measures including good site management practices, use of Quality Powered Mechanical Equipment (QPME), use of movable noise barrier, noise enclosure and noise insulating fabric and provision of minimum separations from the affected educational institutions or avoidance of any noisy construction activities during the school examination period, the predicted construction noise impact would be 58-75 dB(A) for residential noise sensitive receivers (NSRs), 50-70 dB(A) for education institutions and 50-65 dB(A) for education institutions during school examination period. Hence, no unacceptable impact arising from the construction of the Project would be anticipated.

13.4.3 For conducting construction works close to education institution, it is recommended that the Contractor shall liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination period.

Operation Phase

Road Traffic Noise

13.4.4 Operation road traffic noise impact on the representative existing and planned noise sensitive uses within and near the PDA and the junction improvement works have been predicted. To mitigate the road traffic noise impact on the existing and planned NSRs within and near the PDA and one of the junctions, a combination of noise mitigation measures has been recommended, including i) application of low noise road surfacing material along some sections of Project roads and other roads; ii) construction of roadside noise barriers along some sections of project roads; iii) provision of acoustic windows for the proposed public housing buildings; iv) construction of boundary wall for the proposed welfare facilities and v) implementation of on-site noise mitigation measures at Site 5 of TM54 by Hong Kong Housing Authority. Restriction on locating the more noise sensitive welfare uses at façade facing the realigned Hong Po Road and access road in HPR Site has also been recommended. With all the proposed mitigation measures in place, the façade noise levels at all the planned NSRs would comply with the respective noise criteria. A summary of the predicted road traffic noise levels with mitigation measures in place is given in ***Table 13.5*****.**

Table 13.5 – Summary of Mitigated Road Traffic Noise Levels

Use	**Predicted Mitigated Overall Noise Levels, $L_{10(1hr)}$ dB(A)**	**Criteria, $L10_{(1hr)}$ dB(A)**
Residential	41 - 70	70
Educational Institutions	57 - 65	65

13.4.5 With the implementation of the proposed mitigation measures, the traffic noise level from Project roads would comply with the respective noise criteria and the Project road contribution to overall noise level of existing residential and educational NSRs outside PDA would be negligible. The details of the proposed noise mitigation

measures is shown in ***Figure Nos. 198172/B&V/FR/1301a*** and ***1301b.***

Fixed Noise Source

13.4.6 A number of facilities have been recommended to support the operation of the proposed developments. Some of these facilities, which include the proposed SHR SPS and the two PTIs are fixed noise sources that would have potential noise impacts on NSRs. Other than these proposed fixed noise sources, there are existing fixed noise sources including rural workshops and storage sites.

13.4.7 Fixed noise source impact assessment has been conducted for all existing and planned NSRs. Noise impact from proposed fixed plant could be effectively mitigated by implementing noise mitigation measure at source. With the adoption of the proposed maximum permissible Sound Power Levels (SWLs) for the ventilation fans of proposed PTIs, the impact noise levels at the representative NSRs would comply with the relevant noise criteria. Therefore, adverse impact on the NSRs due to fixed noise sources is not anticipated.

Rail Noise

13.4.8 Rail noise impact assessment has been conducted for the planned NSRs at the SHR Site which are potentially affected by the WRL and LRT operation. With the implementation of mitigation measure in the form of provision of acoustic windows for the proposed public housing, the impact noise levels at all representative NSRs would comply with the relevant rail noise criteria. Therefore, adverse rail noise impact on the planned NSRs is not anticipated.

13.5 Water Quality Impact

Key Assessment Scope and Key Criteria

13.5.1 The water quality impact assessment was conducted in accordance with the requirements set out under Annexes 6 and 14 of the EIAO-TM, and Section 3.4.5 and Appendix D of the EIA Study Brief. The assessment area of the water quality impact includes the area within 500m from the boundary of the Project Site.

Construction Phase

13.5.2 Water quality impacts from the construction works are associated with the general construction activities, construction site run-off, accidental spillage, and sewage effluent from construction workforce. The site practices as outlined in the ProPECCPN 1/94 "Construction Site Drainage" and the ETWB TC (W) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" are recommended to minimise the potential water quality impacts from the construction activities. Proper site management and good site practices are also recommended to ensure that construction wastes and other construction-related materials would not enter the nearby streams. Temporary sanitary facilities would be provided on construction sites to properly collect the on-site sewage generated from the construction workers. Water quality monitoring will be implemented and regular site inspection will be conducted during construction stage to ensure that the recommended mitigation measures are properly implemented.

13.5.3 With the implementation of the recommended mitigation measures, the construction works for the Project would not result in unacceptable impacts on water quality.

Operation Phase

13.5.4 During the operation phase, all the sewage and wastewater generated from the PDA will be properly collected and discharged to the public sewerage system and conveyed to the Pillar Point Sewage Treatment Works (PPSTW) for chemically enhanced primary treatment (CEPT) prior to discharge into Urmston Road. Discharge from the PPSTW after CEPT and UV disinfection would not cause adverse water quality impact in North Western and Western Buffer waters.

13.5.5 In view of the potential emergency discharge from the proposed SHR SPS, contingency measures such as a storage tank, twin rising mains, standby pumps and dual electricity supply or backup power supply facilities would be provided at the proposed SHR SPS to minimize the risk of failure of the SPS leading to emergency discharge of untreated sewage. An emergency response plan will be formulated to minimize the impact of emergency discharges and facilitate subsequent management of the emergency. With proper implementation of the recommended mitigation measures, no unacceptable water quality impact would be expected during the operation phase of the Project. No adverse residual water quality impact is anticipated during operation phase of the Project.

13.6 Sewerage and Sewage Treatment Implications

Key Assessment Scope and Key Criteria

13.6.1 Sewerage and sewage treatment implications of the Project were evaluated and assessed in accordance with Section 3.4.6 and Appendix E of the EIA Study Brief and the criteria as stated in Annex 14 of the EIAO-TM.

Operation Phase

13.6.2 The proposed development in the PDA will generate large amount of sewage flow. New public sewerage system and the proposed SHR SPS will be constructed to collect sewage generated from the PDA and convey the collected sewage to the downstream sewerage system. According to the assessment, the PPSTW would have adequate treatment capacity to cater for the sewage flow generated from the PDA.

13.6.3 Based on the findings of this sewerage and sewage treatment impact assessment, the Project is sustainable from sewage collection, treatment and disposal perspective.

13.7 Ecological Impact

Key Assessment Scope and Key Criteria

13.7.1 The ecological impact assessment was conducted in accordance with the requirements set out under Annexes 8 and 16 of the EIAO-TM, Section 3.4.9 and Appendix H of the EIA Study Brief, EIAO Guidance Notes (6/2010, 7/2010 and 10/2010) and other relevant legislations and guidelines. The assessment area of the ecological impact includes the area within 500m from the boundary of the Project Site.

Potential Impacts and Mitigation Measures

13.7.2 Ecological baseline was established by both literature review and 8 months programme of field surveys covering both dry and wet seasons. A total of 11 types of habitat were identified within the ecological assessment area, of which 8 types of habitats, including woodland, agricultural land, natural stream, semi-natural stream, drainage channel, village/orchard, village area and urban area were located within the Project Site where the development area and associated infrastructure works are proposed.

13.7.3 Avoidance measures were considered and incorporated during early stages of the Project. Direct encroachment onto the two identified sites of conservation interest within the assessment area, namely a mature secondary woodland (W2) near Tong Hang Road and the Conservation Area (CA) zone near Chung Shan has been avoided by the Project. An upstream section of the semi-natural stream (R1f) at HPR Site is proposed to be retained by adjusting the proposed development boundary for preservation of the localities of two crab species of conservation interest (*Cryptopotamon anacoluthon* and *Somanniathelphusa zanklon*) (See Section 8.7.7 of EIA Report).

13.7.4 Most habitats to be lost, such as agricultural land, drainage channel, village area, village/orchard and urban area are of low ecological value. Although the whole of the woodland (W3) is rated as of medium ecological value, the affected portion is a low-quality habitat patch, and regularly disturbed by grave-sweeping activities. Hence, the potential impact due to loss of woodland is minor. The potential impacts due to loss of habitats are all anticipated to be minor (See Section 8.7.39 of EIA Report). A summary of the estimated habitat loss is given in ***Table 13.6***.

Table 13.6 – Summary of the Habitat Loss

Habitat	Ecological Value	Permanent Loss (ha)
Woodland (W3) *	Medium	1.2
Agricultural Land	Low	1.1
Natural Stream (of Water Network N2) ^	Low	0.0 (193m^2; 104m in total length)
Semi-natural Stream (of Water Network N1)	Medium-low to Low	0.1 (356m in total length)
Drainage Channel	Low	0.4 (1,160m in total length)
Village / Orchard	Low	8.0
Village Area	Negligible	17.4
Urban Area	Negligible	0.4

Note:
* Seven woodlands were identified in the ecological baseline, viz, W1-W7. Only a small part of W3 will be in unavoidable conflict with the development. All others W1-2, W4-7 will not be affected.
^ Natural streams of higher ecological value were all located in water network N1 which will not be affected by the proposed development.

13.7.5 Consideration of avoiding the impacts on floral species of conservation interest, viz. *Aquilaria sinensis* and *Pyrenaria spectabilis* has been taken into account during the selection of the alignment and construction method of the proposed Road L7 at Po Tong Ha. With careful designation of the alignment and the adoption of suitable construction method for the retaining structures along the proposed Road L7, all the *Pyrenaria spectabilis* and majority of *Aquilaria sinensis* can be preserved in-situ. Only

three individuals of *Aquilaria sinensis* were found falling within the footprint of the proposed Road L7. To minimize the impact on the three individuals of *Aquilaria sinensis*, two of them will be preserved by transplanting while the remaining one will be felled down due to its poor health condition. With implementation of proposed mitigation measure, the impact on *Aquilaria sinensis* is insubstantial.

13.7.6 Majority of the recorded localities of the two crab species of conservation interest (viz. *Cryptopotamon anacoluthon* and *Somanniathelphusa zanklon*) are identified at the upper section of the semi-natural stream R1f, marginally located along the boundary of HPR Site. To avoid direct impact on these two crab species, the ecologically sensitive upper section of the semi-natural stream R1f located in HPR Site is proposed to be retained by excluding it from the project site area. After this active avoidance measure, only one locality of *Cryptopotamon anacoluthon* will be unavoidably affected. Translocation of these crabs at suitable undisturbed stream habitat before construction is recommended. With the implementation of the recommended translocation measure and recommended good site practices (e.g. Use of quiet mechanical plant and regular dust suppression measures, etc.), no significant overall ecological impact on the crab species is anticipated. To further improve the carrying capability of the semi-natural stream for the two crab species of conservation interest, ecological enhancement for the retained section of the semi-natural stream by provision of 6m buffer zone along its southern bank, removing existing artificial bank structures and planting of native/self-sustaining vegetation to reinstate its natural riparian habitat is proposed.

13.7.7 Though the impact of woodland loss at W3 is anticipated to be minor due to limited size and low-quality of the affected woodland patch, provision of woodland enhancement planting is recommended to enhance ecological performance of the area. According to the current proposal, enhancement planting of not less than 1.2ha will be provided. The Ecological Mitigation and Enhancement Plan is shown in **Figure No. 198172/B&V/FR/1302.**

13.7.8 With the implementation of the recommended mitigation measures, no adverse residual ecological impacts arising from the implementation of the proposed Project are anticipated.

13.8 Impact from Electric and Magnetic Fields

Key Assessment Scope and Key Criteria

13.8.1 The assessment for the electric and magnetic fields was conducted in accordance with the requirements set out under Section 3.4.12 of the EIA Study Brief and the guidelines issued by the International Commission on Non-ionizing Radiation Protection (ICNRIP).

Impact Assessment

13.8.2 Some sections of the existing 400kV overhead cables run across the Hong Po Road and San Hing Tsuen areas. On-site measurement of overhead cables has been conducted at representative locations of the proposed PTIs, public housing development areas, school sites and the proposed SPS to investigate the potential health hazard to humans due to exposure to electric field (ELF) and magnetic field

(EMF) generated by the overhead lines.

13.8.3 The assessment results confirmed that the strength of the ELF and EMF generated from the 400kV overhead cables are well below the stipulated guideline limits issued by the ICNIRP in 1998. Thus. the ELF and EMF generated by overhead cables will not pose a hazard to human health.

13.9 Landscape and Visual Impact

Key Assessment Scope and Key Criteria

13.9.1 The landscape and visual impact assessment was conducted based on the criteria and guidelines in Annexes 10 and 18 of the EIAO-TM, the EIAO Guidance Note No. 8/2010 and Section 3.4.10 and Appendix I of the EIA Study Brief. According to the EIA Study Brief, the study area for the landscape impact assessment included areas within 500m from the boundary of the Project Site, while the assessment area for the visual impact assessment shall be defined by the visual envelope of the Project.

Landscape Impacts

13.9.2 Within the assessment area, 8 Landscape Resources (LRs) and three (3) Landscape Character Areas (LCAs) are identified. Given the rural nature of the Project area, the proposed developments of the Project will inevitably result in some landscape and visual impacts on the LRs and LCAs during construction and operation phases. It is not possible to fully mitigate all landscape impacts in relation to loss of natural/semi-natural stream, hillside woodland, agricultural land or orchard during the construction period and early operation stage, mainly as long periods of time are required to sufficiently compensate for the associated impacts. A broad-brush tree survey has been carried out, it is found that four (4) numbers of identified large trees with DBH ≥ 1m (including 2 nos. of *Ficus microcarpa*, 1 no. of *Melaleuca cajuputi subsp. cumingiana* and 1 no. of *Litchi chinensis*) are located within the footprint of the Project Site. Hence, the four (4) numbers of trees of large size are suggested to be felled. The other seven (7) numbers of trees of large size are not affected by project footprint and would be retained in-situ. The overall number of trees of large size identified within the assessment area is eleven (11). Three individuals of *Aquilaria sinensis* were found falling within the footprint of the proposed Road L7. To minimize the impact on the three individuals of *Aquilaria sinensis*, two of them will be preserved by transplanting while the remaining one will be felled down due to its poor health condition. No Old and Valuable Tree (OVT) was found within the project site boundary or assessment area. Among 9,615 – 11,055 nos. of trees within 500m Assessment Area, approximately 8,350 - 9,800 numbers of trees would be retained. The outline landscape plan is presented in **Figure Nos. 198172/B&V/FR/1317a – 1317c**.

13.9.3 ***Table 13.7*** shows the significant of landscape impacts before mitigation measures within the Project Site. The main impact for most of the affected LRs and LCAs would be the loss of greenery and existing trees. Approximately 1,300 nos. of existing trees will be affected due to the Project. To compensate the loss of greenery, not less than 1,300 nos. of new trees in different sizes is proposed to be planted as far as practicable. Existing trees will be preserved as far as practicable. If retaining trees are not practicable, transplant the affected trees to other suitable locations within the

Project Site or the adjacent areas will be considered. Tree removal will only be considered when tree preservation or transplanting is found unsuitable or impracticable. Tree Preservation and Removal Proposal will be prepared during detailed design stage, to finalise tree treatment and allocate compensatory planting areas including open space, sitting out areas and streetscape. With the implementation of the proposed mitigation measures, as detailed in ***Table 13.8***, the residual impacts to LRs and LCAs can be reduced to an acceptable level.

Table 13.7 – Significance of Landscape Impacts before Mitigation within Assessment Area

LR/ LCA Code	Name		Scale of Development	No. of Trees Affected (Affected Species of Particular Interest)	Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)	
					Construction	Operation
LR1	Village/ Low-rise Residential Development	LR 1a – Siu Hang Tsuen	N/A	N/A	Insignificant	Insignificant
		LR 1c – Kai Lun Wai Village	N/A	N/A	Insignificant	Insignificant
		LR 1e – Tuen Mun San Tsuen	N/A	N/A	Insignificant	Insignificant
		LR 1f – Villa Pinada	3 – 5%	N/A	Slight	Slight
		LR 1b – Tsz Tin Tsuen	16%	40 - 50	Moderate	Moderate
		LR 1d – San Hing Tsuen	2 – 3%	20 - 25	Moderate	Moderate
		LR 1g – Chung Shan Area	40%	~	Substantial	Substantial
LR2	Open Storage/ Workshop	LR 2e – Tong Hang Road Open Storage	N/A	N/A	Insignificant	Insignificant
		LR 2f – Kwong Shan Tsuen Open Storage	N/A	N/A	Insignificant	Insignificant
		LR 2d – San Hing Tsuen Open Storage	N/A	N/A	Slight	Slight
		LR 2b – HPR Workshops (Peripheral greening)	45 - 50%	30 – 40	Moderate	Moderate
		LR 2a – HPR Container Terminal	85 - 90%	190 - 230	Substantial	Substantial
		LR 2c – HPR Workshops with Scattered Greening	90 - 95%	240 – 300 (CEDD-T62)	Substantial	Substantial
LR3	Agricultural Land/ Orchard	LR 3a – Actively Cultivated Land	15 – 17%	130 – 150 (CEDD-T23 & T503)	Substantial	Substantial
		LR 3b – Abandoned Land	95 - 100%	160 - 170	Substantial	Substantial
LR4	Hillside Woodland	LR 4a – Mixed Woodland	4 – 5%	90 – 120 (T589 & 3 nos. of *Aquilaria sinensis*)	Substantial	Substantial
		LR 4b – Plantation Woodland	N/A	N/A	Insignificant	Insignificant
		LR 4c – Mature Secondary Woodland	N/A	N/A	Insignificant	Insignificant
LR5	Natural/Semi-Natural Stream	LR 5.1a – 5.1e, 5.1g, 5.1m, 5.2c, 5.2d, 5.4a – 5.4d & 5.8a – 5.8e	N/A	-	Insignificant	Insignificant
		LR 5.2a, 5.2b, 5.3a & 5.3b	106m (10%) of total length		Moderate	Moderate
		LR 5.1i & 5.1f	356m (40%) of total length		Substantial	Substantial
	Channelized Watercourse	LR 5.5 & 5.6	N/A	-	Insignificant	Insignificant
		LR 5.7	1,160m (31%) of total length		Slight	Insignificant
		LR5.1h & 5.1k			Moderate	Moderate
		LR 5.1j & LR 5.1l			Moderate	Moderate
LR6	Urban Area	LR 6a – Residential Blocks	6 – 7%	45 - 60	Slight	Insignificant
		LR 6b – Key Transport Route	N/A	10 – 20	Insignificant	Insignificant
		LR 6c – Public Facilities	2 – 3%	15 – 25	Slight	Insignificant
		LR 6d – Industrial Blocks	N/A	N/A	Insignificant	Insignificant
LR7	Construction Site		13 - 15%	40 - 45	Insignificant	Insignificant
LR8	Shrubland-Grassland Mosaic	LR 8a – West Grassland Mosaic	N/A	N/A	Insignificant	Insignificant
		LR 8b – South West Grassland Mosaic	N/A	N/A	Insignificant	Insignificant
LCA1	Tuen Mun North Rural Fringe		23 – 25%	870 – 1030 (CEDD-T23, CEDD-T62 & T503)	Substantial	Substantial
LCA2	Tuen Mun North Urban Area		5 – 6%	70 - 110	Slight	Insignificant
LCA3	Castle Peak Foothill		2%	90 – 120 (T589 & 3 nos. of *Aquilaria sinensis*)	Moderate	Moderate

Table 13.8 – Landscape and Visual Mitigation Measures

ID No.	Mitigation Measure	Constuction	Operation
MM1	Tree Protection and Preservation	✓	✓
MM2	Tree Transplanting	✓	✓
MM3	Compensatory Planting and New Tree Planting	✓	✓
MM4 (1) (2)	Roadside Greening		✓
MM5	Screen Planting	✓	✓
MM6	Landscape Treatment on Man Made Slope/ Retaining Structure	✓	✓
MM7	Noise Barrier Treatment		✓
MM8	Minimize Light Pollution and Glare	✓	✓
MM9	Hoarding of Construction Works	✓	
MM10	Enhancement of Semi-natural Stream (6 m buffer zone)	✓	✓
MM11	Landscape Work & Green Roof for Infrastructure		✓
MM12	Woodland Enhancement Planting with Ecological Enhancement		✓

(1) The Contractor will be responsible for landscaping during the agreed establishment and maintenance period. Other designated management agents to take up management of landscaping after end of agreed period.
(2) The Contractor will provide LCSD and HyD with water points, irrigation system where feasible, as well as proper access and safe working conditions for maintenance of the vegetation. LCSD is responsible for the maintenance of the vegetation as well as facilities required for the vegetation maintenance, e.g. the water points and irrigation system, unless another department has agreed to take up the maintenance responsibility of these facilities.

Visual Impacts

Construction Phase

13.9.4 Visual impacts are primarily due to the high-rise buildings development but also due to the construction of proposed road system, proposed SPS, water services reservoirs and natural terrain mitigation measures. In addition, visual impact will also involve the impacts from excavation works, site formation works, as well as the loss of greenery due to the removal of trees and vegetation. All Visual Sensitive Receivers (VSRs) are affected by the Project in different levels. Visual blockage would be gradually built-up by phase as a continuous process. Impact arising from the construction works are limited at lower level due to the existing views are partially screened by adjacent architectures, vegetation and level difference of landforms. With the implementation of proposed mitigation measures such as site hoarding and control of night-time glare, the visual impact during construction phase will be mitigated.

Operation Phase

13.9.5 From a visual perspective, given the nature and scale of the proposed development with high- rise buildings development, the Project will likely alter the visual context of the area. The carpark users in Tuen Tsz Wai and the residents in Po Tong Ha are anticipated to experience substantial visual impacts. On the other hand, a number of VSRs are anticipated to experience moderate visual impacts, including: the passengers on the train heading towards Siu Hong Station, road users at Hong Po Road roundabout, the hikers walking along the trails between Castle Peak and Por Lo Shan, the visitors of Miu Fat monastery and the visitors for tomb-sweeping around Chung Shan hillsides. The remaining VSRs would experience slight visual impacts. The photomontage for all VSRs are presented in ***Figure Nos. 198172/B&V/FR/1303 – 1316*** that provide a view on the scale and extent of the proposed development.

13.9.6 Based on the impact assessment findings, a number of mitigation measures have been proposed. These include adopting alternative designs to prevent and/or minimise adverse impacts; remedial measures such as colour and textural treatment of building features; and compensatory measures such as the implementation of landscape design elements (e.g. tree planting and creation of new open space, etc.) to compensate for unavoidable adverse impacts and attempt to generate potentially beneficial long–term impacts.

13.9.7 For the DP1, which is the proposed SPS at SHR Site, in view of the small scale of development, no significant landscape impacts on LRs and LCAs, as well as visual impacts on VSRs are anticipated.

13.9.8 Overall, there will be some adverse effects brought up by the Project. Mitigation measures have been proposed and the project design has endeavoured every effort to minimise potential impacts to practical minimum. Assuming that full and appropriate mitigation measures are to be implemented during construction and operation phases, the residual landscape and visual impacts are perceived to be acceptable, as stated in EIAO-TMs and EIAO Guidance Note No. 8/2010.

13.10 Waste Management Implications

Key Assessment Scope and Key Criteria

13.10.1 The types of waste that would be generated during the construction and operation phases of the Project have been identified. The potential environmental impacts that may result from these waste materials have been assessed in accordance with the criteria and guidelines outlined in Annex 7 and Annex 15 of the EIAO-TM, and Section 3.4.7 and Appendix F of the EIA Study Brief.

Construction Phase

13.10.2 The main waste types to be generated during the construction phase of the Project would include construction and demolition (C&D) materials, chemical waste, general refuse and asbestos containing material (ACM). It is estimated that there will be a total of around 99,000 m^3 of non-inert C&D materials, about 633,000 m^3 of inert C&D materials, a few hundred litres per month of chemical waste, less than 650 kg per day of general refuse and some ACM to be generated during the construction phase of the Project. Reduction measures have been recommended to minimise the amount of materials generated by the Project by reusing C&D materials as far as practicable before off-site disposal.

13.10.3 The inert C&D materials generated from the Project will be reused within the Project or other concurrent projects as far as practical. For instance, during site clearance, site formation and infrastructure works, it is estimated that around 58% of the inert C&D materials will be suitable for reuse on-site as backfilling materials under this Project and the rest of inert C&D materials (about 233,000 m^3) will be transported to other concurrent projects and/or public fill area (Tuen Mun Area 38 Fill Bank) for reuse. Temporary stockpiling areas are also identified to store the C&D materials for reuse under this Project. Provided that the waste is handled, transported and disposed of using approved methods, adverse environmental impacts would not be expected.

Operation Phase

13.10.4 The main types of waste to be generated during the operation phase of the Project would consist of municipal solid waste (MSW), screenings and chemical waste. It is expected that the Project would generate around 150 tonnes of MSW per day in total, about 3.5 m3 of screenings per week, and a minimal amount of chemical waste, mainly from maintenance activities on the road networks and the SPS within the PDA. The MSW generated would be conveyed to refuse collection points before being transported to the existing West New Territories (WENT) Landfill outside the PDA. Initiatives such as promoting recycling and providing recycling bins would be employed in order to minimise the amount of MSW to be disposed of at landfill. Provided that the waste generated in the operation phase is handled, transported and disposed of properly, no adverse environmental impacts are anticipated.

13.11 Land Contamination Impact

Key Assessment Scope and Key Criteria

13.11.1 The land contamination assessment is conducted in accordance with the criteria and guidelines as stated in the requirements given in Section 3.4.8 and Appendix G of the EIA Study Brief, as well as Annex 19 of the EIAO-TM.

13.11.2 The land contamination assessment examined the potential contaminative land uses within the Project Site and their potential impacts to future land use. The majority of the potentially contaminated sites could not be accessed for inspection of the site conditions during site walkover and permission could not be obtained from the land site owners/operators to carry out site investigation (SI) works at the time of preparation of the EIA report. As such, the assessment on the potential land contamination was conducted based on the findings from site appraisal comprises site walkover and review of historical aerial photographs and maps, historical spillage and leakage records and previous site investigations undertaken at the Project Site.

13.11.3 Based on the available information, 57 potentially contaminated sites have been identified within the Project Site. Based on the site survey and desktop review, the majority of the potentially contaminated sites have been identified as open storage, container yards, workshops and service yards. The source of potential land contaminating activities at the identified sites mainly relates to the spillage and accidents associated with the storage and use of chemicals. As such, it is considered that the potential land contamination at these sites would be localised.

13.11.4 The chemicals of concern (COCs) identified with the potential to be present at the potentially contaminated sites include: metals, Volatile Organic Compounds, Semi Volatile Organic Compounds, Petroleum Carbon Ranges and Polychlorinated Biphenyls. These COCs are readily treatable with proven remediation techniques in local remediation experience. By implementing the recommended remediation works, any contaminated site(s) identified within the Project Site could be cleaned up prior to construction/development.

13.11.5 The recommended remediation works would not only minimise the health risk to the future occupants arising from the exposure of the contaminated soil and/or

groundwater, it would also provide the opportunity to reuse the treated contaminated materials into useful materials for backfilling, which results in minimising the amount of waste disposing into the depleting landfill in Hong Kong and achieving a more sustainable development.

13.11.6 Since the identified potentially contaminated sites are still in operation, SI is unlikely to be carried out at this stage. There may also be change in land use prior to development within both the potentially contaminated sites and other surveyed sites. In view of this, it is recommended to conduct further works including site re-appraisal. Findings from the re- appraisal will be presented in the supplementary Contamination Assessment Plan(s) (CAP(s)). Upon approval of the supplementary CAP and completion of the SI works, a Contamination Assessment Report(s) will be prepared to present the findings of the SI works. If contaminated soil and/or groundwater were identified, remediation should be carried out according to EPD's approved Remediation Action Plan(s) and Remediation Report(s) (RR(s)) should be submitted to EPD for agreement after completion of the remediation works. No development works of the contaminated portions shall be commenced prior to EPD's agreement of the RR(s).

13.12 Impact on Cultural Heritage

Key Assessment Scope and Key Criteria

13.12.1 A cultural heritage impact assessment has been conducted, including a built heritage impact assessment and an archaeological impact assessment, to evaluate the impacts on known or potential cultural heritage resources. The cultural heritage impact assessment followed the requirements of Annexes 10 and 19 of the EIAO-TM as well as those set out in Section 3.4.11 and Appendix J of the EIA Study Brief. The assessment area includes areas within a distance of 50m from the boundary of the Project Site.

Archaeology

13.12.2 The proposed developments are partly located within San Hing Tsuen Site of Archaeological Interest (SAI) and Siu Hang Tsuen SAI, and in very close proximity to Kei Lun Wai SAI. The evaluation of the previous findings, proposed works locations and geology, topography at the PDA, identified San Hing Tsuen SAI which may be adversely affected. Archaeological field survey of the identified area of archaeological potential (i.e. northern part of SHR Site) cannot be conducted at this stage as the area is currently in use by light industrial activities and structures. It is recommended that prior to the construction phase, a programme of archaeological field survey should be implemented for the development in northern part upon land resumption and clearance of structures. This will identify if significant deposits or features are present and follow up action can be recommended. The scope and programme of the proposed archaeological work shall be agreed with AMO. Subject to the findings of the archaeological work, appropriate mitigation measures would be proposed by the project proponent in prior agreement with AMO.

13.12.3 For the areas with low or no archaeological potential, works should be ceased and AMO should be informed immediately in case of discovery of antiquities or supposed

antiquities in the course of the construction works. Agreement from AMO would be sought on the follow- up actions if required.

Built Heritage

13.12.4 Literature review is conducted to collate relevant information on Declared Monuments and Graded Historical Buildings. Previous investigations within the current study area and surrounding area carried out under other projects (See Section 13.4 of EIA report) indicate little potential for built heritage or heritage as identified in Guidelines for Cultural Heritage Impact Assessment. As such, no further built heritage survey was deemed necessary. There are no proposed or declared monuments, graded or proposed to be graded historic buildings, Government historic sites or new items proposed for grading by the Antiquities Advisory Board within the boundary of the Project Site. In summary, it can be stated that no built heritage will be affected during construction and operation phases of the Project. If there are any buildings/structures both at grade level and underground which were built on or before 1969, AMO should be informed in an early stage or once identified.

13.13 Environmental Monitoring and Audit Requirements

13.13.1 An Environmental Monitoring and Audit (EM&A) programme will be implemented during the construction and operation phases to regularly monitor the environmental impacts on the neighbouring sensitive receivers. Any action required during the construction and/or operation phases are also recommended for implementation. EM&A requirements for air quality, construction noise, road traffic noise, water quality, waste management, land contamination, terrestrial ecology, landscape and visual impacts and cultural heritage have been recommended. Regular site inspection and audits will be conducted during construction phase to ensure that the recommended mitigation measures are properly implemented. The EM&A requirements are specified and detailed in the EM&A Manual. A summary of the EM&A requirements by each of the environmental parameters is presented in ***Table 13.9***.

Table 13.9 – Summary of EM&A Requirements

	EM&A Ref.	Construction Phase	Operation Phase
Air Quality Impact	S.5	✓	✓
Noise Impact	S.6	✓	✓
Water Quality	S.7	✓	×
Sewerage and Sewage Treatment	S.8	×	×
Ecological Impact	S.9	✓	×
Impacts from Electric and Magnetic Fields	S.10	×	×
Landscape and Visual Impacts	S.11	✓	✓
Waste Implication	S.12	✓	×
Land Contamination	S.13	✓	×
Cultural Heritage Impact	S.14	✓	×

13.14 Summary

13.14.1 Assessments in the aspects of air quality, noise, water quality, sewerage and sewage treatment implication, ecology, impact from electric and magnetic fields, landscape and visual impacts, waste management implication, land contamination and cultural heritage were conducted under the study. It is anticipated that there would be no insurmountable issue from the environmental point of view.

14 PRELIMINARY LAND CONTAMINATION AND REMEDIATION STUDY (LCRS)

14.1 General

14.1.1 The objective of the Preliminary Land Contamination and Remediation Study (LCRS) is to identify the potential contaminated sites within the Sites and outline the required intrusive site investigation, assessment criteria, result interpretation of the land contamination assessment and requirements of the Remediation Action Plan (RAP) associated with the Developments and the Infrastructure. A summary of various aspects are presented in the section below:

14.2 Site Appraisal Findings

14.2.1 A site appraisal, in the form of desktop review and site inspection, was carried out to identify the potential land contamination issues for the Project. Since the majority of the Project Site was not accessible at the time of preparation of the report, SI of the potentially contaminated area was unable to be conducted at this stage. Therefore, the types and extent of contaminants, if any, could not be identified and confirmed at this stage.

14.2.2 Based on the findings of the site appraisal, a total of 82 areas, as shown in ***Figure No. 198172/B&V/FR/1401*** were identified within the Assessment Area, of which 57 areas were considered potentially contaminated, 5 areas were non–potentially contaminated, and 20 areas were unidentifiable. In the Contamination Assessment Plan (CAP), the extent of the Site Investigation (SI) was determined based on findings from the site appraisal. For each potentially contaminated area, the proposed SI in regular grid pattern for land contamination was determined based on recommendations given in Practice Guide for Investigation and Remediation of Contaminated Land (the Practice Guide).

14.2.3 The CAP has determined the approach for SI based on the best available current information and thus the actual sampling and testing strategies could be subject to change after a detailed site walkover is undertaken. A supplementary CAP should be submitted when these identified areas are accessible for re–appraisal.

14.2.4 A Contamination Assessment Report (CAR) will be prepared to present the findings of the future SI and laboratory analytical results. The analytical results will be compared against the Risk-Based Remediation Goals (RBRGs) standards.

14.2.5 Upon completion of remediation works (if necessary), a Remediation Report (RR) will be prepared and submitted to EPD to demonstrate that the decontamination works are adequate and are carried out in accordance with the approved CAR and RAP prior to commencement of any proposed construction works. No construction works will be carried out at the potentially contaminated areas before the approval of RR by EPD.

14.3 Site Investigation and Sampling Plan

14.3.1 In the CAP, the extent of the SI was determined based on findings from the site appraisal. For each potentially contaminated area, the proposed SI in regular grid pattern for land contamination was determined based on recommendations given in

the Practice Guide. In addition, hot spot locations were also identified for SI. A total of 582 sampling locations (568 from regular grid and 14 from hot spots) were identified.

14.3.2 Further site re–appraisal should be conducted for the Project to assess any changes in land use which may give rise to potential land contamination issues and to ascertain the contaminative sources and hotspots of contamination within the Project Site. A supplementary CAP containing the SI proposal will be submitted to EPD for endorsement and the necessary SI to assess the land and groundwater contamination will be conducted. Based on the laboratory results of the future site investigation, an implementation programme and cost estimate of the remedial works (if required) should be proposed.

14.4 Remediation

14.4.1 The actual remediation methods should be confirmed after completion of the site re–appraisal and EPD's agreement on the CAR and RAP at the later stage of the Development. The RAP will provide details of the remedial actions for any identified contaminated soil and groundwater.

14.4.2 Based on the past and current land use of the potentially contaminated sites, the associated potential Chemical of Concerns (COCs) have been identified. There are several technologies commercially available to tackle these contaminants in soil. Technologies that are commonly used in Hong Kong are biopiling and cement solidification/stabilization. These ex–situ methods were proven to be effective in treating the target COCs (cement solidification/stabilization on metals and biopiling on hydrocarbons). Given the size of the Project Site, there would be enough space available for the handling and treatment of the contaminated soil and the two methods are considered to be appropriate.

14.4.3 Contaminants in groundwater exceeding the RBRGs were not commonly found in Hong Kong. This may be due to the fact that groundwater in Hong Kong were not for drinking purposes and the exposure pathway of contaminants in groundwater to human receptors would be associated with inhalation of volatiles rather than direct exposure. Some examples of remediation techniques of contaminated groundwater (e.g. air sparging, recovery trenches / wells, in–ground containment/capping and permeable reactive barriers) are shown in the Practice Guide from EPD.

15 IMPLEMENTATION PROGRAMME

15.1 General

15.1.1 This summarize the key milestones of the implementation programme for proposed developments.

15.2 Implementation Programme

Development Staging

15.2.1 In order to ensure a balanced and programmed development with orderly rehousing/relocation of qualified clearees, the PDA including the associated engineering infrastructure is proposed to be divided into 4 main stages for implementation as illustrated in **Figure Nos. 198172/B&V/FR/1501a** and **1501b**. A summary of implementation programme is shown in ***Table 15.1***.

Key Developments in Stage 1

15.2.2 The proposed works to be conducted in the first stage includes the following:

- Site formation and construction of public housing at SHR Site Extension;
- Construction of SPS at SHR Site and the associated rising mains;
- Upgrading of existing sewers & modification of the existing TM54 SPS;
- Construction of the realigned Hong Po Road;
- Carrying out of junction improvement works;
- Construction of footbridge to connect SHR Site and Siu Hong Station; and
- Carrying out of associated drainage works, sewerage works and waterworks etc..

Key Developments in Stage 2

15.2.3 The proposed works to be conducted in the second stage includes the following:

- Construction of proposed Road L7;
- Carrying out of junction improvement works; and
- Laying of watermains along the proposed Road L7.

Key Developments in Stage 3

15.2.4 The proposed works to be conducted in the third stage includes the following:

- Site formation and construction of public housing and PTI at SHR Site;
- Site formation and construction of schools at SHR Site; and
- Carrying out of associated drainage works, sewerage works and waterworks etc..

Key Developments in Stage 4

15.2.5 The proposed works to be conducted in the fourth stage includes the following:

- Site formation and construction of public housing and PTI at HPR Site;
- Site formation and construction of schools at SHR Site Extension;
- Construction of natural terrain mitigation measures at HPR Site;
- Construction of fresh/ salt water service reservoirs at HPR Site; and

- Carrying out of associated drainage works, sewerage works and waterworks etc.

