

Civil Engineering and Development
Department

**Sewage Pumping Station for
Public Housing Development at
Long Bin in Yuen Long**

Project Profile

261044-REP-007-06

Final | February 2021

This report takes into account the particular
instructions and requirements of our client.

It is not intended for and should not be relied
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Job number 261044

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1 Basic Information

1.1 Project Title

- 1.1.1** Sewage Pumping Station (SPS) for proposed public housing developments at Long Bin, Yuen Long (hereinafter referred to as “the Project”).

1.2 Purpose and Nature of the Project

- 1.2.1** A new Sewage Pumping Station (SPS) with a capacity of 8,500 m³/day is proposed to cope with the sewage arising from the planned public housing development at Long Bin, as well as the existing development including Hong Ping Villa, Villa Sunshine and Fiori and reserve for future connection to local sewerage system. The proposed SPS will be connected to the local sewerage system and associated sewage treatment facilities where Ha Tsuen SPS would be the downstream SPS and the generated sewage would be eventually discharged to San Wai Sewage Treatment Plant (SWSTW) for treatment.

1.3 Name of Project Proponent

- 1.3.1** Civil Engineering and Development Department (CEDD) is the Project Proponent of the Project.

1.4 Location, Scale of Project and History of the Site

- 1.4.1** The proposed SPS is located adjacent to Phase 1 of the planned housing development at Long Bin and near Castle Peak Road – Ping Shan. The total site area is around 930m². **Figure 1.1** shows the location of the Project.
- 1.4.2** Apart from collecting sewage generated by the planned public housing development at Long Bin, the proposed SPS is also designated to collect sewage from the existing residential clusters nearby including Villa Sunshine, Hong Ping Villa, Fiori and their management & recreational facilities. The SPS will serve for a total population of about 35,300 with an estimated sewage flow generation of about 6,900 m³/day. The detailed breakdown on contribution in sewage flow and population can be referred to **Table 1.1**. With an additional reserved capacity of 15-20% to cater for future district wide sewage connection, the proposed design capacity of the proposed SPS has an average dry weather flow (ADWF) of about 8,500m³/day.
- 1.4.3** Sewage collected at the proposed SPS would eventually be conveyed to SWSTW for treatment via Ha Tsuen SPS. The site layout plan and process flow diagrams are included in **Figure 1.2** and **Figure 1.3**.

Table 1.1 Proposed sewage breakdown at the proposed SPS

Residential Clusters	Population	Estimated ADWF (m ³ /day)	Contribution in total SPS capacity (%)
Villa Sunshine	104 ^[1]	120.7	Approx. 1%
Hong Ping Villa	73 ^[1]		
Fiori	235 ^[1]		
Estate Management and Recreation Facilities	28		
Development site	34851	6772.4	Approx. 80%
Total	35291	6893.1	Approx.81%

Note:

[1] Population estimated based on household size per flat stated in Hong Kong Housing Authority – Housing in Figures 2017 Data.

1.4.4 Sewage discharged to the proposed SPS will flow through the inlet chamber and pass through the mechanical bar screens (1 duty/ 1 standby) in the screening chambers. It will then enter into the wet wells. Submersible pumps (2 duty/ 2 standby) with capacity of 150L/s each in the wet well will pump the sewage out through the flowmeters to the twin 450mm rising main, and discharge to the existing sewer on Castle Peak Road junction with Ma Fung Ling Road through the proposed gravity sewers. Signals in the proposed SPS will be transmitted to both SWSTW and Yuen Long Sewage Treatment Works.

1.4.5 The wet well has a capacity of approximately 754m³ and is able to store 2.13hours ADWF together with the upstream inlet chamber and screening chamber. A 710mm emergency by-pass pipe is proposed from the inlet chamber of the pumping station to the existing stormwater drainage system as shown in **Figure 1.2**.

1.4.6 The land use at the location of the proposed SPS remained largely agricultural from the 1960s onwards until the establishment of the ex-Long Bin Interim Housing in 1999. The ex-Long Bin Interim Housing was demolished in 2017. The land use has since remained unchanged.

1.5 Number and Type of Designated Project

1.5.1 The proposed SPS will have an installed capacity of 8,500m³/day and a boundary which is less than 150m from both existing and planned residential areas. Hence, the proposed SPS is classified as a Designated Project (DP) under Schedule 2 Part I of the EIAO:

- Item F.3(b) – A sewage pumping station with an installed capacity of more than 2,000m³ per day and a boundary of which is less than 150m from an existing or planned residential area or educational institution.

1.5.2 This Project Profile is prepared to establish the environmental acceptability of the Project, and to seek permission from the Director of Environmental Protection to apply directly for an environmental permit (EP) for the construction and operation of the Project under Section 5(11) of the EIAO (Cap. 499).

1.6 Name and Telephone Number of Contact Person

1.6.1 All queries regarding the Project can be addressed to:

Mr. CHAN Wai Kit, Thomas (Chief Engineer/Housing Projects 2)
Civil Engineering and Development Department
Civil Engineering Office
Housing Projects 2 Division
5/F, Civil Engineering and Development Building, 101 Princess Margaret Road, Homantin, Kowloon
Tel.: 2762 5603

2 Outline of Planning and Implementation Programme

2.1 Planning and Implementation

- 2.1.1** CEDD will be responsible for the construction of the proposed SPS whereas Drainage Services Department (DSD) will be responsible for operation and maintenance of the proposed SPS throughout the operational phase.

2.2 Project Programme

- 2.2.1** The construction of the proposed SPS is scheduled to commence in Year 2021 and would be completed by Year 2024 before Phase 1 and Phase 2 population intake of the planned housing development at Long Bin.

2.3 Potential Interface with Other Projects

- 2.3.1** Major committed concurrent projects as shown in **Figure 2.1** within 500m assessment area of the Project have been identified in **Table 2.1** below. The construction of the proposed housing development project (Phase 2) at Long Bin by Hong Kong Housing Authority (HKHA) and the primary school project at Long Bin by Architectural Services Department (ArchSD) will tentatively start construction in Year 2024 and Year 2026 respectively, so they are not concurrent projects.

Table 2.1 Potential interface with other projects

Projects	Project Proponent	Construction Programme (Tentative)	
		Start	Complete
Retrofitting of Noise Barriers on Long Tin Road	Highways Department (HyD)	2020	2024
Site Formation and Infrastructural Works for Proposed Housing Development Project at Long Bin (Phase 1)	CEDD	2021	2024
Site Formation and Infrastructural Works for Proposed Housing Development Project at Long Bin (Phase 2)	CEDD	2024	2026
Footbridge A under Site Formation and Infrastructural Works for Proposed Housing Development Project at Long Bin	CEDD	2021	2023

Projects	Project Proponent	Construction Programme (Tentative)	
		Start	Complete
Footbridge B&C under Site Formation and Infrastructural Works for Proposed Housing Development Project at Long Bin	CEDD	2021	2024
Proposed Housing Development Project (Phase 1) at Long Bin	HKHA	2020	2025

3 Major Elements of the Surrounding Environment

3.1 Air Quality

3.1.1 Air Sensitive Receivers

3.1.1.1 Air Sensitive Receivers (ASR) are identified in accordance with Annex 1 and Annex 12 of the Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO).

3.1.1.2 Representative ASRs that may be affected by construction and operation of the proposed SPS are listed in **Table 3.1** and presented in **Figure 3.1**.

Table 3.1 Representative air sensitive receivers

ASR ID	Description	Use ^[1]	Horizontal distance from the nearest Site Boundary for the Proposed SPS (m)
Existing ASRs			
A1	Villa by the Park	R	230
A2	Hong Ping Villa	R	50
A3	Villa Sunshine	R	60
A4	Park Royale	R	155
Planned ASRs ^{[2][3]}			
PA1	Long Bin Development Site Phase 1	R	<5 ^[4]

Note:

[1] R – Residential

[2] Only regarded as ASRs during operational phase of the proposed SPS.

[3] The development scheme has been agreed with HKHA and CEDD.

[4] Distance from the proposed SPS building façade would be around 15m.

3.1.1.3 The major existing source of pollutant emissions in the assessment area is vehicular emission from nearby major roads (e.g. Castle Peak Road – Ping Shan, Long Tin Road, etc.). Potential odour impact is anticipated due to the operation of the proposed SPS.

3.1.2 Existing Ambient Air Quality Conditions

3.1.2.1 Historical air quality monitoring data from the Air Quality Monitoring Station (AQMS) operated by EPD have been examined. The nearest EPD AQMS is located in Yuen Long. The air quality monitoring data monitored in Yuen Long AQMS for recent 5 years (i.e. Year 2015 to Year 2019) are tabulated in **Table 3.2** below.

Table 3.2 Air Quality Monitoring Data (Yuen Long AQMS, 2015-2019)

Pollutant	Parameter	Concentrations (µg/m ³)						AQOs (µg/m ³)
		2015	2016	2017	2018	2019	5-year mean	
SO ₂	4 th highest 10-minutes	51	58	80	52	42	57 [11%]	500 (3)

Pollutant	Parameter	Concentrations ($\mu\text{g}/\text{m}^3$)						AQOs ($\mu\text{g}/\text{m}^3$)
		2015	2016	2017	2018	2019	5-year mean	
	4 th highest 24-hour	17	17	20	17	11	16 [13%]	125 (3)
NO ₂	19 th highest 1-hour	162	149	156	150	161	156 [78%]	200 (18)
	Annual	45	46	41	43	44	44 [110%]	40
CO	Max. 1- hour	2460	2080	1450	1720	2150	1972 [7%]	30,000
	Max. 8- hour	2140	1470	1324	1574	1903	1684 [17%]	10,000
O ₃	10 th highest 8-hour	161	143	175	162	200	168 [105%]	160 (9)
RSP	10 th highest 24-hour	102	86	87	75	83	87 [87%]	100 (9)
	Annual	44	37	40	37	37	39 [78%]	50
FSP	10 th highest 24-hour	78	63	52	46	45	57 [76%]	75 (9)
	Annual	30	23	22	20	20	23 [66%]	35

Note:

[1] Number of exceedance allowed under the AQO is shown in (), % of the AQO is shown in []. The 5-year mean is the average of the yearly maximum.

[2] Monitoring results exceeding the AQO are bolded.

3.1.2.2 It can be seen from **Table 3.2** that there was no obvious trend for the 19th highest 1-hour NO₂ concentration and the range was from 149 $\mu\text{g}/\text{m}^3$ in 2016 to 165 $\mu\text{g}/\text{m}^3$ in 2014, all complying with the AQOs of 200 $\mu\text{g}/\text{m}^3$. A decreasing trend of annual NO₂ concentration was observed from Year 2015 to Year 2017, but it was increased slightly in Year 2018 and Year 2019. The annual NO₂ concentration ranged from 41 $\mu\text{g}/\text{m}^3$ in Year 2017 to 46 $\mu\text{g}/\text{m}^3$ in Year 2016, all exceeding the AQOs of 40 $\mu\text{g}/\text{m}^3$.

3.1.2.3 A decreasing trend of RSP concentration was observed from Year 2015 to Year 2018, but it was increased in Year 2019. The 10th highest daily RSP concentration records exceeded the AQO in Year 2015. The annual concentrations ranged from 37 $\mu\text{g}/\text{m}^3$ in Year 2016, Year 2018 and Year 2019 to 44 $\mu\text{g}/\text{m}^3$ in Year 2015, all complying with the AQOs of 50 $\mu\text{g}/\text{m}^3$.

3.1.2.4 A decreasing trend was also observed for FSP. The 10th highest daily FSP concentrations decreased from 78 $\mu\text{g}/\text{m}^3$ to 45 $\mu\text{g}/\text{m}^3$, where exceedances the AQO were found in Year 2015. The annual FSP concentrations were in the range of 20 $\mu\text{g}/\text{m}^3$ to 30 $\mu\text{g}/\text{m}^3$, all complying with the AQOs of 35 $\mu\text{g}/\text{m}^3$.

3.1.2.5 The 10th highest 8-hour averaged O₃ concentrations exceeded the AQOs during the 5 years period except Year 2016, ranging from 143µg/m³ in Year 2016 to 200µg/m³ in Year 2019.

3.1.2.6 Monitoring records of SO₂ and CO indicated that these two pollutants were in relatively low level. Both pollutants were well within the AQO.

3.2 Noise

3.2.1 Noise Sensitive Receivers (NSR) are identified in accordance with Annex 5 and Annex 13 of the Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO).

3.2.2 Representative NSRs that may be affected by construction and operation of the proposed SPS are listed in **Table 3.3** and presented in **Figure 3.2**. Photos of the identified existing NSRs are presented in **Appendix 3.1**.

Table 3.3 Representative noise sensitive receivers

NSR ID	Description	Use ^[1]	No. of Storey	Horizontal Distance from the Nearest Site Boundary for the proposed SPS (m)
Existing NSRs				
N1	Block 3, Villa by the Park	R	26	230
N2	House No. 2, Hong Ping Villa	R	2	50
N3	Block 1, Villa Sunshine	R	4	60
N4	Tower 9, Park Royale	R	11	155
Planned NSRs ^{[2][3]}				
PN1	Long Bin Development Site Phase 1	R	43	<5 ^[4]

Note:

[1] R – Residential

[2] Only regarded as NSRs during operational phase of the proposed SPS.

[3] The development scheme has been agreed with HKHA and CEDD.

[4] Distance from the proposed SPS building façade would be around 15m.

3.2.3 The noise climate in vicinity of the Project is dominated by road traffic noise from Castle Peak Road – Ping Shan and Long Tin Road.

3.3 Water Quality

3.3.1 The proposed SPS is located within the Deep Bay Water Control Zone (WCZ). The representative water sensitive receiver (WSR) in the vicinity of the proposed SPS is tabulated in **Table 3.4** and presented in **Figure 3.3**.

Table 3.4 Representative water sensitive receiver

ID	WSRs	Status
WSR 1	Nullah along Long Tin Road	Channelized watercourse

3.4 Land Contamination

3.4.1 A site appraisal, comprising desktop review and site walkover, had been carried out to identify the current and historical land uses which may have potential for causing land contamination within the site area of the proposed SPS.

3.4.2 Historical aerial photos are shown in **Appendix 3.2** and a summary of findings in the historical aerial photos are tabulated in **Table 3.5**.

Table 3.5 Description summary of historical aerial photos

Year	Land use at the proposed SPS
1963	Occupied by farmland.
1973	Land use remained unchanged.
1982	Occupied by farmland and some vegetations.
1993	Occupied by squatters and vegetations.
2001	Occupied by ex-Long Bin Interim Housing and vegetations.
2011	Land use remained unchanged.
2017	Land use remained unchanged

3.4.3 Historical aerial photos indicated that the previous land uses at the proposed SPS were mainly farmland and residential areas. The site has been used as ex-Long Bin Interim Housing since Year 2001 and no major change in land use is observed since then. Hence, no potential contaminating activities were identified.

3.5 Ecology

3.5.1 According to the ecological surveys of Agreement No. CE 26/2015 (CE) for the study carried out from January to April 2016, the habitat (developed area) identified within the proposed SPS is evaluated as of low ecological value, except the bat roosts recorded nearby would be of low to moderate ecological value. The ecological sensitive receivers located in the vicinity include the roosts of Short-nosed Fruit Bat *Cynopterus sphinx* and plant species *Aquilaria sinensis*, *Camellia oleifera* and *Livistona chinensis*.

3.5.2 Updated surveys were conducted in August 2018. The ecological value of the habitat (developed area) identified within the proposed SPS is also evaluated as low, except the bat roosts are low to moderate. No active bat roosts were identified during the survey, but inactive or abandoned roosts were observed, including a Chinese Fan-palm within the proposed SPS (see **Figure 3.4**). For the plant species recorded in Agreement No. CE 26/2015 (CE), only *Camellia oleifera* and *Livistona chinensis* were recorded during the surveys conducted in August 2018.