Table 15.1 – Summary of Implementation Programme within the PDA

Stage	Phase	Description of Works	Land Clearance & Construction Period
Stage 1	1a	<u>San Hing Road Site Extension (Residential Site)</u> • Site clearance, land decontamination and site formation works • Internal road, pipe works and landscaping • Construction of public housing	2025-2030
	1b	<u>Sewage Pumping Station at SHR Site</u> • Site clearance, land decontamination and site formation works	2026-2030
		• Sewage pumping station construction and the associated rising mains • Upgrading works of existing sewers & modification of TM54 SPS	
	1c	<u>Realigned Hong Po Road</u> • Site clearance, land decontamination and site formation works • Road and junction Improvement works • Pipe works and utilities works	2026-2029
Stage 2	2	<u>Proposed Road L7</u> • Site clearance and site formation works • Road and junction improvement works • Pipe works and utilities works	2026-2029
Stage 3	3a	<u>San Hing Road Site (Residential Site)</u>	2025-2031
		• Site clearance, land decontamination and site formation works • Internal roads and PTI • Pipe works and landscaping • Construction of public housing	
	3b	<u>School Site at SHR Site</u> • Site clearance, land decontamination and site formation works • Internal road, pipe works and landscaping • Construction of schools	2026-2031

Stage	Phase	Description of Works	Land Clearance & Construction Period
Stage 4	4a	Hong Po Road Site • Site clearance, land decontamination and site formation works • Internal road and PTI • Pipe works and landscaping • Natural terrain hazard mitigation measures • Construction of water service reservoirs • Construction of public housing	2026-2033
	4b	School Site at SHR Site Extension • Site clearance, land decontamination and site formation works • Internal road, pipe works and landscaping • Construction of schools	2026-2033

15.2.6 The proposed implementation programme as shown in ***Table 15.1*** above would be reviewed in later investigation and design stage of the Project.

16 CONCLUSIONS AND RECOMMENDATION

16.1 General

16.1.1 To meet the demands for housing from the public, the Government has identified the sites at SHR and HPR for potential public housing development and associated GIC facilities. To support this initiative, the Study examined the technical feasibility through preliminary engineering and environmental assessments. With the provision of the recommended improvement works, the Study concluded that there is no insurmountable problem in terms of traffic, environmental, geotechnical, services and utilities, land acquisition, cultural heritage, air ventilation, visual and landscape aspects.

16.1.2 Given the various development constraints and infrastructure needs, the technical assessments adopted a holistic approach and the findings were taken forth to formulate site formation and infrastructure proposals including implementation strategy and preliminary programme in support of the proposed amendments to the OZP. A Preliminary Site Layout Plan showing the proposals have been prepared and is shown on ***Figure No. 198172/B&V/FR/0201.*** Findings from the relevant engineering and environmental assessments conducted is summarized below, and it is revealed that the proposed developments are technically feasible.

16.2 Air Ventilation

16.2.1 On basis of the preliminary layout plan, an expert evaluation of wind performance on the Project is carried out.

16.2.2 According to the findings of the AVA-EE, the annual prevailing wind comes from NNE, NE, E, SE, SSE and S directions while the summer prevailing wind comes from SSE, S, SSW and SW directions. The building block layout has carefully considered and incorporated good design practices in air ventilation aspect. After taking into account the existing topography, the location of the existing built-up areas, as well as provision of mitigation measures, it is considered that the Project would not cause adverse air ventilation impacts to the surrounding environment. The expert evaluation provided a qualitative assessment on feasibility of the Project, and further quantitative AVA will be required for scheme optimization at detailed design stage.

16.3 Traffic and Transportation

16.3.1 To support the Project, new traffic and transport facilities, as well as upgrading of existing facilitates, are recommended. Junction improvement proposals are formulated and listed below. With the proposed junction improvement schemes, the assessment revealed that all key junctions will be operating within capacity in design year 2031 and 2036.

- Lam Tei Interchange / Castle Peak Road – Lingnan (J1);
- Tsing Lun Road / Hong Po Road (J4);
- Tsing Lun Road / Tsz Tin Road/Access Road to Siu Hong Court (J6);
- Hing Kwai Street/ Tsing Wen Road / Ming Kum Road (J12);
- Proposed Road L7 / Hing Fu Street (J13);

- Proposed Road L7/ Road L54D (J15); and
- Tin King Road / Ming Kum Road (J21).

16.3.2 The proposed Road L7 will need to be connected to the realigned Hong Po Road, thus provides a direct link from Lam Tei Interchange to Ming Kum Road forming a direct east-west transport corridor. The concept of the proposed Road L7 is to provide an alternative access route to the proposed public housing developments so as to minimize the traffic impact to the surrounding road network.

16.3.3 Realignment and modification of Hong Po Road is proposed such that it matches with the alignment of the proposed Road L7. The realigned section of Hong Po Road will be a 10.3m wide two-way carriageway with footpath on both sides.

16.3.4 For SHR Site, the PTI is proposed at the south of the SHR Site access by a one–way access road connecting to Tsing Lun Road. Four bus bays will be provided within the SHR PTI for the provision of future franchised buses. One Green Minibus (GMB) bay and one taxi bay are recommended to provide comprehensive coverage of the public transport services to accommodate the demand from SHR Site. The one–way traffic arrangement would allow bus traffic turn in/out of the terminus without any conflicting traffic movement.

16.3.5 Another PTI is proposed at the southern side of HPR Site with access off Hong Po Road. Six bus bays are proposed to be provided within the HPR PTI. One GMB bay and one taxi bay are recommended to provide comprehensive coverage of the public transport services to accommodate the demand from SHR Site Extension and HPR Site. To shorten the walking distance from HPR Site to the HPR PTI, ramp and stair are suggested to connect the HPR access road and the northern footpath of the PTI.

16.3.6 With the construction of propsoed Road L7 ,realigned Hong Po Road and implementation of proposed junction improvement works and enhancement on public transport services, it is anticipated that the proposed developments would not induce insurmountable traffic impact onto the adjacent road network. The proposed developments is acceptable in traffic point of view.

16.4 Pedestrian Connectivity

16.4.1 The existing pedestrian network in vicinity of Siu Hong Court would be changed upon the population intake of TM54. The information extracted from the TM54 Review and are summarized in below:

- Junction of Tsing Lun Road / Siu Hong Road would become a signalized junction with crossing facilities at all arms of the junction;
- A new footpath alongside the LRT tracks and Siu Hong Court has been proposed by Housing Department; and
- A vertical mechanical transport system (including escalators and elevator) would be constructed and integrated with the existing stairs and footbridge connecting Siu Hong Road and Siu Hong Station PTI (North).

16.4.2 To mitigate the impact of the existing signalized crossing at junction of Tsing Lun Road/ Ng Lau Road near Tsing Lun Road roundabout, and to alleviate the pedestrian condition of northern Siu Hong Road footpath, a footbridge system (FB2) with

staircase, lifts and escalators is proposed to connect the open space next to the proposed SHR SPS at SHR Site to the existing footbridge (FB1) near Ng Lau Road. A covered walkway (CW1) and modification of existing walkway, if necessary, are proposed to connect the existing footbridge near Ng Lau Road and the Siu Hong Station. The proposed footbridge system will improve the pedestrian connectivity and its attractiveness would encourage the pedestrians to access to Siu Hong Station.

16.4.3 Pedestrian walkways and cycle tracks will be constructed along the proposed Road L7 and the realigned Hong Po Road to promote green commuting. The proposed cycle tracks will be connected to the nearby residential areas (e.g. Tuen Mun New Town) and public transport facilities (e.g. Lam Tei LRT Station and Siu Hong Station) where practicable. Upgrading/modification works to existing footbridge at Ng Lau Road and associated covered walkway are proposed to improve the walking environment and promote green commuting. All these measures are proposed to facilitate walking and cycling across the PDA and in the wider community. This would also in turn help to reduce road-based traffic and hence their associated vehicular noise and pollutants emission.

16.4.4 Covered walkway is proposed for Footpaths P3, P4, P5, P8, P9, P10, P11, P13, P14, P16 , P17 and CW1 to enhance the walking environment.

16.4.5 Proposed accesses will be provided to maintain pedestrian linkage to the existing houses in the vicinity of the proposed public housing developments including:

A. Proposed access to Tsz Tin Tsuen from the realigned Hong Po Road;

B. Proposed access to Villa Pinada from the realigned Hong Po Road; and

C. Proposed footpath from the existing village houses at the north of SHR Site Extension to the proposed access road to the school sites at SHR Site Extension.

16.4.6 With the implementation of the proposed pedestrian system and associated improvement works, it is anticipated that all of the footpaths/ footbridge under assessment would be operated within capacity. The proposed developments will not induce insurmountable problem to the pedestrian network from traffic point of view.

16.5 Geotechnical

16.5.1 A review of the existing GI records available was conducted.The findings indicate that the proposed sites are covered by 0m to 9.1m of fill layer, as well as 0m to 6.2m of alluvium layer or 0m to 5.1m of colluvium. These superficial material are sandy in nature and should not be highly compressible material, it is considered feasible for supporting light duty retaining structures. No steep rock head depression is founded in existing borehole record, deep foundation for the proposed developments is considered feasible.

16.5.2 However, given the borehole record for the Site is very limited, the site should be further characterized by more GI conducted in later stage of the Project. From the current available information, no adverse geological and geotechnical features are observed. The proposed works for the proposed development is considered feasible.

16.5.3 A total of 17 registered man-made features are identified to be located within HPR Site, 3 registered man-made features are identified to be located within SHR Site, 2

registered man-made feature is identified to be located within SHR Site Extension and 4 registered man-made features are identified to be located within proposed Road L7. Failure of these slopes may affect the nearby infrastructure and future development. Therefore, further assessment is recommended.

16.5.4 There are 8 non-registered geotechnical features within/ in close proximity to the site boundary which will potentially be affected by the proposed developments.

16.5.5 Screenings for NTHS were carried out in accordance with "Alert Criteria" stated in GEO Report No. 138 (Second Edition, 2016). Natural terrain hazard mitigation measure is required for Catchment A. Active mitigation measure (Rigid barrier) along the slope toe within the site boundary is proposed to mitigate the potential channelized debris flow and boulder fall hazards of Catchment A. The findings of the NTHS and the proposed mitigation measures should be reviewed in later stage of the project when more geological /geotechnical information is collected from detailed field mapping and ground investigation.

16.6 Site Formation

16.6.1 Based on the existing topography, a preliminary site formation scheme is proposed to achieve a balanced cut and fill quantities and to minimize the export or import of fill materials.

16.6.2 In view of the gentle topographic nature of the eastern section of SHR Site, this section will be formed at the level between +6.0mPD to +7.6mPD by gentle slope grading.

16.6.3 Considering the western part of the SHR Site which is generally flat, the site will be formed at the level between +7.5mPD to +12.0mPD by slope grading.

16.6.4 At SHR Site extension, due to the gentle topographic nature, this section will be formed at the level between +9.8mPD to +12.2mPD by slope grading and each school site will be formed with uniform level with slight slope grading. The proposed formation levels of the proposed secondary school, the western primary school and the eastern primary school are +12.2mPD, +12mPD and +10.5mPD respectively.

16.6.5 Since the western part of the HPR Site is hilly and the eastern part is generally flat, the site will be formed in several platforms with levels rising diagonally from the southeast to the northwest direction. The uppermost platform will be formed at the level between +21.0mPD to +27.0mPD. The lowest platform will be formed at the level between +8.0mPD to +12.0mPD. An estate road at the level between +16.5mPD to +21.0mPD will be formed by retaining structures separating the two platforms.

16.7 Drainage, Sewerage, Water Supply and Utilities

16.7.1 The technical assessments have identified the needs for new provision of infrastructures and upgrading of existing utilities. Preliminary arrangements have been proposed to support the proposed developments and mitigate impacts arising from the proposed developments. With these provisions in place, adverse impacts with respect to drainage, sewerage, water supply and utilities are not envisaged.

16.8 Environmental, Landscape and Visual, Land contamination and Sustainability

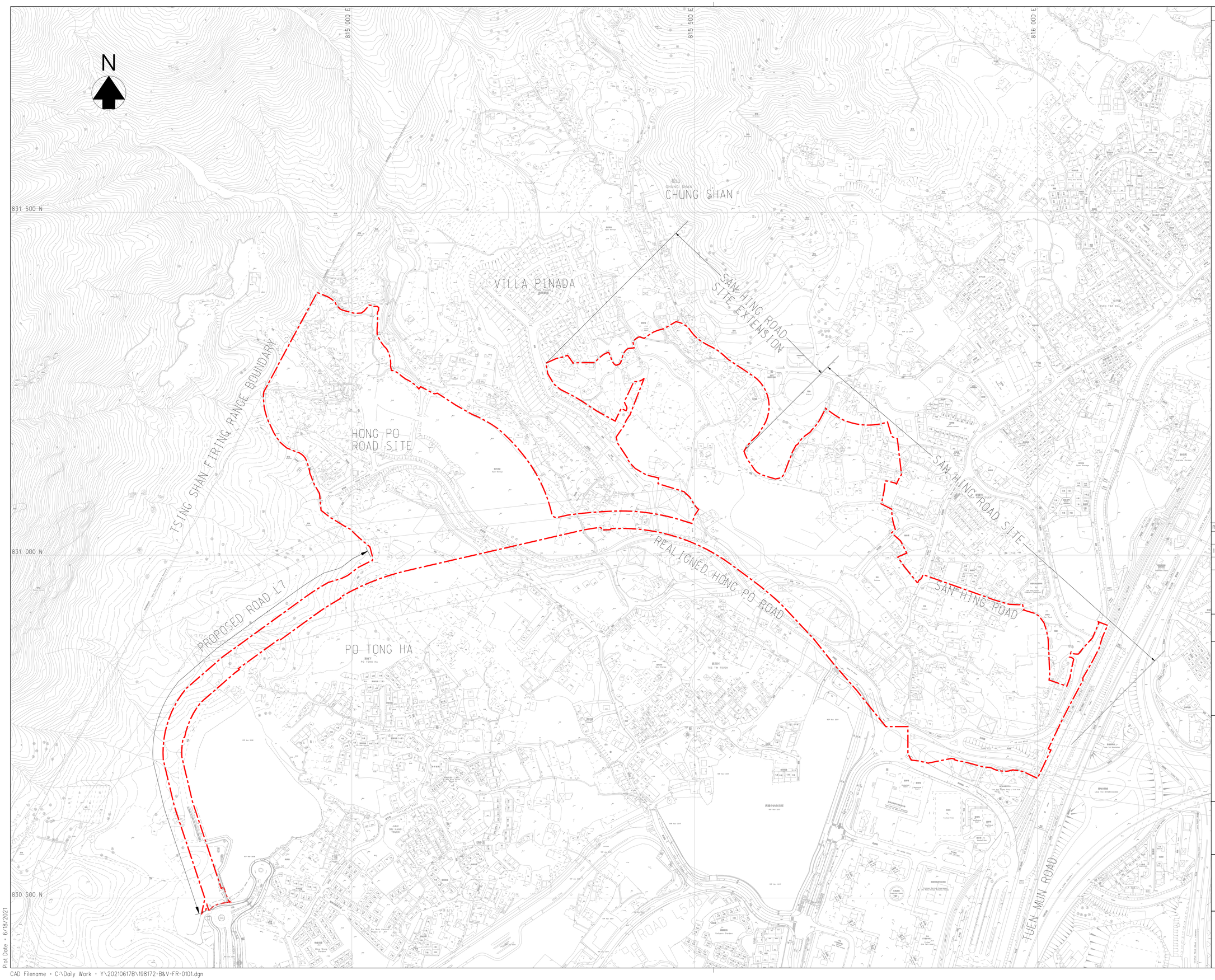
16.8.1 The technical assessments have examined the environmental impacts and planning considerations. Preliminary mitigation measures are proposed to mitigate or minimize adverse impacts as much as practicable. With the recommended measures in place, it is envisaged that there would be no insurmountable issue from the environmental and planning aspects. Further liaison with relevant authorities at the detailed design stage is required to confirm proper implementation of these mitigation measures.

16.9 Land Requirement

16.9.1 Based on the proposed extent of land required for the implementation of the proposed developments, the Study has identified the extent of existing land use and numbers of facilities or properties that may be affected by the proposed developments. Further liaison with LandsD will need to be carried out at a later detailed design stage.

END OF TEXT

FIGURES



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LEGEND:

PROPOSED DEVELOPMENT AREA BOUNDARY

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	08/20	08/20	08/20	08/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
LOCATION PLAN

Drawing No.
198172/B&V/FR/0101

Scale
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/18/2021

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- PROJECT SITE BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- PROPOSED ROADWORKS (INDICATIVE)
- PROPOSED TRAFFIC IMPROVEMENT MEASURES (INDICATIVE)
- ROADWORKS UNDER OTHER PROJECTS
- RESIDENTIAL USE (INDICATIVE)
- RETAIL/SOCIAL FACILITIES / CARPARK (INDICATIVE)
- CYCLE TRACK (INDICATIVE)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED COVERED PUBLIC TRANSPORT INTERCHANGE (PTI) (INDICATIVE)
- PROPOSED SEWAGE PUMPING STATION (INDICATIVE)
- +7.0 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)
- PROPOSED RIGID BARRIER (INDICATIVE)
- +149 mPD APPROX. BUILDING HEIGHT

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	08/20	08/20	08/20	08/20

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PRELIMINARY SITE LAYOUT PLAN

Drawing No.

198172/B&V/FR/0201

Scale

1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
Civil Engineering and Development Department

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Plot Date = 7/9/2021

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CHUNG SHAN

CHUNG SHAN

VILLA PINADA

PO TONG HA

TSING SHAN FIRING RANGE BOUNDARY

PROPOSED ROAD L7

REALIGNED HONG PO ROAD

SAN HING ROAD

TUEN MUN ROAD

LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- TSING SHAN FIRING RANGE BOUNDARY
- RAILWAY PROTECTION ZONE

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	BF	CMW	SZ	JW	
Date	01/21	01/21	01/21	01/21	

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

EXTENT OF RAILWAY PROTECTION ZONE

Drawing No.

198172/B&V/FR/0202

Scale

1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
Civil Engineering and Development Department

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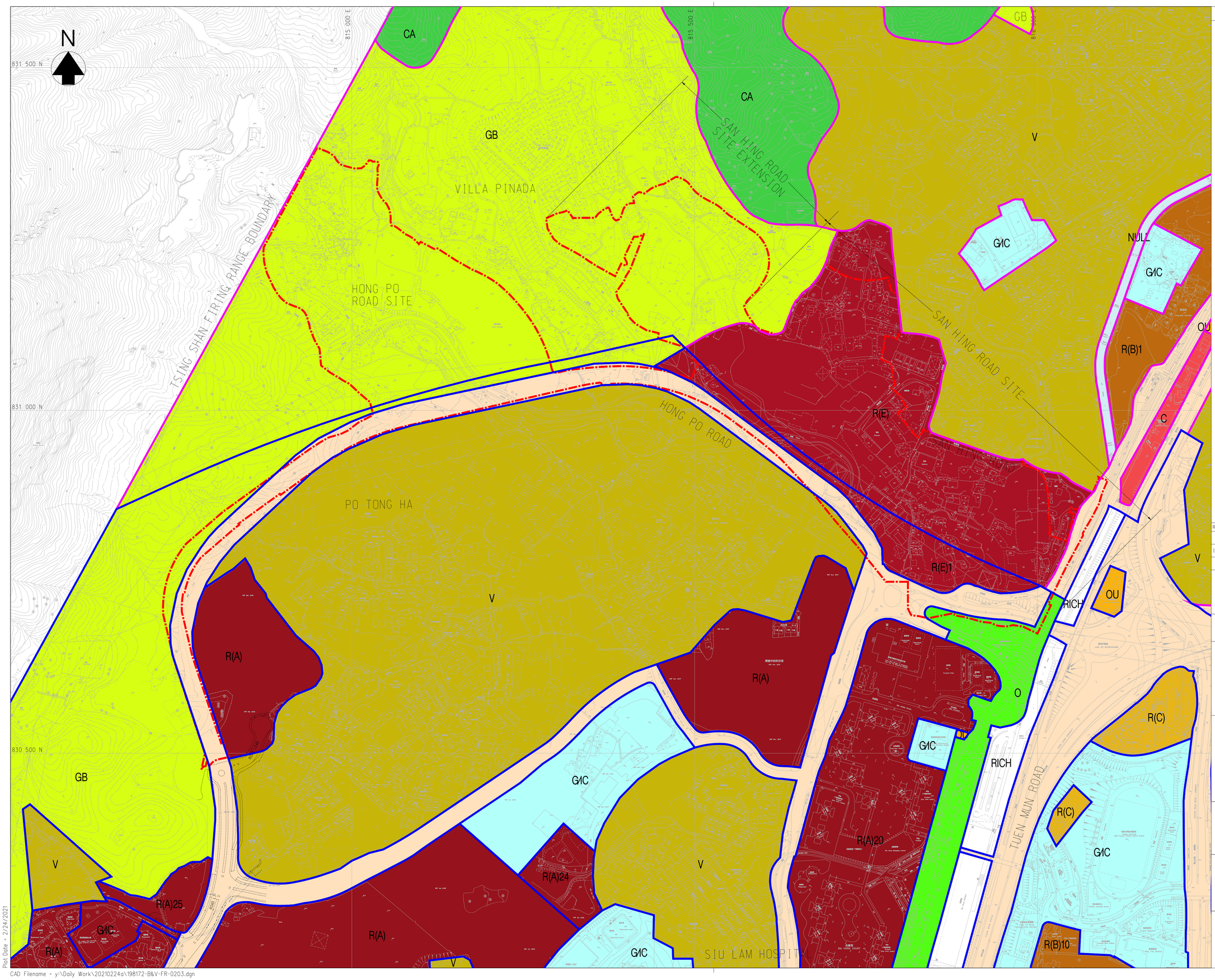

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- STATUTORY PLAN NO. S/TM/35
- STATUTORY PLAN NO. S/TM-LTYY/10
- CDA — COMPREHENSIVE DEVELOPMENT AREA
- O — OPEN SPACE
- R(E) — RESIDENTIAL (GROUD E)
- V — VILLAGE TYPE DEVELOPMENT
- GB — GREEN BELT
- R(D) — RESIDENTIAL (GROUD D)
- CA — CONSERVATION AREA
- R(A) — RESIDENTIAL (GROUD A)
- R(B) — RESIDENTIAL (GROUD B)
- R(C) — RESIDENTIAL (GROUD C)
- C — COMMERCIAL
- G/IC — GOVERNMENT INSTITUTION OR COMMUNITY
- OU — OTHER SPECIFIED USES

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	JLI	YKL	SZ	JW	
Date	01/21	01/21	01/21	01/21	

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
OUTLINE ZONING PLAN

Drawing No.
198172/B&V/FR/0203

Scale
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 2/24/2021
CAD Filename = y:\Daily Work\20210224a\198172-B&V-FR-0203.dgn

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N

831 500 N

831 000 N

830 500 N

815 000 E

815 500 E

816 000 E

HONG PO ROAD SITE

SAN HING ROAD SITE EXTENSION

SAN HING ROAD SITE

CHUNG SHAN

VILLA PINADA

SAN HING TSUEN

REALIGNED HONG PO ROAD

SAN HING ROAD

PROPOSED ROAD L7

TSING SHAN FIRING RANGE BOUNDARY

CASTLE PEAK ROAD - LAM TEI

PO TONG HA

TSZ TIN TSUEN

SHUN KING GARDEN

RIGID BARRIER (INDICATIVE ONLY)

BLOCK 1 +148 mPD

BLOCK 1 +145 mPD

BLOCK 1 +123 mPD

BLOCK 2 +145 mPD

BLOCK 2 +149 mPD

BLOCK 2 +149 mPD

BLOCK 3 +149 mPD

BLOCK 3 +149 mPD

BLOCK 4 +149 mPD

BLOCK 4 +149 mPD

BLOCK 5 +149 mPD

BLOCK 5 +149 mPD

BLOCK 6 +149 mPD

BLOCK 6 +149 mPD

BLOCK 7 +149 mPD

BLOCK 7 +149 mPD

BLOCK 8 +149 mPD

BLOCK 8 +149 mPD

BLOCK 9 +149 mPD

BLOCK 9 +147 mPD

BLOCK 10 +149 mPD

BLOCK 11 +149 mPD

LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- PROJECT SITE BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- PROPOSED ROADWORKS (INDICATIVE)
- PROPOSED TRAFFIC IMPROVEMENT MEASURES (INDICATIVE)
- ROADWORKS UNDER OTHER PROJECTS
- RESIDENTIAL USE (INDICATIVE)
- RETAIL/SOCIAL FACILITIES / CARPARK (INDICATIVE)
- CYCLE TRACK (INDICATIVE)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED COVERED PUBLIC TRANSPORT INTERCHANGE (PTI) (INDICATIVE)
- PROPOSED MITIGATION MEASURES (REMOVED EXTENDED PODIUM)
- PROPOSED SEWAGE PUMPING STATION (INDICATIVE)
- +7.0 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)
- PROPOSED RIGID BARRIER (INDICATIVE)
- +149 mPD APPROX. BUILDING HEIGHT

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

MITIGATED SITE LAYOUT PLAN

Drawing No.

198172/B&V/FR/0301

Scale

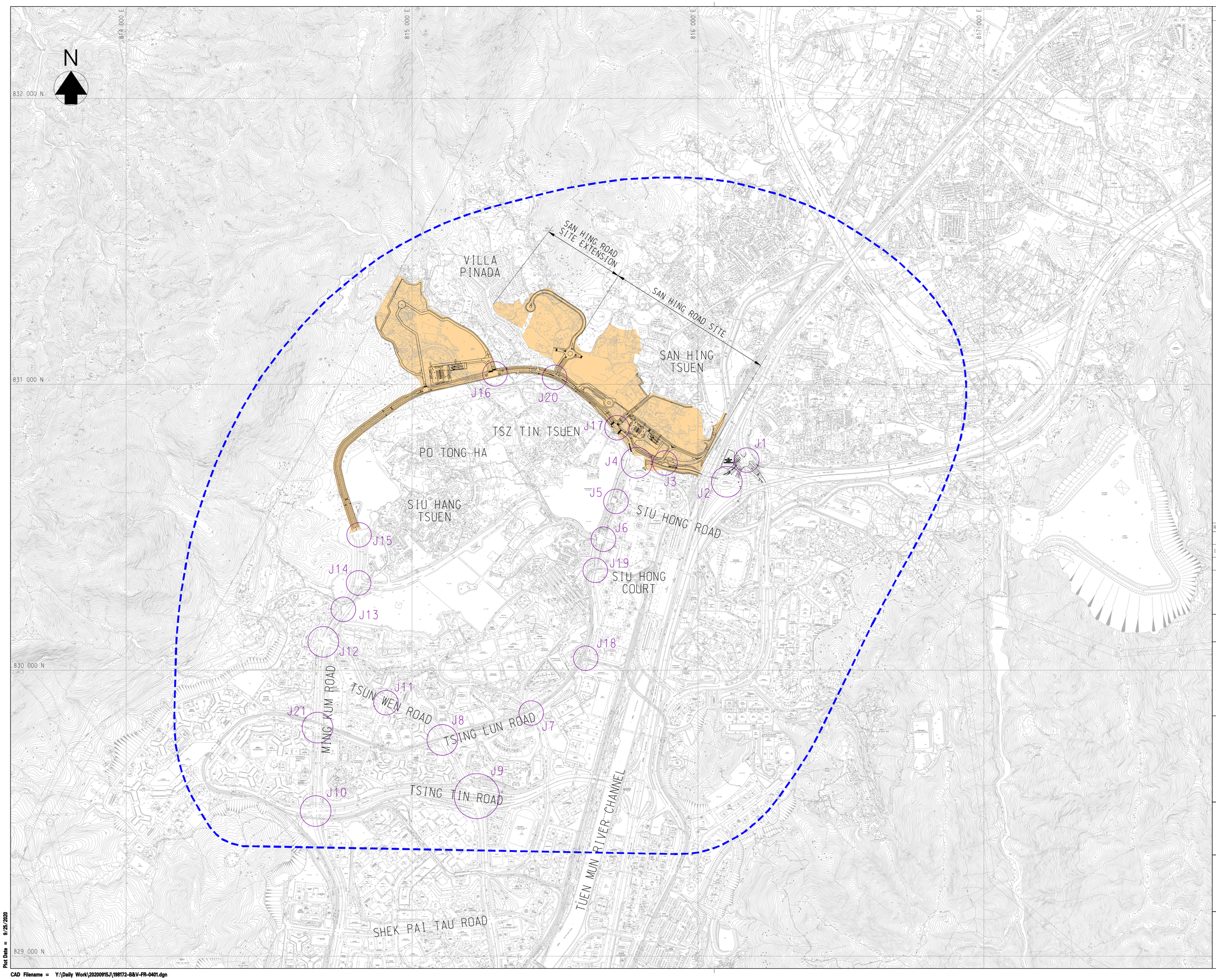
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/9/2021

CAD Filename = C:\Daily Work - Y:\20210706D\198172-B&V-FR-0301.dgn



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LEGEND:

- PROPOSED DEVELOPMENT
- AREA OF INFLUENCE (AOI)
- CRITICAL JUNCTION
- PLANNED LAYOUT

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	11/19	11/19	11/19	11/19

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
LOCATION OF KEY ROAD JUNCTIONS

Drawing No.
198172/B&V/FR/0401

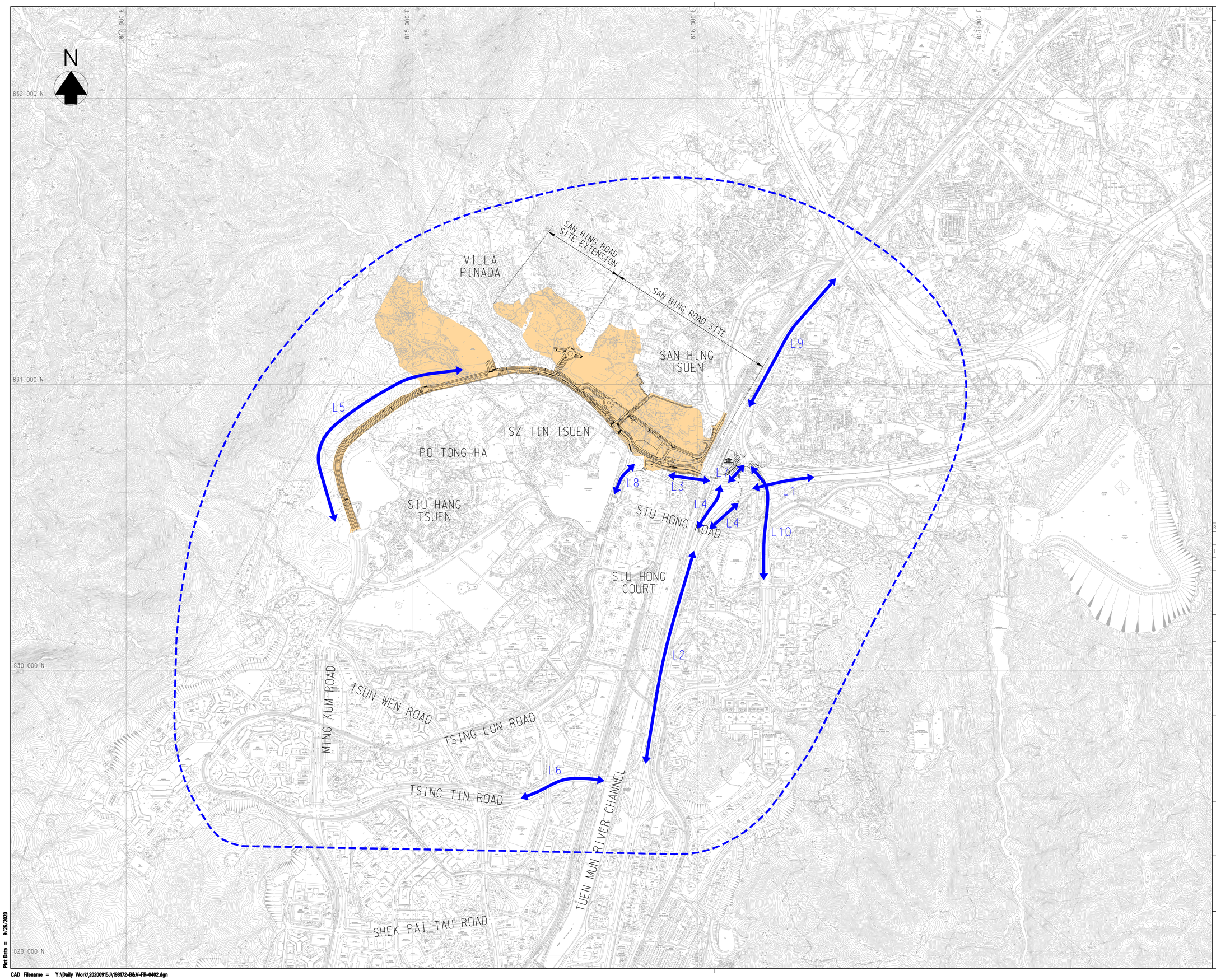
Scale
1 : 6000 (A1)
1 : 12000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 9/25/2020

CAD Filename = Y:\Daily Work\20200915J\198172-B&V-FR-0401.dgn



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LEGEND:

- PROPOSED DEVELOPMENT
- AREA OF INFLUENCE (AOI)
- ROAD LINK
- PLANNED LAYOUT

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	11/19	11/19	11/19	11/19

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
LOCATION ON KEY ROAD LINKS

Drawing No.
198172/B&V/FR/0402

Scale
1 : 6000 (A1)
1 : 12000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 9/25/2020

CAD Filename = Y:\Daily Work\20200915J\198172-B&V-FR-0402.dgn

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- FOOTPATH
- FOOTPATH ACCESSED
- PROPOSED COVERED WALKWAY

814 800 E
815 000 E
815 200 E
815 400 E
815 600 E
831 200 N
831 000 N
830 800 N
830 600 N

N

P0
P1a
P1b
P2
P3
P4
P5
P6
P7
P8
P9

EFFECTIVE WIDTH (m) (STAIR)	LOS
3.5	B

EFFECTIVE WIDTH (m) (STAIR)	LOS
3.5	B

EFFECTIVE WIDTH (m) (WESTERN FOOTPATH)	LOS
5	B

EFFECTIVE WIDTH (m) (WESTERN FOOTPATH)	LOS
2.7	B

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
3	A

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
5	A

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
3	B

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
3	B

EFFECTIVE WIDTH (m) (EASTERN FOOTPATH)	LOS
3	B

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
2	A

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
3.5	A

VEHICULAR ACCESS
REALIGNED HONG PO ROAD
PROPOSED ROAD L7
PTI FOR HPR SITE
SAN HING ROAD EXTENSION SITE ACCESS
TAXI
PLB
PO TONG HA
SIU HANG TSUEN
TSZ TIN TSUEN

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	JLI	YKL	SZ	JW	
Date	01/20	01/20	01/20	01/20	

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PEDESTRIAN FLOW PATHS

(SHEET 1 OF 2)

Drawing No.	Scale
198172/B&V/FR/0501	1 : 1500 (A1) 1 : 3000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/14/2021
CAD Filename = Y:\Daily Work\20210713E\11\198172-B&V-FR-0501.dgn

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- FOOTPATH
- EXISTING FOOTBRIDGE ACROSS NG LAU ROAD
- PROPOSED FOOTBRIDGE CONNECTING TO EXISTING FOOTBRIDGE ACROSS NG LAU ROAD
- PROPOSED STAIRCASE
- PROPOSED LIFT
- PROPOSED COVERED WALKWAY
- MODIFICATION TO THE EXISTING WALKWAY AS NECESSARY
- PROPOSED ESCALATOR
- FOOTPATH ACCESSED

EFFECTIVE WIDTH (m) (WESTERN FOOTPATH)	LOS
4.5	B

EFFECTIVE WIDTH (m)	LOS
3	B

EFFECTIVE WIDTH (m) (SOUTHERN FOOTPATH)	LOS
1.75	B

EFFECTIVE WIDTH (m) (EASTERN AND WESTERN FOOTPATH)	LOS
4.5	B

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
4	A

EFFECTIVE WIDTH (m) (NORTHERN AND SOUTHERN FOOTPATH)	LOS
4	A

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
3.5	B

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
2	A

EFFECTIVE WIDTH (m) (EASTERN FOOTPATH)	LOS
2	C

EFFECTIVE WIDTH (m) (WESTERN FOOTPATH)	LOS
2	A

EFFECTIVE WIDTH (m) (EASTERN AND WESTERN FOOTPATH)	LOS
3	A

EFFECTIVE WIDTH (m) (WESTERN FOOTPATH)	LOS
1.75	A

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
3	A

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
1.4	C

EFFECTIVE WIDTH (m) (NORTHERN FOOTPATH)	LOS
2	C

EFFECTIVE WIDTH (m) (SOUTHERN FOOTPATH)	LOS
2	B

EFFECTIVE WIDTH (m) (FOOTPATH)	LOS
1.78	B

EFFECTIVE WIDTH (m) (FOOTPATH)	LOS
3	C

EFFECTIVE WIDTH (m) (EXISTING FOOTBRIDGE	LOS
3	C

P10 P11 P13 P14 P15 P16 P17 P18 P19 P20 P21 P22 P25 P26 P27 P28

FB1 FB2 CW1

SAN HING ROAD

HONG PO ROAD

NG LAU ROAD

TSING LUN ROAD

SIU HONG ROAD

TSZ TIN TSUEN

LRT- LAM TEI STOP

LAM TEI INTERCHANGE

TO SIU HONG WEST RAIL STATION

WEST RAIL - SIU HONG STATION

YUEN LONG HIGHWAY

SAN HING ROAD SITE ACCESS

815 600 E

816 000 E

816 200 E

831 000 N

830 800 N

830 600 N

N

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	JLI	YKL	SZ	JW	
Date	01/20	01/20	01/20	01/20	

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PEDESTRIAN FLOW PATHS

(SHEET 2 OF 2)

Drawing No.: 198172/B&V/FR/0502

Scale: 1 : 1000 (A1) 1 : 2000 (A3)

土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

Plot Date = 7/12/2021

CAD Filename = Y:\Daily Work\20210709c\198172-B&V-FR-0502.dgn

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N

815 000 E
815 500 E
816 000 E
831 500 N
831 000 N
830 500 N

CHUNG SHAN
CHUNG SHAN
VILLA PINADA
PO TONG HA
HONG PO ROAD SITE
SAN HING ROAD SITE EXTENSION
SAN HING ROAD SITE
PROPOSED ROAD L7
TSING SHAN FIRING RANGE BOUNDARY
REALIGNED HONG PO ROAD
SAN HING ROAD
TUEN MUN ROAD