3.5.3 Short-nosed Fruit Bat is protected in Hong Kong under Cap. 170. It was found roosting on Chinese Fan-palms *Livistona chinensis* recorded near the boundary of the proposed SPS in Agreement No. CE 26/2015 (CE). During

the surveys conducted in August 2018, signs of bat roost were observed on the Chinese Fan-palm within the proposed SPS. The locations of the Chinese Fan-palms recorded nearby during the surveys conducted in August 2018 are presented in **Figure 3.4**.

3.5.4 A sapling of *Aquilaria sinensis* was recorded from approximately 150m from the boundary of the proposed SPS in Agreement No. CE 26/2015 (CE) but cannot be found during the survey conducted in August 2018. *A. sinensis* recorded was a sapling; it is listed as Near Threatened and protected under State protection (Category II) in China (AFCD 2003) and listed as Vulnerable by IUCN (2018). The wild population of this species is protected under Cap. 586, but is also considered to be common in lowland areas in Hong Kong (AFCD 2008).

3.5.5 Approximately 30 shrub individuals of *C. oleifera* were recorded within 150m from the boundary of the proposed SPS and this group was also found during the surveys conducted in August 2018. All *Camellia* species are protected under Cap 96A. The native shrub *C. oleifera* is commonly planted for ecological enhancement as well as a hard surface cover for the man-made slope greening and the specimens recorded were in planted form.

3.6 Landscape and Visual

3.6.1 The new SPS site is located in area adjacent to the demolished Long Bin interim housing. Its vicinity is characterized by road and residential site, namely Hong Ping Villa and Villa Sunshine, etc. Trees, shrub and grasses are scattered in roadside planter along Castle Peak Road – Ping Shan.

3.6.2 Findings from Preliminary Landscape and Visual Impact Assessment (LVIA) under "Site Formation and Infrastructural Works for the Development at Long Bin, Yuen Long - Feasibility Study" (Agreement NO. CE 26/2015(CE)) have been reviewed so as to establish the baseline landscape and visual character.

3.6.3 The visual envelope is the area from which any part of the proposed project can be seen and fully visible. Given the low rise of the proposed SPS (+mPD 15.2), key VSR are mapped out in **Figure 3.5**. The visual envelope of the proposed SPS is bounded by the viaduct (Long Tin Road) to the east; the planned high rise residential site to the south; the foothill (+40mPD) in Ping Shan Lane to the west; and the foothill (+20mPD) in Yung Yuen Road to the north. There would be some potential visual impact on the adjacent Visual Sensitive Receivers (VSRs) in the vicinity of above SPSs. The residential in Park Royale will only have limited view towards to the proposed SPS, as majority of the view (towards to the proposed SPS) will be blocked by the Viaduct (Long Tin Road). VSRs within the visual envelope are identified and summarized in **Table 3.6**. (refer to **Figure 3.5**. Impacts arising from the works have been reviewed and it is concluded that

the magnitude of impact would be small due to its small scale and localized nature.

Table 3.6 Representative VSRs

VSR ID	Description	Type of VSRs
VSR1	Workers at industrial buildings along Castle Peak Road – Ping Shan - Century Centre	Industrial
VSR2	Residential VSRs at low-rise Residential Buildings close to Long Bin Interim Housing - Hong Ping Villa and Villa Sunshine	Residential
VSR3	Travellers along Castle Peak Road – Ping Shan	Transportation
VSR4	Travellers to planned housing site	Transportation
VSR5a & VSR 5b	Planned residential VSRs at future housing site in Long Bin	Residential
VSR 6	Residential VSR at Villa Sunshine	Residential

3.6.4 Based on the tree survey conducted in 2018, there are approx. 6 nos of trees was identified within the boundary of the proposed SPS. They are all common tree species within Hong Kong, and no rare tree species are recorded within the boundary of the proposed SPS (refer to **Table 3.6b** for the summary of trees species surveyed within the boundary of the proposed SPS).

3.6.5 There are no Registered Old and Valuable Trees (OVTs) identified within or in the immediate vicinity of the proposed SPS.

Table 3.6b Summary of Trees Surveyed within the boundary of the proposed SPS

Tree No.	Scientific Name	Chinese Name	size	Recommendation
T0918	<i>Spathodea campanulata</i>	火焰樹	6m (H) x 4m (S), 340mm DBH	fell
T0919	<i>Spathodea campanulata</i>	火焰樹	7m (H) x 4m (S), 350mm DBH	fell
T0920	<i>Spathodea campanulata</i>	火焰樹	7m (H) x 4m (S), 300mm DBH	fell
T0921	<i>Macaranga tanarius</i> var. <i>tomentosa</i>	血桐	3m (H) x 4m (S), 180mm DBH	fell
T0922	<i>Macaranga tanarius</i> var. <i>tomentosa</i>	血桐	6m (H) x 6m (S), 350mm DBH	fell
T0923	<i>Livistona chinensis</i>	蒲葵	7m (H) x 4m (S), 170mm DBH	Transplant

3.7 Cultural Heritage

3.7.1 No known sites of archaeological interest and declared monuments are located within the 100m assessment area. The closest cultural heritage resources would be a historic building included in the "List of the 1,444

Historic Buildings in Building Assessment" and "List of new items for grading assessment" (See **Table 3.7**), which is located at 220m away from the proposed SPS (**Figure 3.7**).

Table 3.7 List of built heritage nearby the proposed SPS

Item Number	English	Chinese	Grading
565	Ping Shan House, Richmond Fellowship of Hong Kong, No. 10 Ping Shan Lane, Ping Shan, Yuen Long, N.T.	新界元朗屏山屏山里 10 號利民會屏山樓	2

4 Possible Impact on the Environment

4.1 Outline of Processes Involved

4.1.1 Construction Phase

4.1.1.1 The proposed SPS will be constructed by conventional building construction method. Major construction activities involve excavation, piling and installation of electrical and mechanical equipment. Since the proposed SPS will be constructed within the area of ex-Long Bin Interim Housing where the land has been already formed, no site formation works are required.

4.1.1.2 The existing Castle Peak Road – Ping Shan and the existing road networks within the ex-Long Bin Interim Housing will be used as the temporary construction access for the transport of construction equipment. The construction equipment and materials will be stored within the site boundary of the proposed SPS as shown in **Figure 1.1**.

4.1.2 Operational Phase

4.1.2.1 The proposed SPS will collect the sewage generated from the planned public housing development at Long Bin, as well as the existing development including Hong Ping Villa, Villa Sunshine and Fiori. It is also designed with reserved capacity for future connection to local sewerage system.

4.1.2.2 Sewage entering the proposed SPS will first pass through a screening chamber where the screens (1 duty/ 1 standby) will remove large substances in the sewage to avoid damages to the pumps. Then, the screened sewage will go to the wet well. Submersible pumps (2 duty/ 2 standby) with capacity of 150L/s each in the wet well will pump the sewage out of the proposed SPS to Ha Tsuen SPS. Eventually, the sewage would be discharged to SWSTW for treatment and disposal.

4.1.2.3 The proposed SPS will be fully enclosed by a single-storey concrete structure. An exhaust outlet is proposed on the roof with deodourising units. The access to the proposed SPS will be via the future cul-de-sac connecting the Castle Peak Road – Ping Shan and the planned public housing development at Long Bin (Phase 1).

4.1.2.4 The Project would impose potential environmental impacts during its construction and operational phases as described below.

4.2 Air Quality

4.2.1 Construction Phase

4.2.1.1 Dust generated from construction activities such as excavation, backfilling, wind erosion of exposed area, temporary storage and handling of spoil and superstructure works, etc. could affect nearby ASRs in the vicinity. However, given the site area of the proposed SPS is small (i.e. 930m²) and the land has already formed, only minor excavation works are expected and limited dust emissions would be induced by the construction of the proposed SPS.

4.2.1.2 The construction of the proposed SPS would be completed before the occupation of the proposed housing development at Long Bin. The nearest existing ASRs are at some 50m away from the boundary of SPS. Given the large separation distance and with the implementation of best practices and mitigation measures (see **Section 5.1**), dust emissions could be suppressed and potential air quality impact on ASRs in the vicinity of the proposed SPS would be minimized. Therefore, no adverse construction dust impact is anticipated.

4.2.1.3 As mentioned in **Section 2.3**, the potential concurrent projects include (i) Retrofitting of Noise Barriers on Long Tin Road (ii) Site Formation and Infrastructural Works for Proposed Housing Development Project at Long Bin for both Phase 1 and Phase 2 (iii) Three Proposed Footbridge under Site Formation and Infrastructural Works for Proposed Housing Development Project at Long Bin and (iv) Construction of the Proposed Housing Development Project for Phase 1 at Long Bin by HKHA. For item (i), (iii) and (iv), the projects would not involve major site formation nor excavation activities, hence, significant dust emission is considered not likely. For item (ii), the land for Phase 1 and northern section of Phase 2 of Long Bin development has been already formed and hence no site formation and excavation works would be necessary. Site formation works for other areas for Phase 2 of Long Bin development would be conducted at least 150m from the proposed SPS, and the dusty construction activities would be conducted in phases and best site practices would be implemented to minimize dust emissions. Nevertheless, the proposed SPS would have a relatively smaller works area (i.e. around 930m²), with the implementation of proper dust control measure, cumulative dust impacts with other concurrent projects are considered not likely.

4.2.2 **Operational Phase**

4.2.2.1 According to the current design, the proposed SPS would have a designed capacity of 8,500m³/day ADWF. The inlet, screen chambers and wet wells of the proposed SPS would be the odour sources to the nearby ASRs during operational phase. Mitigation measures including enclosure of odorous facilities, maintaining negative pressure to prevent foul air from flowing out and provision of deodourising units of at least 99.5% odour removal efficiency at the exhaust vent, would be provided, as such potential odour impact to the nearby planned and existing ASRs can be controlled.

4.2.2.2 On this regard, an odour survey at existing SPSs (i.e. existing Ting Kok Road No.5 SPS and Tai Po Tai Wo Road SPS) was conducted under a temperature of around 30°C and <1m/s windspeed. The capacities of Ting Kok Road No.5 SPS and Tai Po Tai Wo Road SPS are 11,520 and 12,100 m³/day ADWF respectively which are of comparable with the proposed SPS, and they are also installed with deodourising units of at least 99.5% odour removal efficiencies. No noticeable odour was identified at the periphery of the SPSs during the survey.

4.2.2.3 Furthermore, a desktop review has also been conducted to compare against committed SPSs which have greater designed capacities and shorter separation distances from their respective identified ASRs than that of the

proposed SPS. Three SPSs have been selected (including Tung Chung East (TCE) West SPS, Cherry Street Box Culvert SPS and the upgraded Ting Kok Road No.5 SPS) for the following comparison (See **Table 4.1**).

Table 4.1 Summary table of committed SPSs

Feature	Tung Chung East (TCE) West SPS (EP-519/2016)	Cherry Street Box Culvert SPS (EP-523/2016)	Upgraded Ting Kok Road No.5 SPS (EP-554/2018)	The Proposed SPS
ADWF	12,891m ³ /day	43,200m ³ /day	21,000m ³ /day	8,500m ³ /day
Shortest separation distance with closest ASR	10m	10m	13m	15m ^[1]
Enclosure of odourous facilities	Yes	Yes	Yes	Yes
Odour removal efficiency of deodourising units	At least 95%	At least 99.5%	At least 99.5%	At least 99.5%

Note:

[1] Distance from the proposed SPS building façade would be around 15m.

4.2.2.4 It can be seen from the above table that all three SPSs are equipped with higher capacities and shorter separation distances with the identified ASRs than that of the proposed SPS. Notwithstanding the above, all SPSs are installed with odour removal efficiencies (i.e. at least 95%) at their deodourising units. All related studies of these SPSs indicated that potential odour impacts could be properly controlled and no adverse odour impacts would be anticipated. Hence, with regard to the odour survey conducted and referenced SPSs as listed above, similar environmental outcome is also anticipated at the proposed SPS. It is recommended that the outlet of the proposed SPS would have at least 99.5% odour removal and at 15m separation distance facing away from all identified ASRs as far as practicable.

4.2.2.5 As confirmed during site survey, there are no other odour sources within 500m assessment area. Besides, none of the concurrent projects are considered as odour sources and thus cumulative odour impact is not anticipated.

4.3 Noise

4.3.1 Construction Phase

4.3.1.1 Noise would be generated from the use of powered mechanical equipment (PME) during construction activities including excavation, piling and superstructure for the Project.

4.3.1.2 Construction works during restricted hours (i.e. 1900 to 0700 hours (of the next day) from Monday to Saturday and at any time on a general holidays (including Sundays) or public holidays) are not expected. A Construction

Noise Permit is required under the Noise Control Ordinance (NCO) in case the construction works are to be carried out during night-time (1900 – 0700), Sundays and public holidays.

4.3.1.3 Construction noise assessment has been conducted based on the Technical Memorandum (TM) on Noise from Construction Work other than Percussive Piling (TM-GW). Cumulative noise impacts arising from the identified concurrent projects including retrofitting of noise barrier at Long Tin Road, footbridge, site formation and infrastructural works for proposed housing development project at Long Bin and proposed housing development project (Phase 1) at Long Bin have also been considered.

4.3.1.4 With implementation of all the practicable mitigation measures including use of quiet plant, movable noise barrier, full enclosure, the maximum noise impact for the proposed SPS itself and the maximum cumulative noise impact including all other concurrent construction works at all the representative NSRs are 69 dB(A) and 75 dB(A) respectively. Therefore, it is predicted that the noise levels at all NSRs comply with the relevant criterion.

4.3.2 **Operational Phase**

4.3.2.1 The operation of the electrical and mechanical equipment inside the proposed SPS including sewage pumps, air exhaust fans, etc. is the major fixed noise source during operational phase. According to the current plant design, all the facilities will be housed within reinforced concrete structure with soundproof doors. In addition, the layout of the SPS shall be optimized such that the louvers shall be located away from the sensitive receivers as far as practicable.

4.3.2.2 Fixed noise assessment has been conducted based on the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (TM-Places).

4.3.2.3 Noise impacts from the planned fixed plant could be effectively mitigated by implementing good design and noise mitigation measures at source during the detailed design stage. It has been confirmed that there are a total of five louvers designed for the proposed SPS. One is located at the roof of the screening room with openings to the north, east and south; two are located at the façade of store room and pump room facing Castle Peak Road (Ping Shan); the remaining two are located at the façade of the transformer room facing the west. The worst representative NSRs (i.e. N2 – House No.2, Hong Ping Villa; N3 – Block 1, Villa Sunshine and PN01 – Long Bin Development Phase 1) having the line of sight to the louvers have been assessed. The maximum allowable SWL of the louver on the roof and the remaining four louvers at the facades shall be designed and controlled to not more than 75dB(A) and 78dB(A) respectively. With the proposed maximum allowable SWL, the predicted noise levels at representative NSRs would comply with the relevant noise criteria. Therefore, adverse fixed noise sources impacts to the NSRs is not anticipated.

4.4 Water Quality

4.4.1 Construction Phase

4.4.1.1 Potential water quality impacts arising from uncontrolled site runoff and erosion of exposed soil, earthworks and stockpiles during episodic rainfall events. Wastewater generated during daily operation of the worksite, such as washing of construction vehicles, boring and drilling water etc., could also induce potential water quality impact to nearby water sensitive receivers (WSRs). However, given the site area of the proposed SPS is small (i.e. 930m²), only very limited amount of muddy site runoff would be generated during the construction period.

4.4.1.2 With the implementation of best practices and mitigation measures (see **Section 5.3**), wastewater and site runoff generated from construction activities will be properly pre-treated prior to discharge into the public stormwater system as far as practicable to minimize adverse water quality impact.

4.4.1.3 Sewage from the workforce would also be another potential source of water quality impacts. With provision of sanitary facilities and subsequent proper handling, potential water quality impact during construction phase is not anticipated.

4.4.2 Operational Phase

4.4.2.1 The proposed SPS is designed to collect sewage to be generated from the planned public housing development at Long Bin and other nearby existing residential clusters. The collected sewage would be pumped to SWSTW for treatment and disposal; hence no adverse water quality impact is anticipated during normal operations.

4.4.2.2 Under emergency situation (e.g. pump failure, electricity cut off, pipe bursting, etc) where overflow of the proposed SPS occurs, an emergency discharge will be connected to the nearest drainage manhole near Castle Peak Road – Ping Shan. It will be further arranged to avoid discharging into the nearby WSRs (e.g. Nullah along Long Tin Road). With the implementation of mitigation measures in **Section 5.3**, the chances of emergency discharge are deemed very remote, hence, potential water quality impact to the nearby WSRs would be minimized as far as practicable.

4.5 Waste

4.5.1 Construction Phase

4.5.1.1 Solid waste generated from construction activities including construction and demolition (C&D) materials, chemical waste, general refuse etc. C&D materials include both inert component (i.e. public fills) and the non-inert C&D materials (i.e. C&D wastes), such as excavated spoil (soil and rock), unusable concrete and grout, wood, metal scraps, equipment parts and plastics. The estimated volume of inert C&D materials would be about 3,750m³ of which 500m³ would be reused on-site. The remaining inert C&D materials would be disposed of at Tuen Mun Area 38 Fill Bank. It is

anticipated that the estimated volume of non-inert C&D materials would be minimal. Small amount of chemical waste may also be generated. Generation of general refuse of 6.5 kg/day would be estimated. Those cannot be reused or recycled will be disposed of at WENT Landfill. With the implementation of the mitigation measures presented in **Section 5.4**, adverse environmental impacts arising from the storage, handling and transportation of C&D materials and waste would not be anticipated during construction phase.

4.5.2 Operational Phase

4.5.2.1 The main types of wastes to be generated from the operation of the proposed SPS include screening wastes and chemical waste. Sewage would be sieved through mechanical screens to prevent pump damages by large objects and outage of pumping system. It is expected that the quantity of screening wastes to be generated from the proposed SPS would be negligible with reference to the records of other existing SPSs of similar scale. Generation of chemical waste (mainly lubricant oil and paints) would also be negligible during the maintenance of the proposed SPS. The screening waste will be collected by operator and disposed of at WENT Landfill. With proper mitigation and control requirements presented in **Section 5.4**, adverse environmental impacts would not be anticipated during operational phase.

4.6 Land Contamination

4.6.1 Construction Phase

4.6.1.1 Based on the review of historical aerial photos, the land use at the location of the proposed SPS remained largely agricultural from the 1960s onwards until the establishment of the ex-Long Bin Interim Housing in 1999. The ex-Long Bin Interim Housing was demolished in 2017. Site appraisal revealed that the land use has since remained unchanged.

4.6.1.2 No potentially contaminating activities were identified at the works area of the proposed SPS. No land contamination impacts are therefore anticipated for construction of the Project.

4.6.2 Operational Phase

4.6.2.1 No adverse land contamination impact is anticipated during the operation of the proposed SPS.

4.7 Ecology

4.7.1 Construction Phase

4.7.1.1 Direct habitat loss will be restricted to low value developed area within the boundary of the proposed SPS, hence, the loss of developed area is considered to be insignificant.

4.7.1.2 No active Short-nosed Fruit Bat roosts were recorded within the boundary of the proposed SPS in Agreement No. CE 26/2015 (CE) and during the surveys conducted in August 2018; but signs of bat roost were observed on

the Chinese Fan-palm within the proposed SPS, and on the Palms in the proximity. Any Chinese Fan-palms are potential roosting site of the Bat; any felling of Chinese Fan-palms with Bat roost may violate Cap. 170. Any retained Chinese Fan-palm with roosting bats may be prone to disturbance impacts. Short-nosed Fruit Bat is considered to be widespread in urban areas in Hong Kong (Shek 2006) and as such the disturbance impacts are considered to be low.

4.7.2 Operational Phase

4.7.2.1 Given that the proposed SPS will be located in the developed area, which is already subject to levels of disturbance; hence the operation of the Project is not expected to result in significant increase in disturbance.

4.8 Landscape and Visual

4.8.1 Construction Phase

4.8.1.1 The Project will inevitably result in varying levels of landscape and visual impacts arising from the proposed works during construction phase, namely:

- Site clearance works involving the removal of existing vegetation;
- Excavation works;
- Material stockpiling;
- Importation and storage of construction equipment and plant; and
- Night lighting.

4.8.1.2 These impacts have been minimized through careful consideration of proposed engineering design, minimization of works areas, incorporation of aesthetic external designs and landscape treatments of proposed infrastructural works. Proposed SPS will seek DSD VCB 's advise as per DSD technical Circular No. 3/2015 – Vetting committee on Aesthetic Design of drainage Services building, and shall be in accordance with the DSD “Guidelines on Aesthetic Design of Pumping Station Buildings”.

4.8.1.3 It is anticipated that there are 6 nos. of existing trees would be inevitably affected by the proposed SPS, in which 5 tree nos are recommended to fell and 1 no tree is recommended to transplant. All affected species are common trees species in Hong Kong (Table 3.6b refers to), and with overall height from 3(H) to 7m(H), DBH from 0.17m to 0.35m, and crown spread from 4m to 6m. There is no Registered Old and Valuable Tree (OVT) nor Trees of particular interest would be affected by the proposed SPS. Refer to Figure 4.4 and 4.5 for the location of compensatory and transplanted tree and schedule.

4.8.1.4 During construction, VSRs at close proximity (VSR2- at low-rise residential buildings in Hong Ping Villa and Villa Sunshine, VSR3 – travelers along Castle Peak Road – Ping Shan) would experience a small scale of temporary and reversible change of view. Implementation of the construction phase mitigation measures will reduce the potential visual impacts to a degree. However, the residual impacts after mitigation will still be considerable due to the close proximity to the VSR 2 and VSR3. The construction of the

proposed SPS is scheduled to commence in Year 2021 and would be completed by Year 2023, before the population intake of planned housing development at Long Bin. In this connection, VSR4 – traveler to planned housing site, and VSR5a and VSR5b – planned residential VSRs at future housing site in Long Bin will not be affected by the construction.

- 4.8.1.5** The results of the review indicated that, with the implementation of the proposed mitigation measures, it is considered that the residual landscape and visual impact will be reduced to an acceptable level and there will be only insubstantial residual landscape and visual impacts during construction phase.

4.8.2 Operational Phase

- 4.8.2.1** The Project will inevitably result in some landscape and visual impacts arising from the proposed works during operation phase, namely:

- Night lighting from the SPS along the outer edge of the building;
- Boundary fence along the boundary of the SPS, and the total site area is around 930m²; and
- The building height is approximately +mPD 15.2m(H).

- 4.8.2.2** VSR2 – residential VSR at low-rise residential buildings of Hong Ping Villa and Villa Sunshine, which is immediately to the north of the proposed SPS. The view (Figure 4.1) represents the VSR2 viewing towards the proposed SPS. With the implementation of mitigation measures (OM1, OM2, and OM3), the building mass of the proposed SPS is visually compatible with the urban context along Castle Peak Road – Ping Shan. Proposed building mass of the SPS (+mPD 15.2) will not block any visual resources, namely, open sky view nor natural hillside.

- 4.8.2.3** VSR5a and VSR5b – planned residential VSR at future Housing Site in Long Bin, which is immediately south of the proposed SPS. This view point (Figures 4.2 and 4.3) represents the views of the future residential VSRs. With the implementation of vertical greening (OM2) and provision of green roof (OM3), the proposed SPS seen as comparable to the existing site context. No visual resources and sky view will be disturbed.

- 4.8.2.4** These impacts have been minimized through careful consideration of proposed engineering design, incorporation of aesthetic external designs and landscape treatments of proposed infrastructural works. Upon review of landscape and visual impact, it is considered that, with the implementation of the proposed mitigation measures, the residual landscape and visual impact will be reduced to an acceptable level and there will be only insubstantial residual landscape and visual impacts during operation phase. Master Landscape Plan and Photomontages illustrating appearance of SPSs during operation phase are provided in **Figure 4.1a, 4.1, 4.2 and 4.3**.

4.9 Cultural Heritage

4.9.1 Construction Phase

- 4.9.1.1** The closest cultural heritage resources would be a Grade 2 historic building located at some 220m away from the proposed SPS. Given the large separation distance, the potential ground vibration caused by construction activities is not likely to affect the historic building.

4.9.2 Operational Phase

- 4.9.2.1** No adverse cultural heritage impact is anticipated during the operation of the proposed SPS.

5 Environmental Mitigation Measures to be Incorporated in the Design and Any Further Environmental Implications

5.1 Air Quality

5.1.1 Construction Phase

5.1.1.1 Limited amount of dust emissions is anticipated during construction of the proposed SPS, dust mitigation measures as stipulated in the *Air Pollution Control (Construction Dust) Regulation (Cap. 311R)* should be implemented to reduce and minimize any potential fugitive dust emission. Possible key measures include:

- Regular watering on all exposed and unpaved surface, particularly during dry weather;
- Frequent watering for particularly dusty construction areas and areas close to ASRs;
- Minimise temporary storage of stockpiles on site;
- Cover excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
- Wheel washing facilities at the exit points of the site;
- Cover dusty materials on vehicles leaving the site; and
- Dust suppression measures.

5.1.2 Operational Phase

5.1.2.1 All facilities and areas with potential odour emission such as wet wells, inlet chamber and screen chambers will be housed in by fully enclosed and reinforced concrete structure and the exhausted air will be conveyed to Deodourising (DO) unit with odour removal efficiency of 99.5% for treatment before being discharged. Performance/compliance test of the DO unit should be included as one of the requirements in the construction contract before the proposed SPS in operation. During operational phase, continuous monitoring of removal efficiency could be achieved by installation of monitoring system at the inlet and exhaust vent of the DO unit. Exhaust fan will also be provided to the DO unit to maintain a negative pressure in and prevent foul air from escaping the building. In addition, the exhaust outlet of the DO unit is recommended to strategically locate at least 15m facing away from the nearby air sensitive receivers as far as practicable.

5.1.2.2 The screening wastes will be removed regularly (i.e. at least twice a week) from the proposed SPS, and will be properly packed and handled carefully inside the screen houses that are fully enclosed by reinforced concrete structure and remained in the covered containers before disposal at landfill site to avoid off-site odour nuisance along the disposal route. The collected screening wastes should be transported to designated landfill for disposal immediately after collection from SPS.

5.2 Noise

5.2.1 Construction Phase

5.2.1.1 Good site practices and suitable noise mitigation measures shall be implemented by the Contractor during construction phase of the Project. Possible key measures to reduce construction noise impact include:

- Quiet plants, silencers or mufflers on construction equipment;
- Movable and temporary barriers to screen particular items of plant or noisy operations;
- Noise screening structures or purpose-built noise barriers along the site boundary;
- Good site practices such as locate noisy equipment and activities at farthest practicable distance, schedule noisy activities to minimise noise exposure, proper maintenance of construction plant, devise quiet methods of working, and regular noise monitoring;
- Proper planning of construction vehicle travelling route; and
- Schedule construction works outside school examination period where practicable.

5.2.1.2 Whilst it is generally considered too restrictive to specify that the Contractor has to use specific models or items of plant, it is reasonable and practicable to set plant noise performance specifications for specific PME so that some flexibility in selection of plant is allowed. A pragmatic approach would be to request that the Contractor independently verifies the noise level of the plant proposed to be used and demonstrates through furnishing of these results, that the plant proposed to be used on the Project Site meets the requirements.

5.2.2 Operational Phase

5.2.2.1 Proper design and suitable noise mitigation measures shall be implemented to control the operational noise of the fixed plants. Possible key measures to reduce operational noise impact include:

- All fixed plant equipment will be housed within reinforced concrete structure with soundproof doors;
- Install silencers or other acoustic treatment equipment at the outlet of air exhaust fans;
- Layout of the SPS shall be optimized such that the louvers shall be located away from the sensitive receivers as far as practicable;
- Specify the design noise criteria of the proposed SPS in the contract, and the contractor should design and select equipment that could comply with the contract requirement; and
- Carry out fixed noise commissioning test as per contract requirement prior to operation to demonstrate compliance with the noise criteria.

5.2.2.2 The Contractor shall select the equipment, enclose pumps, noisy plants and install acoustic silencers, acoustic louvre or acoustic enclosure as

appropriate to ensure the specified maximum SWLs from the louvers of the proposed SPS as shown in **Section 4.3.2** will not be exceeded.

5.3 Water Quality

5.3.1 Construction Phase

5.3.1.1 For the control of site runoff and sewage from workforce, the following possible key measures to control water quality impact include:

- Good site practice in accordance with the ProPECC PN 1/94 Construction Site Drainage and Recommended Pollution Control Clauses for Construction Contracts, and Environment, Transport and Works Bureau Technical Circular (Works) (TCW) No. 5/2005 Protection of Natural Stream / Rivers from Adverse Impact arising from Construction Works;
- Collection of construction runoffs for treatment by properly maintained silt trap and oil interceptor to remove oil, lubricants, grease, silt, grit and debris etc. to ensure compliance of Water Pollution Control Ordinance;
- Cover open stockpiles of materials with tarpaulin or similar fabric during rainstorms;
- Minimise works entailing soil excavation during rainy season;
- Properly maintained oil interceptors for collecting spillage or leakages from site workshops, with waste oil to be collected by licensed collectors;
- Mobile toilets or other appropriate means to store sewage before disposal through licensed collection agent or discharging to communal sewerage system; and
- Employ a licensed chemical waste collector for the collection and disposal/treatment of the wastewater from decontamination in accordance with the Waste Disposal (Chemical Waste) (General) Regulations.

5.3.2 Operational Phase

5.3.2.1 The following precautionary measures are recommended to be incorporated into the future design of the proposed SPS to minimize the chances of emergency discharge as far as practicable:

- A standby pump will be provided to cater for breakdown and maintenance of the duty pump;
- A standby mechanical raked bar screen will be provided to the screen house of the proposed SPS to cater for breakdown and maintenance of the screens;
- Bar screens will be installed in front of emergency overflow pipe at the proposed SPS to ensure that the overflow sewage is screened by bar screen in the unlikely event of overflow;
- Backup power supply in the form of dual/ring circuit power supply by CLP will be provided to secure electrical power supply;

- An alarm with telemetry system connecting to both Ha Tsuen SPS and Yuen Long Sewage Treatment Works (YLSTW) will be installed to signal emergency high water level in the wet well and any malfunction of the unmanned facilities;
- Regular maintenance and checking of plant equipment to prevent equipment failure;
- Twin rising mains system will be provided to facilitate the maintenance works and to avoid emergency bypass of sewage;
- A telemetry system to the nearest manned station/plant will be provided so that swift action can be taken in case of malfunction of the unmanned facilities;
- If all the above measures are exhausted, sewage will be tanked away to minimize the chance of emergency overflow; and
- All operating signals and closed-circuit television system images of the pumping station will be sent to Yuen Long Sewage Treatment Works (YLSTW) and Ha Tsuen SPS for remote monitoring and control.

5.3.2.2 In view of the above precautionary measures, the wet well has a capacity of approximately 754m³ and able to store 2.13-hour ADWF together with the upstream inlet chamber and screening chamber. With standard provisions for SPS including dual power supply, standby pumps and twin rising main, 24-hour real time monitoring and alert system and contingency plan for the SPS, the proposed SPS is considered to be equipped with high reliability and risk of minimizing the risk of emergency discharges is considered low.