1
2
3
4
5

CH 0.0m
CH 50.0m
CH 100.0m
CH 150.0m
CH 200.0m
CH 250.0m
CH 300.0m
CH 350.0m
CH 400.0m
CH 450.0m
CH 500.0m
CH 550.0m
CH 600.0m
CH 650.0m
CH 700.0m
CH 750.0m
CH 800.0m
CH 850.0m
CH 900.0m
CH 950.0m
CH 1000.0m
CH 1050.0m
CH 1100.0m
CH 1150.0m
CH 1200.0m
CH 1250.0m
CH 1300.0m
CH 1350.0m
CH 1390.005m

12699/BH310
12699/BH311
12780/DH335
67335/BH3
34731/DH1
12780/DH334
48524/DH2
48524/TC2
48524/IC1
48524/DH1
42914/DHA26
42914/DHA154
42914/DHA157
42914/DHA28
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42914/DHA157

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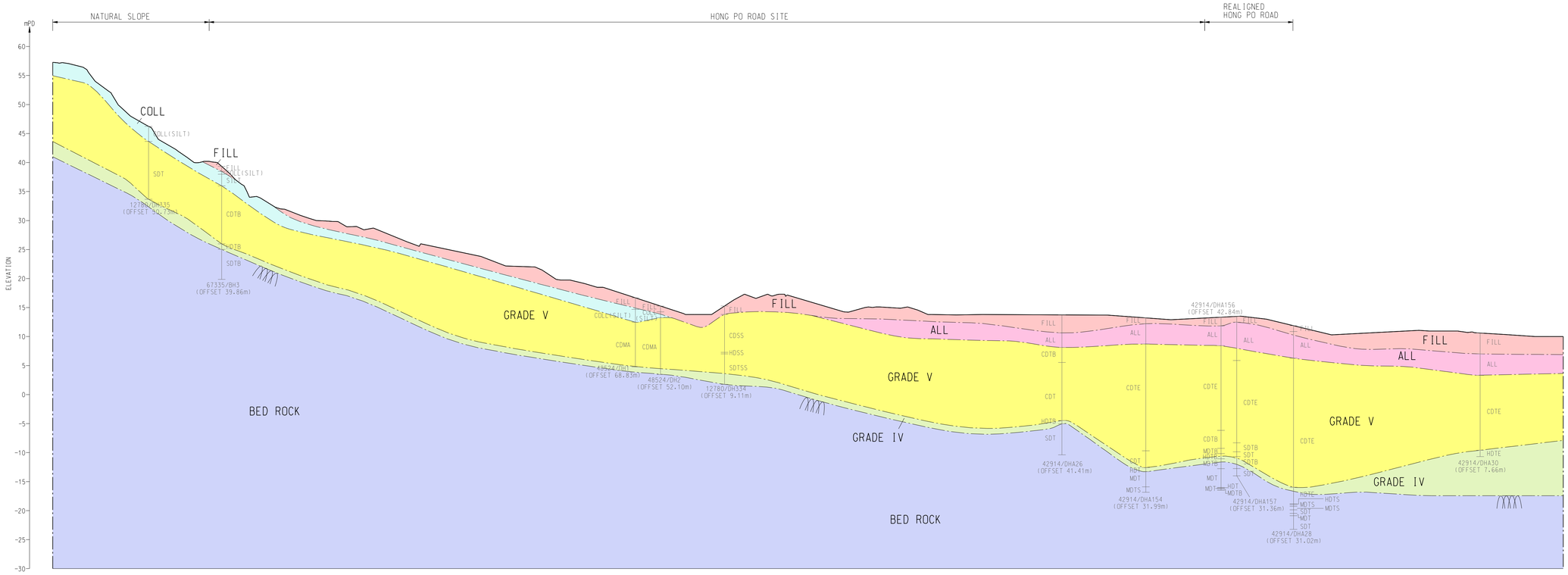
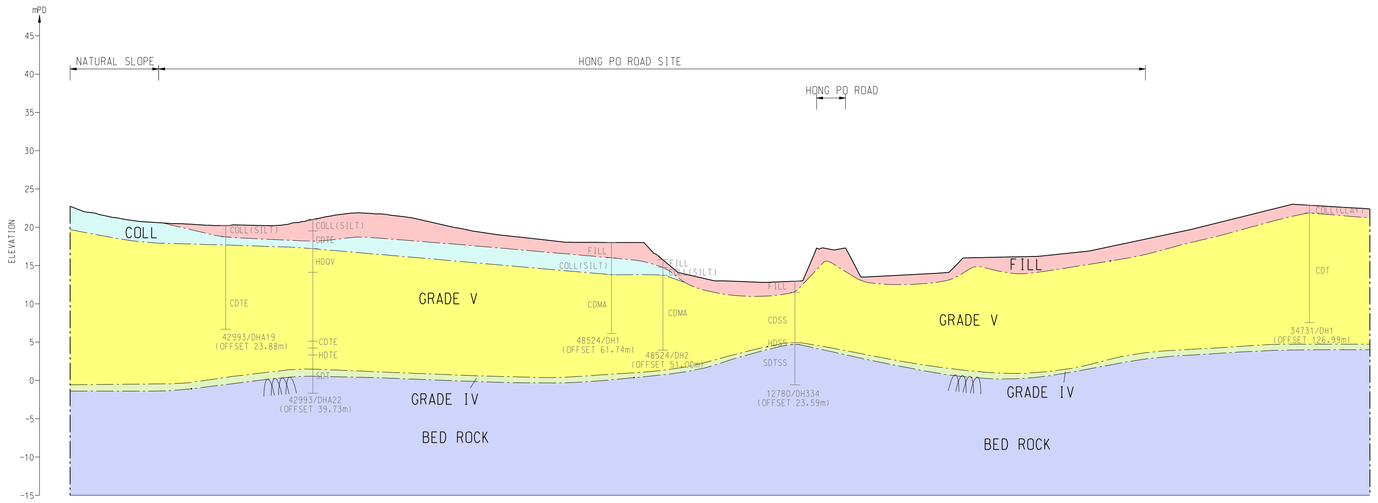


GEOLOGICAL PROFILE SECTION 1-1

SCALE: VERTICAL A1 1 : 400
HORIZONTAL A1 1 : 1000



GEOLOGICAL PROFILE SECTION 2-2

SCALE: VERTICAL A1 1 : 400
HORIZONTAL A1 1 : 1000

TYPE OF ROCK:

CD	COMPLETELY DECOMPOSED
HD	HIGHLY DECOMPOSED
MD	MODERATELY DECOMPOSED
SD	SLIGHTLY DECOMPOSED
ALL	ALLUVIUM
A	ANDESITE
R	RHYOLITE
FILL	FILL
MC	METACONGLOMERATE
MS	METASILTSTONE
MA	META-ANDESITE
MT	META-TUFF
QV	QUARTZ VEIN
S	SANDSTONE
SS	SILTSTONE
T	TUFF
TB	TUFF BRECCIA
TSS	TUFFACEOUS SILTSTONE
TS	TUFFACEOUS SANDSTONE
TE	TUFFITE

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	TW	SC	SZ	NS
Date	07/18	07/18	07/18	07/18

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
GEOLOGICAL PROFILE (SECTIONS 1-1 TO 2-2)

Drawing No.
198172/B&V/FR/0601a

Scale
AS SHOWN

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/4/2021
CAD Filename = Y:\Daily Work\20210602\198172-B&V-FR-0601a.dgn

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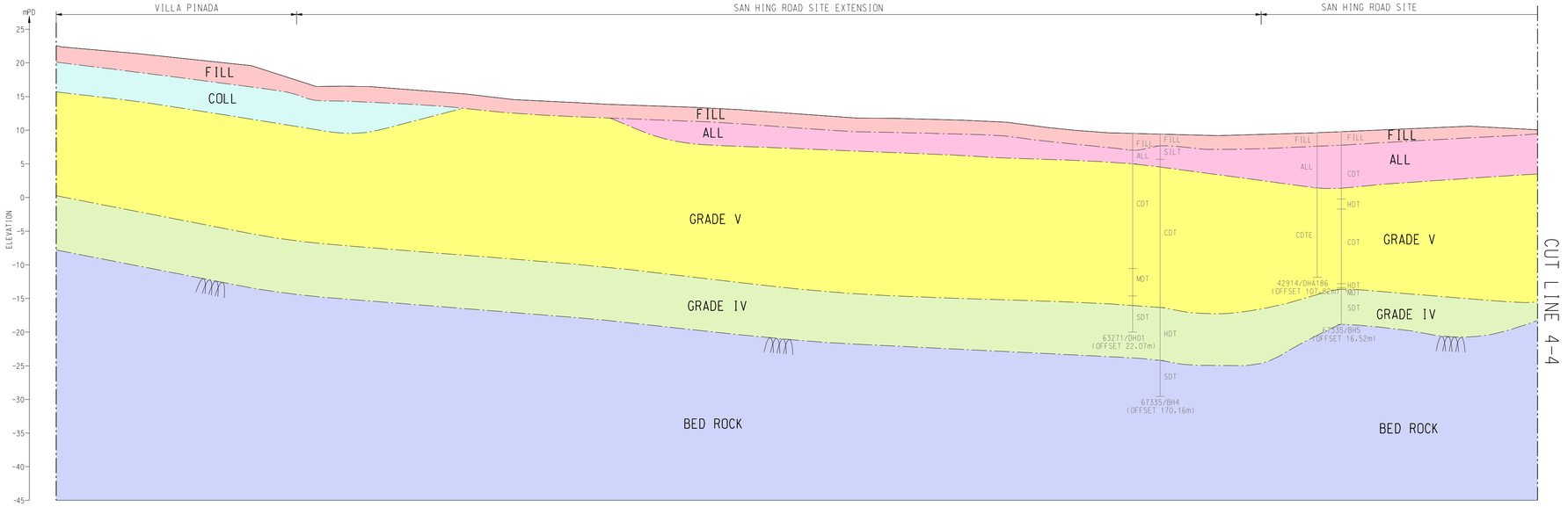
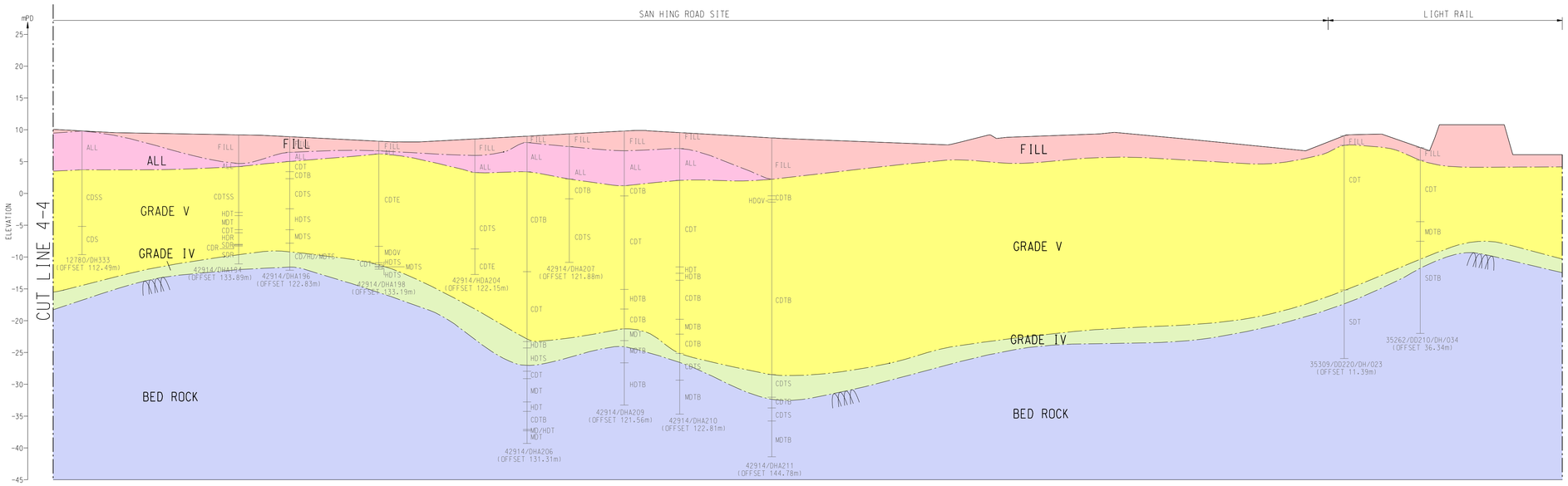


GEOLOGICAL PROFILE SECTION 3-3

SCALE: VERTICAL A1 1 : 400
HORIZONTAL A1 1 : 1000



GEOLOGICAL PROFILE SECTION 3-3

SCALE: VERTICAL A1 1 : 400
HORIZONTAL A1 1 : 1000

TYPE OF ROCK:

CD	COMPLETELY DECOMPOSED
HD	HIGHLY DECOMPOSED
MD	MODERATELY DECOMPOSED
SD	SLIGHTLY DECOMPOSED
ALL	ALLUVIUM
A	ANDESITE
R	RHYOLITE
FILL	FILL
MC	METACONGLOMERATE
MS	METASILTSTONE
MA	META-ANDESITE
MT	META-TUFF
QV	QUARTZ VEIN
S	SANDSTONE
SS	SILTSTONE
T	TUFF
TB	TUFF BRECCIA
TSS	TUFFACEOUS SILTSTONE
TS	TUFFACEOUS SANDSTONE
TE	TUFFITE

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	TW	SC	SZ	NS
Date	07/18	07/18	07/18	07/18

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
GEOLOGICAL PROFILE (SECTION 3-3)

Drawing No.
198172/B&V/FR/0601b

Scale
AS SHOWN

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/4/2021
CAD Filename = Y:\Daily Work\20210602\198172-B&V-FR-0601b.dgn

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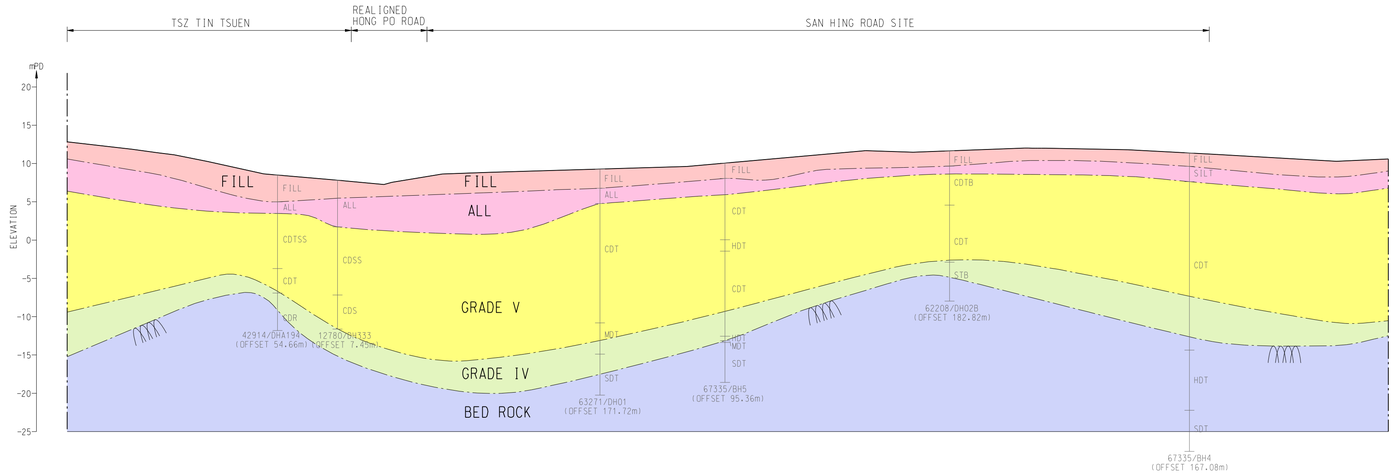


GEOLOGICAL PROFILE SECTION 4-4

SCALE: VERTICAL A1 1 : 400
HORIZONTAL A1 1 : 1000

TYPE OF ROCK:

CD	COMPLETELY DECOMPOSED
HD	HIGHLY DECOMPOSED
MD	MODERATELY DECOMPOSED
SD	SLIGHTLY DECOMPOSED
ALL	ALLUVIUM
A	ANDESITE
R	RHYOLITE
FILL	FILL
MC	METACONGLOMERATE
MS	METASILTSTONE
MA	META-ANDESITE
MT	META-TUFF
QV	QUARTZ VEIN
S	SANDSTONE
SS	SILTSTONE
T	TUFF
TB	TUFF BRECCIA
TSS	TUFFACEOUS SILTSTONE
TS	TUFFACEOUS SANDSTONE
TE	TUFFITE

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	TW	SC	SZ	NS
Date	07/18	07/18	07/18	07/18

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
GEOLOGICAL PROFILE
(SECTION 4-4)

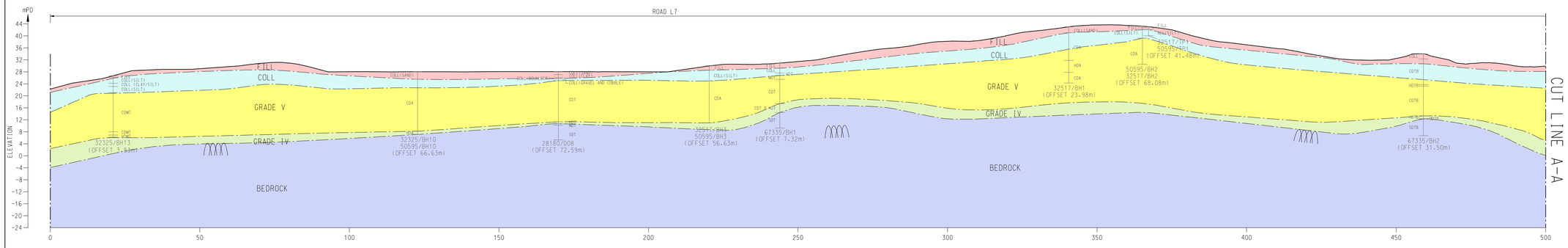
Drawing No.
198172/B&V/FR/0601c

Scale
AS SHOWN

土木工程拓展署
Civil Engineering and Development Department

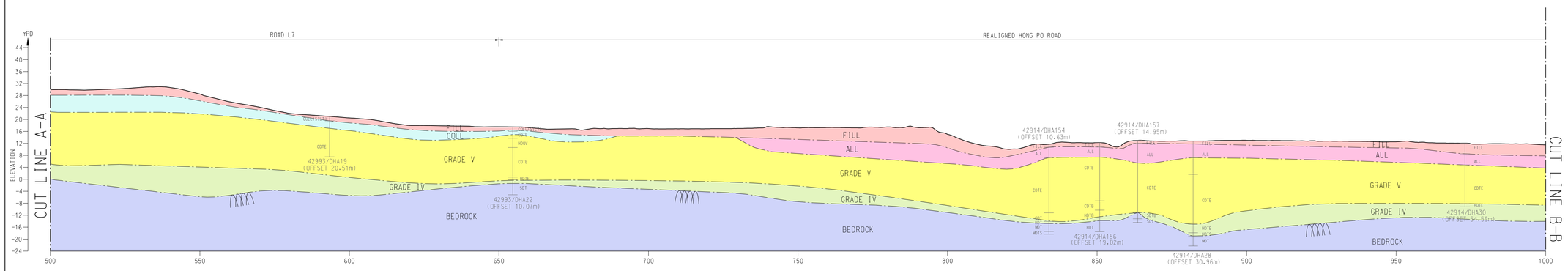
BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/4/2021
CAD Filename = Y:\Daily Work\20210602\198172-B&V-FR-0601c.dgn



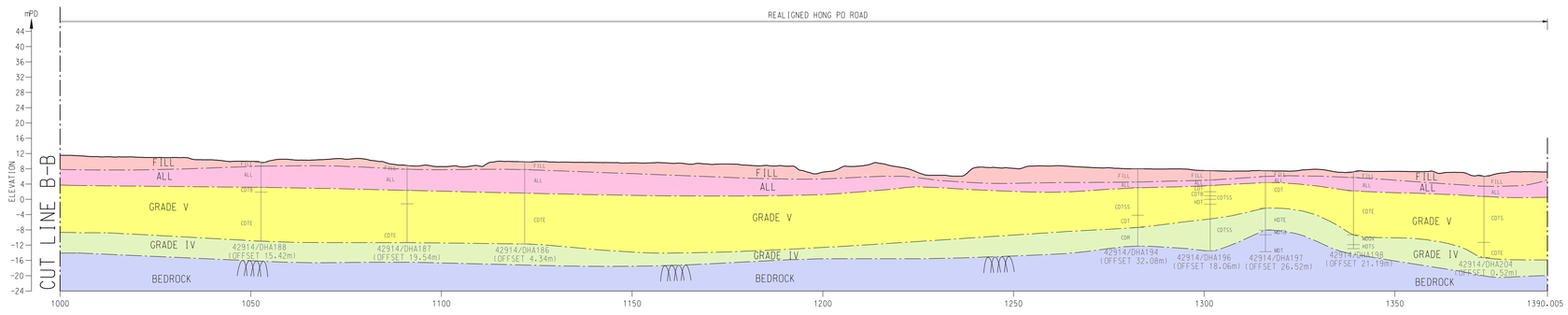
GEOLOGICAL PROFILE SECTION 5-5 (CH 0.0m TO CH 500.0m)

SCALE: VERTICAL A1 1 : 750
HORIZONTAL A1 1 : 750



GEOLOGICAL PROFILE SECTION 5-5 (CH 500.0m TO CH 1000.0m)

SCALE: VERTICAL A1 1 : 750
HORIZONTAL A1 1 : 750



GEOLOGICAL PROFILE SECTION 5-5 (CH 1000.0m TO CH 1390.005m)

SCALE: VERTICAL A1 1 : 750
HORIZONTAL A1 1 : 750

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TYPE OF ROCK:

CD	COMPLETELY DECOMPOSED
HD	HIGHLY DECOMPOSED
MD	MODERATELY DECOMPOSED
SD	SLIGHTLY DECOMPOSED
ALL	ALLUVIUM
A	ANDESITE
R	RHYOLITE
FILL	FILL
MC	METACONGLOMERATE
MS	METASILTSTONE
MA	META-ANDESITE
MT	META-TUFF
QV	QUARTZ VEIN
S	SANDSTONE
SS	SILTSTONE
T	TUFF
TB	TUFF BRECCIA
TSS	TUFFACEOUS SILTSTONE
TS	TUFFACEOUS SANDSTONE
TE	TUFFITE

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	TW	SC	SZ	NS	
Date	07/18	07/18	07/18	07/18	

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
GEOLOGICAL PROFILE (SECTION 5-5)

Drawing No.
198172/B&V/FR/0601d

Scale
1 : 750 (A1)
1 : 1500 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/4/2021
CAD Filename = Y:\Daily Work\20210602\198172-B&V-FR-0601d.dgn

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- REGISTERED MAN-MADE FEATURES
- NON-REGISTERED GEOTECHNICAL FEATURES

N

DETAIL A

CHUNG SHAN

VILLA PINADA

SAN HING ROAD SITE EXTENSION

HONG PO ROAD SITE

SAN HING ROAD

HONG PO ROAD

PO TONG HA

TSING SHAN FIRING RANGE BOUNDARY

TUEN MUN ROAD

815 000 E

815 500 E

816 000 E

831 500 N

831 000 N

830 500 N

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	BF	CMW	SZ	JW
Date	07/18	07/18	07/18	07/18

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
REGISTERED AND NON-REGISTERED GEOTECHNICAL FEATURES

Drawing No.
198172/B&V/FR/0602

Scale
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/4/2021

CAD Filename = Y:\Daily Work\20210602\198172-B&V-FR-0602.dgn

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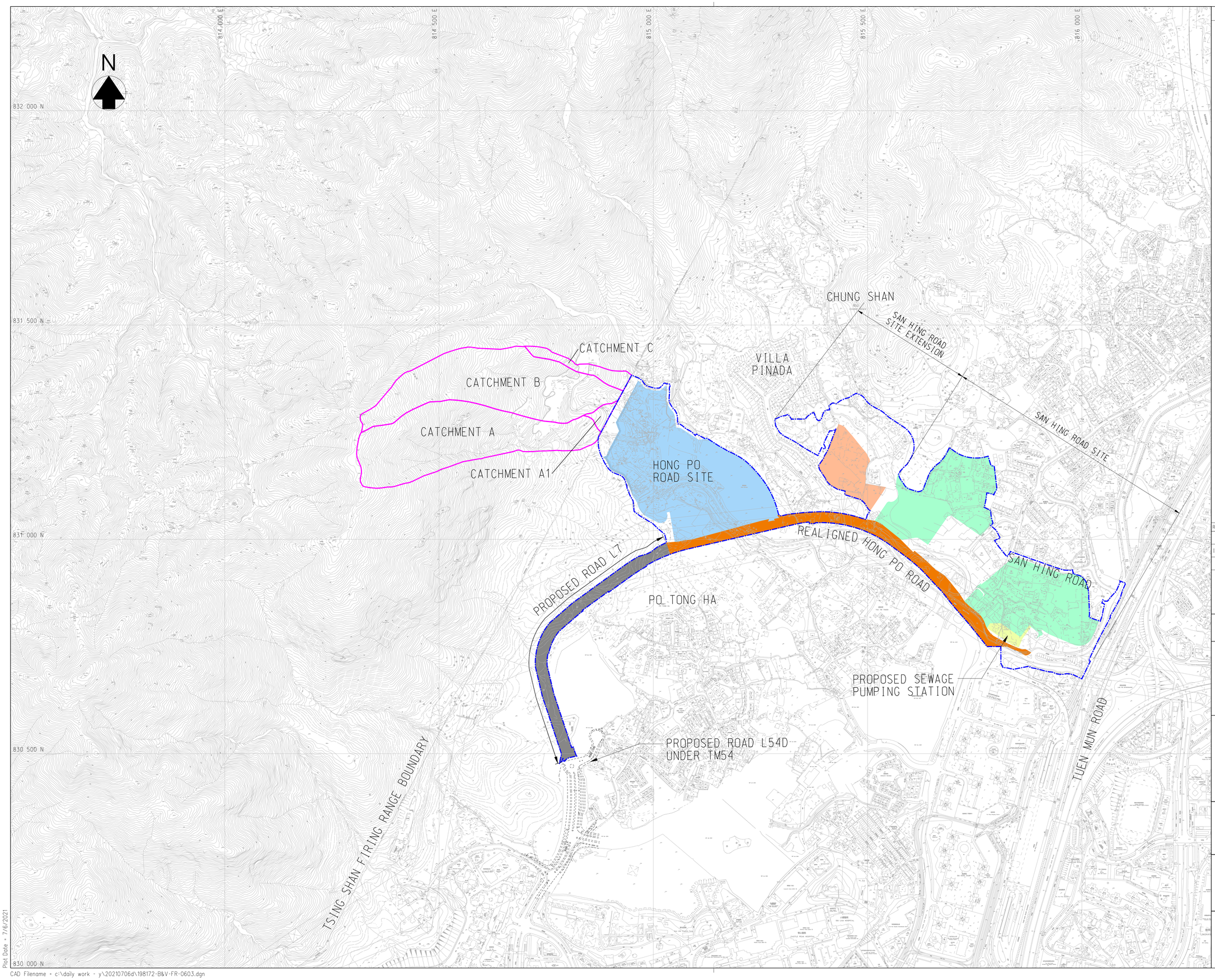


LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- PROPOSED CATCHMENT
- BOUNDARY OF HOUSING DEVELOPMENT OF HONG PO ROAD SITE
- BOUNDARY OF HOUSING DEVELOPMENT OF SAN HING ROAD SITE EXTENSION
- BOUNDARY OF HOUSING DEVELOPMENT OF SAN HING ROAD SITE

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	12/19	12/19	12/19	12/19

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
CATCHMENTS FOR NATURAL TERRAIN HAZARD ASSESSMENTS

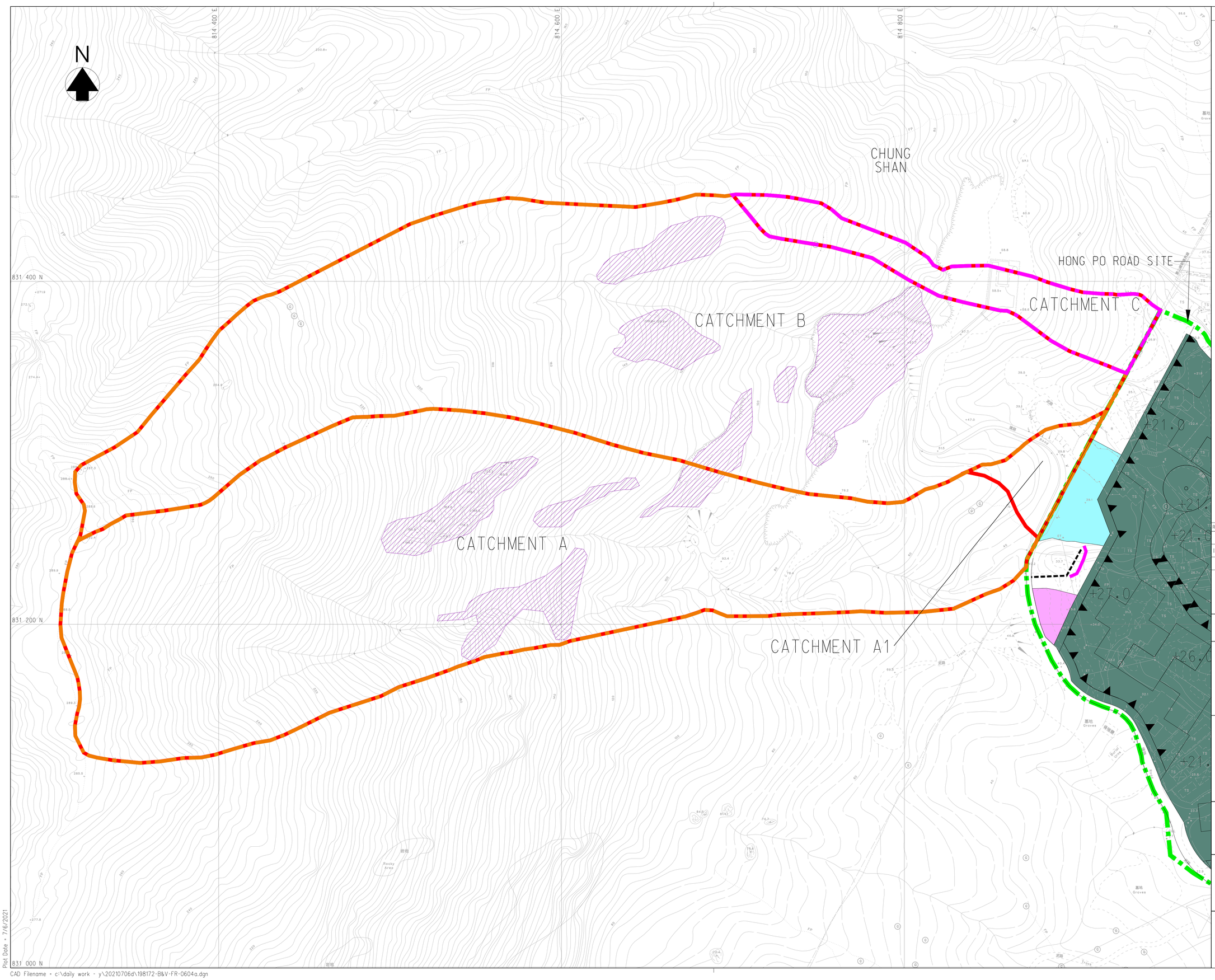
Drawing No.
198172/B&V/FR/0603

Scale
1 : 4000 (A1)
1 : 8000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/6/2021
CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-0603.dgn



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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- SITE AREA OF HONG PO ROAD SITE
- CATCHMENT
- ROCK OUTCROP
- CHANNELLIZED DEBRIS FLOW
- OPEN HILLSLOPE LANDSLIDE
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- +7.6 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)
- PROPOSED RIGID BARRIER (INDICATIVE ONLY)
- PROPOSED MAINTENANCE ACCESS OF RIGID BARRIER (INDICATIVE ONLY)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	11/19	11/19	11/19	11/19

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PROPOSED HAZARD MITIGATION STRATEGY

Drawing No.
198172/B&V/FR/0604a

Scale
1 : 1000 (A1)
1 : 2000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/6/2021
CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-0604a.dgn

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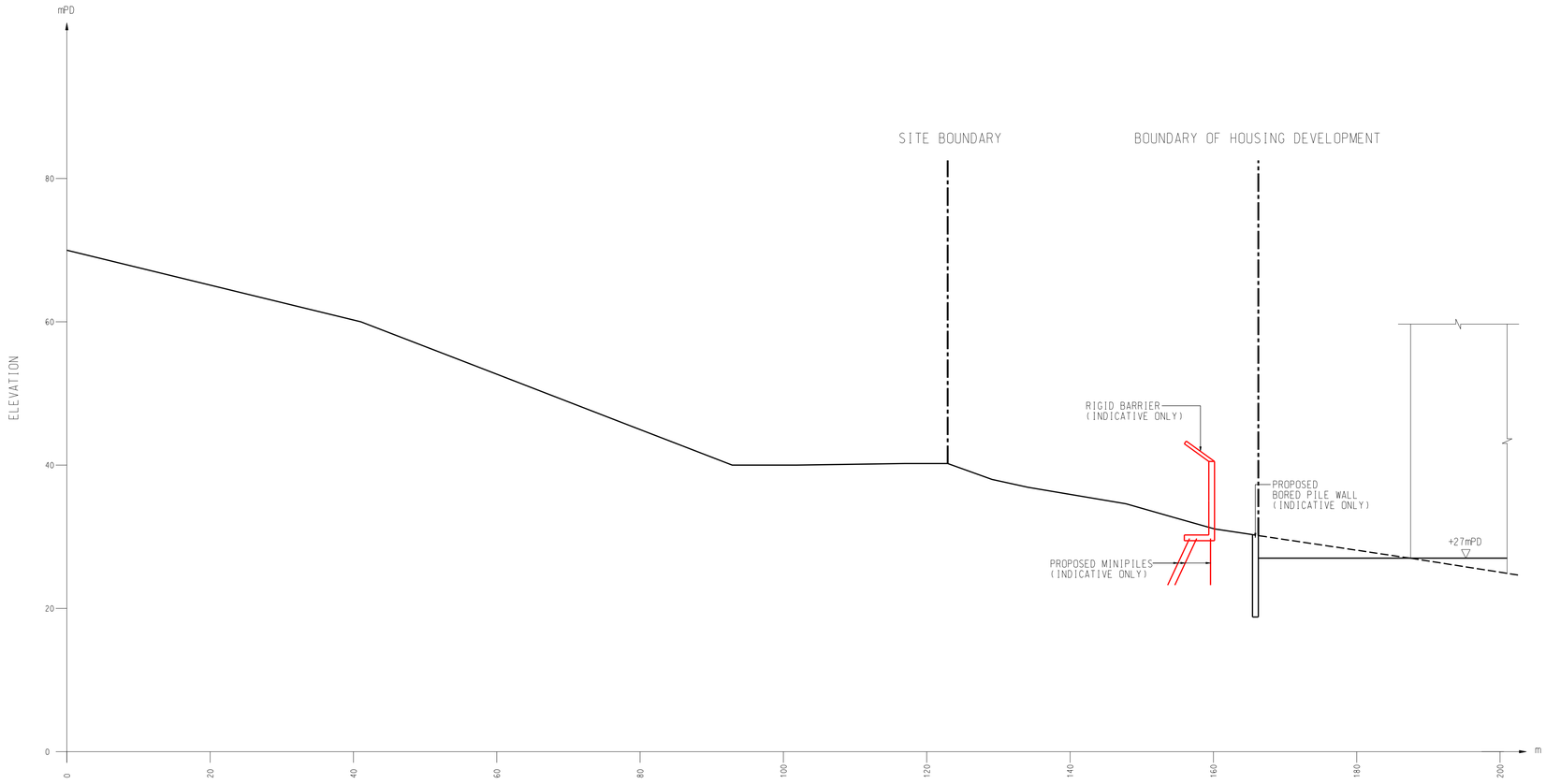

PROPOSED HAZARD MITIGATION MEASURES CROSS-SECTION

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	AN	YLC	SZ	YLC
Date	10/19	10/19	10/19	10/19

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PROPOSED HAZARD MITIGATION MEASURES CROSS-SECTION

Drawing No.
198172/B&V/FR/0604b

Scale
A1 1:400
A3 1:800

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/6/2021

CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-0604b.dgn

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED HOUSING SITE AREA OF HONG PO ROAD SITE
- PROPOSED HOUSING SITE AREA OF SAN HING ROAD SITE EXTENSION
- PROPOSED HOUSING SITE AREA OF SAN HING ROAD SITE
- PROPOSED BOX CULVERT (INDICATIVE) (TO BE MAINTAINED BY DSD)
- +7.0 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED L - SHAPE RETAINING WALLS/ GRAVITY RETAINING WALLS (INDICATIVE)
- PROPOSED BORED PILE WALLS (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)
- PROPOSED RIGID BARRIER (INDICATIVE)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED SITE FORMATION PLAN

Drawing No.

198172/B&V/FR/0701

Scale

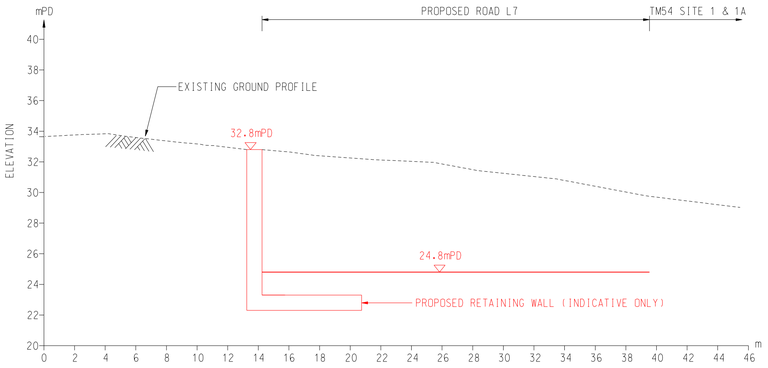
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

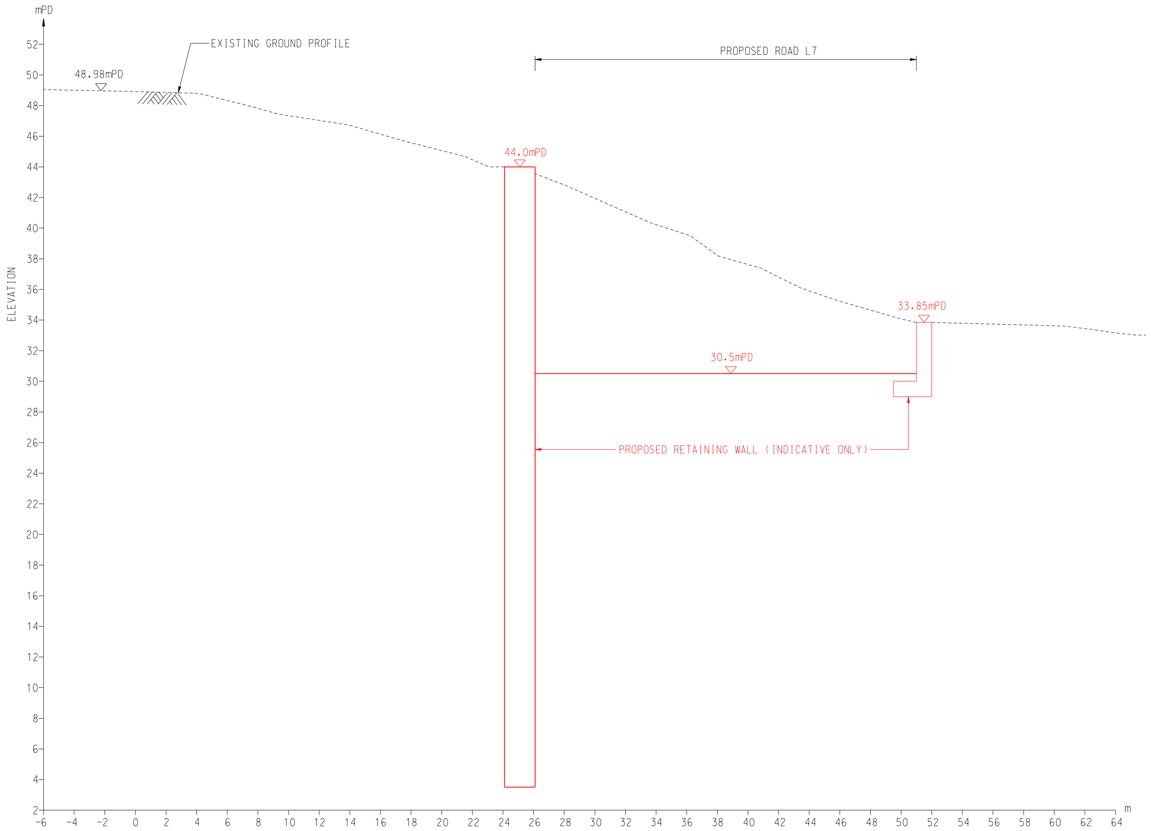
Plot Date = 7/6/2021

CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-0701.dgn



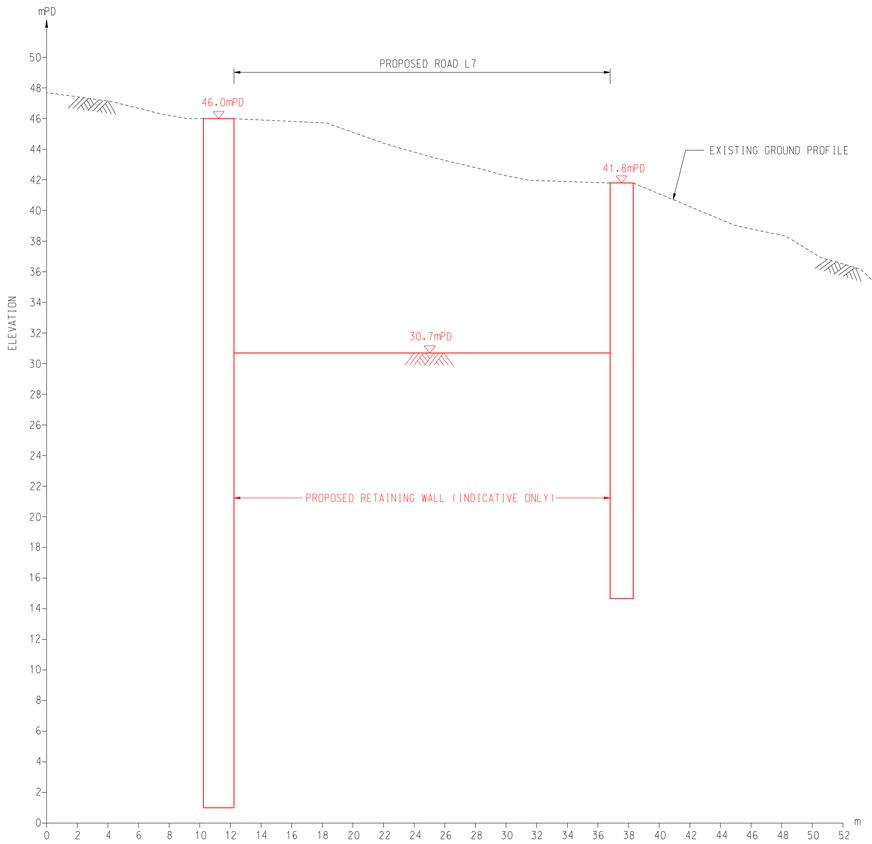
SECTION A-A

SCALE: A1 1 : 200



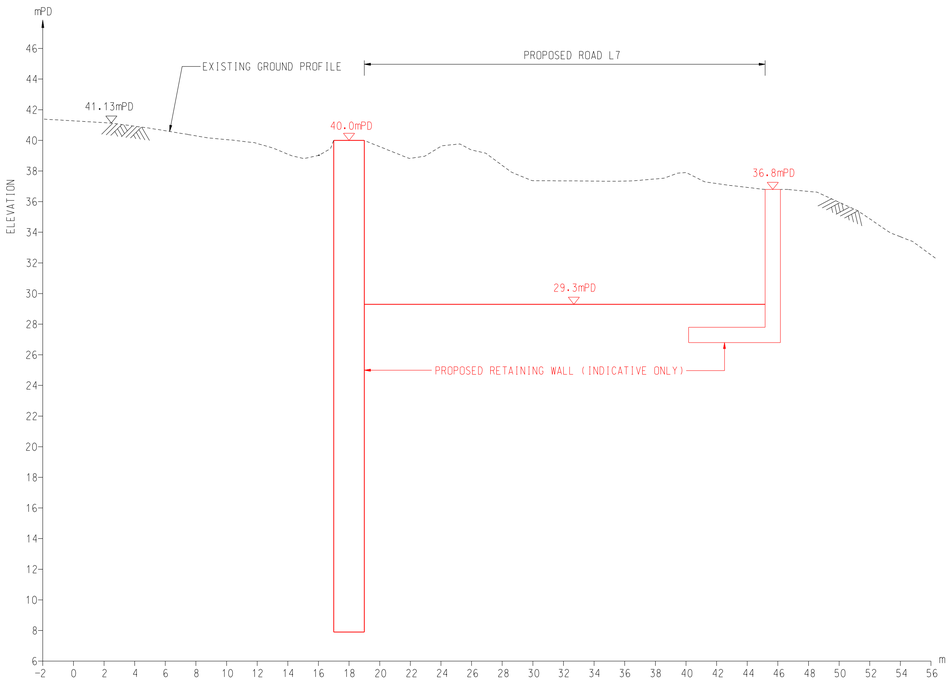
SECTION B-B

SCALE: A1 1 : 200



SECTION C-C

SCALE: A1 1 : 200



SECTION D-D

SCALE: A1 1 : 200

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NOTE:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING NO. 198172/B&V/SFA/008.

LEGEND:

EXISTING GROUND LEVEL

PROPOSED SITE FORMATION LEVEL

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

CROSS-SECTION OF SITE FORMATION PLAN

(SHEET 1 OF 4)

Drawing No.

198172/B&V/FR/0701a

Scale

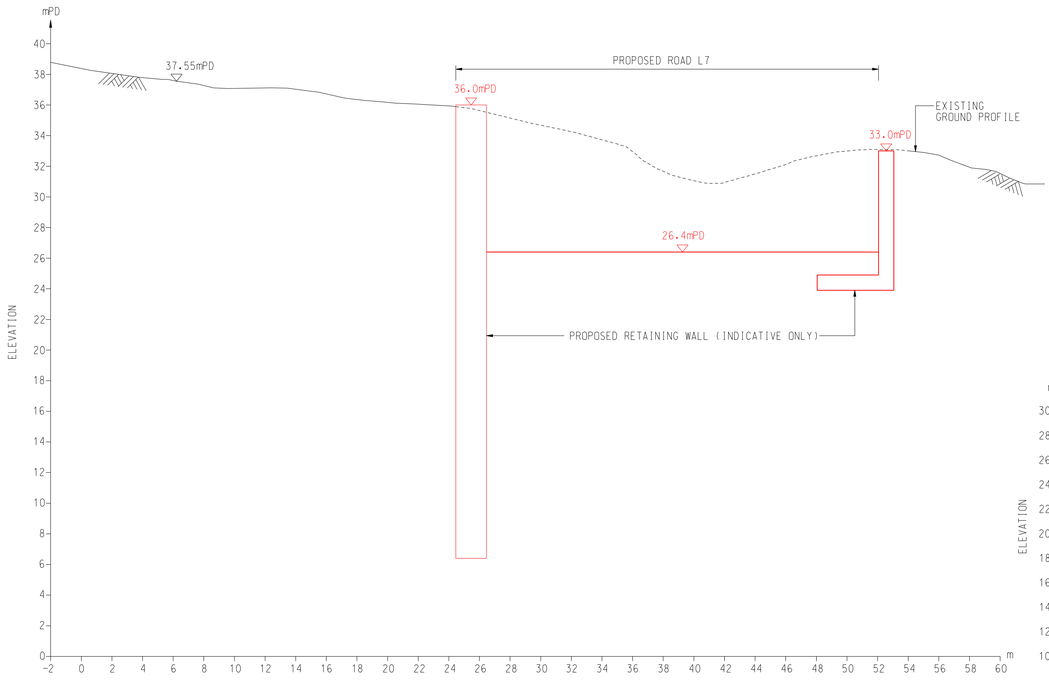
1 : 200 (A1)
1 : 400 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

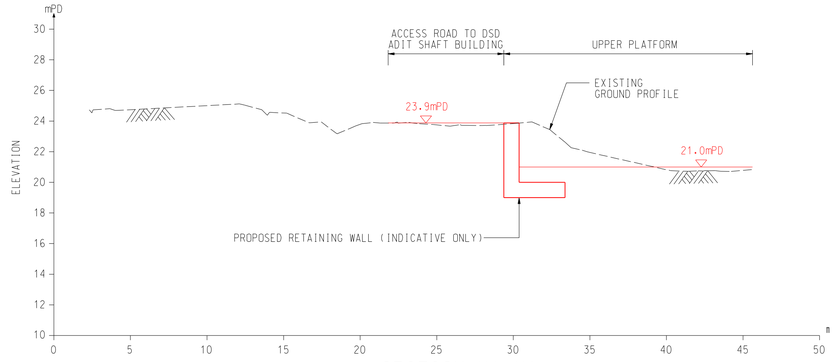
Plot Date = 1/29/2021

CAD Filename = Y:\Daily Work\20210118C\198172-B&V-FR-0701a.dgn



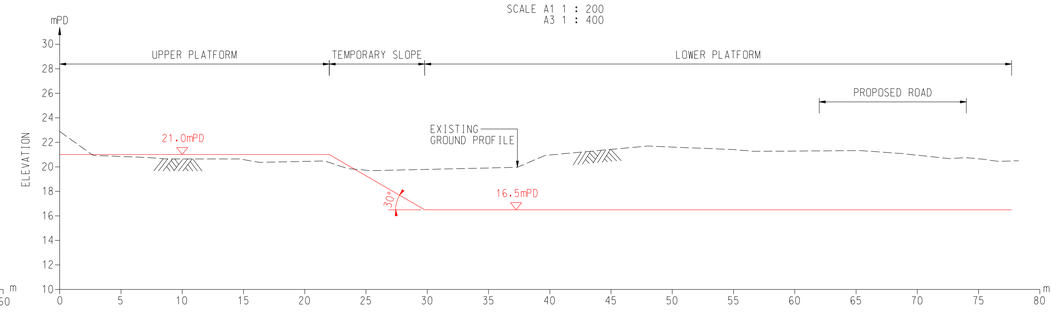
SECTION E-E

SCALE A1 1 : 200
A3 1 : 400



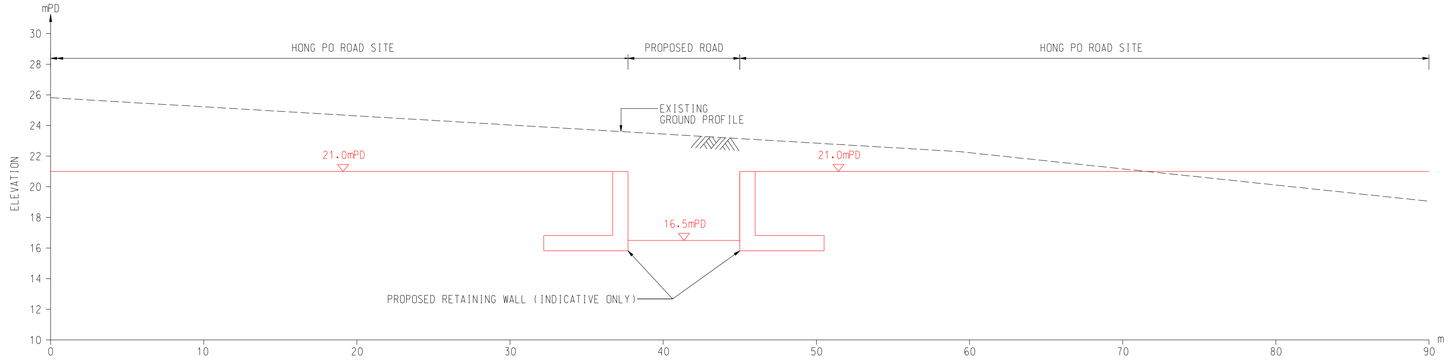
SECTION H1-H1

SCALE A1 1 : 200
A3 1 : 400



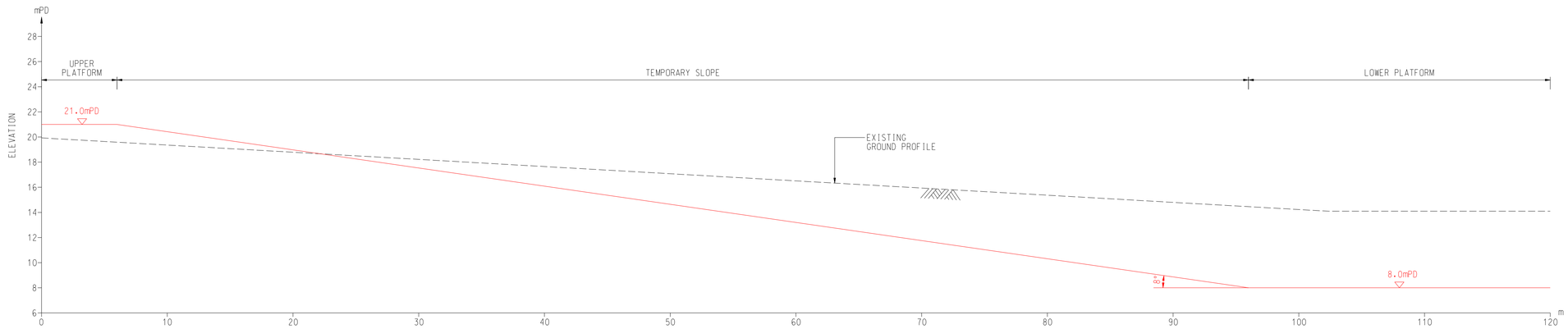
SECTION H-H

SCALE A1 1 : 250
A3 1 : 500



SECTION F-F

SCALE A1 1 : 200
A3 1 : 400



SECTION G-G

SCALE A1 1 : 200
A3 1 : 400

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NOTE:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING NO. 198172/B&V/SFA/008.

LEGEND:

---------- EXISTING GROUND LEVEL

PROPOSED SITE FORMATION LEVEL

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	CMW	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

CROSS-SECTION OF SITE FORMATION PLAN

(SHEET 2 OF 4)

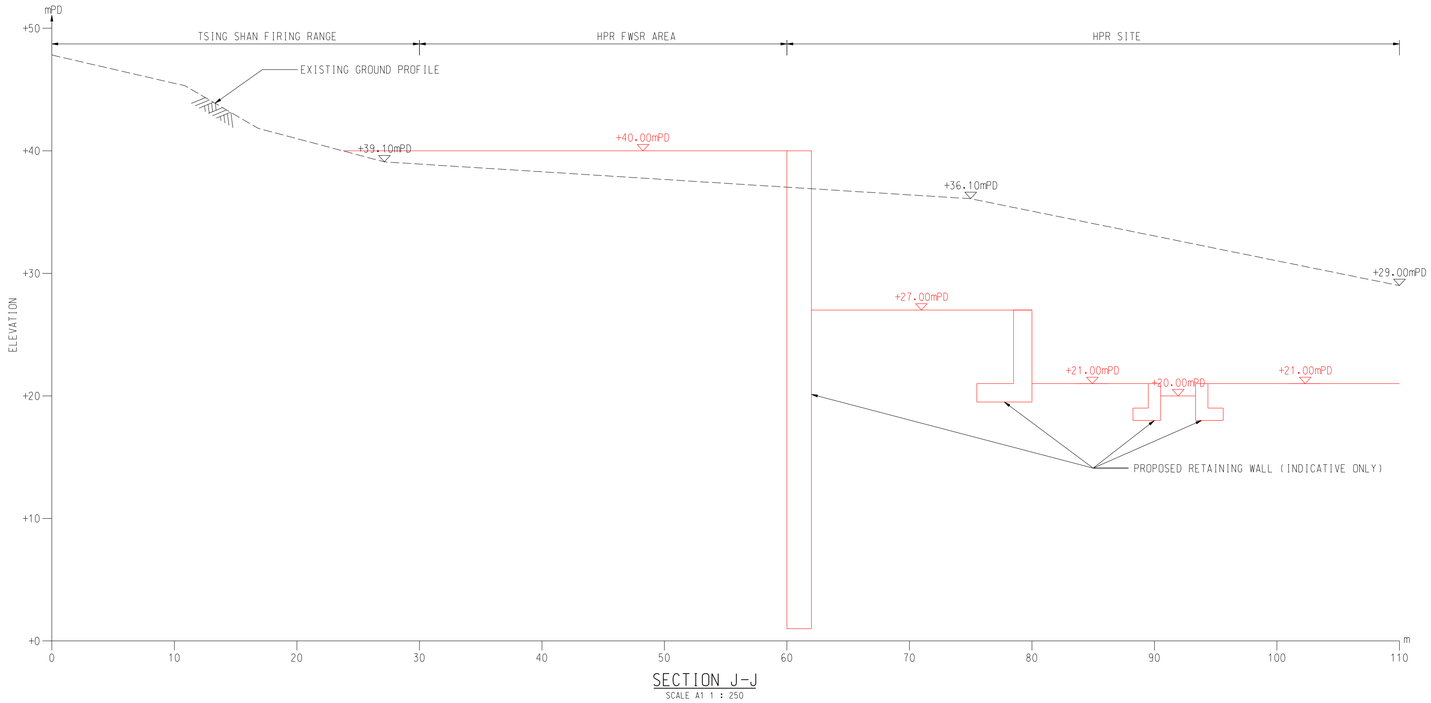
Drawing No.	Scale
198172/B&V/FR/0701b	AS SHOWN

土木工程拓展署
CEDD Civil Engineering and Development Department

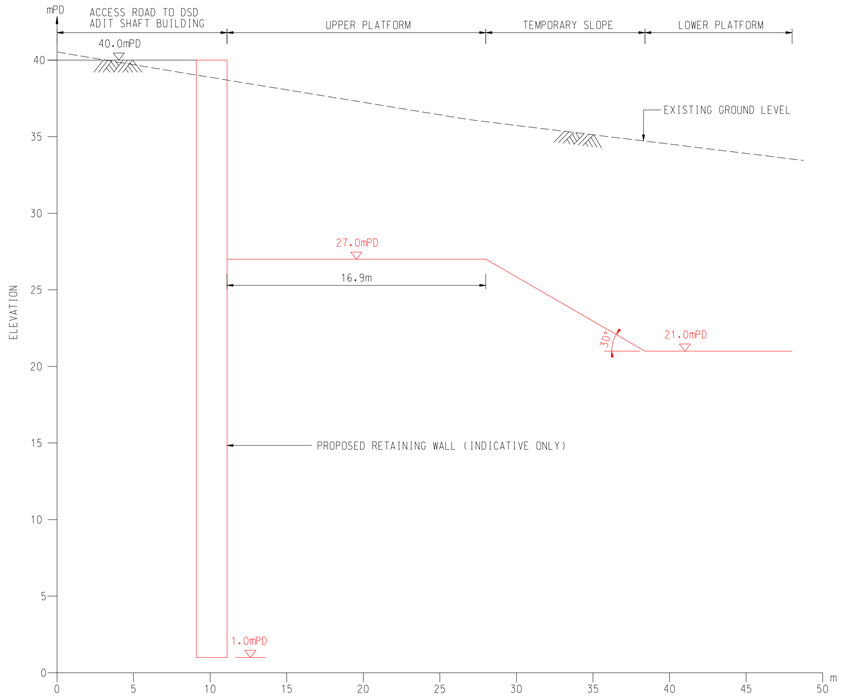
BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 1/29/2021

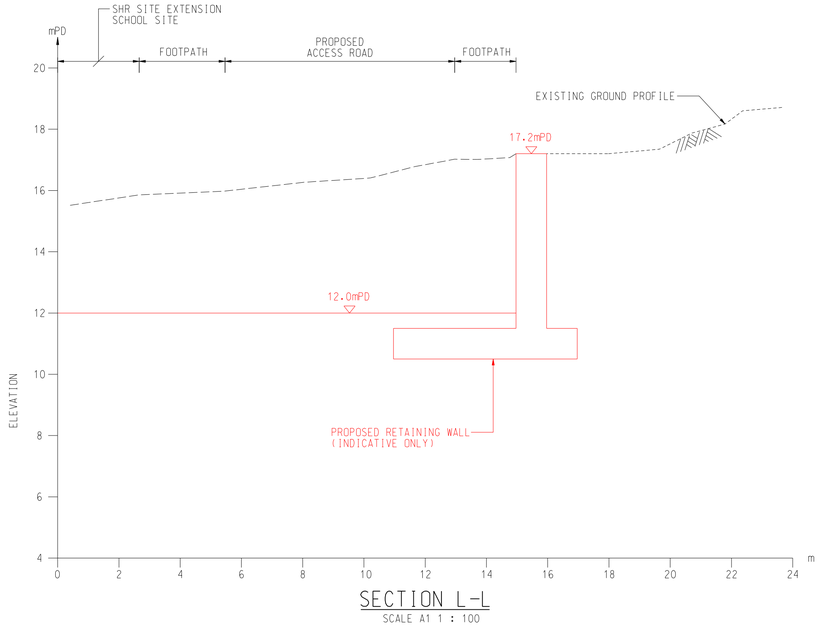
CAD Filename = Y:\Daily Work\20210118C\198172-B&V-FR-0701b.dgn



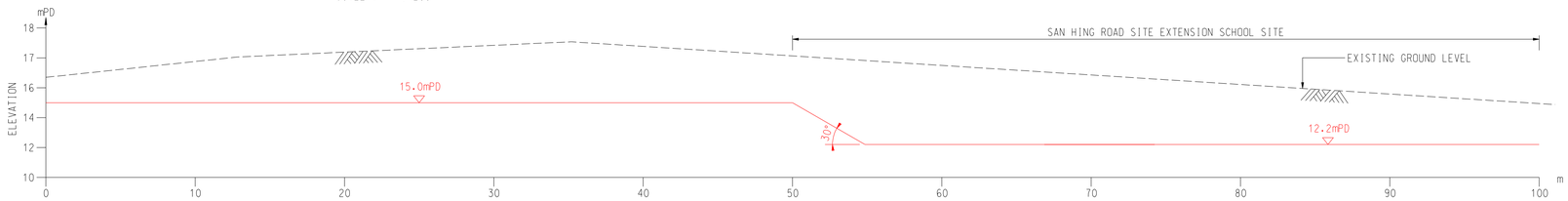
SECTION J-J
SCALE A1 1 : 250



SECTION I-I
SCALE A1 1 : 200



SECTION L-L
SCALE A1 1 : 100



SECTION K-K
SCALE A1 1 : 200

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LEGEND:

---------- EXISTING GROUND LEVEL

———— PROPOSED SITE FORMATION LEVEL

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YLK	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
CROSS-SECTION OF SITE FORMATION PLAN

(SHEET 3 OF 4)

Drawing No.
198172/B&V/FR/0701c

Scale
AS SHOWN

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 1/29/2021

CAD Filename = Y:\Daily Work\20210118C\198172-B&V-FR-0701c.dgn

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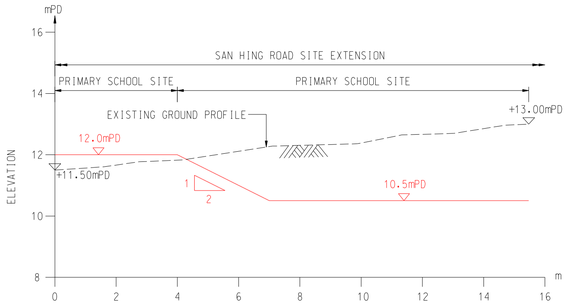
NOTE:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING NO. 198172/B&V/SFA/008.

LEGEND:

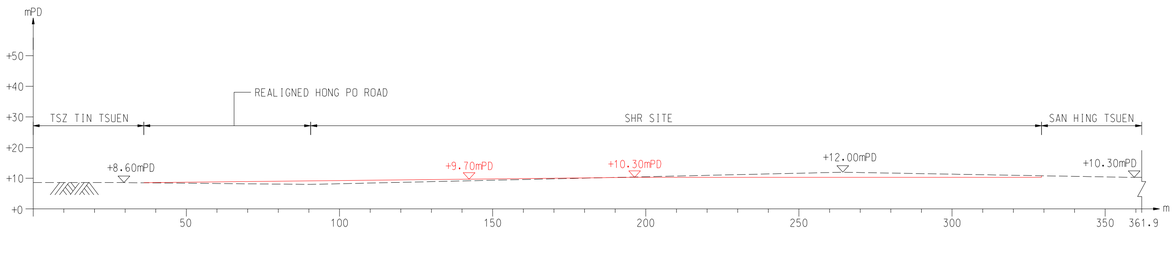
---------- EXISTING GROUND LEVEL

———— PROPOSED SITE FORMATION LEVEL



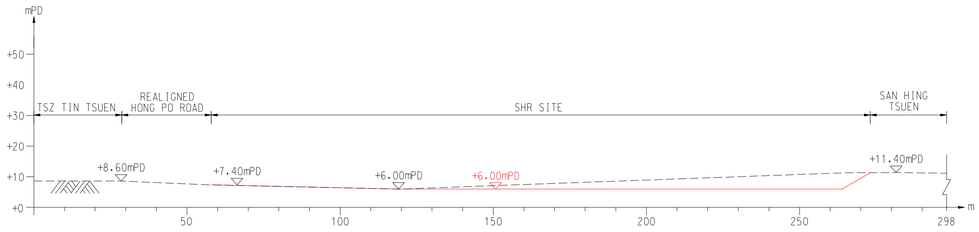
SECTION M-M

SCALE: A1 1 : 100



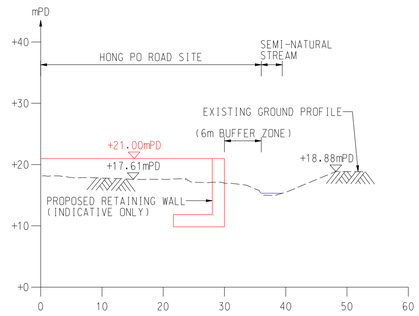
SECTION N-N

SCALE A1 1:1000
A3 1:2000



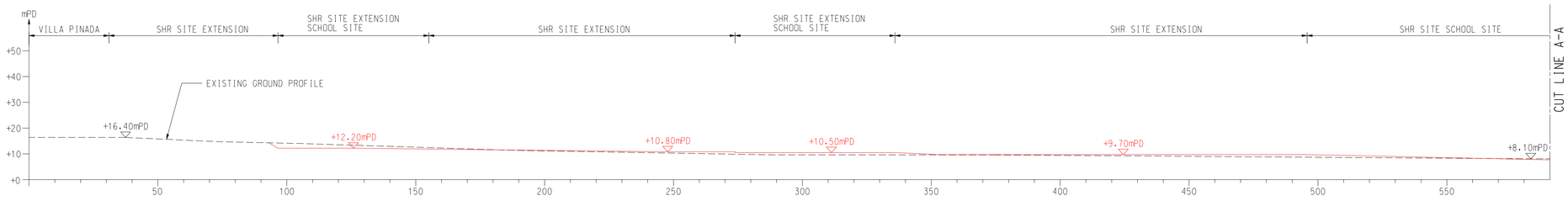
SECTION O-O

SCALE A1 1:1000
A3 1:2000



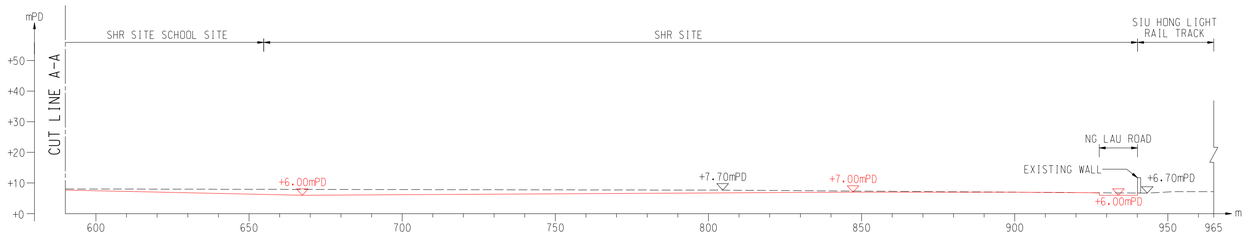
SECTION Q-Q

SCALE: A1 1 : 500
A3 1 : 1000



SECTION P-P

SCALE A1 1:1000
A3 1:2000



SECTION P-P

SCALE A1 1:1000
A3 1:2000

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	JLI	YKL	SZ	JW	
Date	07/20	07/20	07/20	07/20	

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

CROSS-SECTION OF SITE FORMATION PLAN

(SHEET 4 OF 4)

Drawing No.	Scale
198172/B&V/FR/0701d	AS SHOWN

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 1/29/2021

CAD Filename = Y:\Daily Work\20210118C\198172-B&V-FR-0701d.dgn

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	Designed	Reviewed	Drawn	Checked
Initial	BT	KC	TW	NS
Date	Sep 2015	Sep 2015	Sep 2015	Sep 2015

Revision	Date	Description	Initial

Legend

- Proposed Development Area Boundary
- **Proposed Catchment**
- CSC54
- MD54
- ND54
- SD54
- Existing Stream/Channel
- Existing Box Culvert
- Proposed Box Culvert
- Existing Open Channel

814000 815000 816000

832000

831000

830000

Chung Shan

CSC54

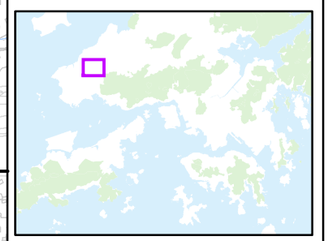
MD54

ND54

SD54

San Hing Nullah

Tuen Mun Nullah



Approved

Agreement No.
CE 68/2017 (CE)

Project Title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Figure Title
CATCHMENT PLAN

Drawing No.	Scale
198172/B&V/FR/0801	1:10,000 @ A3

Client
土木工程拓展署
CEDD Civil Engineering and Development Department

Consultant
BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Mxd: [as01688] B:\182845\MXD\DIA\S12A\Scenario 1\ 007 Proposed catchment plan.mxd TW Sep 2015

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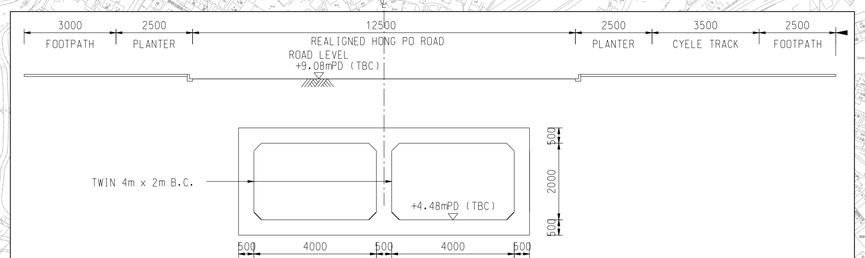
N

815 000 E
815 500 E
816 000 E
831 500 N
831 000 N
830 500 N

SAN HING ROAD SITE EXTENSION
SAN HING ROAD SITE
SAN HING TSUEN
SAN HING ROAD
LIGHT RAIL TRANSIT
CASTLE PEAK ROAD – LAM TEI
HONG PO ROAD SITE
REALIGNED HONG PO ROAD
PROPOSED ROAD L7
PO TONG HA
TSZ TIN TSUEN
SIU HANG TSUEN
SIU HONG ROAD
TSING LUN ROAD

PROPOSED 2000(H) x 3000(W) BOX CULVERT (TO BE MAINTAINED BY DSD)
600 UC (1) 1:100
600 UC (2) 1:100
900 UC (3) 1:100
900 UC (4) 1:100
600 UC (5) 1:100
600 UC (6) 1:100
600 UC (7) 1:100
600 UC (8) 1:100
600 UC (9) 1:100
375 UC (10) 1:100
1050 UC (11) 1:100
600 UC (12) 1:100
600 UC (13) 1:100
900 UC (14) 1:100
PROPOSED 1500 DIA. DRAINAGE PIPE WITH GRADIENT 1:100 (TO BE MAINTAINED BY DSD)
PROPOSED 1500 DIA. DRAINAGE PIPE WITH GRADIENT 1:50 (TO BE MAINTAINED BY DSD)
PROPOSED 2000(H) x 4000(W) BOX CULVERT (TO BE MAINTAINED BY DSD)
CONNECTED TO THE EXISTING STREAM
PROPOSED TWIN 2000(H) x 4000(W) BOX CULVERT (TO BE MAINTAINED BY DSD)
CONNECTION TO BOX CULVERT CONSTRUCTED UNDER CONTRACT CV/2011/01
DRAINAGE OUTLET TO EXISTING BOX CULVERT
PROPOSED 1050 DIA. DRAINAGE PIPE WITH GRADIENT 1:100 (TO BE MAINTAINED BY DSD)



PROPOSED BOX CULVERT ALONG REALIGNED HONG PO ROAD
SECTION A-A
NOT IN SCALE

LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- PROPOSED HOUSING SITE BOUNDARY (SUBJECT TO REVIEW)
- PROPOSED U-CHANNEL AND PROPOSED CATCH PIT (INDICATIVE) (TO BE MAINTAINED BY ARCHSD)
- PROPOSED U-CHANNEL AND PROPOSED CATCH PIT (INDICATIVE) (TO BE MAINTAINED BY HD)
- EXISTING STREAM
- EXISTING STREAM TO BE DIVERTED
- PROPOSED DRAINAGE RESERVE AREA (INDICATIVE ONLY)
- PROPOSED BOX CULVERT (INDICATIVE) (TO BE MAINTAINED BY DSD)
- PROPOSED DRAINAGE PIPE AND MANHOLES (INDICATIVE)
- PROPOSED CATCH PIT (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)
- PROPOSED INTAKE FOR EXISTING STREAM

Revision	Date	Description			Initial
		Designed	Checked	Drawn	Checked
Initial		JLI	YKL	SZ	JW
Date		03/20	03/20	03/20	03/20

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED DRAINAGE LAYOUT PLAN

Drawing No.

198172/B&V/FR/0802

Scale

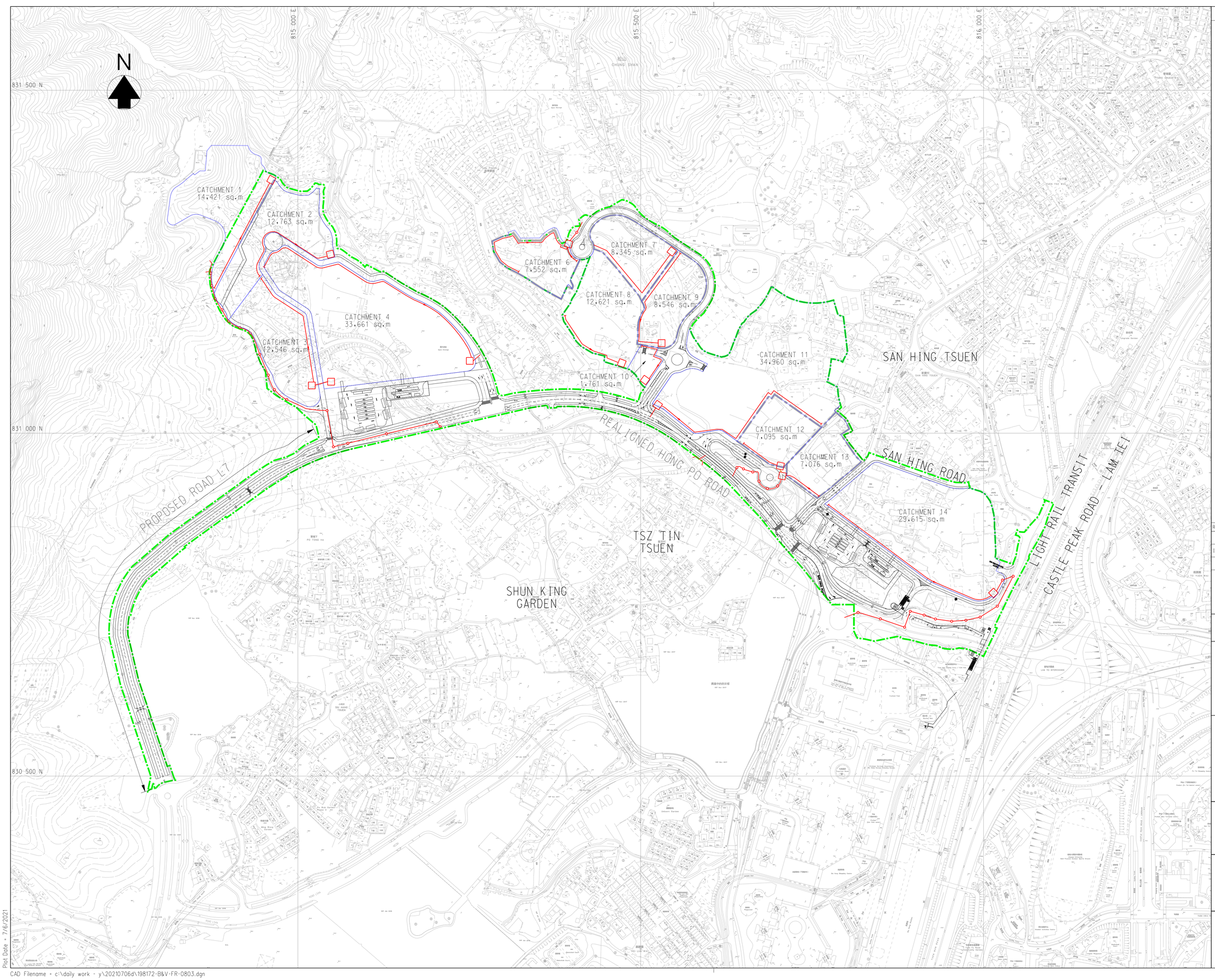
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/6/2021

CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-0802.dgn



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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- CATCHMENT AREA (M2)
- PROPOSED DRAINAGE PIPE AND MANHOLES (INDICATIVE)
- PROPOSED CATCH PIT (INDICATIVE)
- PROPOSED INTAKE FOR EXISTING STREAM

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	03/20	03/20	03/20	03/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED U-CHANNEL CATCHMENT PLAN

Drawing No.