5.3.2.3 In case an overflow does occur, all overflow sewage should be screened by bar screen (with clear spacing of ~25 mm) before discharged which can prevent the discharge of floating solids into receiving water bodies so far as is practicable while ensuring flooding at the facilities will not occur even if the screen is blocked.

5.3.2.4 With the emergency sewage overflow arrangement as mentioned above and implementation of the precautionary measures, the chances of emergency sewage bypass would be remote and the potential water quality impacts in the unlikely event that an overflow does occur would be minimized.

5.3.2.5 The SPS design has adopted the latest standard design and management practice adopted by DSD-

5.3.2.6 Any incident of emergency overflows from the proposed SPS will strictly follow EPD's "A Guide on Reporting Sewage Bypass Incidents in Sewage Pumping Stations and Sewers" and DSD's "Contingency Plan for Incidents Possibly Encountered in Sewage Treatment Facilities having a Potential of Generating an Environmental Nuisance" (Contingency Plan). It is laid out in the Contingency Plan that before taking the need of sewage overflows, all steps, as outlined in the Standard Checklist for Considering Various Options to Mitigate/Avoid Sewage Discharge Prior to Bypass for the Purpose of Maintenance or Minor Modifications in Existing Sewage Treatment Facilities (Appendix II(h) of Contingency Plan), should be carefully considered. All emergency sewage overflows to sensitive waters (e.g. Long West Nullah) should also be reported to EPD except during the case of

sewage bypass/overflow due to prolonged and very heavy rainfall (e.g. during black rainstorm warning). The Contingency Plan details the procedures to promptly notify relevant Government Departments such as WSD, AFCD, Environmental Protection Department (EPD), Leisure and Cultural Services Department (LCSD) and Home Affairs Department (HAD) in the event of emergency overflow that may pollute beach water, WSD seawater intake points, FCZ and water recreational uses and other water sensitive receivers close to the proposed SPS or cause other environmental nuisance as soon as possible within 24 hours of the incident and to conduct joint investigation with EPD to assess the impacts as well as to work out mitigation measures to reduce impact to the environment and public health and to interact with the community if necessary.

5.4 Waste

5.4.1 **Construction Phase**

5.4.1.1 Possible key measures to reduce the quantities of C&D materials, chemical waste, general refuse etc. for offsite disposal include:

C&D Materials

5.4.1.2 On-site sorting of all C&D materials should be carried out prior to disposal. It is recommended that non-inert C&D materials including topsoil, vegetation and wood formwork be separated for re-use and/or recycling and inert C&D materials be utilised as fill material.

5.4.1.3 For the surplus inert C&D materials, the project office will liaise with other fill-absorbing projects to explore the feasibility of local matching. Disposal to public fill reception facilities should be considered as the last resort, while those inert C&D materials that cannot be re-used or recycled on-site should be disposed of at public fill reception facilities or other CEDD designated public filling facilities, while those non-inert C&D materials that cannot be reused or recycled should be disposed to designated landfill sites.

5.4.1.4 The Contractor should be responsible for ensuring that waste is collected by approved licensed waste collectors and that appropriate measures are taken to minimise adverse impacts, such as dust generation. The Contractor must also ensure that all necessary waste disposal permits are obtained.

Chemical Waste

5.4.1.5 Construction plant and equipment will require regular maintenance and servicing, which would generate waste such as cleaning fluids, solvents, lubrication oil and fuel, etc. Chemical wastes arising during the construction phase may pose serious environmental, health and safety hazards including potential air, water or land pollution, toxic to workers and fire hazards if not stored and disposed of in an appropriate manner.

5.4.1.6 It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.

- 5.4.1.7** Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes should be recycled at an appropriate facility as far as possible, while chemical wastes that cannot be recycled should be disposed of at either Chemical Waste Treatment Centre (CWTC), or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. With good management and site practices, adverse environmental impacts are not anticipated.

General Refuse

- 5.4.1.8** During the construction phase, the workforce would generate general refuse, comprising food scraps, paper, empty containers etc. Rapid and effective collection of site wastes will be required to prevent waste materials being blown around by wind, flushed or leached into the environment, and odour nuisance. The general refuse would be disposed of at WENT Landfill.
- 5.4.1.9** It is not expected that there would be any adverse environmental impacts arise from the storage, handling and transportation of workforce wastes by implementation of standard waste management practices.

5.4.2 **Operational Phase**

- 5.4.2.1** Regular maintenance of the pumping stations is required to remove the screenings generated. The screenings should then be transported in sealed containers to avoid odour nuisance and disposed at landfills. In addition, small amount of chemical and oily wastes may be generated from the maintenance activities, which should be disposed of as chemical waste in strict compliance with the Waste Disposal (Chemical Waste) (General) Regulations.

5.5 **Land Contamination**

5.5.1 **Construction Phase**

- 5.5.1.1** Based on the historical and site appraisal, no potentially contaminating activities were identified at the works area of the proposed SPS. No land contamination impacts are anticipated for the construction of the proposed SPS. Hence, no mitigation measures are required.

5.5.2 **Operational Phase**

- 5.5.2.1** No adverse land contamination impact is anticipated during the operation of the proposed SPS. Hence, no mitigation measures are required.

5.6 **Ecology**

- 5.6.1** Chinese Fan-palm should be retained as far as practicable. If it is not feasible, it is suggested to transplant the Chinese Fan-palm or incorporate this species in the future landscape area, if any, as far as practicable. Removal or transplantation of Chinese Fan-palm should be done after a precautionary site check on the presence of Short-nosed Fruit Bat, to minimise the disturbance level. Transplantation or planting Chinese Fan-

palms near the original location prior to construction may allow bats to continue to utilize these roosts and nearby food resources. A precautionary site check, which is to be undertaken by ecologists, should be conducted right before any palm/frond removal. Tree/frond removal works should only be carried out when no bats are present. Liaison with AFCD should be conducted if any bat is found on the tree before tree work is carried out, including the works procedures or submissions required. Should the Chinese Fan-palm be retained, and bat roosts be found, human access should be restricted. Physical contact to the palm, particularly the fronds, should be avoided. Barriers could be erected around the roosted palm.

- 5.6.2** Good site practices and mitigation measures to control water pollution will help to minimise potential impacts on the general environment.

5.7 Landscape and Visual

- 5.7.1** Below proposed mitigation measures for construction phase should be incorporated to alleviate any potential landscape and visual impact due to the proposed works:

- Erection of Decorative Screen Hoarding (CM1)
Decorative Hoarding, which is compatible with the surrounding settings, shall be erected during construction to minimise the potential landscape and visual impacts due to the construction works and activities.
- (not used)
- Transplanting of Affected Trees (CM3)
One number of the affected tree is recommended to transplant off-site (**Table 3.6b** refers). Trees unavoidably affected by the works shall be transplanted as far as appropriate in accordance with DEVB TC(W) No. 4/2020 - Tree Preservation and the latest Guidelines on Tree Transplanting issued by GLTM Section of DevB. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. The receptor site shall be in vicinity to retain the amenity value of the area.
- Compensatory Tree Planting (CM4)
Any Trees to be felled under the Project shall be compensated in accordance with DEVB TCW No. 4/2020 - Tree Preservation. For trees to be compensated on slopes, the guidelines for tree planting stipulated in GEO Publication No. 1/2011 will be followed. Off-site compensatory tree plantings will be proposed in the vicinity.
- Control of Night-time Lighting Glare (CM5)
Any lighting provision of the construction works at night shall be carefully controlled to prevent light overspill to the nearby habitats, VSRs and into the sky. Shrouded or directional lighting should be considered where appropriate as a general good practice construction measure
- Reinstatement of Temporarily Disturbed Landscape Areas (CM6)

All hard and soft landscape areas disturbed temporarily during construction due to temporary excavations, temporary works sites and works areas shall be reinstated to prevalent standard at the time of reinstatement, to the satisfaction of the relevant Government Departments.

5.7.2

To alleviate the potential landscape and visual impact due to the proposed works during operation, the following proposed mitigation measures shall be incorporated.

- Aesthetically pleasing design of Aboveground Structures (OM1)

To promote visual integration with the existing landscape setting, the Architectural Design of SPS should consider a combination architectural finishes which will make the appearance of the development subtler and visually recessive. Measure to achieve this may include careful consideration of built form and textures. The aesthetic design of the pumping station will be designed in accordance to the Guidelines on Aesthetic Design of Pumping Station Buildings issued by DSD and circulate to ASD for comment in accordance with ETWB TCW No. 8/2005. Aesthetic design proposal of the sewerage pumping station should also be submitted to VCAB for vetting in accordance with the DSDTC No. 3/2015 – vetting committee on aesthetic design of drainage services buildings.

- Provision of Buffer Planting and Vertical Greening (OM2)

Buffer planting shall be provided around the boundary fence to soften and provide screening for the Pump House. Vertical greening can help to soften the roof line and the building mass of the proposed sewage pumping station. Besides, greening of the boundary fences/ walls can soften the structure itself and provide a harmonising effect. The boundary fences/ walls of the proposed sewage pumping station will have the greatest visual impact on the passers-by and the achievement of visual diversity is considered to be a crucial element of the aesthetic design of the sewage pumping station to gain public acceptance. All greening measures and greening provision shall be considered in accordance with DEVB TC(W) No. 3/2012 and PNAP APP-152.

- Provision of Green Roof (OM3)

As the proposed sewage pumping station is located in an urban environment, roof top greening is recommended to provide visual amenity to the occupants and residents of the nearby high-rise residential buildings. Green Roof shall be proposed to enhance the landscape quality of Pump House and to mitigate any potential adverse visual impact on adjacent VSRs.

5.8 Cultural Heritage

5.8.1 Construction Phase

- 5.8.1.1 No adverse impact on cultural heritage is anticipated during the construction of the proposed SPS. Hence, no mitigation measures are required.

5.8.2 Operational Phase

- 5.8.2.1** No adverse impact on cultural heritage is anticipated during the operation of the proposed SPS. Hence, no mitigation measures are required.

5.9 Environmental Monitoring and Audit

5.9.1 Construction Phase

- 5.9.1.1** With the implementation of recommended mitigation measures, adverse environmental impacts are not anticipated. Therefore, environmental monitoring is not required. Regular site audit is recommended to carry out to ensure that the recommended mitigation measures are implemented properly.

5.9.2 Operational Phase

- 5.9.2.1** EM&A is considered not necessary as potential environmental impacts are considered minimal with the adoption of the proven method and common practices of other current similar projects.

5.10 Severity, Distribution and Duration of Environmental Effects and Further Implications

- 5.10.1** In view of the nature of the proposed SPS, the associated environmental impacts would be small scale, localized and short-term. With the implementation of the recommended mitigation measures, no adverse residual impacts would be anticipated from the Project.

6 Summary of Potential Environmental Impacts and Mitigation Measures

6.1.1 The potential environmental impacts and proposed mitigation measures to be incorporated during construction and operation stages of the Project are summarized in **Table 6.1**, which would be included in the construction contract document. The project proponent would supervise and monitor the implementation of these measures by the Contractor.

Table 6.1 Summary of potential environmental impacts and mitigation measures

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
Air	Construction Phase: <ul style="list-style-type: none"> Dust mitigation measures as stipulated in the Air Pollution Control (Construction Dust) Regulation (Cap. 311R). 	Contractor	5.1.1
	Operational Phase: <ul style="list-style-type: none"> All facilities and areas with potential odour emission such as wet wells, inlet chamber and screen chambers will be housed in by fully enclosed and reinforced concrete structure. Exhausted air will be conveyed to DO unit with odour removal efficiency of 99.5% for treatment before being discharged. Continuous monitoring of removal efficiency could be achieved by installation of monitoring system at the inlet and exhaust vent of the DO unit. Maintain a negative pressure in and prevent foul air from escaping the building. Exhaust outlet of the DO unit to locate at least 15m facing away from the nearby air sensitive receivers as far as is practicable. Remove screening waste regularly from the proposed SPS, and properly pack and handle carefully before disposal at landfill site. 	DSD	5.1.2
Noise	Construction Phase: <ul style="list-style-type: none"> Quiet plants, silencers or mufflers on construction equipment; 	Contractor	5.2.1

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
	<ul style="list-style-type: none"> Movable and temporary barriers to screen particular items of plant or noisy operations; Noise screening structures or purpose-built noise barriers along the site boundary; Good site practices such as locate noisy equipment and activities at farthest practicable distance, schedule noisy activities to minimise noise exposure, proper maintenance of construction plant, devise quiet methods of working, and regular noise monitoring; Proper planning of construction vehicle travelling route; and Schedule construction works outside school examination period. 		
	<p>Operational Phase:</p> <ul style="list-style-type: none"> All fixed plant equipment will be housed within reinforced concrete structure with soundproof doors; Install silencers or other acoustic treatment equipment at the outlet of air exhaust fans; Layout of SPS will be optimized such that the louvers shall be located away from the sensitive receivers as far as practicable; Specify the design noise criteria of the proposed SPS in the contract and the contractor should design and select equipment that could comply with the contract requirement; and Carry out fixed noise commissioning test as per contract requirement prior to operation to demonstrate compliance with the noise criteria (i.e. the maximum SWLs from the louver on the roof and the louvers at the facades of the proposed SPS not to be exceeded 75dB(A) and 78dB(A) respectively). 	DSD	5.2.2

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
Water Quality	<p>Construction Phase:</p> <ul style="list-style-type: none"> • Good site practice in accordance with the ProPECC PN 1/94 Construction Site Drainage and Recommended Pollution Control Clauses for Construction Contracts, and Environment, Transport and Works Bureau Technical Circular (Works) (TCW) No. 5/2005 Protection of Natural Stream / Rivers from Adverse Impact arising from Construction Works; • Collection of construction runoffs for treatment by properly maintained silt trap and oil interceptor to remove oil, lubricants, grease, silt, grit and debris etc. to ensure compliance of Water Pollution Control Ordinance; • Cover open stockpiles of materials with tarpaulin or similar fabric during rainstorms; • Minimise works entailing soil excavation during rainy season; • Properly maintained oil interceptors for collecting spillage or leakages from site workshops, with waste oil to be collected by licensed collectors; • Mobile toilets or other appropriate means to store sewage before disposal through licensed collection agent or discharging to communal sewerage system; and • Employ a licensed chemical waste collector for the collection and disposal/treatment of the wastewater from decontamination in accordance with the Waste Disposal (Chemical Waste) (General) Regulations. 	Contractor	5.3.1
	<p>Operational Phase:</p> <ul style="list-style-type: none"> • A standby pump to cater for breakdown and maintenance of the duty pump; • A standby mechanical raked bar screen at the screen house of the proposed SPS to cater for breakdown and maintenance of the screens; 	DSD	5.3.2

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
	<ul style="list-style-type: none"> Bar screens in front of emergency overflow pipe at the proposed SPS to ensure that the overflow sewage is screened by bar screen in the unlikely event of overflow; Backup power supply in the form of dual/ring circuit to secure electrical power supply; An alarm with telemetry system connecting to both Ha Tsuen SPS and YLSTW to signal emergency high-water level in the wet well and any malfunction of the unmanned facilities; Regular maintenance and checking of plant equipment to prevent equipment failure; Twin rising mains system to facilitate the maintenance works and to avoid emergency bypass of sewage; A telemetry system to take swift action in case of malfunction of the unmanned facilities; Tank away sewage as last resort to minimize the chance of emergency overflow; and Send all operating signals and closed-circuit television system images of the proposed SPS to YLSTW and Ha Tsuen SPS. 		
Waste Management	<p>Construction Phase:</p> <ul style="list-style-type: none"> On-site sorting of all C&D materials prior to disposal. The surplus inert C&D materials shall be transported to Tuen Mun Area 38 Fill Bank. The non-inert C&D materials should be recycled whenever possible and disposed of at landfill (i.e. West New Territories Landfill) as a last resort. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes should be recycled at an appropriate facility as far as possible, 	Contractor	5.4.1

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
	<p>while chemical wastes that cannot be recycled should be disposed of at either Chemical Waste Treatment Centre (CWTC), or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p> <ul style="list-style-type: none"> Rapid and effective collection of site wastes will be required to prevent waste materials being blown around by wind, flushed or leached into the environment, and odour nuisance. Other general refuse collected by contractor on a daily basis and the disposal outlet will be West New Territories Landfill. 		
	<p>Operational Phase:</p> <ul style="list-style-type: none"> The screenings should be transported in sealed containers to avoid odour nuisance and disposed at landfills. Chemical and oily wastes generated from the maintenance activities, which should be disposed of as chemical waste in compliance with the Waste Disposal (Chemical Waste) (General) Regulations. 	DSD	5.4.2
Ecology	<p>Construction Phase:</p> <ul style="list-style-type: none"> Chinese Fan-palm should be retained as far as practicable. If it is not feasible, it is suggested to transplant the Chinese Fan-palm or incorporate this species in the future landscape area, if any, as far as practicable. Removal or transplantation of Chinese Fan-palm should be done after a precautionary site check on the presence of Short-nosed Fruit Bat, to minimise the disturbance level. A precautionary site check, which is to be undertaken by ecologists, should be conducted right before any palm/frond removal. Tree/frond removal works should only be carried out when no bats are present. Liaison with AFCD should be conducted if any bat is found on the tree before tree work is carried out, 	Contractor	5.6.1

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
	<p>including the works procedures or submissions required.</p> <ul style="list-style-type: none"> Should the Chinese Fan-palm be retained and bat roosts be found, human access should be restricted. Physical contact to the palm, particularly the fronds, should be avoided. Barriers could be erected around the roosted palm. Good site practices and mitigation measures to control water pollution will help to minimise potential impacts on the general environment. 		
Landscape and Visual	<p>Construction Phase:</p> <ul style="list-style-type: none"> CM1: Erection of Decorative Screen Hoarding - Decorative Hoarding, which is compatible with the surrounding settings, shall be erected during construction to minimise the potential landscape and visual impacts due to the construction works and activities. CM2: Not used. CM3: Transplanting of Affected Trees - One number of the affected tree is recommended to transplant off site (Table 3.6b refers). Trees unavoidably affected by the works shall be transplanted as far as appropriate in accordance with DEVB TC(W) No. 4/2020- Tree Preservation and the latest Guidelines on Tree Transplanting issued by GLTM Section of DevB. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. The receptor site shall be in vicinity to retain the amenity value of the area. CM4: Compensatory Tree Planting - Any Trees to be felled under the Project shall be compensated in accordance with DEVB TC(W) No. 4/2020- Tree Preservation. For trees to be compensated on slopes, the guidelines for tree planting stipulated in GEO Publication No. 1/2011 will be followed. Off-site compensatory 	Contractor	5.7.1

Potential Environmental Impacts	Mitigation Measures	Implementation Agent	Relevant Section in Project Profile
	<p>tree plantings will be proposed in the vicinity.</p> <ul style="list-style-type: none"> CM5: Control of Night-time Lighting Glare - Any lighting provision of the construction works at night shall be carefully controlled to prevent light overspill to the nearby habitats, VSRs and into the sky. Shrouded or directional lighting should be considered where appropriate as a general good practice construction measure. CM6: Reinstatement of Temporarily Disturbed Landscape Areas - All hard and soft landscape areas disturbed temporarily during construction due to temporary excavations, temporary works sites and works areas shall be reinstated to prevalent standard at the time of reinstatement, to the satisfaction of the relevant Government Departments. 		
	<p>Operational Phase:</p> <ul style="list-style-type: none"> OM1: Architectural Design for Pump House - The appearance of proposed pump house shall be properly designed, including a careful selection of material colour and texture, so that it fit into the existing suburban, natural to semi-natural surroundings. The aesthetic design of the pumping station will be circulated to ASD for comment in accordance with ETWB TCW 8/2005. OM2: Provision of Buffer Planting and Vertical Greening - It shall be provided around the boundary fence to soften and provide screening for the Pump House. OM3: Provision of Green Roof: It shall enhance the landscape quality of Pump House and to mitigate any potential adverse visual impact on adjacent VSRs. 	DSD	5.7.2

7 History of Similar Projects

7.1.1 Permissions were also granted to a number of similar projects to apply for EP directly through the submission of project profiles. They are listed and tabulated in the table below.

Table 7.1 Similar projects for permitted direct EP applications

Application No.	Project Profile No.	Project Profile Title	ADWF (m ³ /day)	Distance to nearest sensitive receivers (m)
DIR-258/2017	PP-560/2017	Upgrading of Sewage Pumping Stations and Sewerage along Ting Kok Road	5,420 - 21,200	13
DIR-257/2017	PP-557/2017	Fanling North Temporary Sewage Pumping Station	3,600	47
DIR-242/2015	PP-529/2015	Queen's Hill Sewage Pumping Station	11,000	21
DIR-241/2015	PP-527/2015	Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert	43,200	10
DIR-239/2014	PP-520/2014	Public Housing Development at Lin Cheung Road Site – Temporary Sewage Pumping Station and Associated Sewer Pipes	3,000	1
DIR-226/2013	PP-481/2013	Temporary Sewage Pumping Station Ancillary to Tung Chung Area 56 Public Housing Development	2,312	22
DIR-218/2011	PP-454/2011	Sewerage Works at Pik Shui Sun Tsuen	216	15
DIR-173/2008	PP-371/2008	Yuen Long Kau Hui No. 2 Sewage Pumping Station	5,900	30
DIR-161/2007	PP-334/2007	Tai Po Tai Wo Road Sewage Pumping Station	12,100	29

Application No.	Project Profile No.	Project Profile Title	ADWF (m ³ /day)	Distance to nearest sensitive receivers (m)
DIR-115/2005	PP-338/2005	Upgrading of Ting Kok Road Pumping Station No. 5	11,520	60
DIR-057/2001	PP-139/2001	Sai Kung Area 4 Sewage Pumping Station	7,500	34
DIR-040/2000	PP-071/1999 PP-097/2000	Au Tau Sewage Pumping Station (relocation)	12,200	80

8 Use of Approved EIA Reports / Permitted Direct EP Applications

8.1.1 List of approved EIA reports / permitted direct EP applications references include:

- Upgrading of Sewage Pumping Stations and Sewerage along Ting Kok Road (DIR-257/2017);
- Tung Chung New Town Extension (AEIAR-196/2016); and
- Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert (DIR-241/2015).

9 Conclusion

9.1.1 The predicted environmental impacts from the proposed SPS are unlikely to be adverse and the mitigation measures described in this Project Profile meet the requirements of the Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO).

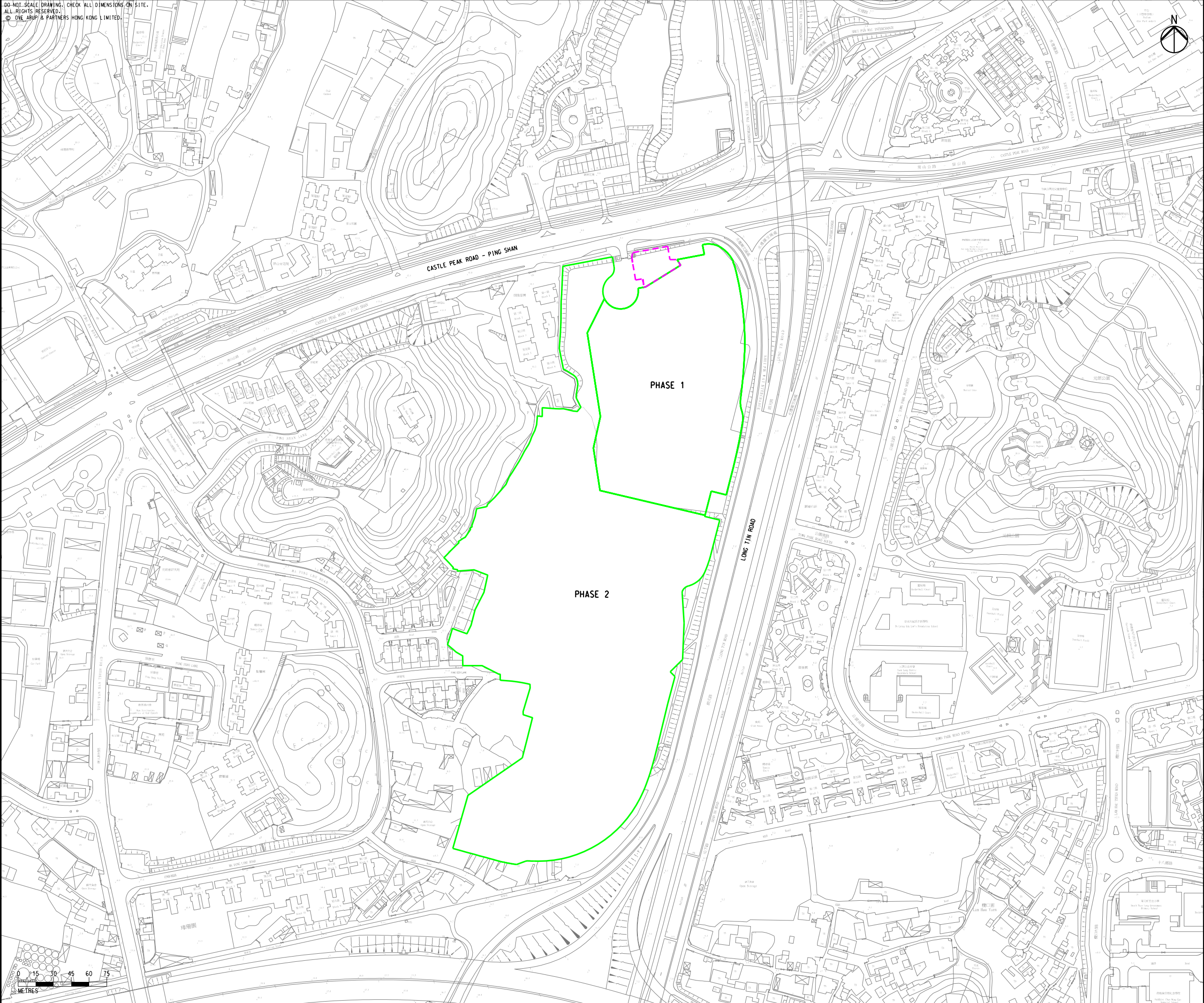
9.1.2 This Project Profile is prepared to seek permission from the Director of Environmental Protection under Section 5(11) of the EIAO to apply directly for an Environmental Permit.

Figure

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- LEGEND
- PUBLIC HOUSING DEVELOPMENT AT LONG BIN
 - PROPOSED SEWAGE PUMPING STATION



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A	FIRST ISSUE	GL	05/18
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Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)

Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long

Drawing title

PROJECT SITE LOCATION

Drawing no.	FIGURE 1.1		Rev.
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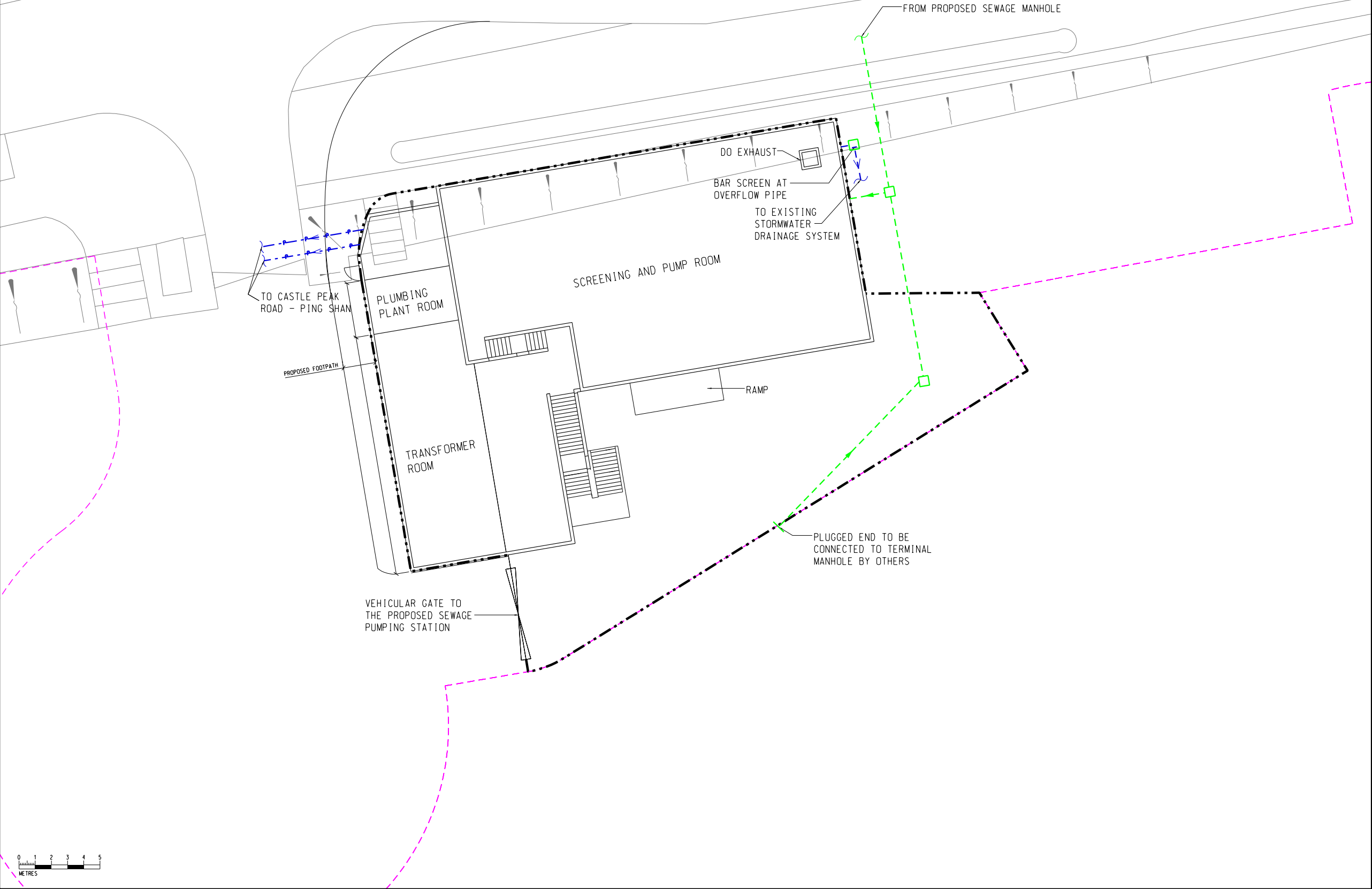
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CASTLE PEAK ROAD - PING SHAN



- LEGEND
- HOUSING SITE BOUNDARY
 - PROPOSED 3m HEIGHT BOUNDARY WALL AND GATES / WALL OF SEWAGE PUMPING STATION
 - PROPOSED GRAVITY SEWER
 - PROPOSED EMERGENCY BYPASS PIPE
 - PROPOSED SEWAGE MANHOLE
 - PROPOSED RISING MAIN



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Project title

Agreement No. CE 75/2017 (CE)
Sewage Pumping Station for Public
Housing Development at Long Bin,
Yuen Long