198172/B&V/FR/0803

Scale

1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/6/2021

CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-0803.dgn

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	Designed	Reviewed	Drawn	Checked
Initial	BT	KC	TW	NS
Date	Sep 2015	Sep 2015	Sep 2015	Sep 2015

Revision	Date	Description	Initial

Legend

- Proposed Development Area Boundary
- Box culvert
- Open Channel
- Manhole

Approved

Agreement No.
CE 68/2017 (CE)

Project Title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Figure Title
PROPOSED HYDRAULIC NETWORK (AFTER DEVELOPMENT)

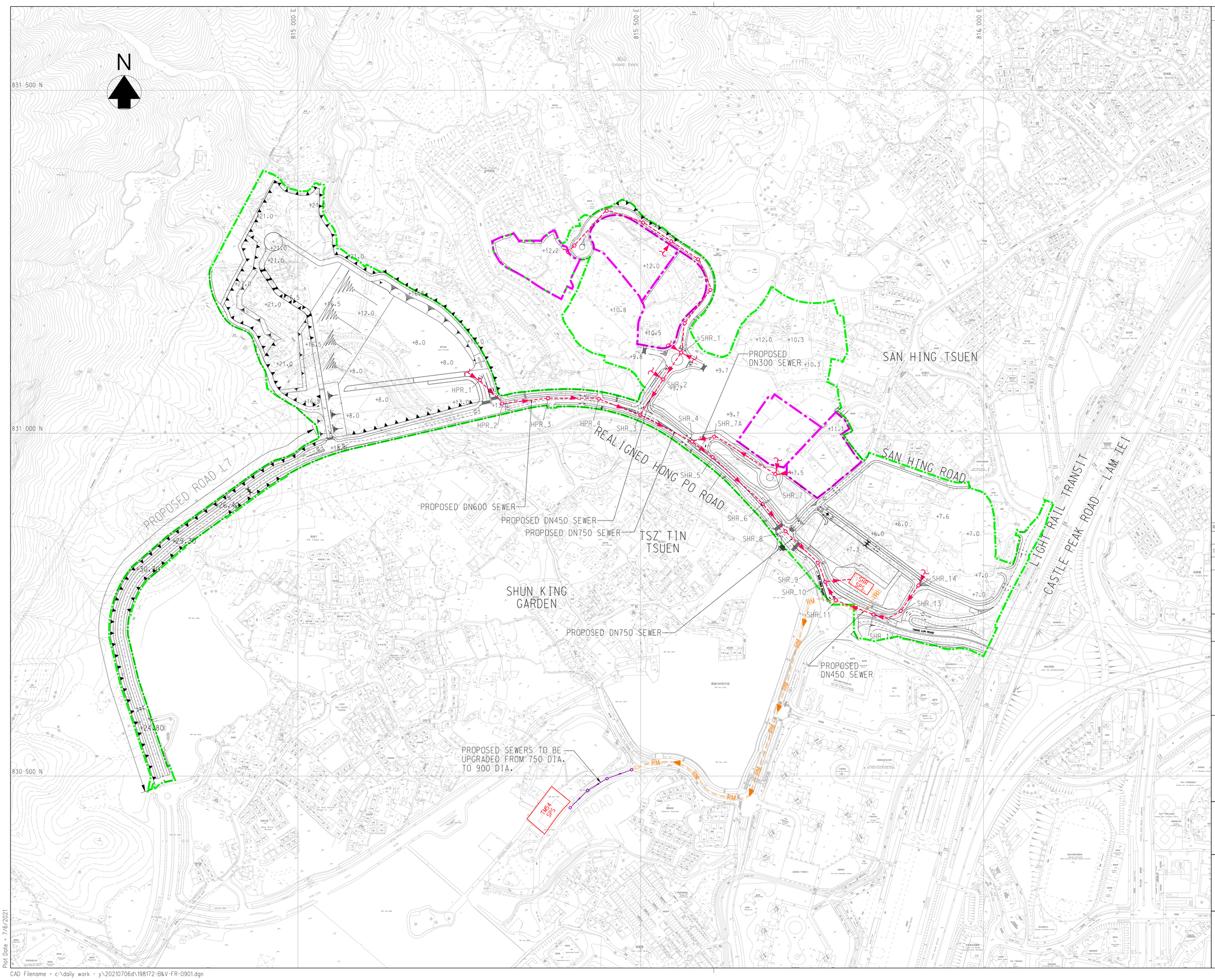
Drawing No.
198172/B&V/FR/0804

Scale
1:5,000 @ A3

Client
土木工程拓展署 CEDD Civil Engineering and Development Department

Consultant
BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

Mxd: [as01688] B:\182845\MXD\DIA\S12A\Scenario 1\ 009 Proposed Catchment Plan.mxd TW Sep 2015


N
815 000 E
815 500 E
816 000 E
831 500 N
831 000 N
830 500 N
SAN HING TSUEN
SHUN KING GARDEN
TSZ TIN TSUEN
PROPOSED ROAD L7
REALIGNED HONG PO ROAD
SAN HING ROAD
CASTLE PEAK ROAD – LAM TEI
LIGHT RAIL TRANSIT
TSING LUN ROAD
ROAD 5
PROPOSED DN600 SEWER
PROPOSED DN450 SEWER
PROPOSED DN750 SEWER
PROPOSED DN300 SEWER
PROPOSED DN450 SEWER
PROPOSED DN750 SEWER
PROPOSED SEWERS TO BE UPGRADED FROM 750 DIA. TO 900 DIA.
HPR_1
HPR_2
HPR_3
HPR_4
SHR_1
SHR_2
SHR_3
SHR_4
SHR_5
SHR_6
SHR_7
SHR_7A
SHR_8
SHR_9
SHR_10
SHR_11
SHR_13
SHR_14
SHR_15
SHR_16
SHR_17
SHR_18
SHR_19
SHR_20
SHR_21
SHR_22
SHR_23
SHR_24
SHR_25
SHR_26
SHR_27
SHR_28
SHR_29
SHR_30
SHR_31
SHR_32
SHR_33
SHR_34
SHR_35
SHR_36
SHR_37
SHR_38
SHR_39
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SHR_41
SHR_42
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SHR_50
SHR_51
SHR_52

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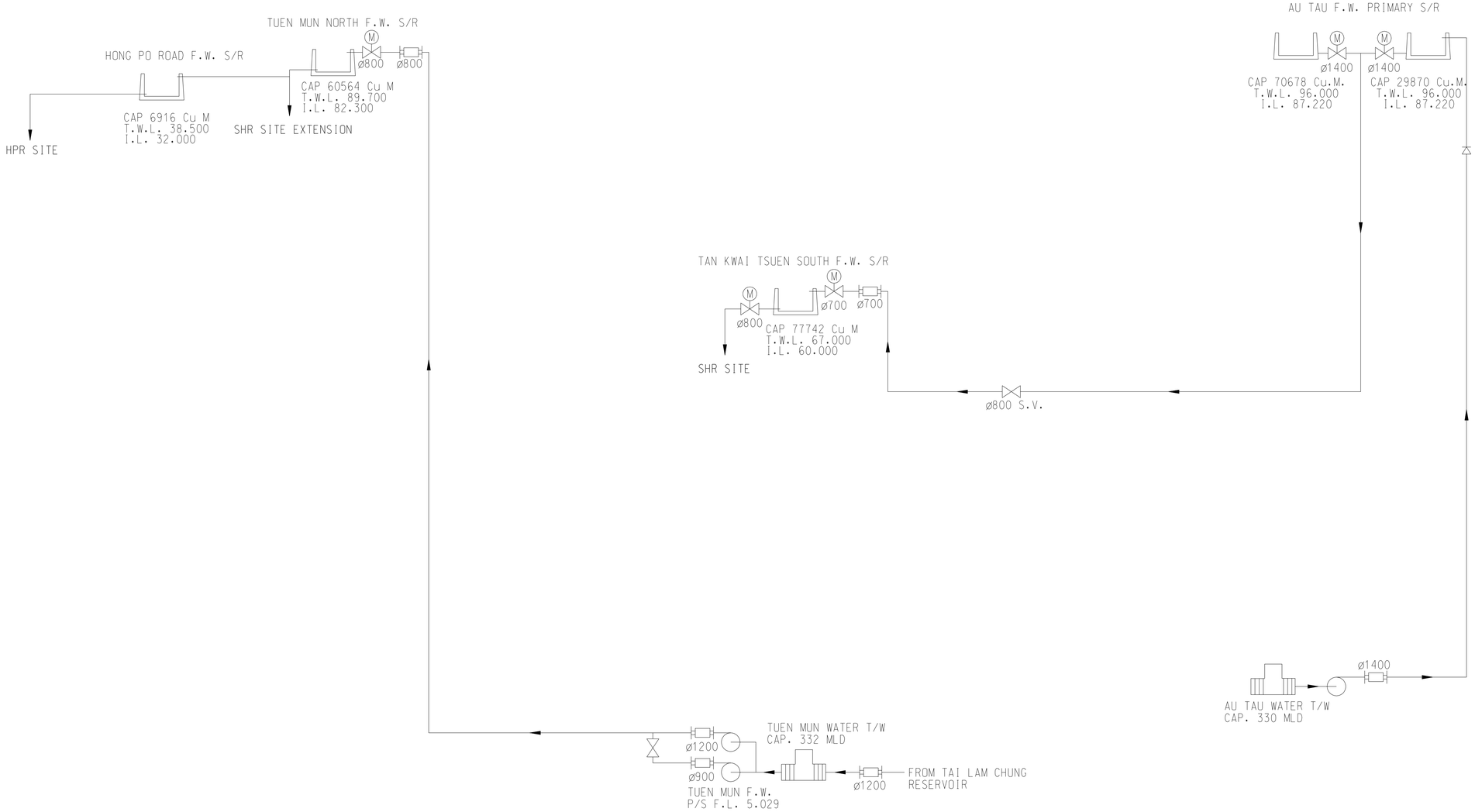


Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

FRESH WATER FLOW SYSTEM DIAGRAM (FRESH WATER)

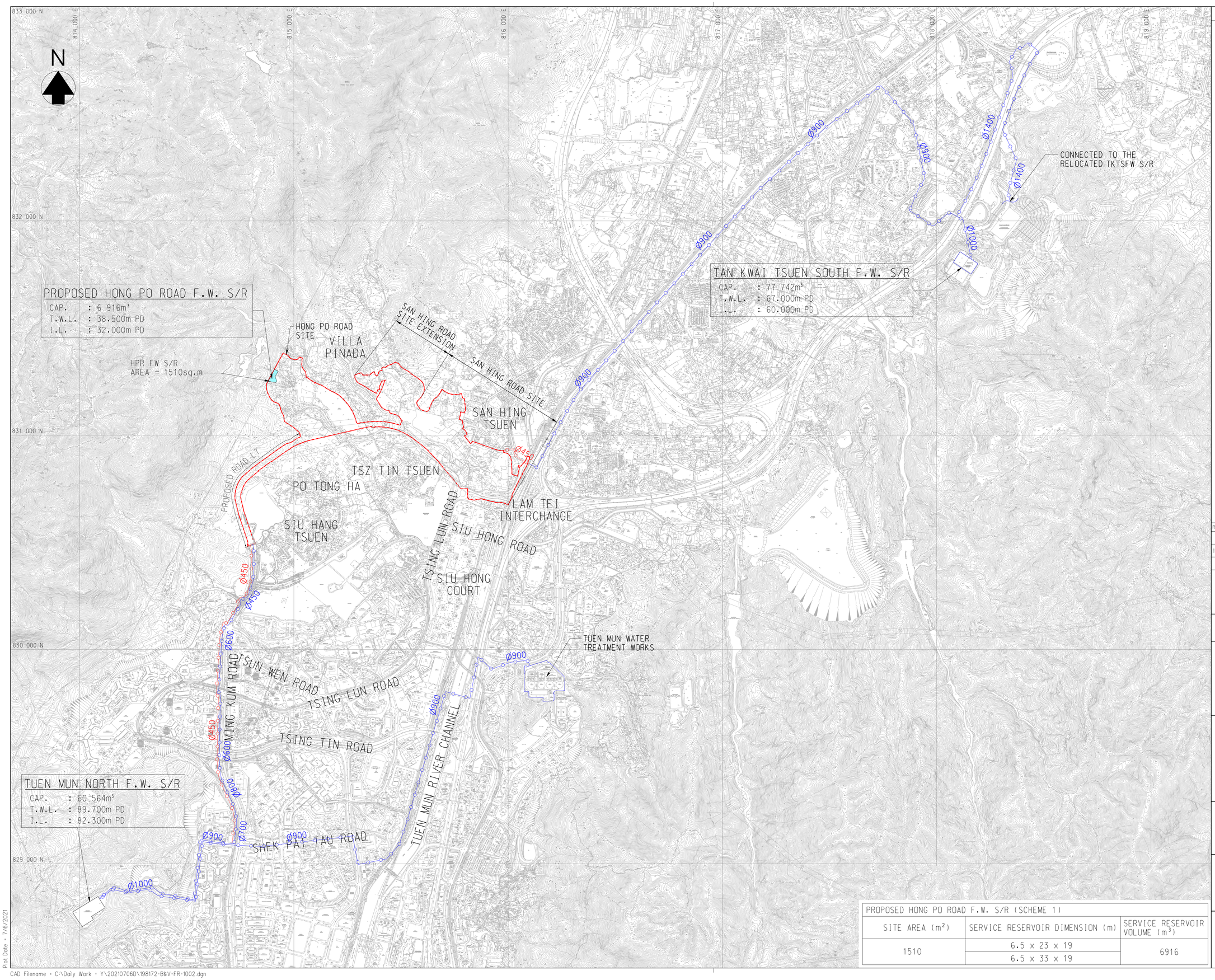
Drawing No.	Scale
198172/B&V/FR/1001	N.T.S.

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/4/2021

CAD Filename = Y:\Daily Work\20210602\198172-B&V-FR-1001.dgn



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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- EXISTING FRESH WATER MAIN
- PROPOSED FRESH WATER MAIN (INDICATIVE)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	11/19	11/19	11/19	11/19

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED FRESH WATER SUPPLY ARRANGEMENT

Drawing No.: 198172/B&V/FR/1002

Scale: 1 : 8000 (A1) 1 : 16000 (A3)

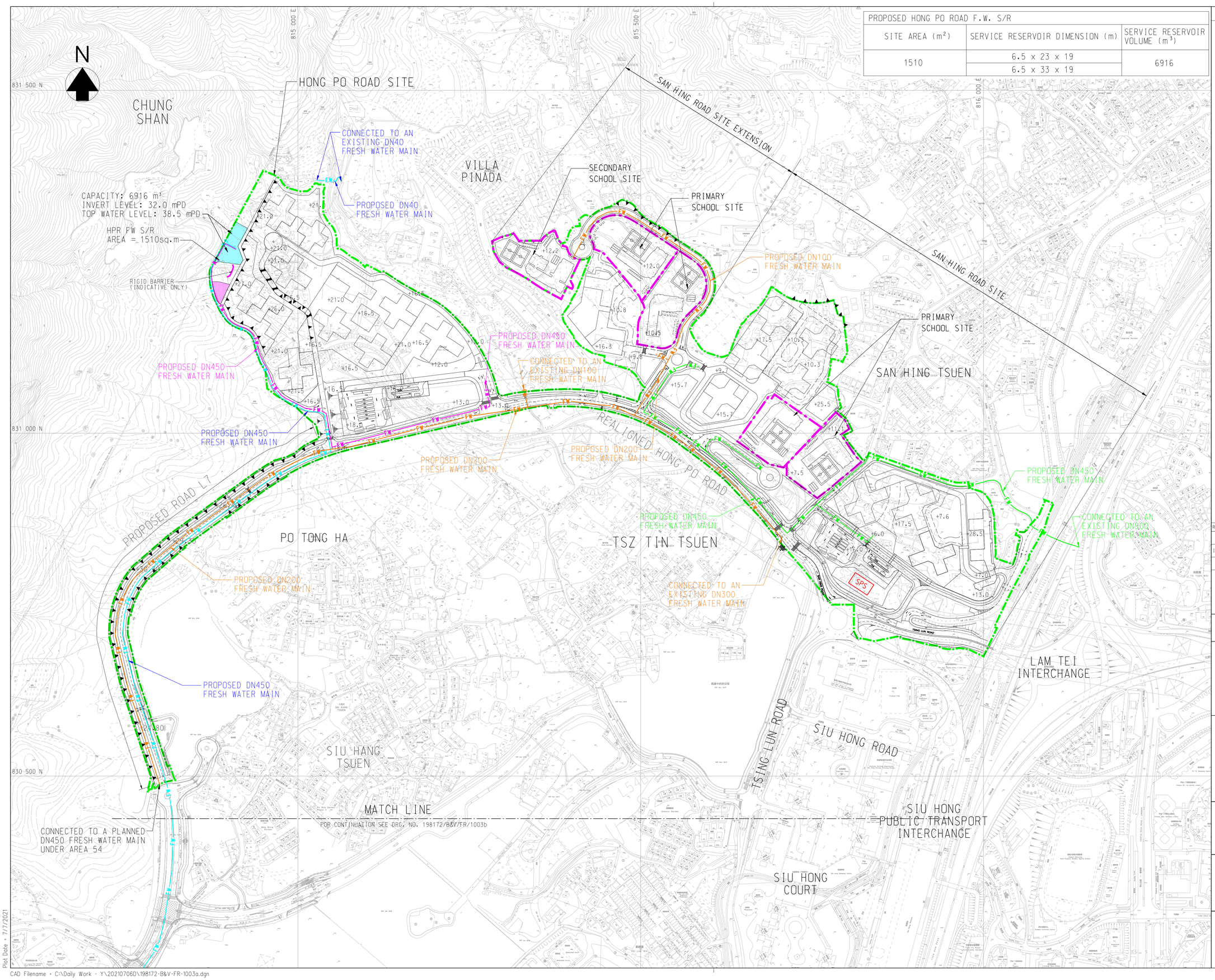
土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

PROPOSED HONG PO ROAD F.W. S/R (SCHEME 1)		
SITE AREA (m^2)	SERVICE RESERVOIR DIMENSION (m)	SERVICE RESERVOIR VOLUME (m^3)
1510	6.5 x 23 x 19	6916
	6.5 x 33 x 19	

Plot Date = 7/6/2021

CAD Filename = C:\Daily Work - Y:\20210706D\198172-B&V-FR-1002.dgn



PROPOSED HONG PO ROAD F.W. S/R		
SITE AREA (m^2)	SERVICE RESERVOIR DIMENSION (m)	SERVICE RESERVOIR VOLUME (m^3)
1510	6.5 x 23 x 19	6916
	6.5 x 33 x 19	

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- FW — PROPOSED FRESH WATER MAINS FROM TMNFW S/R TO SHR SITE EXTENSION (INDICATIVE)
- FW — PROPOSED FRESH WATER MAINS FROM TMNFW S/R TO HPRFW S/R (INDICATIVE)
- FW — PROPOSED FRESH WATER MAINS FROM TKT SOUTH S/R TO SHR SITE (INDICATIVE)
- FW — PROPOSED FRESH WATER MAINS FROM HPRFW S/R TO HPR SITE (INDICATIVE)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- +7.6 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PROPOSED FRESH WATER MAINS LAYOUT PLAN

(SHEET 1 OF 3)

Drawing No.
198172/B&V/FR/1003a

Scale
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/7/2021
CAD Filename = C:\Daily Work = Y:\20210706D\198172-B&V-FR-1003a.dgn

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MATCH LINE

FOR CONTINUATION SEE DRG. NO. 198172/B&V/FR/1003a

815 000 E

815 500 E

816 000 E

830 000 N

829 500 N

N

PROPOSED DN450 FRESH WATER MAIN

PROPOSED DN450 FRESH WATER MAIN

CONNECTED TO AN EXISTING DN 900 FRESH WATER MAIN

TUEN MUN ROAD

LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- FW — PROPOSED FRESH WATER MAINS FROM TMNFW S/R TO SHR SITE EXTENSION (INDICATIVE)
- FW — PROPOSED FRESH WATER MAINS FROM TMNFW S/R TO HPRFW S/R (INDICATIVE)
- FW — PROPOSED FRESH WATER MAINS FROM TKT SOUTH S/R TO SHR SITE (INDICATIVE)
- FW — PROPOSED FRESH WATER MAINS FROM HPRFW S/R TO HPR SITE (INDICATIVE)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- +7.6 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED FRESH WATER MAINS LAYOUT PLAN

(SHEET 2 OF 3)

Drawing No.

198172/B&V/FR/1003b

Scale

1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/6/2021

CAD Filename = c:\daily work - y\20210706d\198172-B&V-FR-1003b.dgn

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LEGEND:

EXISTING FRESH WATER MAIN

N

818 200 E

818 400 E

818 600 E

832 200 N

832 000 N

831 800 N

YUEN LONG HIGHWAY

元朗公路

Ø1400

Ø1000

CONNECTED TO THE
RELOCATED TKTSFW S/R

丹桂村北食水配水庫

Tan Kwai Tsuen North
Fresh Water Service Reservoir

丹桂村配水庫

TAN KWAI TSUEN
FRESH WATER SERVICE
RESERVOIR

TAN KWAI TSUEN SOUTH F.W. S/R

CAP. : 77 742m³
T.W.L. : 67.000m APD
I.L. : 60.000m APD

SHUI FU ROAD

WIP Sep 2012

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED FRESH WATER MAINS LAYOUT PLAN

(SHEET 3 OF 3)

Drawing No.	Scale
198172/B&V/FR/1003c	1 : 1000 (A1) 1 : 2000 (A3)

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 3/11/2021

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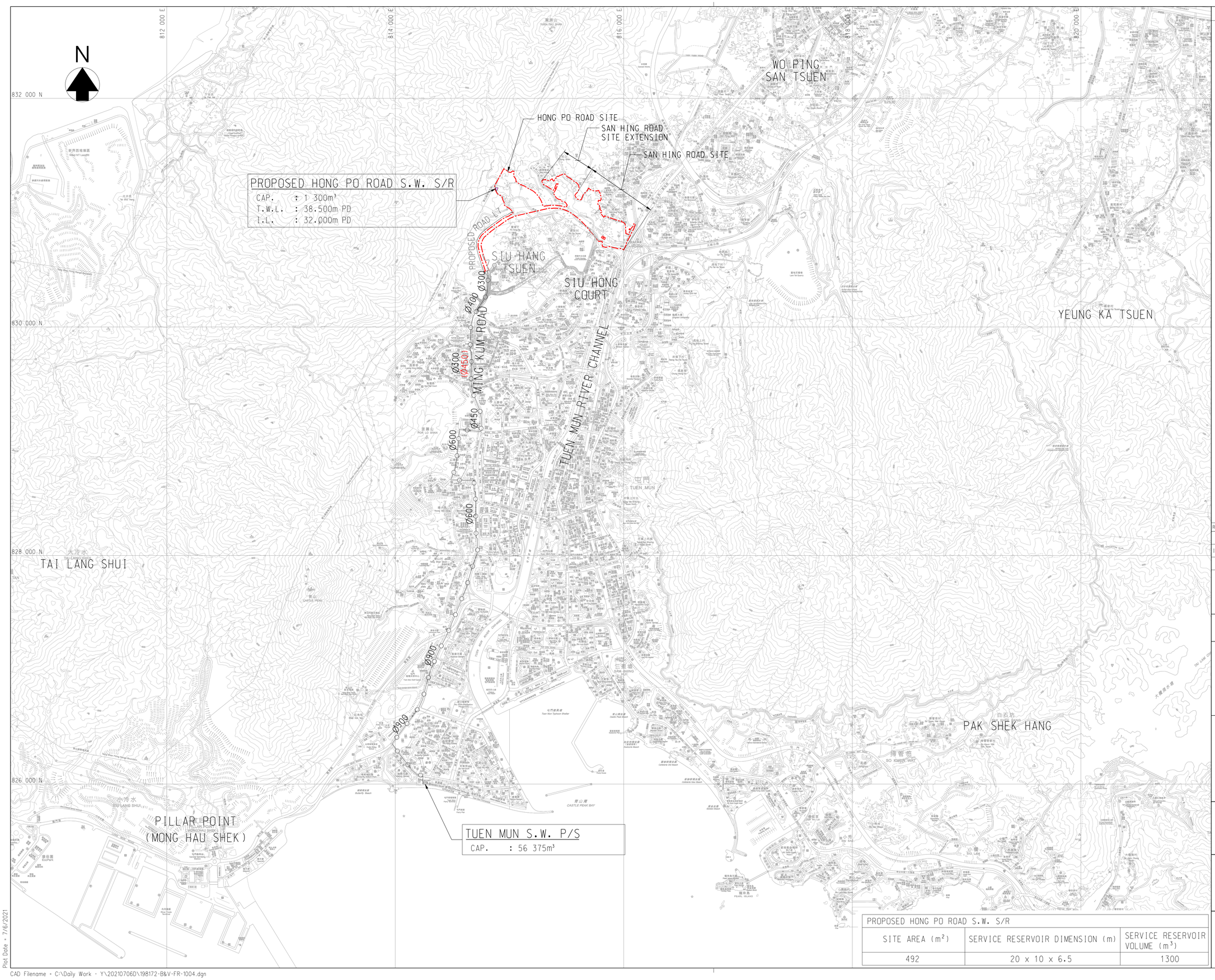

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- EXISTING SALT WATER MAIN
- (Ø450) PROPOSED SALT WATER MAIN DIAMETER

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	JLI	YKL	SZ	JW	
Date	07/20	07/20	07/20	07/20	

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PROPOSED SALT WATER SUPPLY ARRANGEMENT

Drawing No.	Scale
198172/B&V/FR/1004	1 : 15000 (A1) 1 : 30000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

PROPOSED HONG PO ROAD S.W. S/R		
SITE AREA (m^2)	SERVICE RESERVOIR DIMENSION (m)	SERVICE RESERVOIR VOLUME (m^3)
492	20 x 10 x 6.5	1300

Plot Date = 7/6/2021

CAD Filename = C:\Daily Work = Y:\20210706D\198172-B&V-FR-1004.dgn

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PROPOSED HONG PO ROAD S.W. S/R		
SITE AREA (m^2)	SERVICE RESERVOIR DIMENSION (m)	SERVICE RESERVOIR VOLUME (m^3)
492	20 x 10 x 6.5	1300

N

831 500 N

831 000 N

830 500 N

815 000 E

815 500 E

816 000 E

CHUNG SHAN

HONG PO ROAD SITE

VILLA PINADA

SECONDARY SCHOOL SITE

PRIMARY SCHOOL SITE

SAN HING ROAD SITE EXTENSION

SAN HING ROAD SITE

CAPACITY: 1300 m^3
INVERT LEVEL: 32.0 mPD
TOP WATER LEVEL: 38.5 mPD

HPR SW S/R
AREA = 492sq.m

PROPOSED DN50 SALT WATER MAIN

PROPOSED DN450 SALT WATER MAIN

PROPOSED DN300 SALT WATER MAIN

PROPOSED DN200 SALT WATER MAIN

REALIGNED HONG PO ROAD

PROPOSED ROAD L7

PROPOSED DN450 SALT WATER MAIN

PROPOSED DN300 SALT WATER MAIN

PROPOSED DN50 SALT WATER MAIN

PROPOSED DN200 SALT WATER MAIN

PO TONG HA

TSZ TIN TSUEN

SAN HING TSUEN

PROPOSED DN300 SALT WATER MAIN

CONNECTED TO AN EXISTING DN300 SALT WATER MAIN

PROPOSED DN300 SALT WATER MAIN

SIU HANG TSUEN

TSING LUN ROAD

SIU HONG ROAD

CONNECTED TO AN EXISTING DN300 SALT WATER MAIN

LAM TEI INTERCHANGE

SIU HONG PUBLIC TRANSPORT INTERCHANGE

SIU HONG COURT

CONNECTED TO A PLANNED DN300 SALT WATER MAIN UNDER AREA 54

SPS

MATCH LINE

FOR CONTINUATION SEE DRG. NO. 198172/B&V/FR/1005b

LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY (SUBJECT TO REVIEW)
- POTENTIAL SCHOOL SITE (SUBJECT TO REVIEW)
- SW — PROPOSED SALT WATER MAINS FROM HPRSW S/R TO HPR SITE, SHR SITE EXTENSION AND SHR SITE (INDICATIVE)
- SW — PROPOSED SALT WATER MAINS FROM TUEN MUN S.W. P/S TO HPRSW S/R (INDICATIVE)
- PROPOSED FRESH WATER SERVICE RESERVOIR (INDICATIVE)
- PROPOSED SALT WATER SERVICE RESERVOIR (INDICATIVE)
- +7.6 PROPOSED FORMATION LEVEL (INDICATIVE)
- PROPOSED RETAINING STRUCTURE (INDICATIVE)
- PROPOSED SLOPE (INDICATIVE)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PROPOSED SALT WATER MAINS LAYOUT PLAN

(SHEET 1 OF 2)

Drawing No.
198172/B&V/FR/1005a

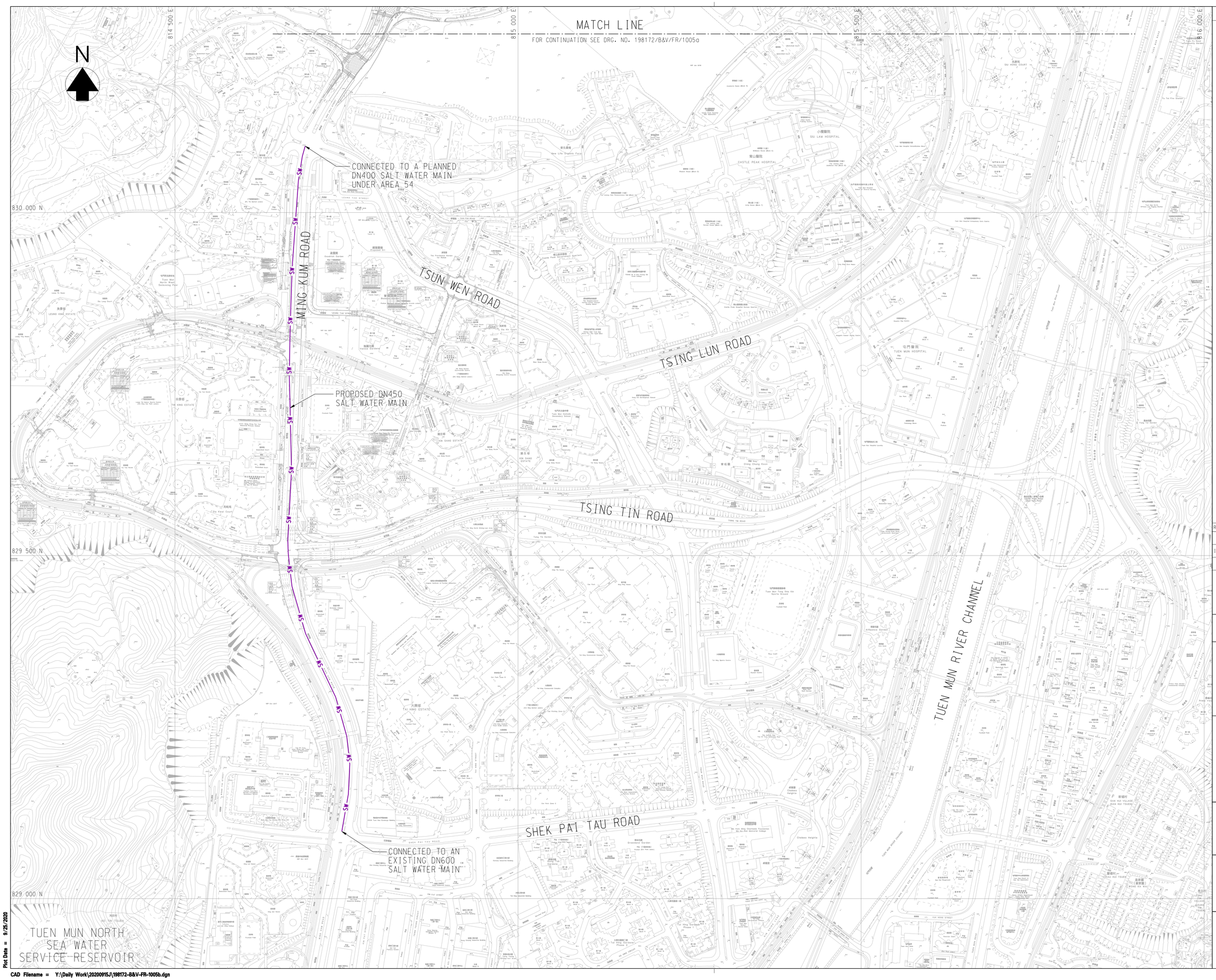
Scale
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 7/7/2021

CAD Filename = C:\Daily Work - Y:\20210706D\198172-B&V-FR-1005a.dgn



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LEGEND:

SW — PROPOSED SALT WATER MAINS FROM TUEN MUN S.W. P/S TO HPRSW S/R (INDICATIVE)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PROPOSED SALT WATER MAINS LAYOUT PLAN
(SHEET 2 OF 2)

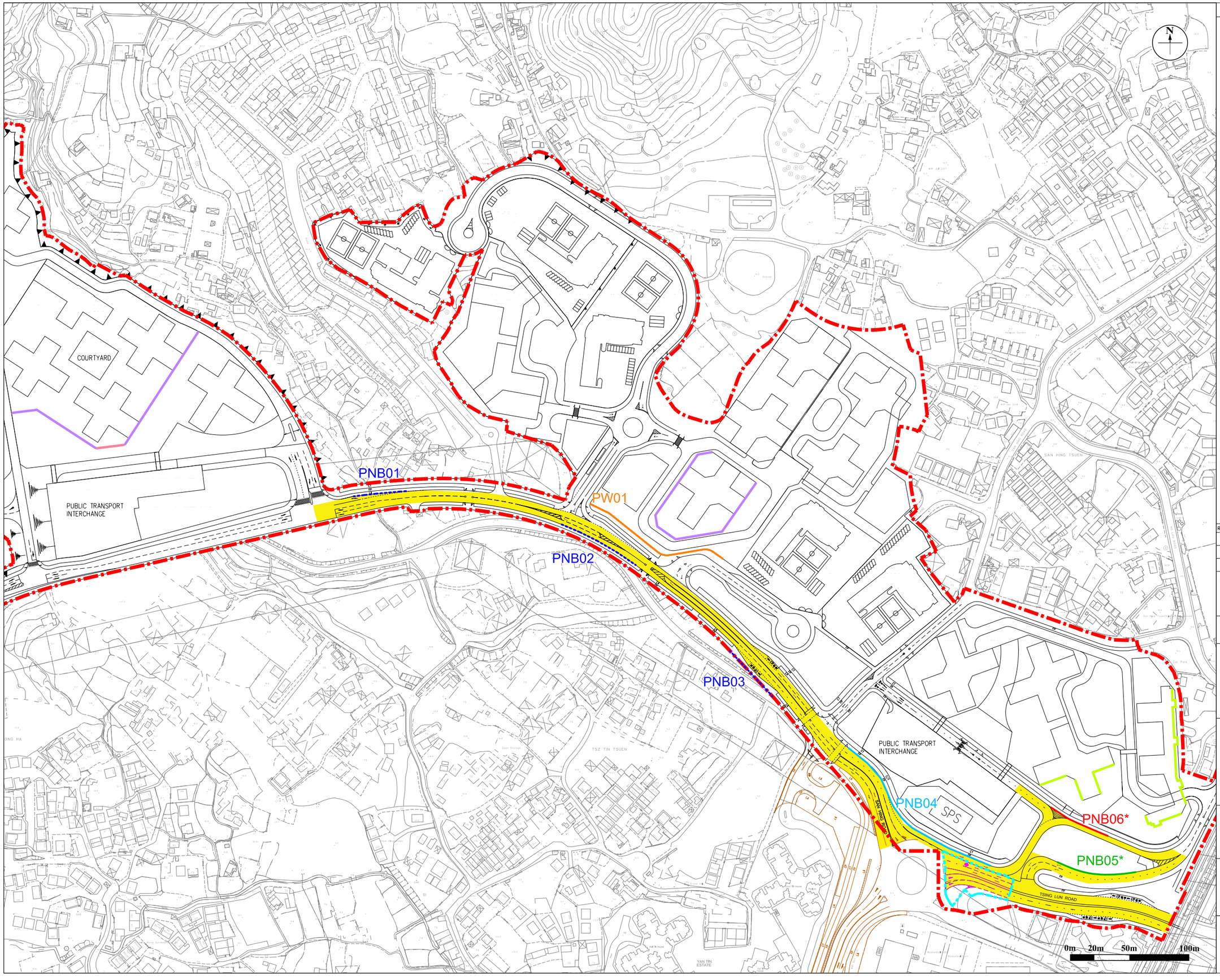
Drawing No.	Scale
198172/B&V/FR/1005b	1 : 2500 (A1) 1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 9/25/2020