Drawing title

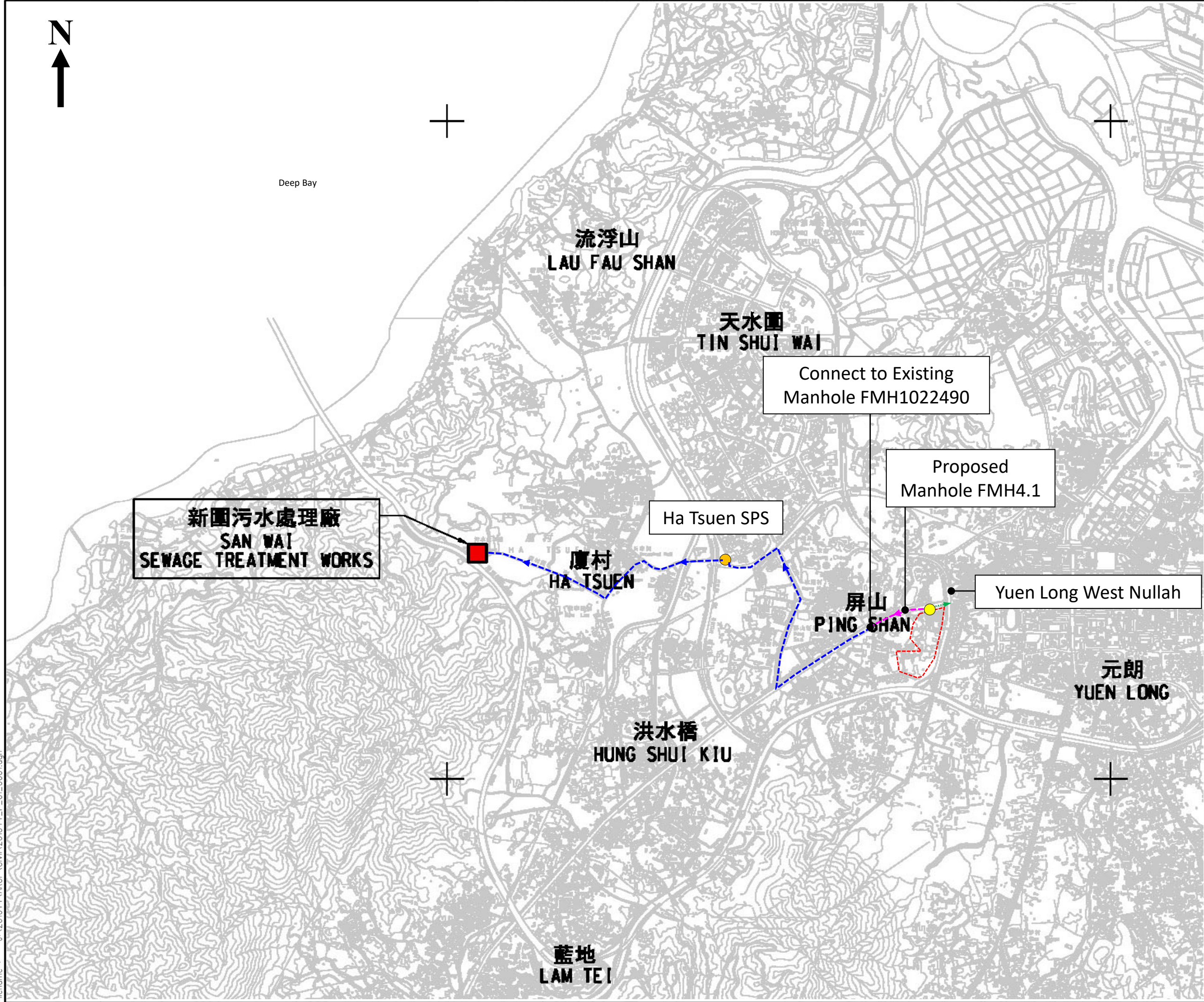
SITE LAYOUT PLAN

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FIGURE 1.2			C
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Legends

- Development Site
- Proposed Sewer
- Existing Sewer
- Emergency Discharge via proposed stormwater drainage system
- Proposed Long Bin SPS

FIRST ISSUE		CM	11/18
Rev	Description	By	Date
Consultant			
ARUP			
Project title			
Agreement No. CE 75/2017 (CE) Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long			
Drawing title			
SCHEMATIC FLOW PATH TO EXISTING SEWERAGE SYSTEM			
Drawing no.		Rev.	
Figure 1.3		-	
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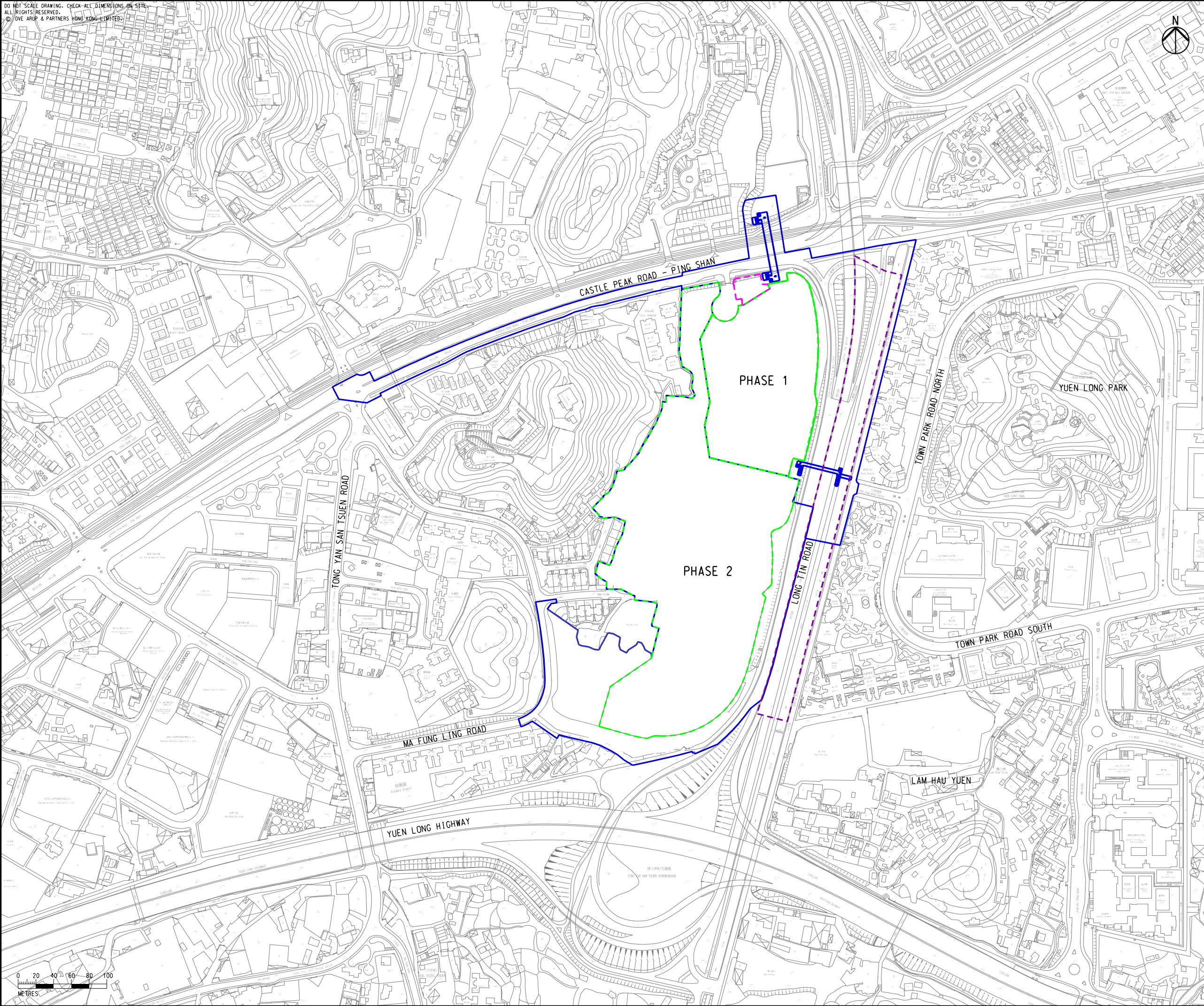


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- LEGEND
- PROPOSED SEWAGE PUMPING STATION
 - CONCURRENT PROJECTS
 - RETROFITTING OF NOISE BARRIER ALONG LONG TIN ROAD – INVESTIGATION, DESIGN AND CONSTRUCTION BY HYD
 - SITE FORMATION AND INFRASTRUCTURAL WORKS AND PROPOSED FOOTBRIDGE FOR PUBLIC HOUSING DEVELOPMENTS AT LONG BIN, YUEN LONG BY CEDD
 - PUBLIC HOUSING DEVELOPMENT PHASE 1 AND PHASE 2 AT LONG BIN BY HKHA



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Drawing title

LOCATION OF CONCURRENT PROJECTS

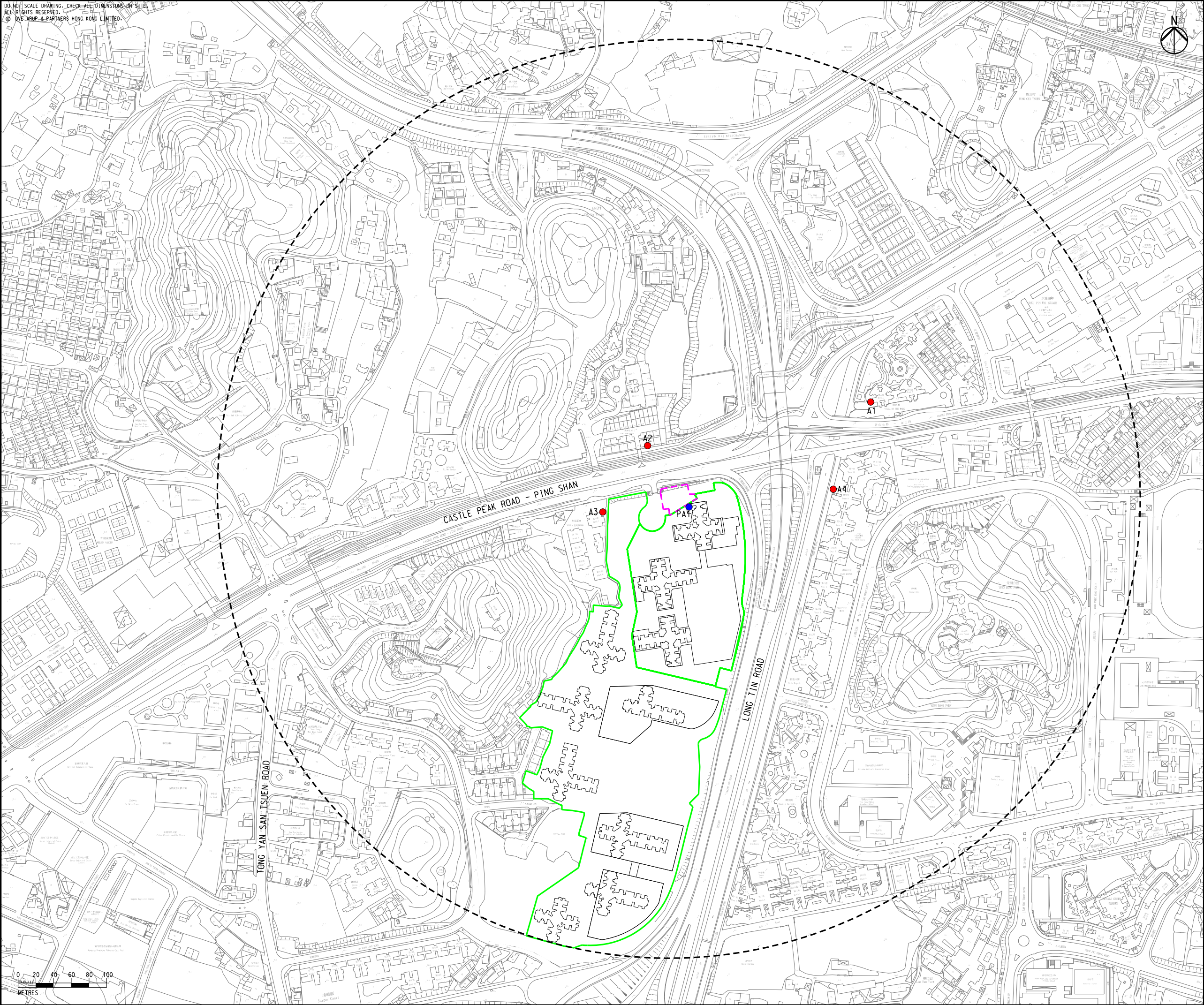
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- LEGEND
- PROPOSED SEWAGE PUMPING STATION
 - PUBLIC HOUSING DEVELOPMENT AT LONG BIN
 - 500m ASSESSMENT AREA
 - EXISTING REPRESENTATIVE AIR SENSITIVE RECEIVER
 - PLANNED REPRESENTATIVE AIR SENSITIVE RECEIVER

NOTE:
THE PROPOSED DEVELOPMENT SCHEME HAS BEEN AGREED WITH HKHA AND CEDD.

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Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long

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LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS

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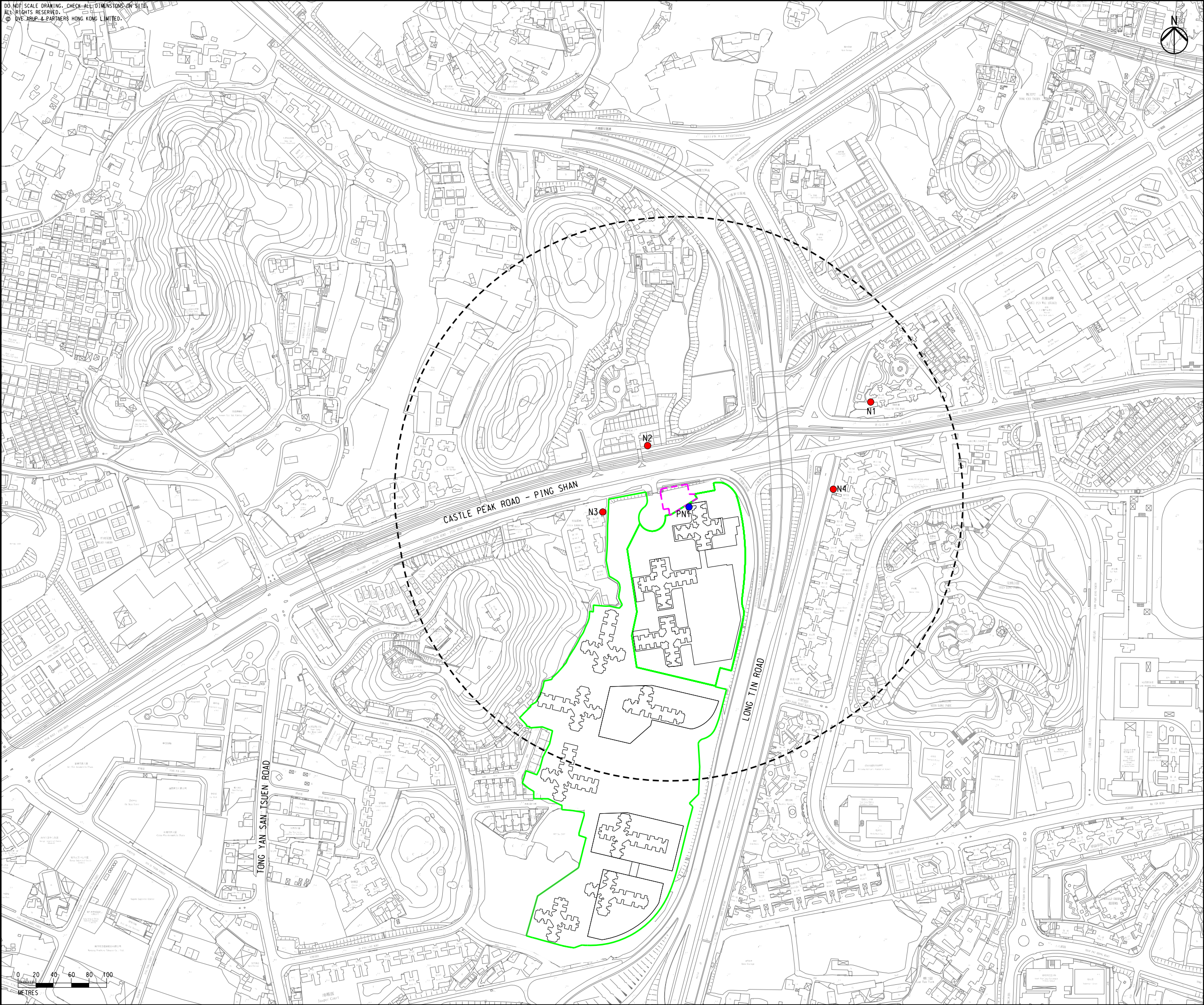
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- LEGEND
- PROPOSED SEWAGE PUMPING STATION
 - PUBLIC HOUSING DEVELOPMENT AT LONG BIN
 - 300m ASSESSMENT AREA
 - EXISTING REPRESENTATIVE NOISE SENSITIVE RECEIVER
 - PLANNED REPRESENTATIVE NOISE SENSITIVE RECEIVER

NOTE:
THE PROPOSED DEVELOPMENT SCHEME HAS BEEN AGREED WITH HKHA AND CEDD.