CAD Filename = Y:\Daily Work\20200915J\198172-B&V-FR-1005b.dgn



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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- PROPOSED JUNCTION IMPROVEMENT WORKS BOUNDARY
- PROPOSED JUNCTION IMPROVEMENT
- TUEN MUN AREA 54 ROAD ALIGNMENT
- 2.5m VERTICAL BARRIER
- 5.5m VERTICAL BARRIER WITH 2.5m CANTILEVER AT 45°
- 5.5m VERTICAL BARRIER WITH 2.5m CANTILEVER AT 45° (ABSORPTIVE)
- 5.5m VERTICAL BARRIER WITH 3.5m CANTILEVER AT 45° (ABSORPTIVE)
- 6.5m VERTICAL BARRIER WITH 3.0m CANTILEVER AT 45° (ABSORPTIVE)
- 2.0m CONCRETE WALL
- LOW NOISE ROAD SURFACING
- ACOUSTIC WINDOWS
- PROHIBITED FOR CLINICS, CONVALESCENCES AND HOMES FOR THE AGED DIAGNOSTIC ROOMS AND WARDS USES WHICH RELY ON OPENABLE WINDOWS FOR VENTILATION
- PROHIBITED FOR CLINICS, CONVALESCENCES, HOMES FOR THE AGED DIAGNOSTIC ROOMS AND WARDS AND EDUCATIONAL INSTITUTIONS USES INCLUDING KINDERGARTEN AND NURSERIES WHICH RELY ON OPENABLE WINDOWS FOR VENTILATION
- FULLY ENCLOSED WALKWAY
- 3.5m (H) x 4.0 (W) OPENING

NOTE:
THE LAYOUT IS FOR EIA PURPOSE AND SUBJECT TO REVIEW AND CHANGE

*PNB05 AND PNB06 HAVE BEEN CONSIDERED BUT NOT PROPOSED FOR THE PROJECT DUE TO LOW EFFECTIVENESS IN NOISE REDUCTION

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial			KL	KY
Date			07/20	07/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
LOCATIONS OF CONSIDERED ROAD TRAFFIC NOISE MITIGATION MEASURES

(SHEET 1 OF 2)

Drawing No.
198172/B&V/FR/1301a

Scale

土木工程拓展署
CEDD Civil Engineering and Development Department

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PNB07-02

PNB07-01

PNB08

SITE 3/4 (WEST)

Po Wah GardenPhase 2

Po Leung Kuk HorizonEast Primary School

LONG HANG ROAD

ROAD L54A

ROAD L54C

HING FU STREET

HING KWAI STREET

Basketball Court

Playground

Block 8

Block 9

Cycling Track

WIP Mar 2018

0m 10m 25m 50m

LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- PROPOSED JUNCTION IMPROVEMENT WORKS BOUNDARY
- PROPOSED JUNCTION IMPROVEMENT
- TUEN MUN AREA 54 ROAD ALIGNMENT
- 2.5m VERTICAL BARRIER
- 5.5m VERTICAL BARRIER WITH 2.5m CANTILEVER AT 45°
- 5.5m VERTICAL BARRIER WITH 2.5m CANTILEVER AT 45° (ABSORPTIVE)
- 5.5m VERTICAL BARRIER WITH 3.5m CANTILEVER AT 45° (ABSORPTIVE)
- 6.5m VERTICAL BARRIER WITH 3.0m CANTILEVER AT 45° (ABSORPTIVE)
- 2.0m CONCRETE WALL
- LOW NOISE ROAD SURFACING
- ACOUSTIC WINDOWS
- PROHIBITED FOR CLINICS, CONVALESCENCES AND HOMES FOR THE AGED DIAGNOSTIC ROOMS AND WARDS USES WHICH RELY ON OPENABLE WINDOWS FOR VENTILATION
- PROHIBITED FOR CLINICS, CONVALESCENCES, HOMES FOR THE AGED DIAGNOSTIC ROOMS AND WARDS AND EDUCATIONAL INSTITUTIONS USES INCLUDING KINDERGARTEN AND NURSERIES WHICH RELY ON OPENABLE WINDOWS FOR VENTILATION
- FULLY ENCLOSED WALKWAY
- 3.5m (H) x 4.0 (W) OPENING

NOTE:
THE LAYOUT IS FOR EIA PURPOSE AND SUBJECT TO REVIEW AND CHANGE

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial			KL	KY	
Date			07/20	07/20	

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
LOCATIONS OF CONSIDERED ROAD TRAFFIC NOISE MITIGATION MEASURES

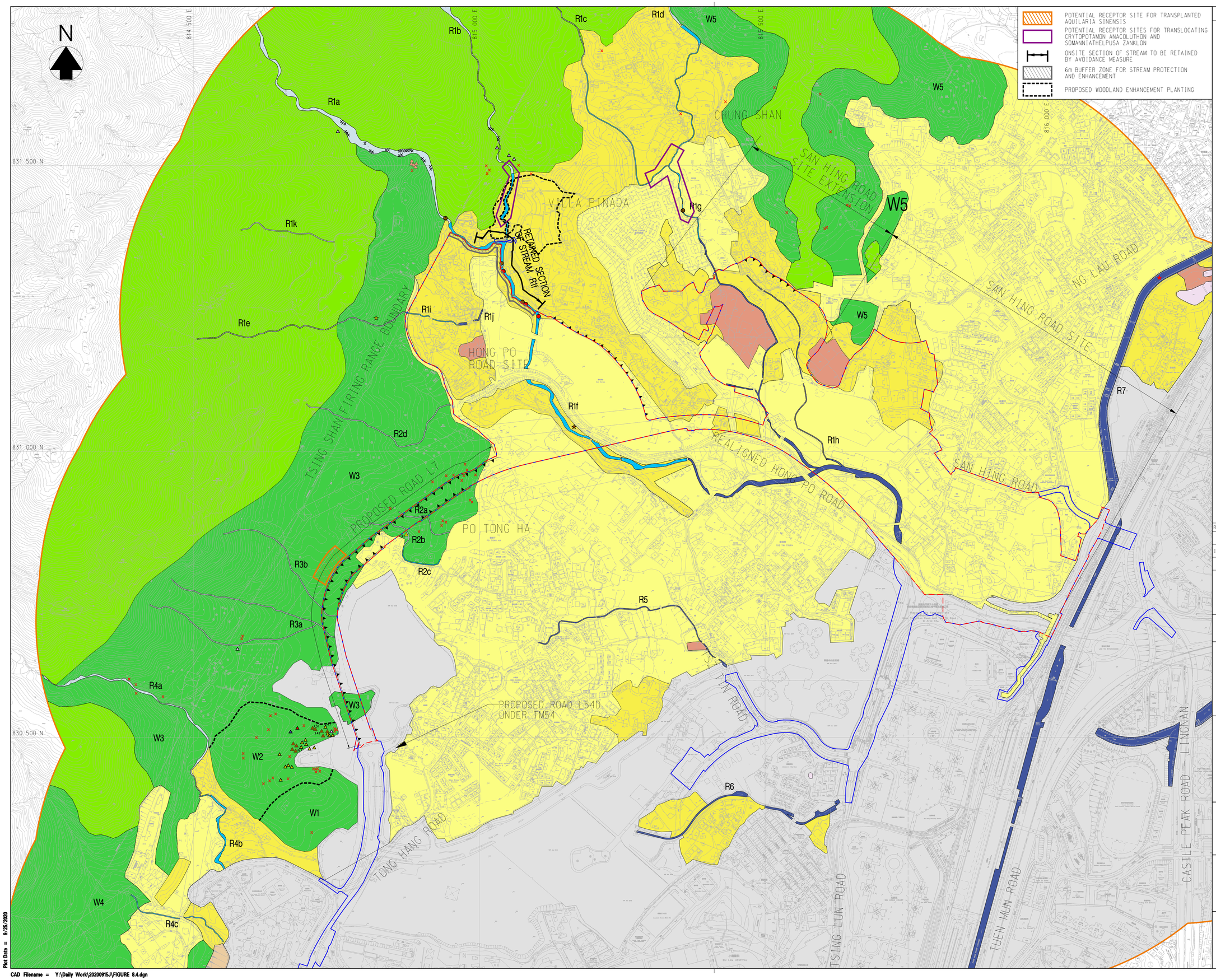
(SHEET 2 OF 2)

Drawing No.
198172/B&V/FR/1301b

Scale

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司



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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- 500m ASSESSMENT AREA
- PROJECT SITE BOUNDARY
- BOUNDARY OF WOODLAND GROUP
- W1-W7 NUMBERING OF WOODLANDS
- R1a-R6 NUMBERING OF WATERCOURSE
- WOODLAND
- SHRUB-GRASSLAND
- NATURAL STREAM
- SEMI-NATURAL STREAM
- DRAINAGE CHANNEL
- LANDSCAPE PLANTATION
- AGRICULTURAL LAND
- VILLAGE/ORCHARD
- VILLAGE AREA/OPEN AERA
- POND
- URBAN AERA
- CAMELLIA CRAPNELLIANA
- DIOSPYROS VACCINIOIDES
- GEODORUM DENSIFLORUM
- GLEDITSIA AUSTRALIS
- PYRENARIA SPECTABILIS
- RHODOLEIA CHAMPIONII
- AQUILARIA SINENSIS
- NEPENTHES MIRABILIS
- LITTLE EGRET
- EAST ASIAN PORCUPINE
- INSECTIVOROUS BAT
- CRYPTOPOTAMON ANACOLUTHON
- SOMANNIATHELPHUSA ZANKLON
- (3) NO. OF INDIVIDUALS IN CONGESTED LOCALITY OF FLORAL SPECIES OF CONSERVATION INTEREST
- PROPOSED SLOPE
- PROPOSED RETAINING STRUCTURE

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	10/19	10/19	10/19	10/19

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
ECOLOGICAL MITIGATION AND ENHANCEMENT PLAN

Drawing No.
198172/B&V/FR/1302

Scale
1 : 3000 (A1)
1 : 6000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

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Plot Date = 9/25/2020

CAD Filename = Y:\Daily Work\20200915J\FIGURE 8.4.dgn

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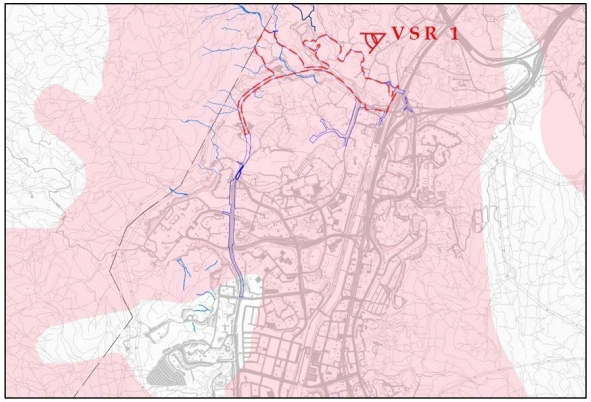

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR1 Existing view from Car Park, Tuen Tsz Wai

VSR1 Photomontage – No Mitigation at Day 1

VSR1 Photomontage – With Mitigation at Day 1

VSR1 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR1
CAR PARK, TUEN TSZ WAI

Drawing No.
198172/B&V/FR/1303

Scale

土木工程拓展署
Civil Engineering and Development Department

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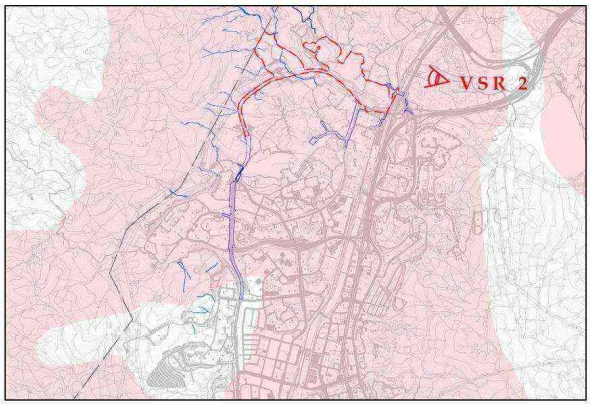


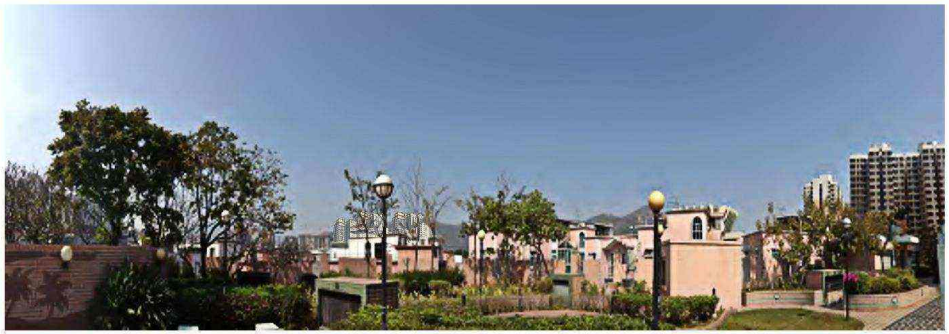
KEYPLAN

Keyplan Legend

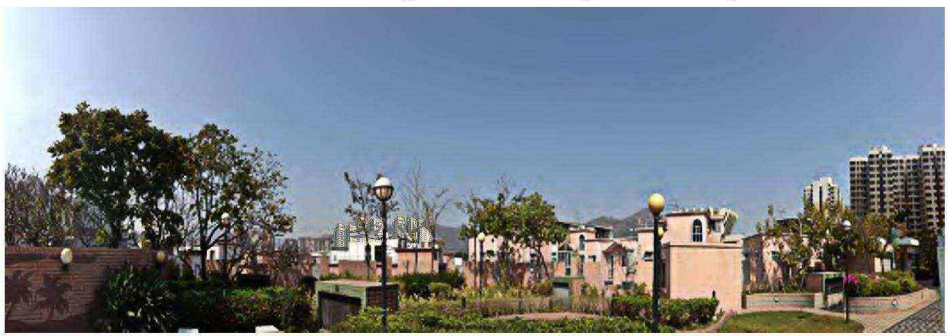
- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR2 Public Open Area between Tuen Mun San Tsuen and Botania Villa

VSR2 Photomontage – No Mitigation at Day 1



VSR2 Photomontage – With Mitigation at Day 1



VSR2 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR2 FROM PUBLIC OPEN AREA BETWEEN TUEN MUN SAN TSUEN AND BOTANIA VILLA

Drawing No.
198172/B&V/FR/1304

Scale

土木工程拓展署
CEDD Civil Engineering and Development Department

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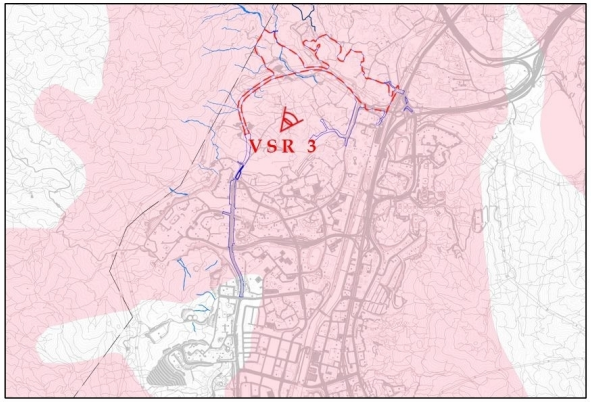

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR3 Existing view from Pui Lin Garden, Siu Hang Tsuen

VSR3 Photomontage – No Mitigation at Day 1

VSR3 Photomontage – With Mitigation at Day 1

VSR3 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PHOTOMONTAGE VSR3 FROM PUI LIN GARDEN, SIU HANG TSUEN

Drawing No.

198172/B&V/FR/1305

Scale

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
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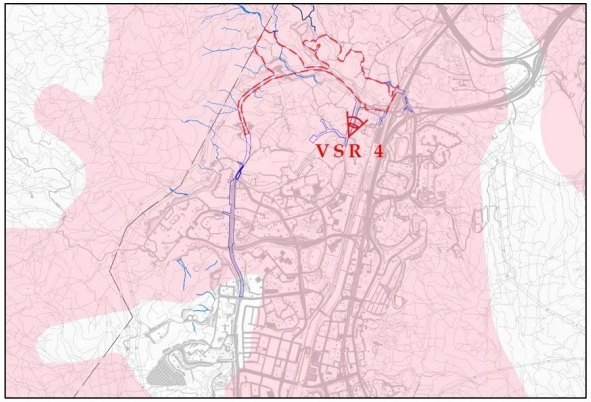

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR4 Existing view from Tsing Lun Road Footbridge

VSR4 Photomontage – No Mitigation at Day 1

VSR4 Photomontage – With Mitigation at Day 1

VSR4 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn		Checked
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR4 FROM TSING LUN ROAD FOOTBRIDGE

Drawing No.
198172/B&V/FR/1306

Scale

土木工程拓展署
CEDD Civil Engineering and Development Department

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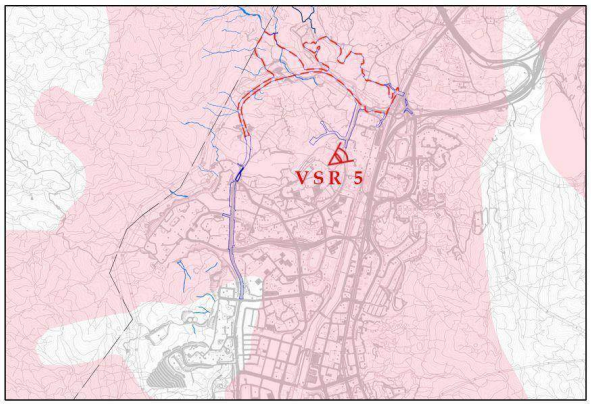

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR5 Existing View from Kei Lun Wai Children's Playground

VSR5 Photomontage – No Mitigation at Day 1

VSR5 Photomontage – With Mitigation at Day 1

VSR5 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PHOTOMONTAGE VSR5
FROM KEI LUN WAI
CHILDREN'S PLAYGROUND

Drawing No.

198172/B&V/FR/1307

Size

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date =$DATE$

CAD Filename = $FILE$

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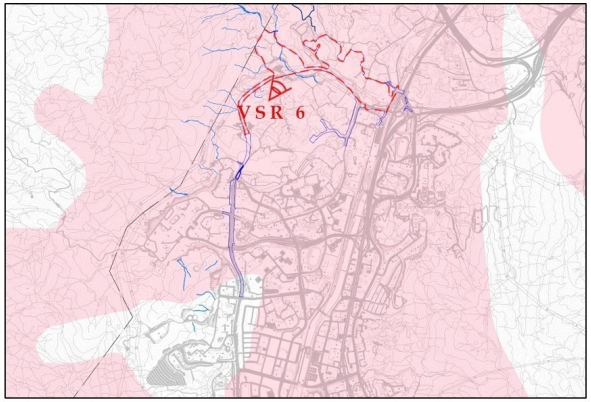

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR6 Existing View from Po Tong Ha

VSR6 Photomontage – No Mitigation at Day 1

VSR6 Photomontage – With Mitigation at Day 1

VSR6 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR6 FROM PO TONG HA

Drawing No.
198172/B&V/FR/1308

Size

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
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Plot Date = $DATE$

CAD Filename = $FILE$

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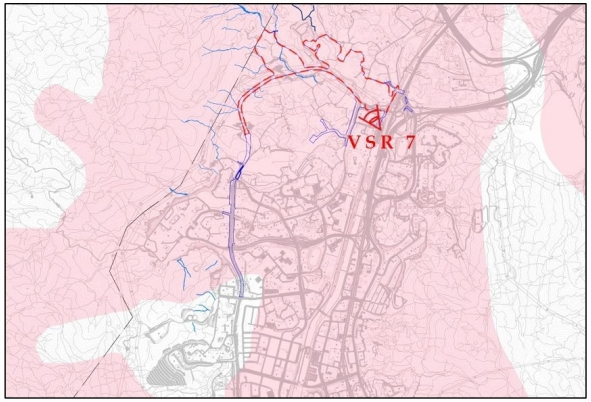

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR7 Existing View from Raised Public Road Outside Siu Hong MTR Station

VSR7 Photomontage – No Mitigation at Day 1

VSR7 Photomontage – With Mitigation at Day 1

VSR7 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR7 FROM RAISED PUBLIC ROAD OUTSIDE SIU HONG MTR STATION

Drawing No.
198172/B&V/FR/1309

Size

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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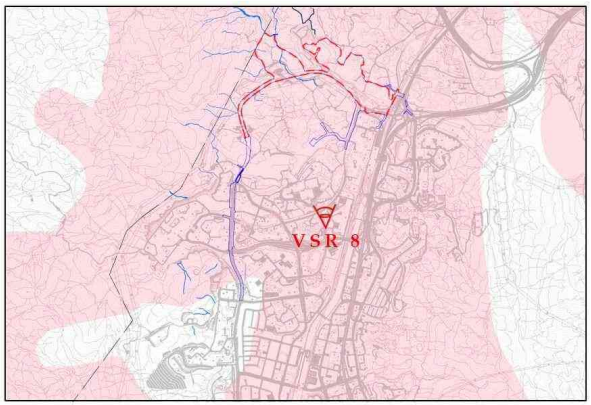
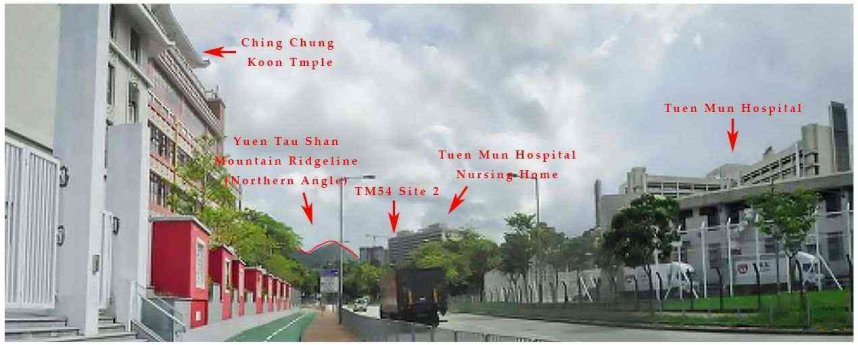


KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence



VSR8 Existing View from Tsing Chung Koon Road

VSR8 Photomontage – No Mitigation at Day 1

VSR8 Photomontage – With Mitigation at Day 1

VSR8 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR8 FROM TSING CHUNG KOON ROAD

Drawing No.
198172/B&V/FR/1310

Scale

土木工程拓展署
CEDD Civil Engineering and Development Department

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Plot Date =$DATE$
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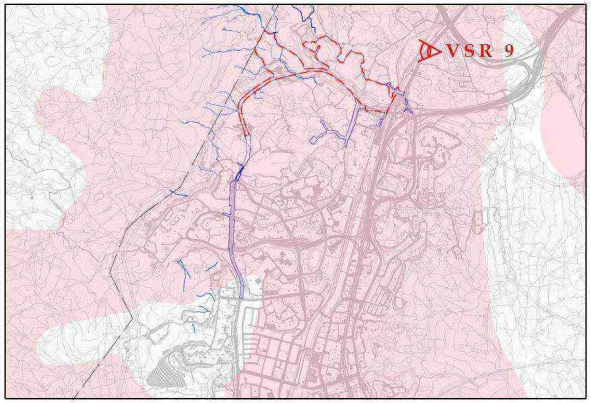
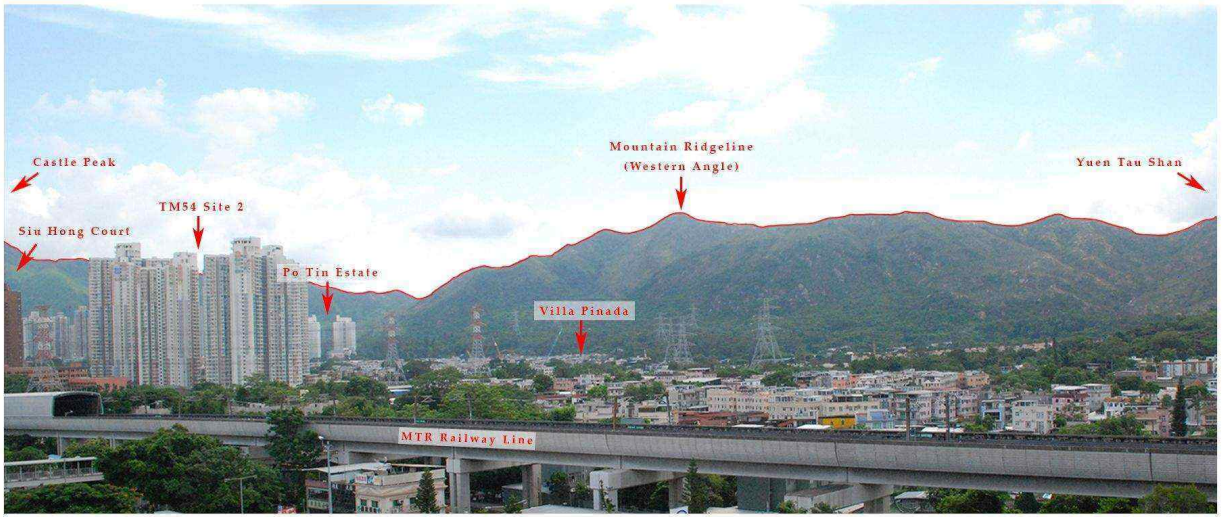


KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence



VSR9 Existing View from Miu Fat Monastery Viewing Platform

VSR9 Photomontage – No Mitigation at Day 1

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR9 FROM MIU FAT MONASTERY VIEWING PLATFORM

(SHEET 1 OF 2)

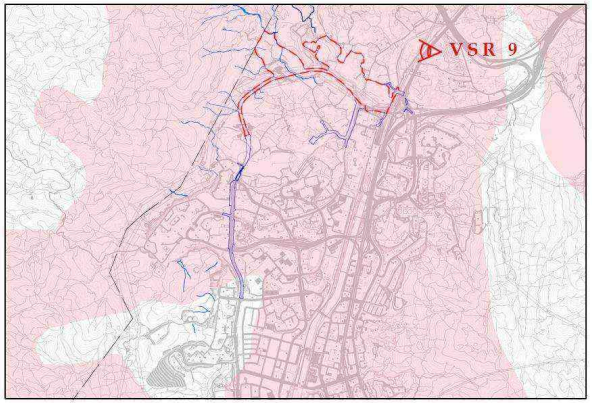
Drawing No.
198172/B&V/FR/1311a

Scale

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date =$DATE$
CAD Filename = $FILE$



KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR9 Photomontage – With Mitigation at Day 1

VSR9 Photomontage – With Mitigation in Year 10

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Revision	Date	Description			Initial
04	Designed		Checked	Drawn	Checked
Initial	Gordon Li			Gordon Li	
Date	01/09/2020			28/05/2020	

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PHOTOMONTAGE VSR9 FROM MIU FAT MONASTERY VIEWING PLATFORM

(SHEET 2 OF 2)

Drawing No.

198172/B&V/FR/1311b

Scale

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date =$DATE$

CAD Filename = $FILE$

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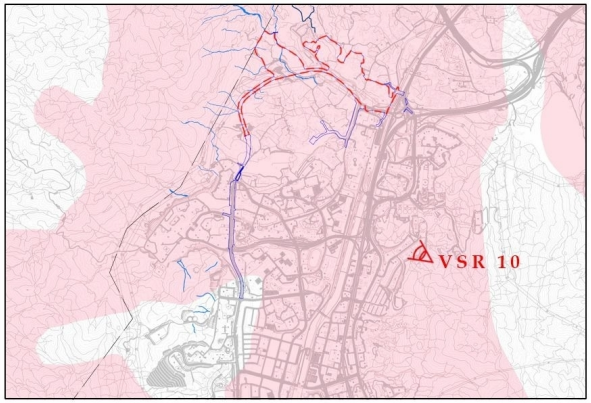

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR10 Existing View from Tuen Mun Trail, Route 1

VSR10 Photomontage – No Mitigation at Day 1

VSR10 Photomontage – With Mitigation at Day 1

VSR10 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR10 FROM TUEN MUN TRAIL, ROUTE 1

Drawing No.
198172/B&V/FR/1312

Scale

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
柏誠工程顧問有限公司

Plot Date = $DATE$
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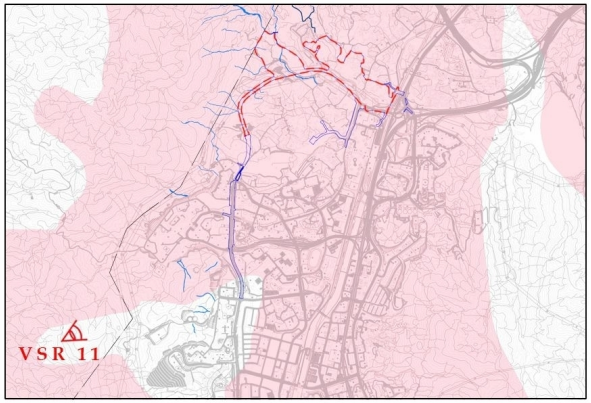
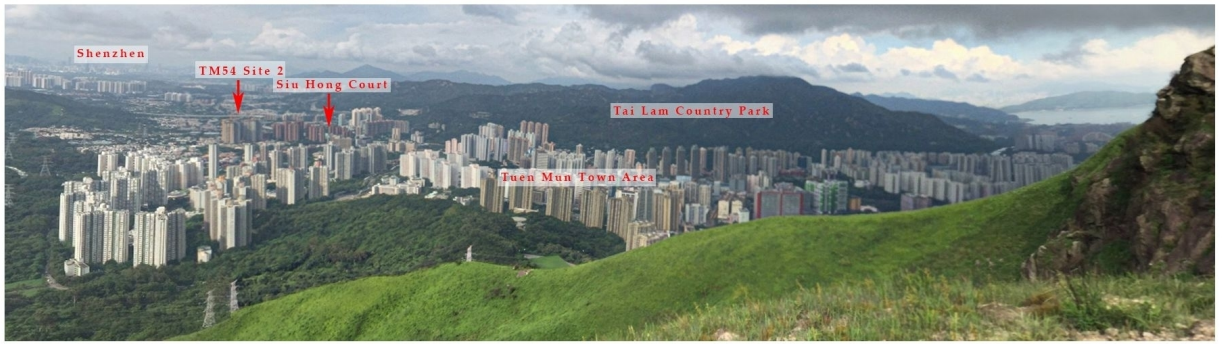


KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence



VSR11 Existing View from between Castle Peak Trail and Por Lo Shan

VSR11 Photomontage – No Mitigation at Day 1

VSR11 Photomontage – With Mitigation at Day 1

VSR11 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR11 FROM BETWEEN CASTLE PEAK TRAIL AND POR LO SHAN

Drawing No.
198172/B&V/FR/1313

Size

CEDD 土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

Plot Date =$DATE$

CAD Filename = $FILE$

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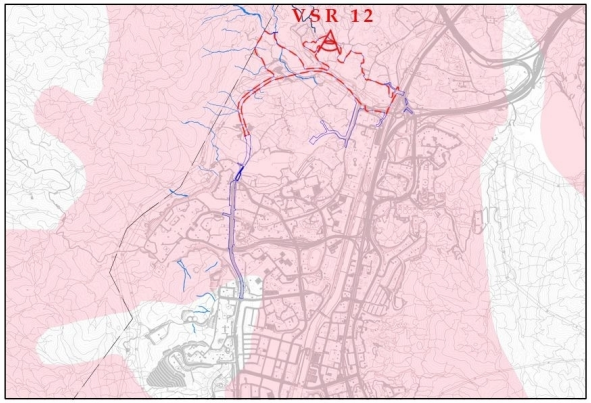

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR12 Existing View From Chung Shan Hillside with Graves

VSR12 Photomontage – No Mitigation at Day 1

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR12 FROM CHUNG SHAN HILLSIDE WITH GRAVES

(SHEET 1 OF 2)

Drawing No.
198172/B&V/FR/1314a

Scale

CEDD 土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date =$DATE$
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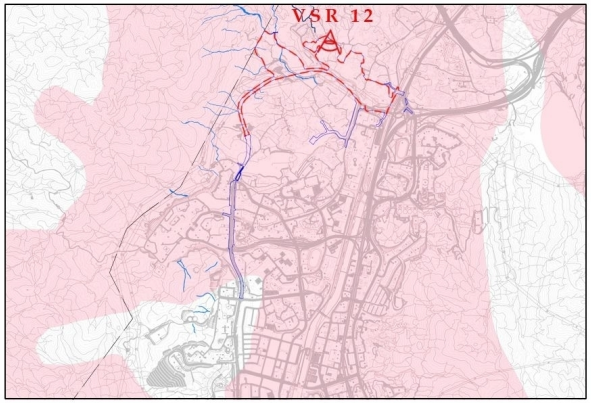

KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR12 Photomontage – With Mitigation at Day 1

VSR12 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR12 FROM CHUNG SHAN HILLSIDE WITH GRAVES

(SHEET 2 OF 2)

Drawing No.
198172/B&V/FR/1314b

Scale

CEDD 土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date =$DATE$

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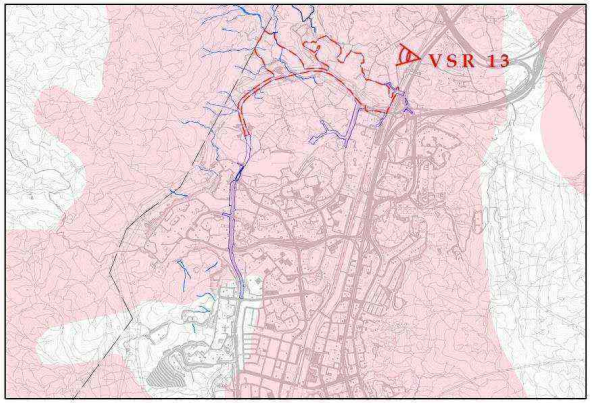


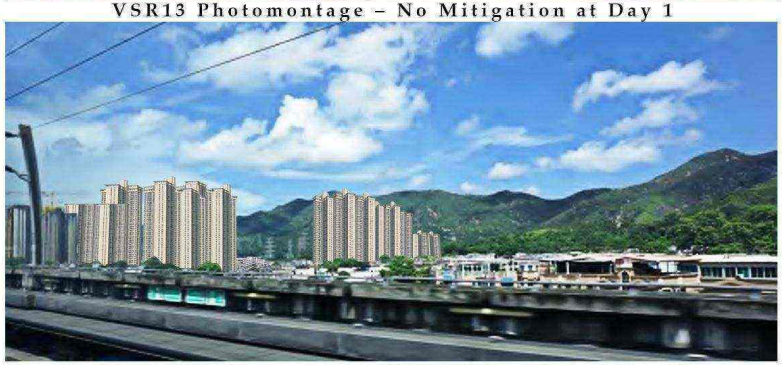
KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence

VSR13 Existing View From West Railway heading South-west

VSR13 Photomontage – No Mitigation at Day 1



VSR13 Photomontage – With Mitigation at Day 1

VSR13 Photomontage – With Mitigation in Year 10

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Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
PHOTOMONTAGE VSR13 FROM WEST RAILWAY HEADING SOUTH-WEST

Drawing No.
198172/B&V/FR/1315

Scale

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
柏誠工程顧問有限公司

Plot Date =$DATE$

CAD Filename = $FILE$

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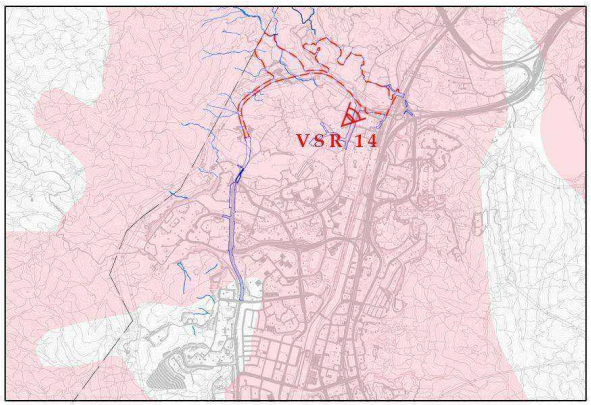
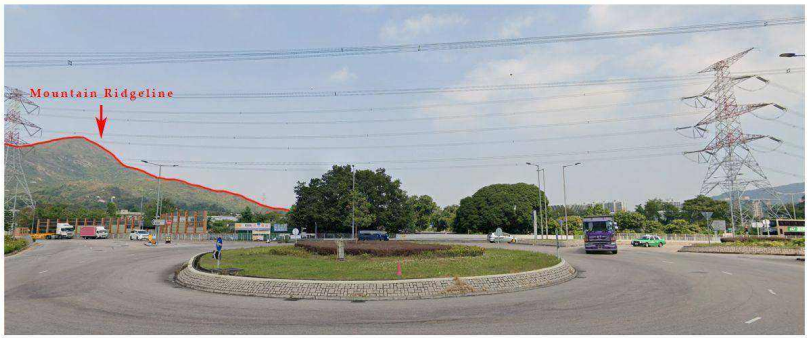


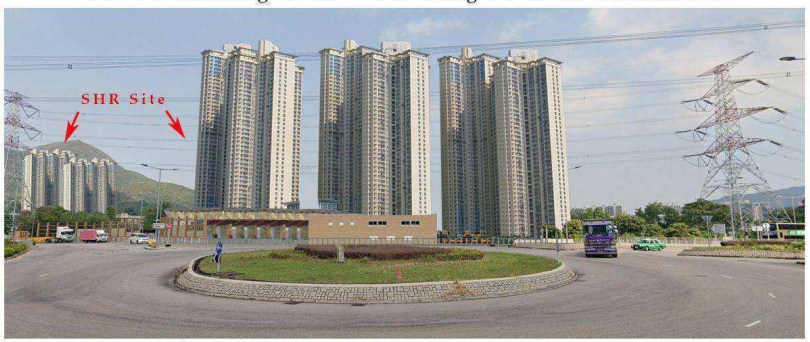
KEYPLAN

Keyplan Legend

- Visually Sensitive Receivers (VSRs)
- Proposed Development Area Boundary
- Project Site Boundary
- Zone of Visual Influence



VSR14 Existing View From Hong Po Road Roundabout



VSR14 Photomontage – No Mitigation at Day 1

VSR14 Photomontage – With Mitigation at Day 1

VSR14 Photomontage – With Mitigation in Year 10

Revision	Date	Description			Initial
04	Designed	Checked	Drawn	Checked	
Initial	Gordon Li		Gordon Li		
Date	01/09/2020		28/05/2020		

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

PHOTOMONTAGE VSR14 FROM HONG PO ROAD ROUNDABOUT

Drawing No.

198172/B&V/FR/1316

Scale

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date =$DATE$

CAD Filename = $FILE$

MM10: Woodland Enhancement Planting with Ecological Enhancement

MM10: Enhancement of Natural/ Semi-natural Streams

MM11: Landscape Work & Green Roof for Service Reservoirs

MM6: Landscape Treatment on Man Made Slope

MM7: Noise Barrier Treatment

MM6: Landscape Treatment on Man Made Slope

MM6: Proposed Climbers on Retaining Structure

MM11: Landscape Work & Green Roof for PTI Area

MM7: Noise Barrier Treatment

MM4 & MM5: Roadside Greening & Screen Planting

MM7: Noise Barrier Treatment

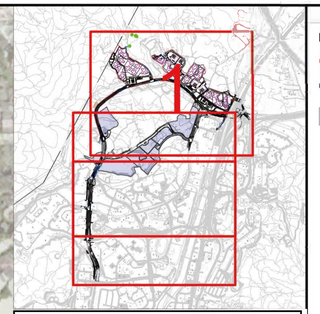
MM4 & MM5: Roadside Greening & Screen Planting

MM2: Tree Transplanting - Potential Recipient Site for *Aquilaria sinensis*

MM11: Landscape Work & Green Roof for PTI Area & Sewage Pumping Station

MM7: Noise Barrier Treatment

MM11: Landscape Works for Proposed Footbridge



Landscape Impact within 500m Assessment Area	
Nos. of Trees to be retained	~ 8,350 - 9,800
Nos. of Trees to be removed	~ 1,300
Nos. of Trees to be transplanted	2
Nos. of Trees to be newly planted	~ 1,300

Overall Greenery Area	SHR Site Extension	SHR Site	HPR Site
Site Area (m^2)	Around 15,000	Around 75,000	Around 76,000
Greenery Area Required (m^2)	3,000 (min. 20% of Site Area)	15,000 (min. 20% of Site Area)	15,200 (min. 20% of Site Area)
Greenery Area Provided (m^2)	3,000	15,000	15,200
Quality Open Space	1 m^2/person		

Legend

- Proposed Development Area Boundary
- Project Site Boundary
- Interfacing Housing Sites Under Tuen Mun Area 54
- Retaining Structure
- Slope
- Retained Tree of Large Size
- Noise Barrier Treatments
- Water Channel Legend copy
- Comansatory Planting and New Tree Planting - Planting Area
- Landscape Work & Green Roof for Infrastructure
- Roadside Greening & Screen Planting
- Woodland Enhancement planting With Ecological Enhancemwnt
- 1 Proposed PTI Area
- 2 Potential School Site
- 3 Tentative Open Space

Remarks: The layout is for conceptual layout plan purpose. The provisions shown on this plan are subject to review at later stages

Revision	Date	Description		Initial
03	Designed	Checked	Drawn	Checked
Initial	Paul CHAN		Paul CHAN	
Date	05/12/2022		05/12/2022	
Approved				

CE 68/2017 (CE)

Project title: SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title: Outline Landscape Plan

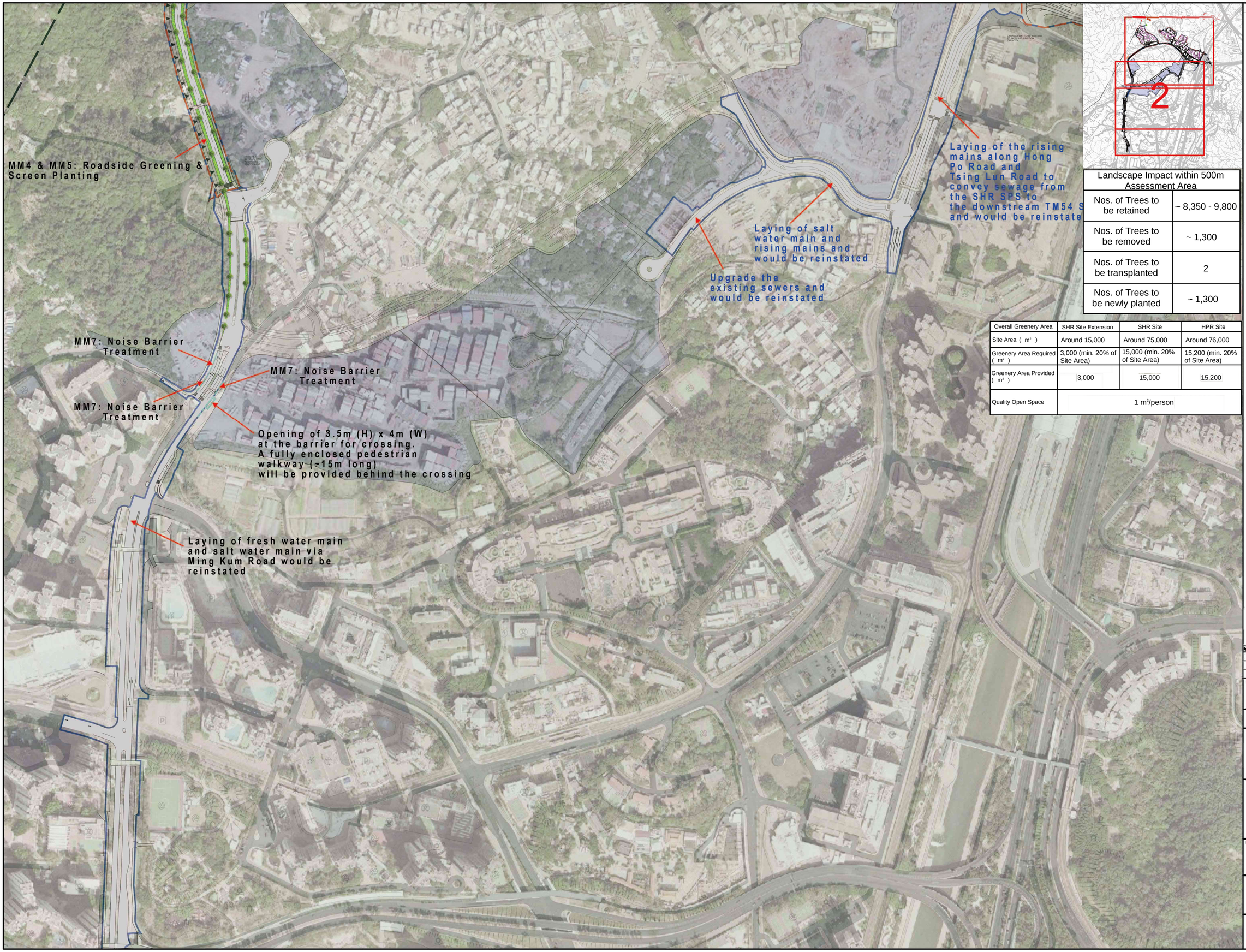
(SHEET 1 OF 3)

Drawing No.: 198172/B&V/FR/1317a

Scale: 1:3000 (in A2)

土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED 柏威工程顧問有限公司



Landscape Impact within 500m Assessment Area	
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Legend

- Proposed Development Area Boundary
- Project Site Boundary
- Interfacing Housing Sites Under Tuen Mun Area 54
- Retaining Structure
- Slope
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Remarks: The layout is for conceptual layout plan purpose. The provisions shown on this plan are subject to review at later stages

Revision	Date	Description			Initial
05	Designed		Checked	Drawn	Checked
Initial	Paul CHAN			Paul CHAN	
Date	05/12/2021			05/12/2021	

Approved

CE 68/2017 (CE)

Project Title: SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title: Outline Landscape Plan

(SHEET 2 OF 3)

Drawing No.: 198172/B&V/FR/1317b

Scale: 1:3000 (in A2)

土木工程拓展署 CEDD Civil Engineering and Development Department

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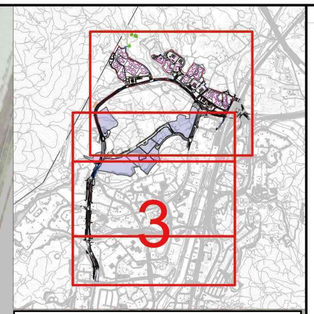

Laying of fresh water main and salt water main via Ming Kum Road and would be reinstated

Laying of fresh water main and salt water main via Ming Kum Road and would be reinstated

Legend

- Proposed Development Area Boundary
- Project Site Boundary
- Interfacing Housing Sites Under Tuen Mun Area 54
- Retaining Structure
- Slope
- Retained Tree of Large Size
- Noise Barrier Treatments
- Water Channel Legend copy
- Compansatory Planting and New Tree Planting - Planting Area
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Greenery Area Provided (m^2)	3,000	15,000	15,200
Quality Open Space	1 m^2/person		

Remarks: The layout is for conceptual layout plan purpose. The provisions shown on this plan are subject to review at later stages

Revision	Date	Description		Initial
05	Designed	Checked	Drawn	Checked
Initial	Paul CHAN		Paul CHAN	
Date	05/12/2017		05/12/2017	

Approved

CE 68/2017 (CE)

Project Title: SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title: Outline Landscape Plan

(SHEET 3 OF 3)

Drawing No.: 198172/B&V/FR/1317c

Scale: 1:3000 (in A2)

土木工程拓展署 Civil Engineering and Development Department

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- POTENTIALLY CONTAMINATED AREAS
- IDENTIFIED HOT SPOTS

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	CMW	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

LOCATION OF POTENTIAL CONTAMINATED SITES

Drawing No.

198172/B&V/FR/1401

Scale

1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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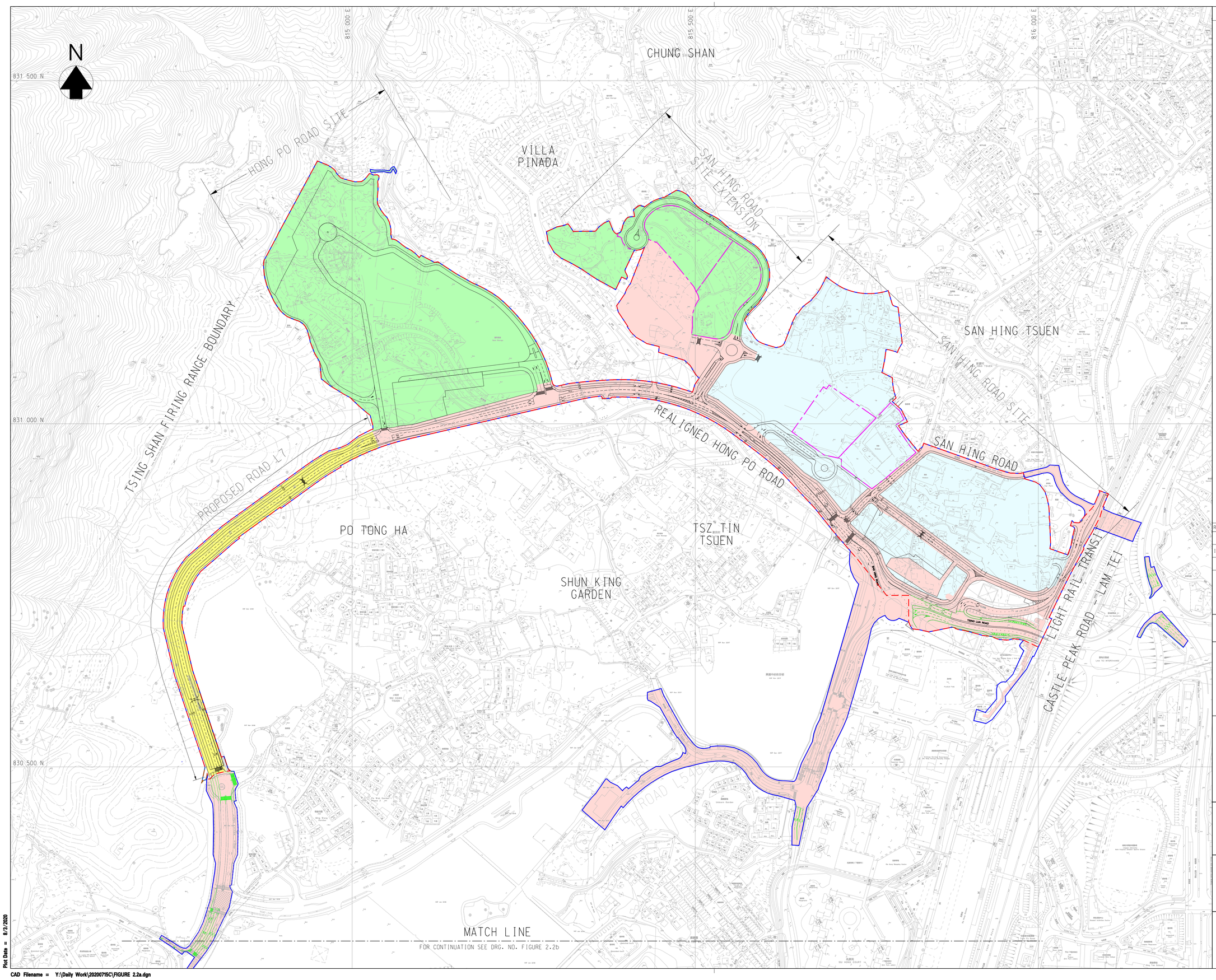

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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- POTENTIAL SCHOOL SITE
- PROJECT SITE BOUNDARY
- PROPOSED TRAFFIC IMPROVEMENT MEASURES
- PROPOSED ROADWORKS
- STAGE 1 (2025-2030)
- STAGE 2 (2026-2029)
- STAGE 3 (2025-2031)
- STAGE 4 (2026-2033)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.

CE 68/2017 (CE)

Project title

SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title

STAGES OF DEVELOPMENT

(SHEET 1 OF 2)

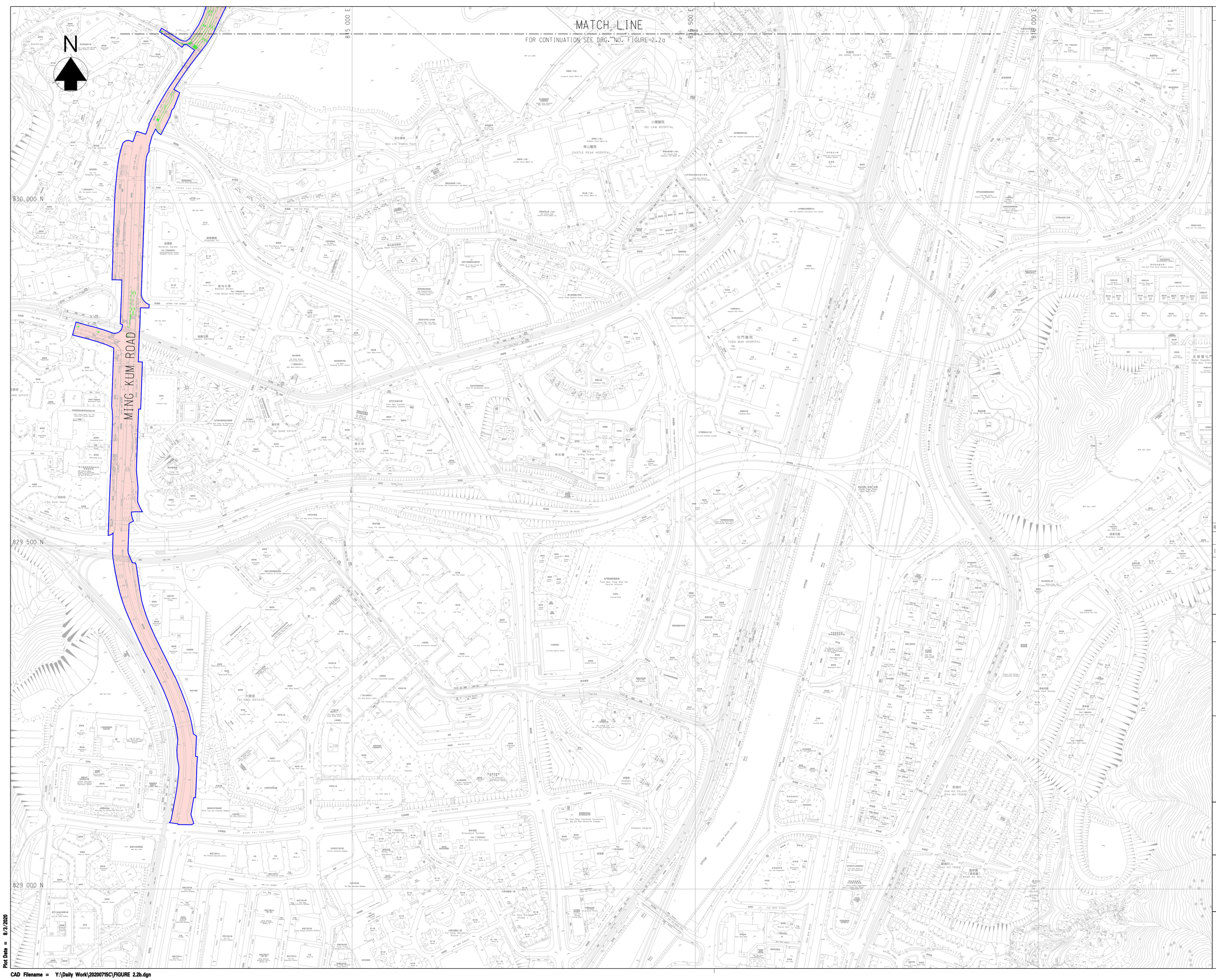
Drawing No.	Scale
198172/B&V/FR/1501a	1 : 2500 (A1) 1 : 5000 (A3)

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 8/3/2020

CAD Filename = Y:\Daily Work\20200715C\FIGURE 2.2a.dgn



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LEGEND:

- PROPOSED DEVELOPMENT AREA BOUNDARY
- POTENTIAL SCHOOL SITE
- PROJECT SITE BOUNDARY
- PROPOSED TRAFFIC IMPROVEMENT MEASURES
- PROPOSED ROADWORKS
- STAGE 1 (2025-2030)
- STAGE 2 (2026-2029)
- STAGE 3 (2025-2031)
- STAGE 4 (2026-2033)

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	JLI	YKL	SZ	JW
Date	07/20	07/20	07/20	07/20

Approved

Agreement No.
CE 68/2017 (CE)

Project title
SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing title
STAGES OF DEVELOPMENT

(SHEET 2 OF 2)

Drawing No.
198172/B&V/FR/1501b

Scale
1 : 2500 (A1)
1 : 5000 (A3)

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 8/3/2020

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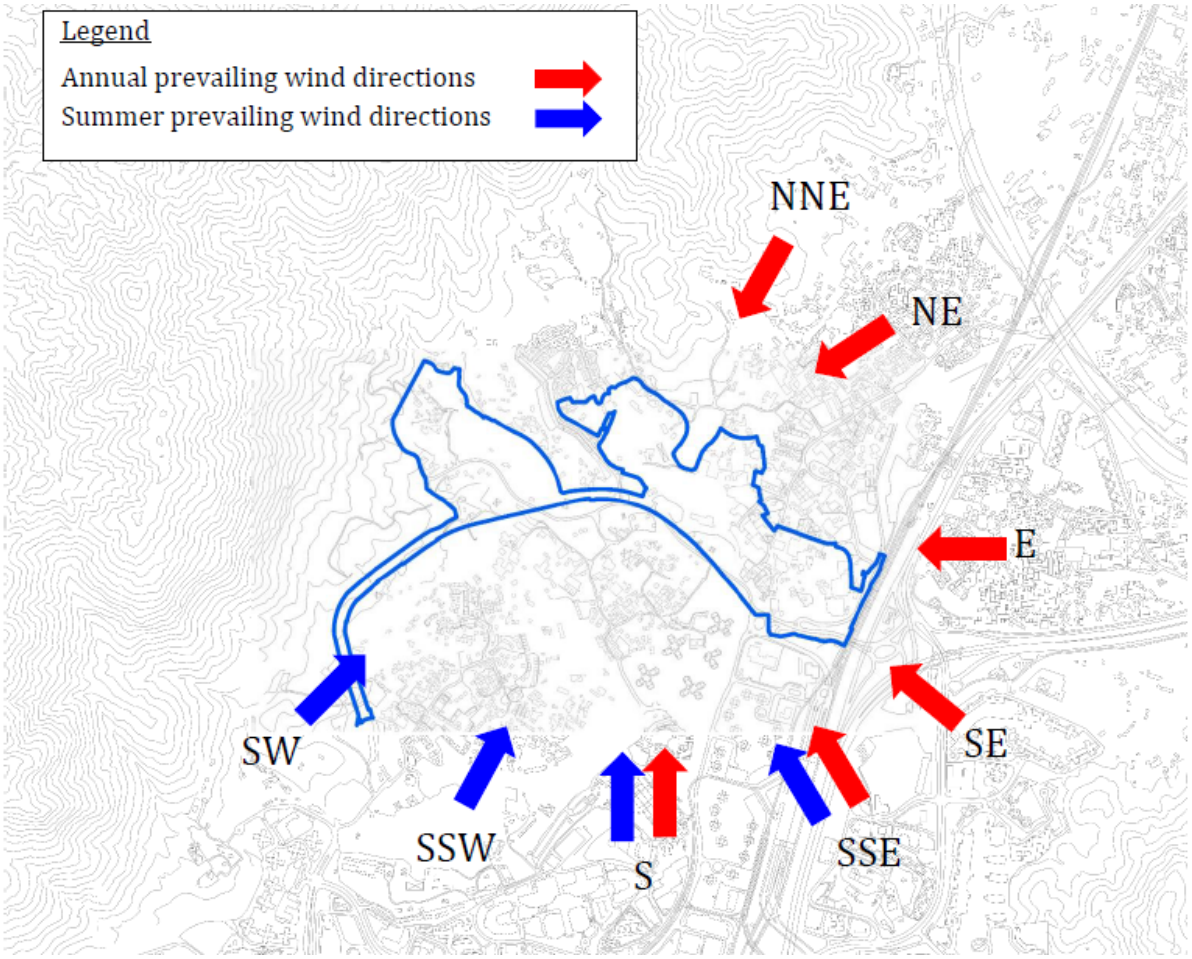
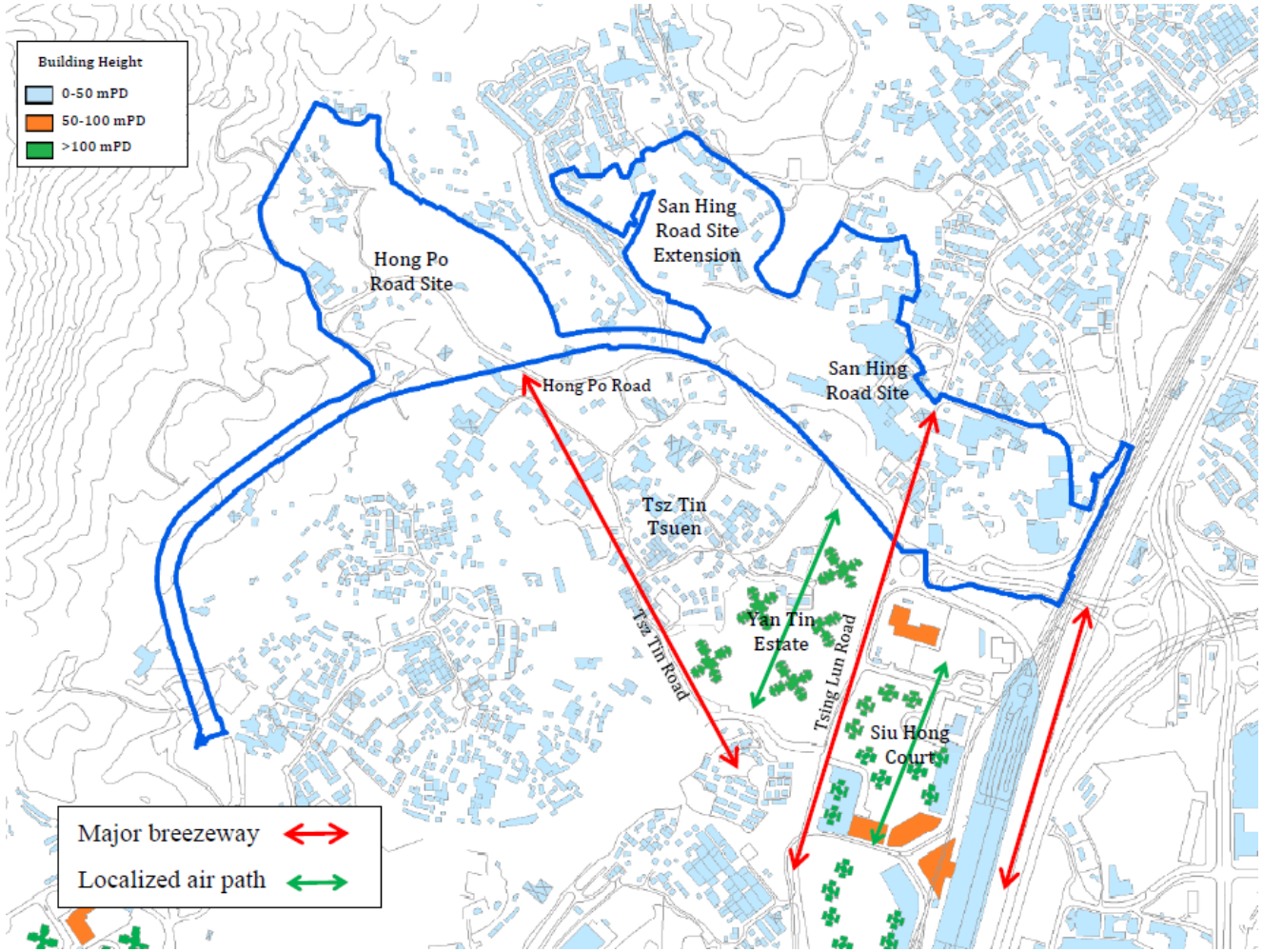
APPENDIX A

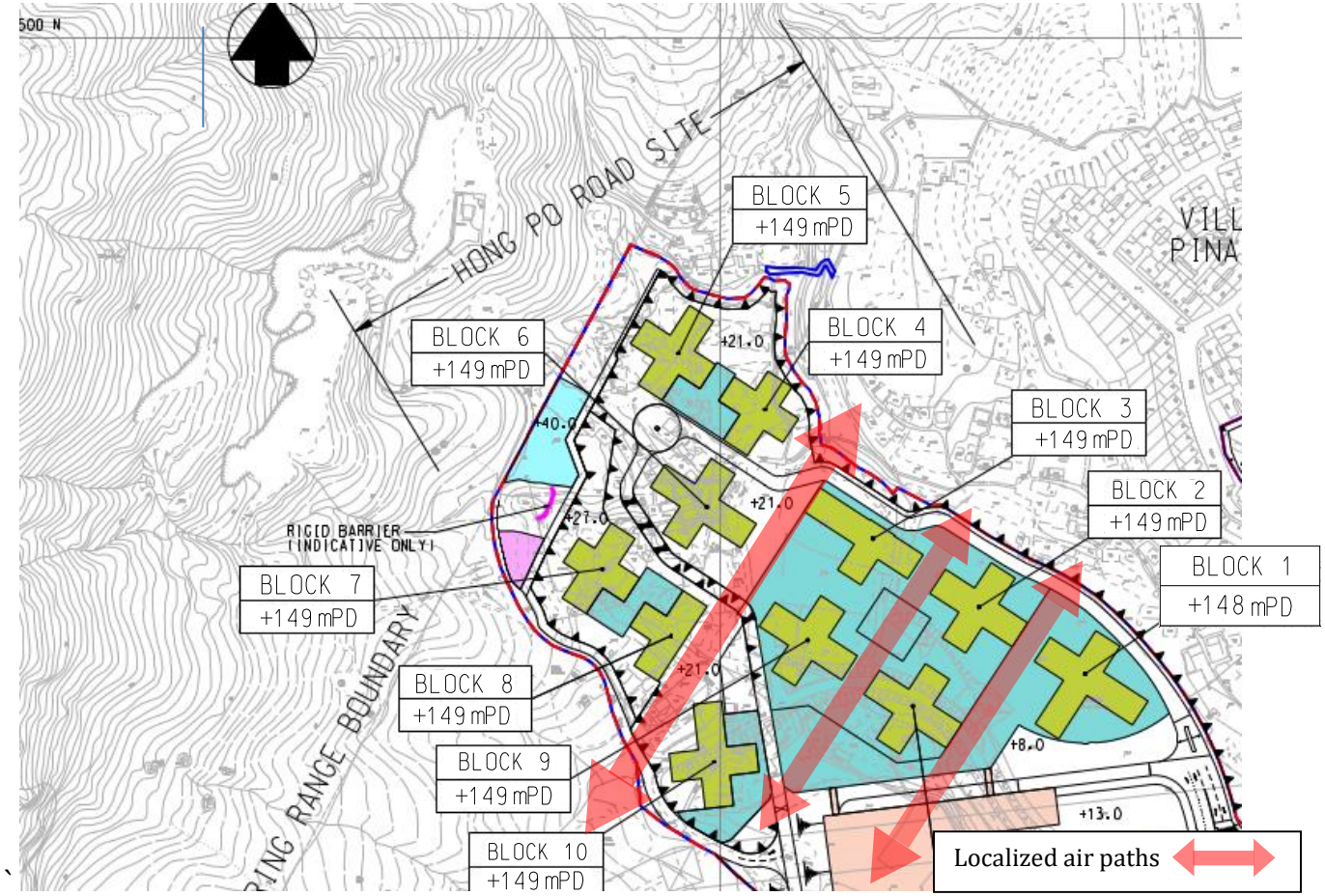
SUMMARY OF PREVAILING WINDS, MAJOR BREEZWAYS AND LAYOUT PLANS



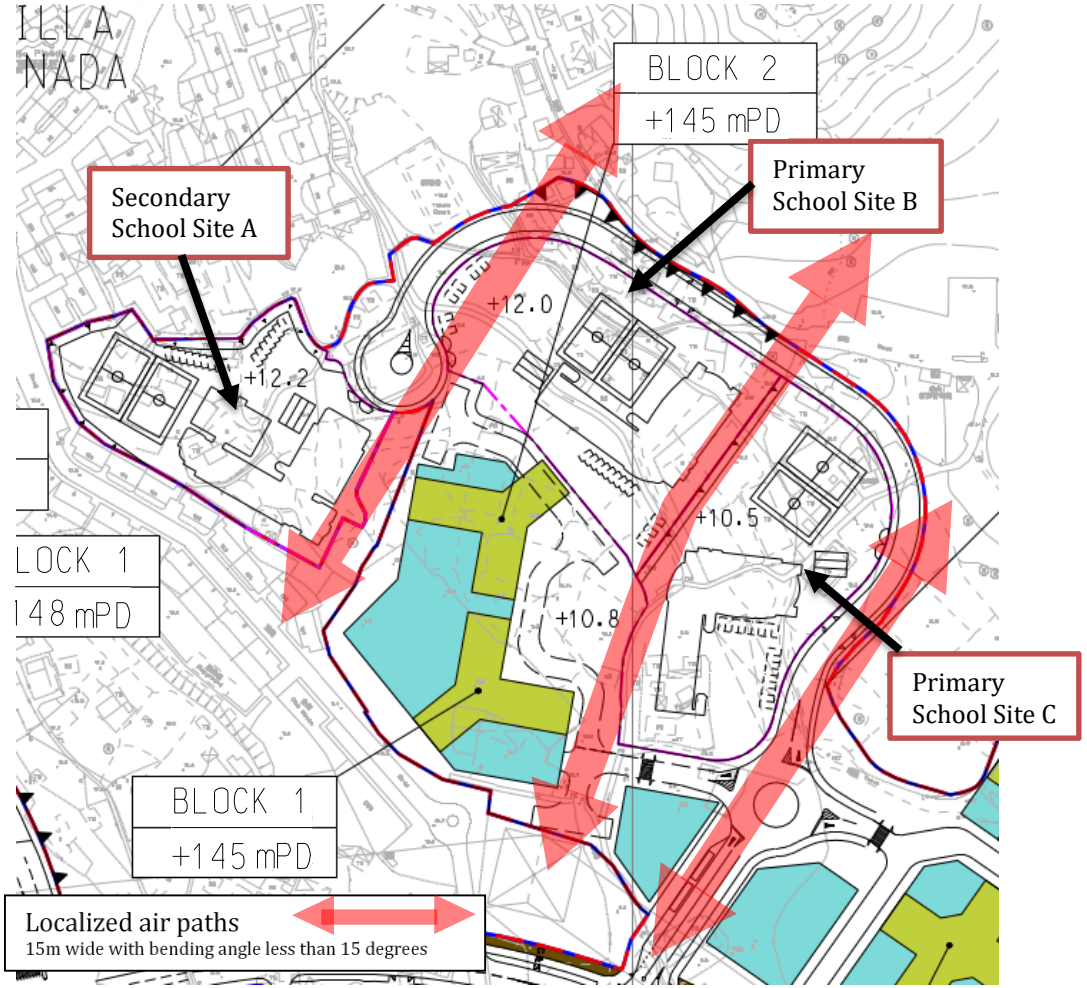
Appendix A-1 – Summary of Prevailing Wind Directions in the vicinity of Study Area



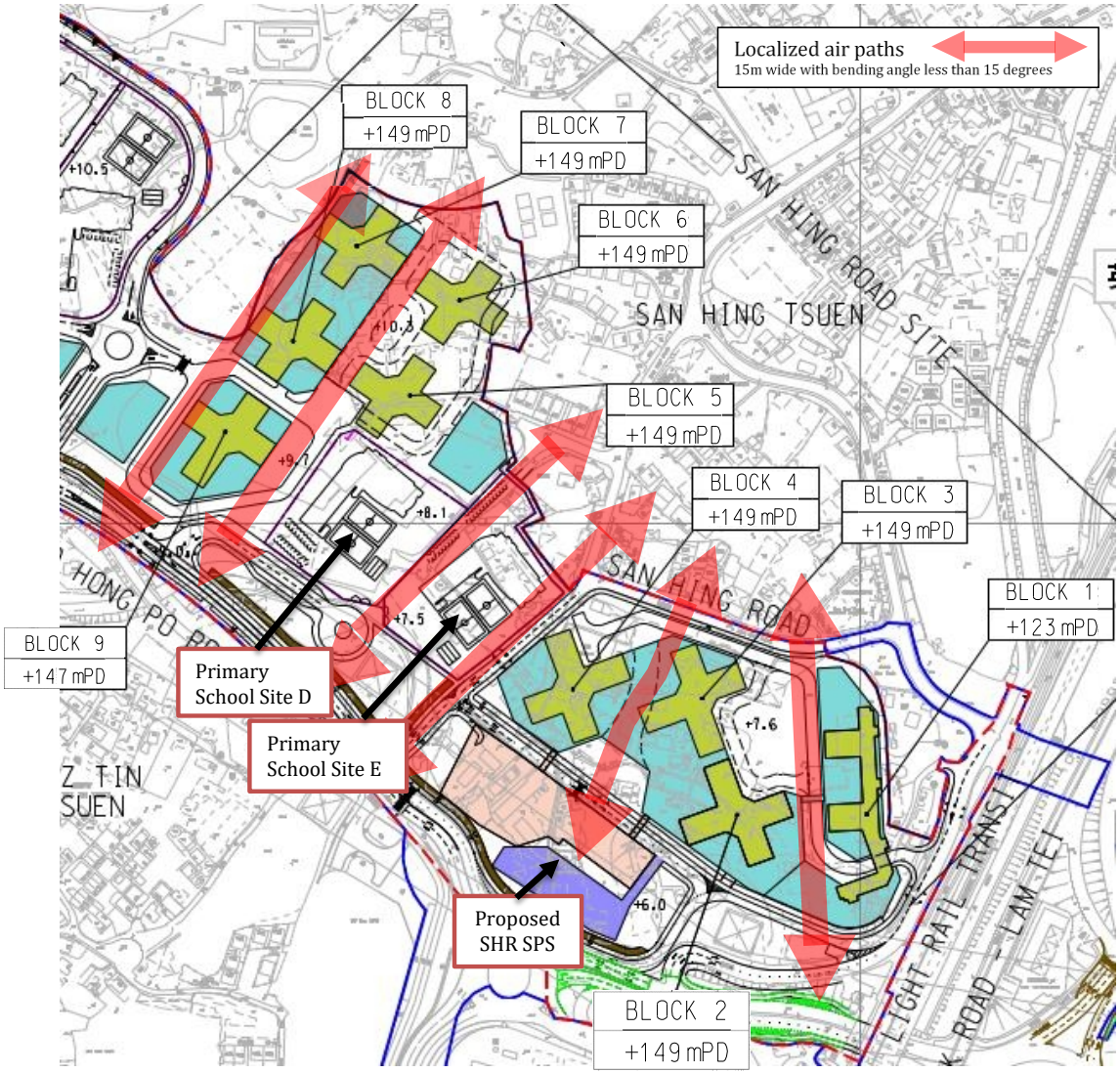
Appendix A-2 – Building Morphology Effect on Wind Environment of the Site



Appendix A-3 –Layout Plan for Hong Po Road Site



Appendix A-4 - Layout Plan for San Hing Road Site Extension



Appendix A-5 - Layout Plan for San Hing Road Site

APPENDIX B

ACCESS ARRANGEMENT AND PUBLIC TRANSPORT FACILITIES

露天貨倉
Open Storage

HONG PO ROAD
SITE ACCESS

TAXI

HONG PO ROAD

HONG PO ROAD

CT
FP
LA

Rev.	Description	Checked	Date
-	-	-	-
C	MINOR AMENDMENT	LTH	30OCT20
B	MINOR AMENDMENT	LTH	24OCT19
A	MINOR AMENDMENT	LTH	26JUN19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED VEHICLE ACCESS TO THE SITE (1 OF 3)