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LOCATION OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS

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- LEGEND
- PROPOSED SEWAGE PUMPING STATION
 - 500m ASSESSMENT AREA
 - WATER SENSITIVE RECEIVER

CASTLE PEAK ROAD – PING SHAN

LONG TIN ROAD

TONG YAN SAN TSUEN ROAD

NULLAH (WSR 1)



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LOCATION OF REPRESENTATIVE WATER SENSITIVE RECEIVER

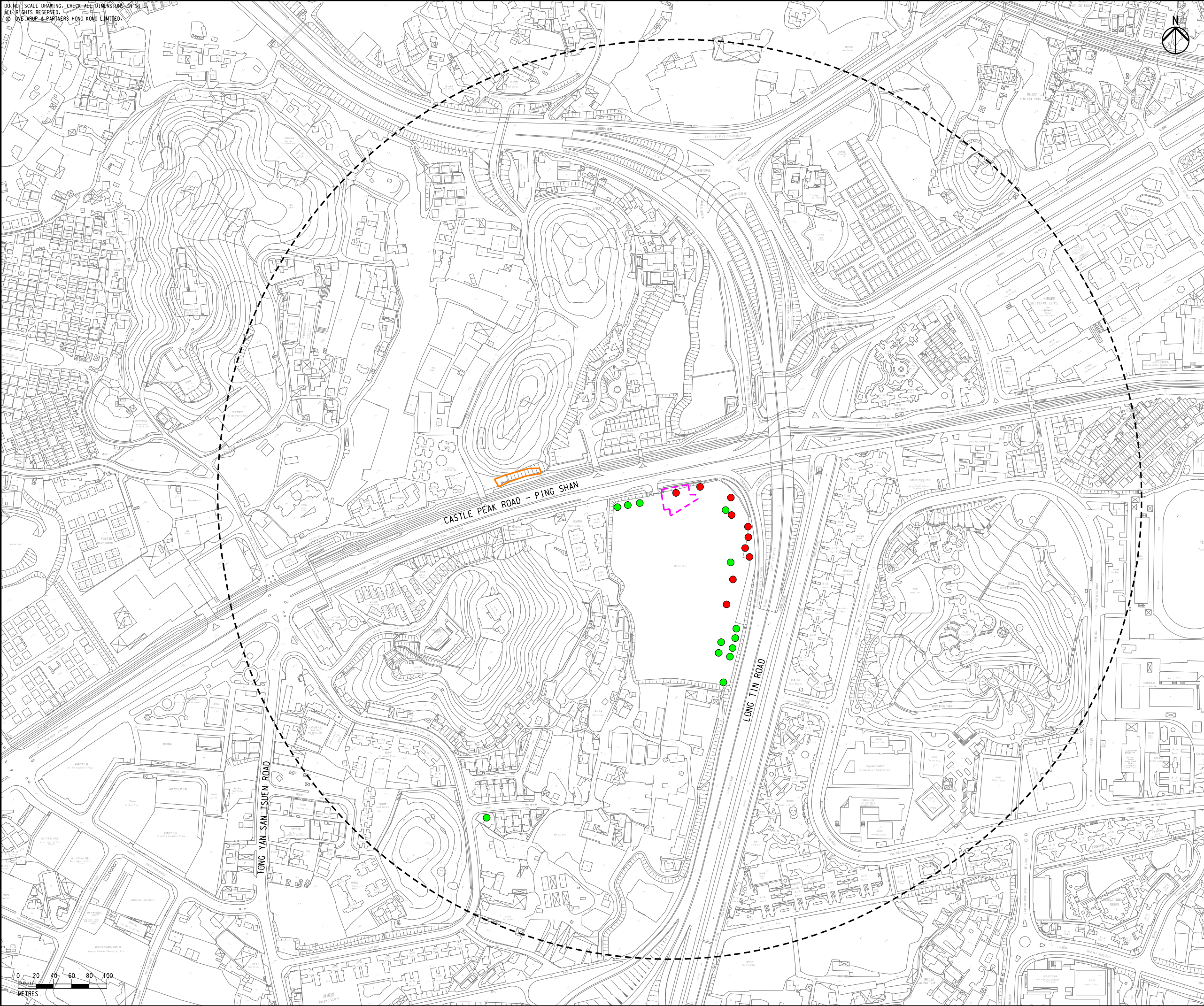
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- LEGEND
- PROPOSED SEWAGE PUMPING STATION
 - 500m ASSESSMENT AREA
 - Camellia oleifera*
 - Livistona chinensis*
 - Livistona chinensis* with inactive Short-nosed Fruit Bat roosts

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Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long

Drawing title

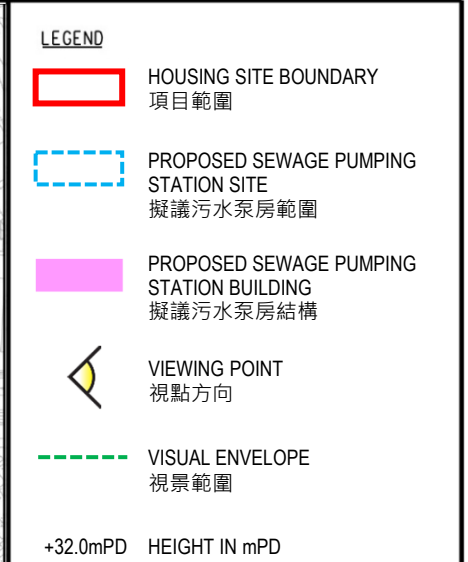
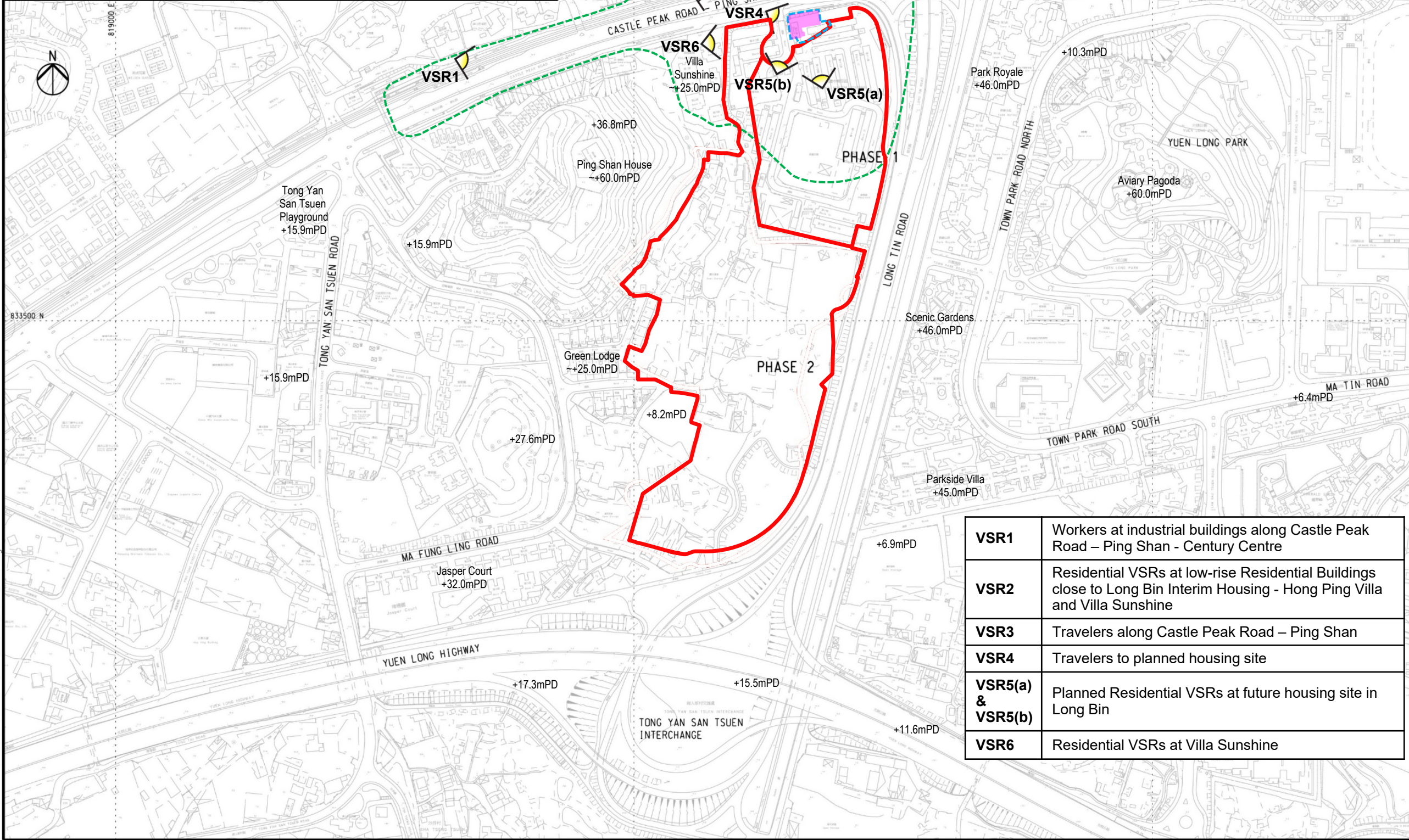
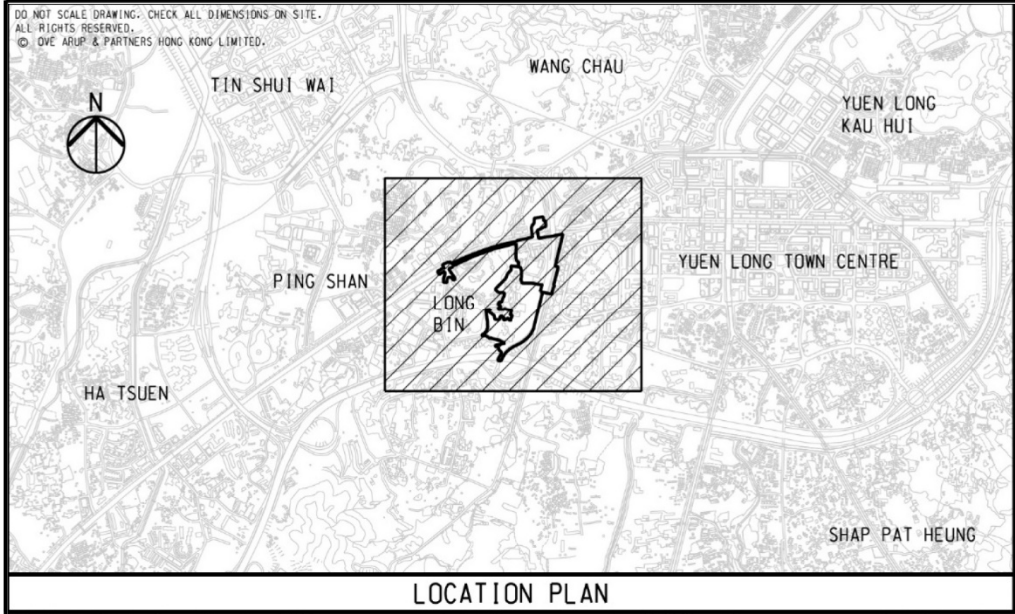
LOCATION OF LIVISTONA CHINENSIS AND PLANT SPECIES OF CONSERVATION INTEREST

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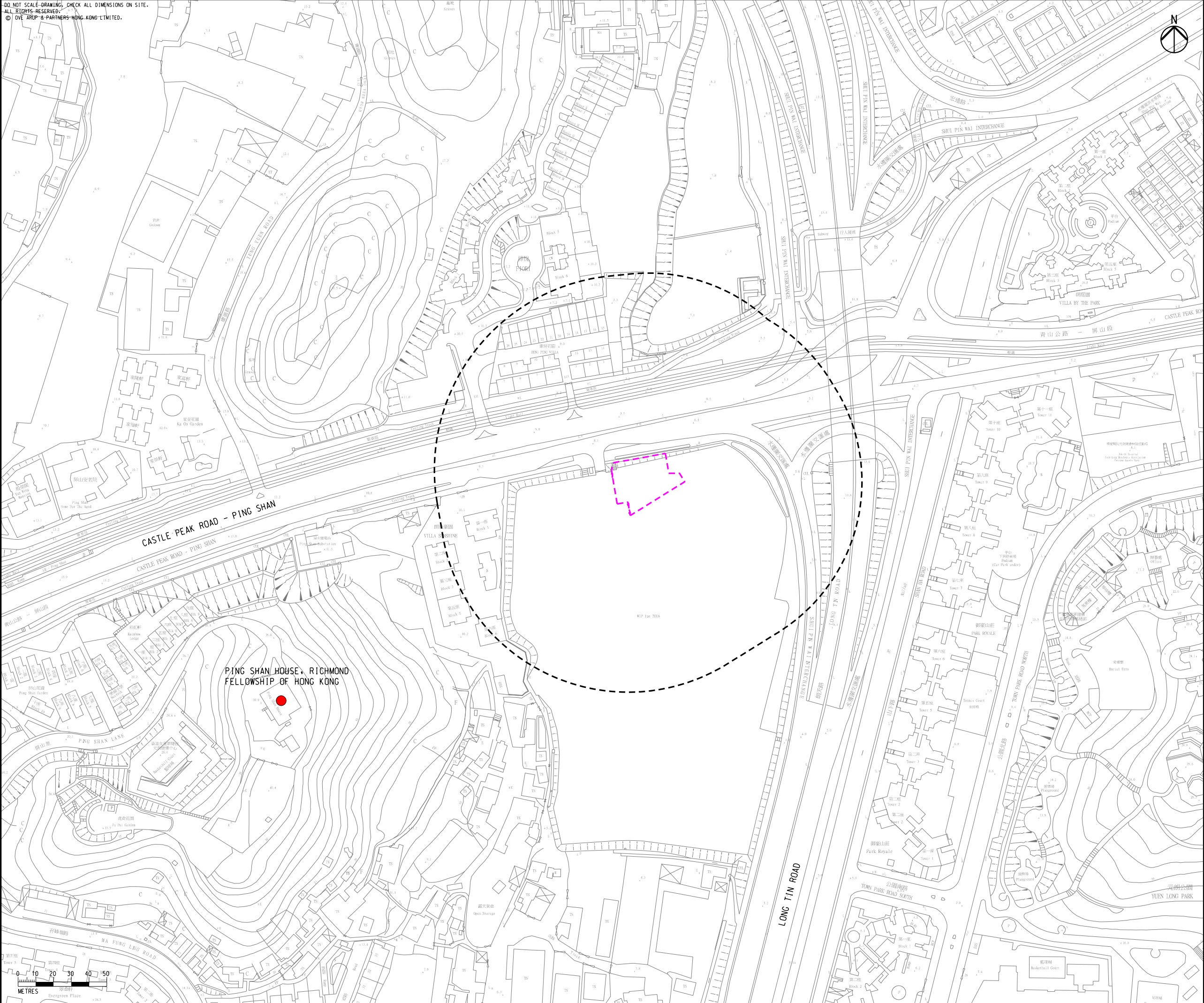