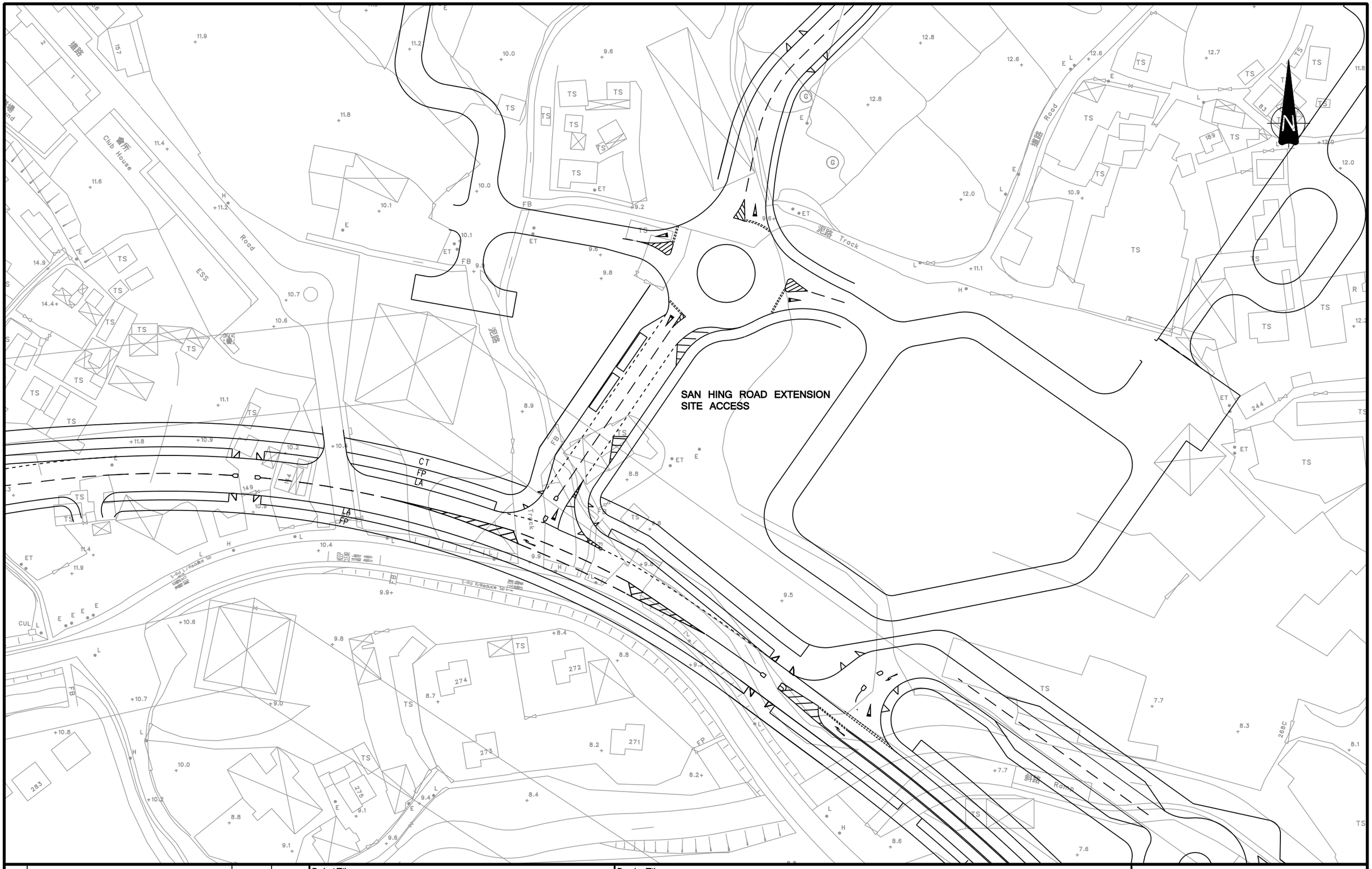
Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX B	C

土木工程拓展署
CEDD Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

SYSTRA MVA

PHK50323410/TIA3/F51-C.DGN/DAL/30OCT20



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
B	MINOR AMENDMENT	LTH	23OCT19
A	MINOR AMENDMENT	LTH	26JUN19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED VEHICLE ACCESS TO THE SITE (2 OF 3)

Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX B	B

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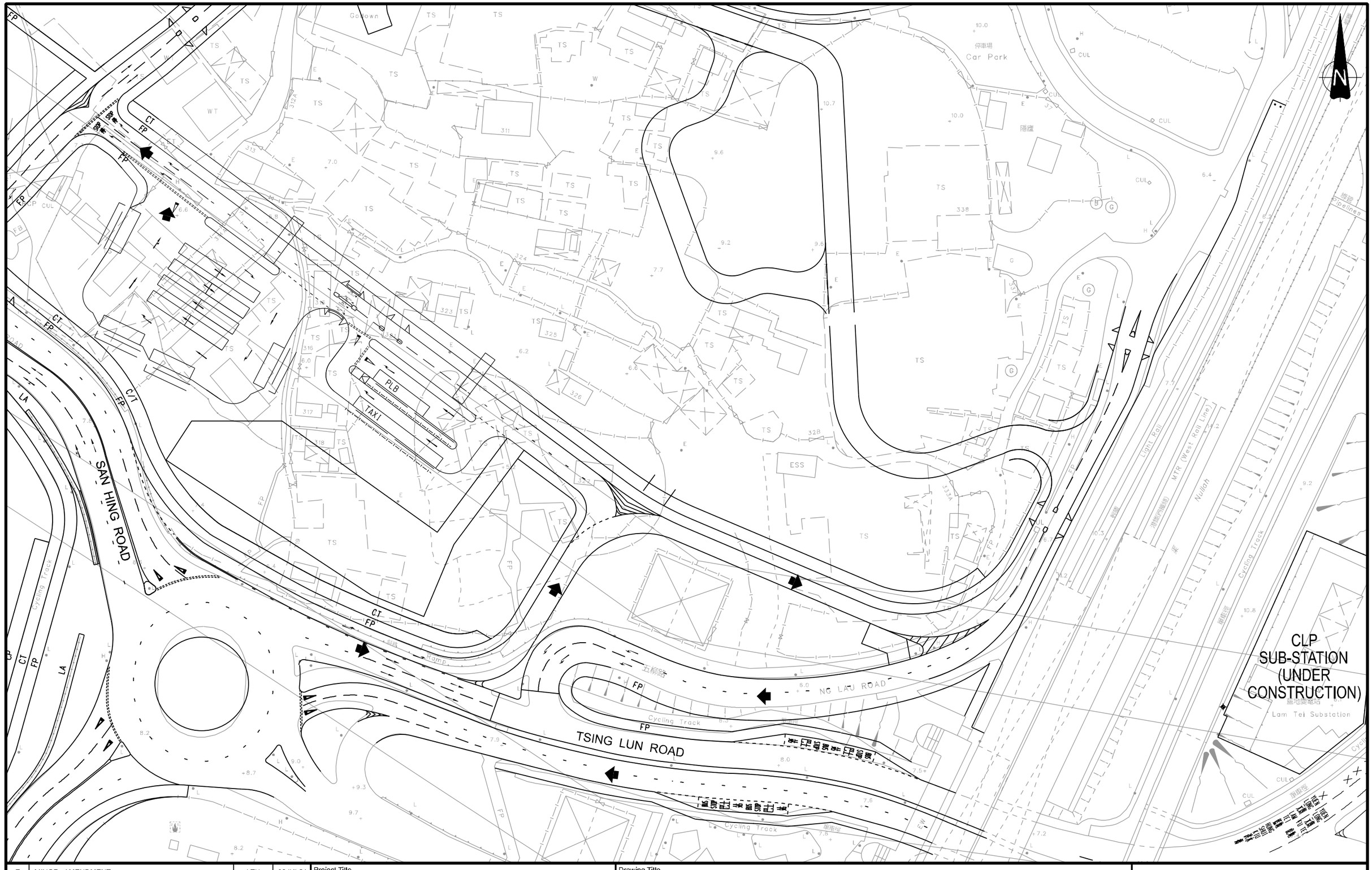
SYSTRA MVA

PHK50323410/TIA3/F52-B.DGN/DAL/23OCT19



Rev.	Description	Checked	Date
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D	MINOR AMENDMENT	LTH	10JAN20
C	MINOR AMENDMENT	LTH	23OCT19
B	MINOR AMENDMENT	LTH	26JUN19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED VEHICULAR ACCESS TO THE SITES (3 OF 3)

Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX B	E

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博威工程顧問有限公司

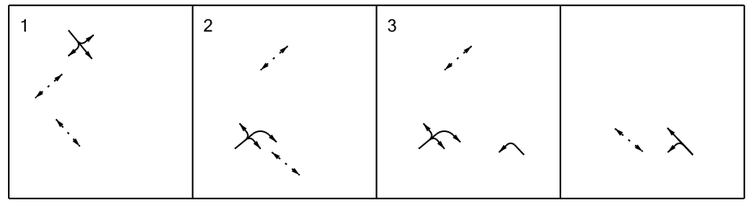
SYSTRA MVA

PHK50323410/TIA3/F53-E.DGN/DAL/09JUL21

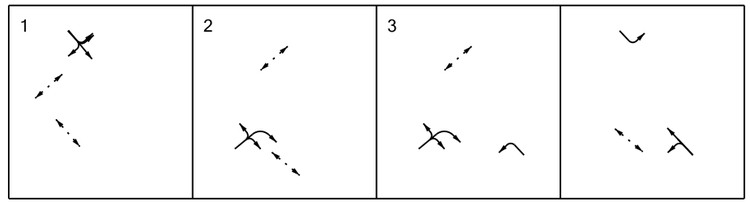
APPENDIX C

LAYOUT OF PROPOSED JUNCTION IMPROVEMENT

PLANNED METHOD OF CONTROL



PROPOSSD METHOD OF CONTROL



SAN HING ROAD SITE ACCESS

CASTLE PEAK ROAD - LAM TEI

CASTLE PEAK ROAD - TSING LUN ROAD

CASTLE PEAK ROAD - LINGNAN

YUEN LONG HIGHWAY

TO LAI ROAD

LAM TEI INTERCHANGE

J1

J2

LEGEND:

Proposed Works

Planned Works (By Others)

Rev.	Description	Checked	Date
F	UPDATE BASE MAP	LTH	02JUL21
E	MINOR AMENDMENT	LTH	12DEC19
D	MINOR AMENDMENT	LTH	24OCT19
C	MINOR AMENDMENT	LTH	05SEP19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME AT LAM TEI INTERCHANGE / CASTLE PEAK ROAD - LINGNAN (J1)

Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	F

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SYSTRA MVA

PHK50323410/TIA3/F61-F.DGN/DAL/02JUL21

HONG PO ROAD

SAN HING ROAD

J4

TSING LUN ROAD

NG LAU ROAD

TSING LUN ROAD

ELEVATED ROAD

CASTLE PEAK ROAD - LAM TEI

CARRIAGEWAY TO BE WIDENED TO INCREASE JUNCTION CAPACITY

NTW/TM/LamTei I-20 (DS4)

NTW/TM/LamTei I-21 (DS4)

NTW/TM/HonPo-01

NTW/TM/LamTei I-23 (DS6)

NTW/TM/LamTei I-24 (ADS5)

NTW/TM/LamTei I-07B

NTW/TM/LamTei I-X03C

NTW/TM/TsiLun-04D

NTW/TM/LamTei I-18

NTW/TM/LamTei I-17A

N-TS83

N-TS84

N-TS85

N-TS86

N-TS87

N-TS88

N-TS89

N-TS895

N-TS896

Hong Po Road 康寶路

San Hing Tsuen 新慶村

Yuen Long 元朗

Kowloon 九龍

Tsz Tin Tsuen 紫田村

Siu Hong Court 兆康苑

Kei Lun Wai 麒麟圍

Tuen Tsz Wai 屯子圍

Tsing Chuen Wai 青磚圍

Shenzhen Bay 深圳灣

Fu Tei 虎地

Tuen Mun Town 屯門市

Lam Tei 藍地

Hung Shui Kiu 洪水橋

Tin Shui Wai 天水圍

Tung Wah Group of Hospitals Yau Tze Tin Memorial College

Basketball Court

Football Field

Stand

Cycling Track

Cycle Parking Place- Parking Advice

Cycle Parking Place - Parking Advice

General Advice to Public

LEGEND:

Proposed Works

Rev.	Description	Checked	Date
-	-	-	-
C	UPDATE BASE MAP	LTH	25JUN21
B	MINOR AMENDMENT	LTH	23OCT19
A	MINOR AMENDMENT	LTH	22MAR19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME AT TSING LUN ROAD / HONG PO ROAD (J4)

Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	C

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CEDD Civil Engineering and Development Department

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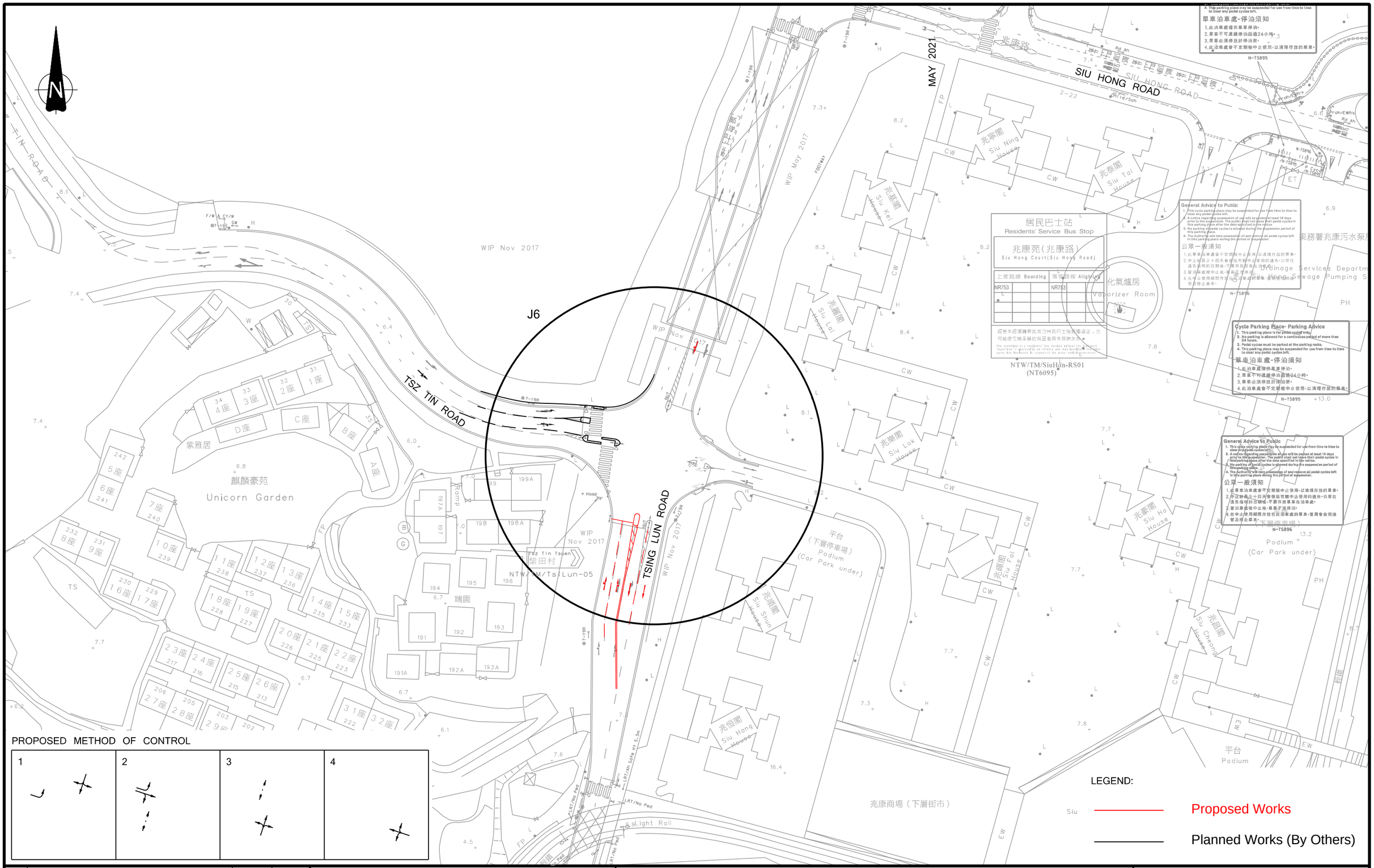
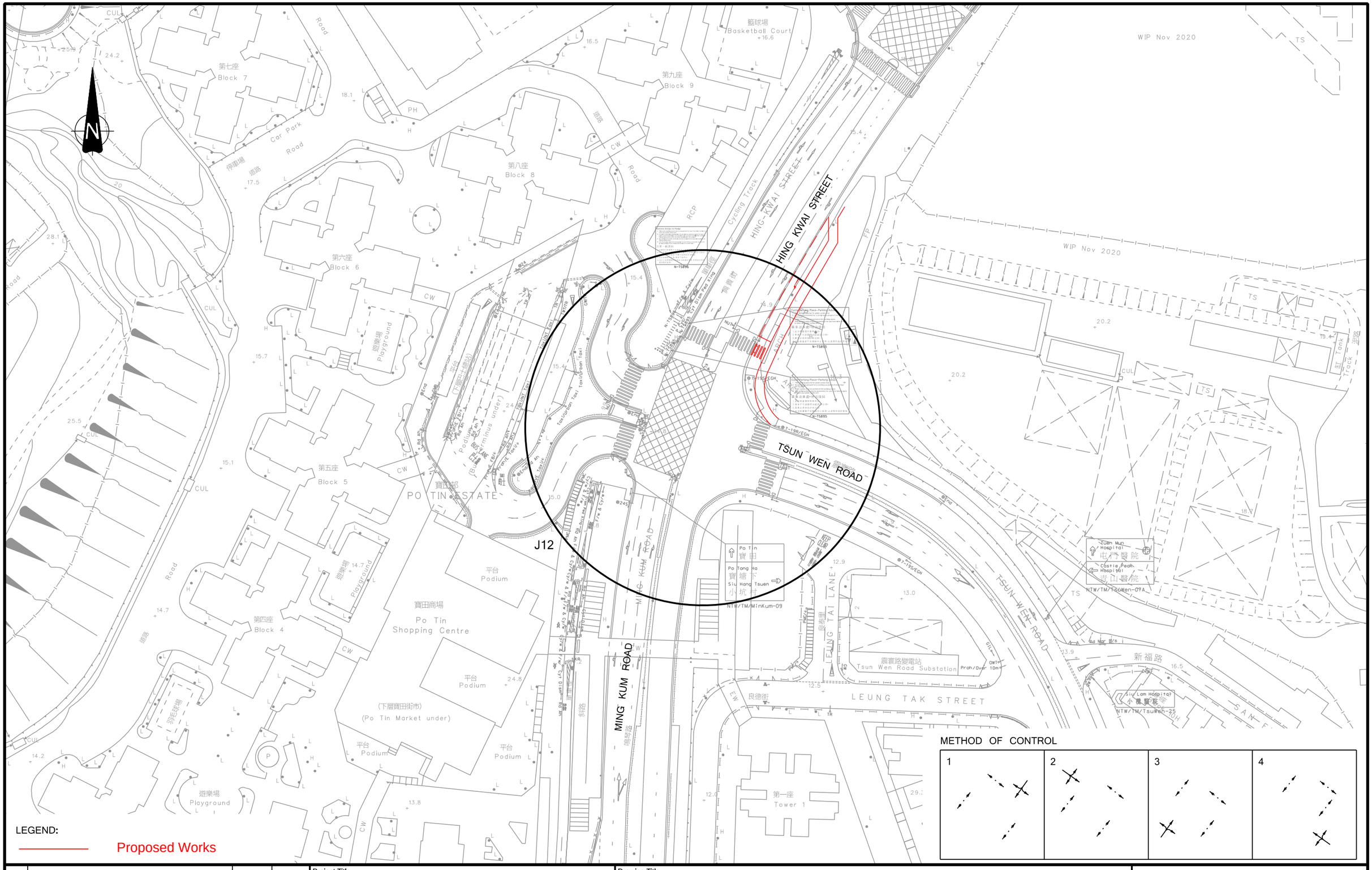
SYSTRA MVA

PHK50323410/TIA3/F62-C.DGN/DAL/25JUN21


J6
TSZ TIN ROAD
TSING LUN ROAD
SIU HONG ROAD
MAY 2021
WIP Nov 2017
WIP Nov 2017
WIP Nov 2017



METHOD OF CONTROL

LEGEND:

Proposed Works

Rev.	Description	Checked	Date
D	UPDATE BASE MAP	LTH	25JUN21
C	MINOR AMENDMENT	LTH	23OCT19
B	MINOR AMENDMENT	LTH	13JUN19
A	MINOR AMENDMENT	LTH	15MAY19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME AT TSUN WEN ROAD / MING KUM ROAD (J12)

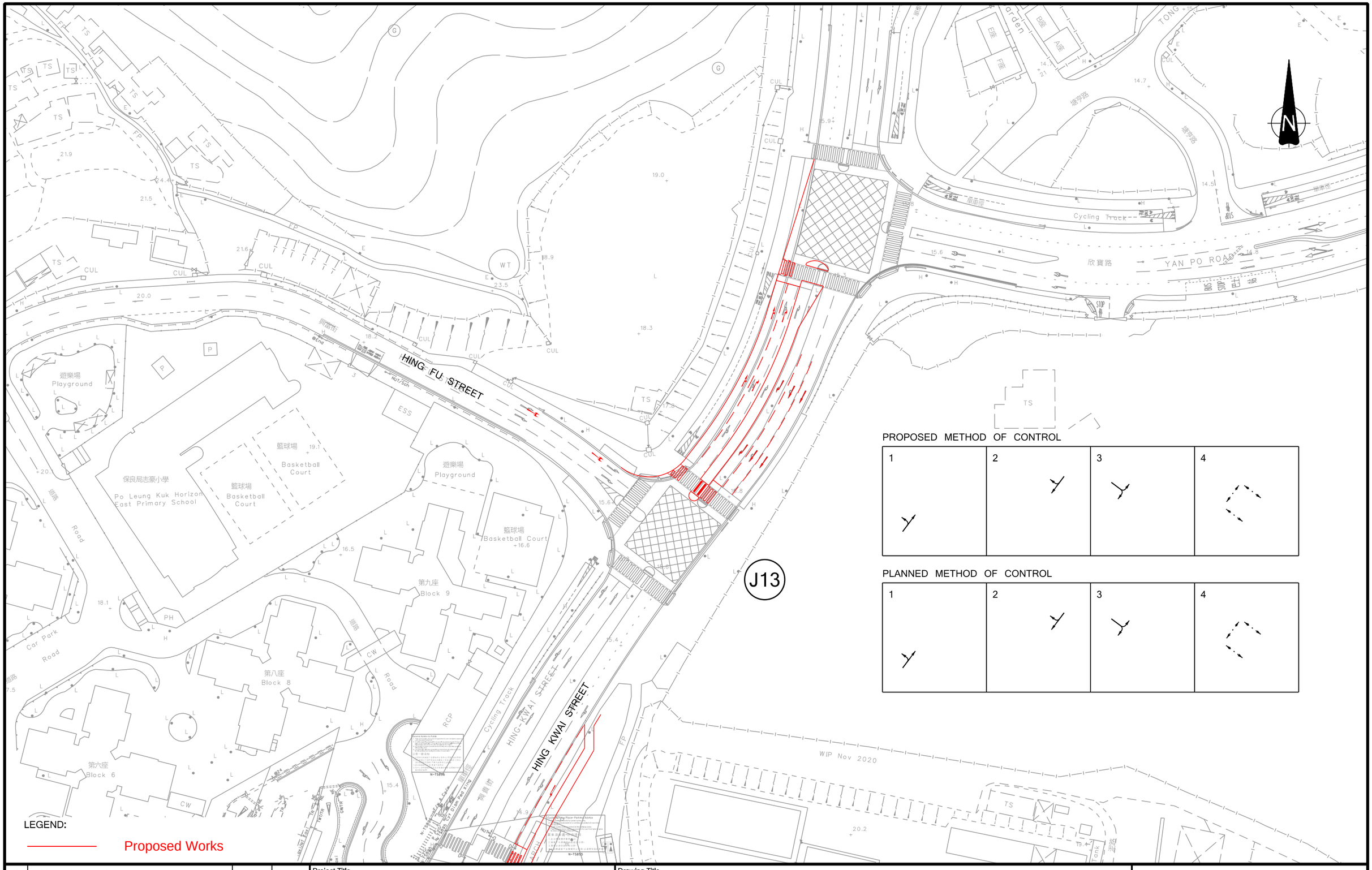
Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	D

土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

SYSTRA MVA

PHK50323410/TIA3/F64-D.DGN/DAL/25JUN21



PROPOSED METHOD OF CONTROL

1	2	3	4

PLANNED METHOD OF CONTROL

1	2	3	4

Rev.	Description	Checked	Date
D	UPDATE BASE MAP	LTH	25JUN21
C	MINOR AMENDMENT	LTH	23OCT19
B	MINOR AMENDMENT	LTH	13JUN19
A	MINOR AMENDMENT	LTH	23MAY19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME AT ROAD L7 / HING FU STREET (J13)

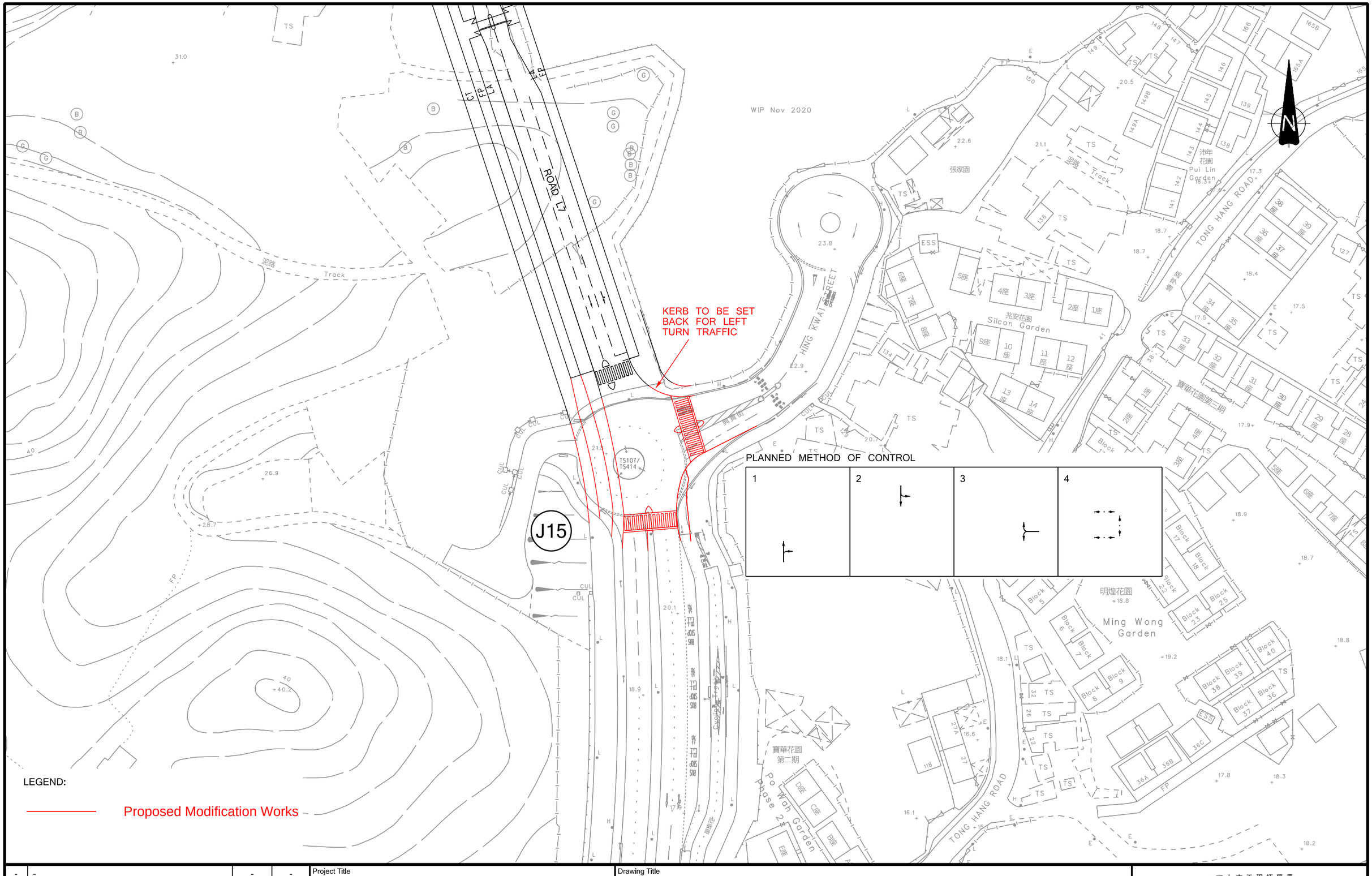
Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	D

土木工程拓展署
Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

SYSTRA MVA

PHK50323410/TIA3/F65-D.DGN/DAL/25JUN21



Rev.	Description	Checked	Date
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C	UPDATE BASE MAP	LTH	25JUN21
B	MINOR AMENDMENT	LTH	25OCT19
A	MINOR AMENDMENT	LTH	15MAY19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTIONIMPROVEMENT SCHEME AT ROAD L7 / ROAD L54D (J15) (OPTION 1)

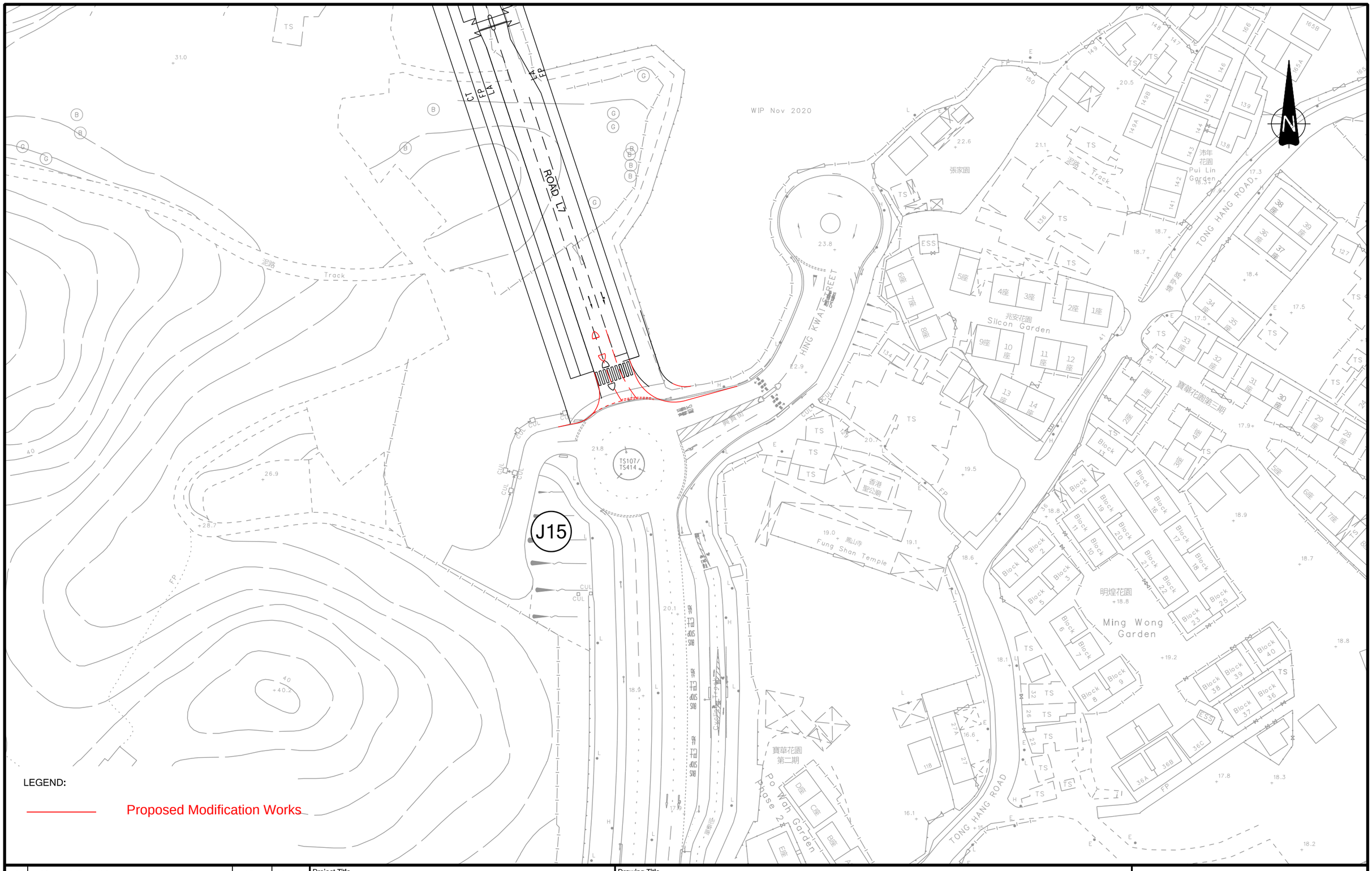
Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	C

土木工程拓展署 Civil Engineering and Development Department

BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

SYSTRA MVA

PHK50323410/TIA3/F66A-C.DGN/FAL/25JUN21



LEGEND:

Proposed Modification Works

Rev.	Description	Checked	Date
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B	MINOR AMENDMENT	LTH	25OCT19
A	MINOR AMENDMENT	LTH	15MAY19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTIONIMPROVEMENT SCHEME AT ROAD L7 / ROAD L54D (J15) (OPTION 2)

Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	D

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CEDD Civil Engineering and Development Department

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SYSTRA MVA

PHK50323410/TIA3/F66B-D.DGN/DAL/28JUN21

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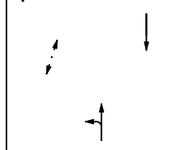	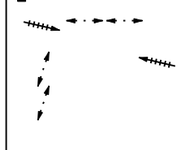	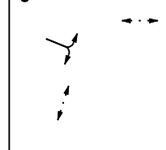	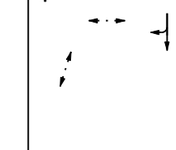

J21

WIP Oct 2017

LEGEND:

Proposed Works

Rev.	Description	Checked	Date
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-	-	-	-
-	-	-	-
A	MINOR AMENDMENT	LTH	13JUN19

Project Title

AGREEMENT NO. CE 68/2017 (CE) SITE FORMATION AND INFRASTRUCTURAL WORKS FOR THE DEVELOPMENT AT SAN HING ROAD AND HONG PO ROAD, TUEN MUN - FEASIBILITY STUDY

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME AT TIN KING ROAD / MING KUM ROAD (J21)

Designed	Checked	Scale	Date	Drawing No.	Rev.
WTH	LTH	1:1000(A3)	Jul 2021	APPENDIX C	A

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SYSTRA MVA

PHK50323410/TIA3/F67-A.DGN/CKC/13JUN19

Attachment VI of
RNTPC Paper No. 6/21

Provision of GIC Facilities and Open Space in the Lam Tei and Yick Yuen Outline Zoning Plan

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
District Open Space	10 ha per 100,000 persons #	8.84 ha	0.71 ha	0.71 ha	-8.13 ha
Local Open Space	10 ha per 100,000 persons #	8.84 ha	2.16 ha	10.30 ha	+1.46 ha
Secondary School	1 whole-day classroom for 40 persons aged 12-17	99 classrooms	25 classrooms	55 classrooms	-44 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6-11	121 classrooms	0 classroom	174 classrooms	+53 classrooms
Kindergarten/ Nursery	34 classrooms for 1,000 children aged 3 to 6	50 classrooms	8 classrooms	38 classrooms	-12 classrooms
District Police Station	1 per 200,000 to 500,000 persons	0	0	0	0
Divisional Police Station	1 per 100,000 to 200,000 persons	0	0	0	0
Hospital	5.5 beds per 1,000 persons ^	490 beds	0	0	-490 beds
Clinic/Health Centre	1 per 100,000 persons	0	0	0	0
Magistracy (with 8 courtrooms)	1 per 660,000 persons	0	0	0	0
Child Care Centre	100 aided places per 25,000 persons #@	353 places	0 place	160 places	-193 places
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24 #	1	0	1	0
Integrated Family Services Centre	1 for 100,000 to 150,000 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	Planned Provision (including Existing Provision)	
District Elderly Community Centres	One in each new development area with a population of around 170,000 or above #	n.a.	0	0	n.a.
Neighbourhood Elderly Centres	One in a cluster of new and redeveloped housing areas with a population of 15,000 to 20,000 persons, including both public and private housing #	n.a.	0	2	n.a.
Community Care Services (CCS) Facilities	17.2 subsidised places per 1,000 elderly persons aged 65 or above #*@	378 places	18 places	48 places	-330 places
Residential Care Homes for the Elderly	21.3 subsidised beds per 1,000 elderly persons aged 65 or above #@	468 beds	63 beds	1618 beds	+1150 beds
Library	1 district library for every 200,000 persons π	0	0	0	0
Sports Centre	1 per 50,000 to 65,000 persons #	1	0	0	-1
Sports Ground/ Sport Complex	1 per 200,000 to 250,000 persons #	0	0	0	0
Swimming Pool Complex - standard	1 complex per 287,000 persons #	0	0	0	0

Note:

The planned resident population in the Lam Tei and Yick Yuen is about 88,400. If including transients, the overall planned population is about 89,100.

The requirements exclude planned population of transients.

^ The provision of hospital beds is to be assessed by the Hospital Authority on a regional basis.

* Consisting of 40% centre-based CCS and 60% home-based CCS.

@ This is a long-term goal and the actual provision would be subject to the consideration of the Social Welfare Department in the planning and development process as appropriate.

π Small libraries are counted towards meeting the HKPSG requirement.

JULY 2021