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LOCATION OF VISUALLY SENSITIVE RECEIVERS FOR SPS			
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- LEGEND
- PROPOSED SEWAGE PUMPING STATION
 - 100m ASSESSMENT AREA
 - BUILT HERITAGE



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Drawing title

LOCATION OF CULTURAL HERITAGE RESOURCES

Drawing no.	FIGURE 3.7		Rev.	C
Drawn	Date	Checked	Approved	
SF	07/20	RC	IL	
Scale	1:2000 @ A3	Status	PRELIMINARY	

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LEGEND

- PROPOSED SEWAGE PUMPING STATION SITE BOUNDARY
- HOUSING SITE BOUNDARY

- 1 AT-GRADE AMENITY PLANTING
- 2 GREEN ROOF
- 3 MAINTENANCE ACCESS FOR ROOF PLANTING
- 4 STAIRCASE
- 5 AT-GRADE CLIMBERS PLANTING ON BOUNDARY
- 6 TRAILING PLANTINGS ALONG GREEN ROOF EDGE
- 7 PERMEABLE PAVING

Rev	Description	By	Date
C	REVISED SUBMISSION		01/21
B	REVISED SUBMISSION		08/18
A	FIRST ISSUE	WL	05/18

Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Sewage Pumping Station for Public
Housing Development at Long Bin, Yuen
Long

Drawing title
MASTER LANDSCAPE PLAN

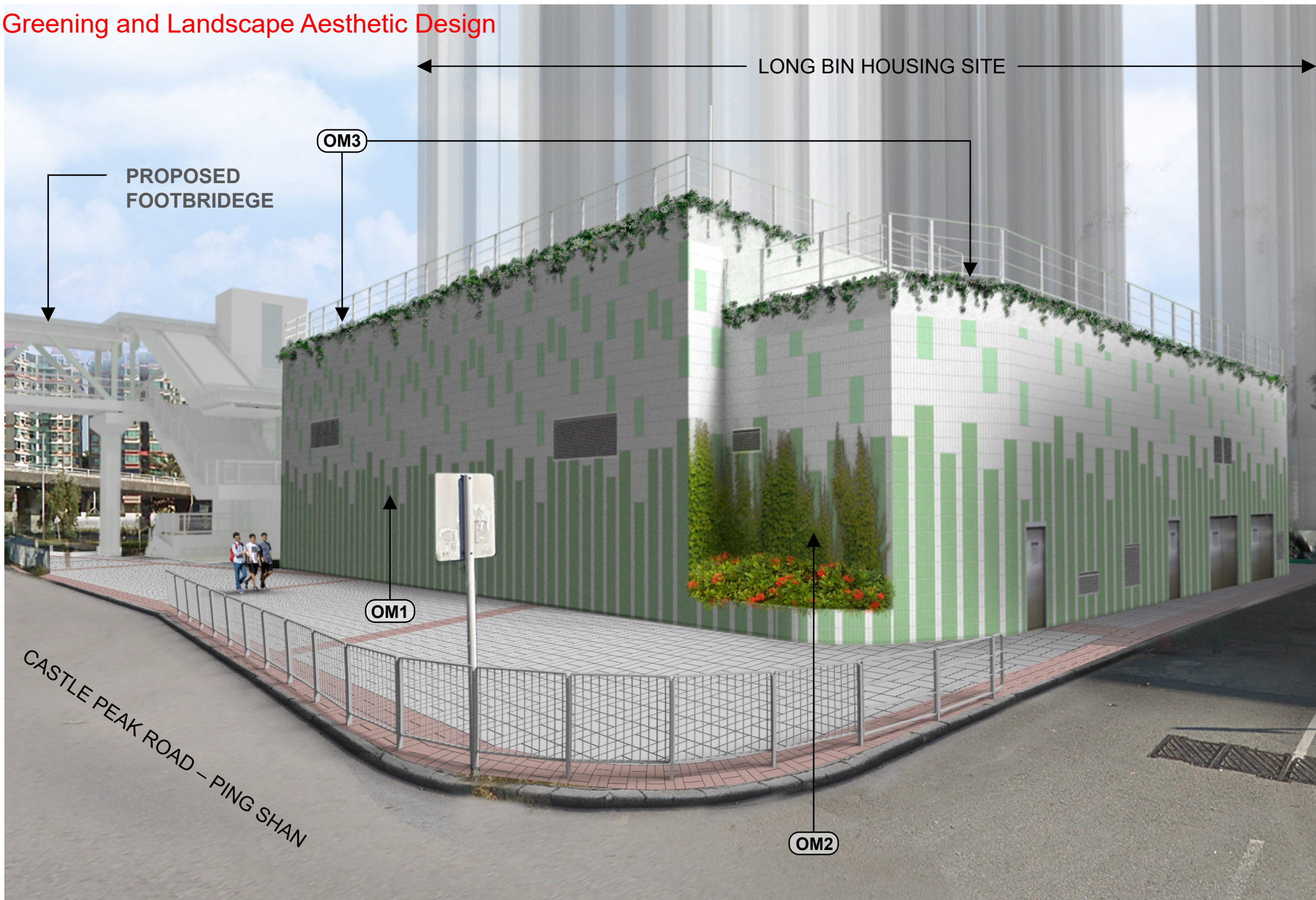
Drawing no.	Figure 4.1a	Rev.	A
Drawn	SYU	Checked	WL
Date	04/18	Approved	KC
Scale	1:2000 @ A1	Status	PRELIMINARY

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Proposed Sewerage Pumping Station Photomontage

C	REVISED SUBMISSION		01/21
B	REVISED SUBMISSION		08/18
A	FIRST ISSUE	WL	05/18
Rev	Description	By	Date
Consultant			
ARUP			
Project title			
Agreement No. CE 75/2017 (CE) Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long			
Drawing title			
PHOTOMONTAGE OF SPS			
Drawing no.			Rev.
Figure 4.1			A
Drawn SYU	Date 04/18	Checked WL	Approved KC
Scale 1:2000 @ A1	Status PRELIMINARY		



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Proposed Sewerage Pumping Station Photomontage

HOUSING SITE
BOUNDARY

C	REVISED SUBMISSION		01/21
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A	FIRST ISSUE	WL	05/18
Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Sewage Pumping Station for Public
Housing Development at Long Bin, Yuen
Long

Drawing title
PHOTOMONTAGE OF SPS

Drawing no.	Figure 4.2	Rev.	A
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Proposed Sewerage Pumping Station Photomontage

HOUSING SITE
BOUNDARY

A	FIRST ISSUE	WL	01/21
Rev	Description	By	Date
Consultant			
ARUP			
Project title			
Agreement No. CE 75/2017 (CE) Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long			
Drawing title			
PHOTOMONTAGE OF SPS			
Drawing no.		Rev.	
Figure 4.3		A	
Drawn	Date	Checked	Approved
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Scale	Status		
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833750 N



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MATCH LINE

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833725 N

833700 N

833675 N

833650 N

MATCH LINE
FOR CONTINUATION
SEE DWG 261044/F/08/0205

BRA.ACE. 1 NO.

PHO.ROE. 2 NOS.

PHO.ROE. 4 NOS.

ILE.ROT. 4 NOS.

PHO.ROE. 2 NOS.

PHO.ROE. 4 NOS.

BRA.ACE. 4 NOS.

PHO.ROE. 2 NOS.

PHO.ROE. 4 NOS.

ILE.ROT. 4 NOS.

PHO.ROE. 2 NOS.

PHO.ROE. 4 NOS.

BRA.ACE. 2 NOS.

PHO.ROE. 4 NOS.

T0934
(LIV.CHI.)

T0933
(LIV.CHI.)

T0925
(LIV.CHI.)

T0923
(LIV.CHI.)

ELA.CHI. 1 NO.

PHO.ROE. 3 NOS.

ELA.CHI. 1 NO.

PHO.ROE. 2 NOS.

LAG.SPE. 1 NO.

PHO.ROE. 2 NOS.

BRA.ACE. 3 NOS.

PHO.ROE. 2 NOS.

PHO.ROE. 2 NOS.

PHO.ROE. 2 NOS.

BRA.ACE. 1 NOS

PHO.ROE. 4 NOS.

CM4 -
Compensatory
Trees Planting

CM3 -
Transplanting of
Affected Trees

6NW-B/F 54 (HYD)

6NW-B/F 55 (HYD)

LONG TIN ROAD

SHUI PIN WAI INTERCHANGE

SIGN BOARD

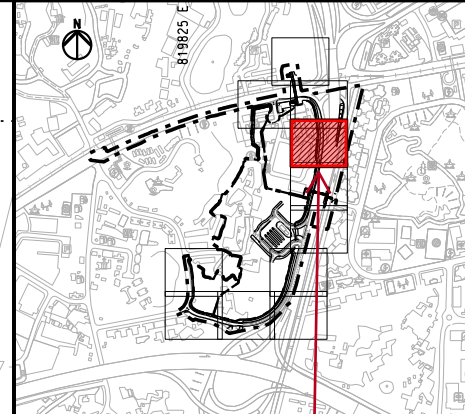
渠

水邊圍

山下路

NULLAH

0 2 4 6 8 10
METRES
1 : 200



KEY PLAN

NOTES

1. FOR NOTES AND LEGEND, REFER TO DRAWING
261044/F/08/0201.

COMPENSATORY AND
TRANSPLANTED TREE
LOCATION FOR THE
SEWAGE PUMPING
STATION

D	GENERAL REVISION	WL	01/21
C	GENERAL REVISION	YPC	11/20
B	GENERAL REVISION	JT	08/20
A	FIRST ISSUE	JT	11/19
Rev	Description	By	Date

Consultant
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Project title
Agreement No. CE 75/2017 (CE)
Sewage Pumping Station for Public
Housing Development at Long Bin, Yuen
Long

Drawing title
**COMPENSATORY AND
TRANSPLANTED TREE PLAN
LOCATION FOR SPS**

Drawing no. FIGURE 4.4		Rev. A	
Drawn RY	Date 11/19	Checked EL	Approved HL
Scale 1:200 @ A1		Status PRELIMINARY	

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ON-SITE COMPENSATORY TREE SCHEDULE – LCSD

CODE	SCIENTIFIC NAME	CHINESE NAME	ORIGIN	SPECIFICATION HEIGHT X SPREAD (M), CALIPER (MM)	MINIMUM SPACING	QTY	FUTURE MAINTENANCE AGENT
CIN.BUR.	<i>Cinnamomum burmannii</i>	陰香	NATIVE	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	5	LCSD
ELA.CHI.	<i>Elaeocarpus chinensis</i>	中華杜英	NATIVE	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	9	LCSD
LAG.SPE.	<i>Lagerstroemia speciosa</i>	大花紫薇	EXOTIC	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	13	LCSD
LIQ.FOR.	<i>Liquidambar formosana</i>	楓香	NATIVE	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	3	LCSD
MEL.CAJ.	<i>Melaleuca cajuputi</i> subsp. <i>cumingiana</i>	白千層	EXOTIC	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	11	LCSD
ILE.ROT.	<i>Ilex rotunda</i> var. <i>microcarpa</i>	小果鐵冬青	NATIVE	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	12	LCSD
BRA.ACE.	<i>Brachychiton acerifolius</i>	槭葉蘋婆	EXOTIC	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	15	LCSD
TAB.IMP.	<i>Tabebuia impetiginosa</i>	紅花風鈴木	EXOTIC	HEAVY STANDARD TREES 4M x 2M, 75MM	5M	6	LCSD
PHO.ROE.	<i>Phoenix roebelenii</i>	江邊刺葵	EXOTIC	MEDIUM PALMS (1.5M CLEAR TRUNK, 100MM)	2M	171	LCSD
					TOTAL:	245 NOS.	

NOTE:

- (1) HEAVY STANDARD TREES SHALL COMPLY WITH GS CLAUSE 3.15 AND SHALL HAVE A LIVE CROWN RATIO OF AT LEAST 60%.
- (2) PALMS SHALL COMPLY WITH GS CLAUSE 3.20.
- (3) CALIPER OF HEAVY STANDARD TREES AND PALMS SHALL BE THE STEM DIAMETER MEASURED AT A HEIGHT OF 1M FROM THE ROOT COLLAR.
- (4) ALL PLANTS SHALL MEET THE SPECIFIED SIZES AT TIME OF DELIVERY.

TRANSPLANTED TREE SCHEDULE – LCSD

TREE NO.	CODE	SCIENTIFIC NAME	CHINESE NAME	HEIGHT (M)	DBH (MM)	CROWN SPREAD (M)	FUTURE MAINTENANCE AGENT
T0330	ROY.REG.	<i>Roystonea regia</i>	大王椰子	11	270	5	LCSD
T0331	ROY.REG.	<i>Roystonea regia</i>	大王椰子	12	240	6	LCSD
T0335	ROY.REG.	<i>Roystonea regia</i>	大王椰子	11	300	6	LCSD
T0337	ROY.REG.	<i>Roystonea regia</i>	大王椰子	13	350	6	LCSD
T0339	ROY.REG.	<i>Roystonea regia</i>	大王椰子	13	350	6	LCSD
T0672	STE.LAN.	<i>Sterculia lanceolata</i>	假蘋婆	5	100	3	LCSD
T0679	LAG.SPE.	<i>Lagerstroemia speciosa</i>	大花紫薇	5	100	3	LCSD
T0923	LIV.CHI.	<i>Livistona chinensis</i>	蒲葵	7	170	4	LCSD
T0925	LIV.CHI.	<i>Livistona chinensis</i>	蒲葵	8	200	4	LCSD
T0933	LIV.CHI.	<i>Livistona chinensis</i>	蒲葵	8	190	3	LCSD
T0934	LIV.CHI.	<i>Livistona chinensis</i>	蒲葵	8	190	3	LCSD
							TOTAL: 11 NOS.

D	GENERAL REVISION	JT	01/21
C	GENERAL REVISION	JT	11/20
B	GENERAL REVISION	JT	11/19
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Rev	Description	By	Date
Consultant			
ARUP			
Project title			
Agreement No. CE 75/2017 (CE) Sewage Pumping Station for Public Housing Development at Long Bin, Yuen Long			
Drawing title			
COMPENSATORY AND TRANSPLANTED TREES SCHEDULE			
Drawing no.			Rev. A
FIGURE 4.5			
Drawn	RY	Date	11/19
Checked	EL	Approved	HL
Scale	N/A	Status	SUBMISSION

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Appendix 3.1

Photo of Existing NSRs

NSR No.	Location	Photo
N1	Block 3, Villa by the Park	
N2	House No. 2, Hong Ping Villa	

NSR No.	Location	Photo
N3	Block 1, Villa Sunshine	
N4	Tower 9, Park Royale	

Appendix 3.2

Historical Aerial Photos

APPENDIX 3.2
HISTORICAL AERIAL PHOTOS - YEAR 1963



APPENDIX 3.2
HISTORICAL AERIAL PHOTOS - YEAR 1972



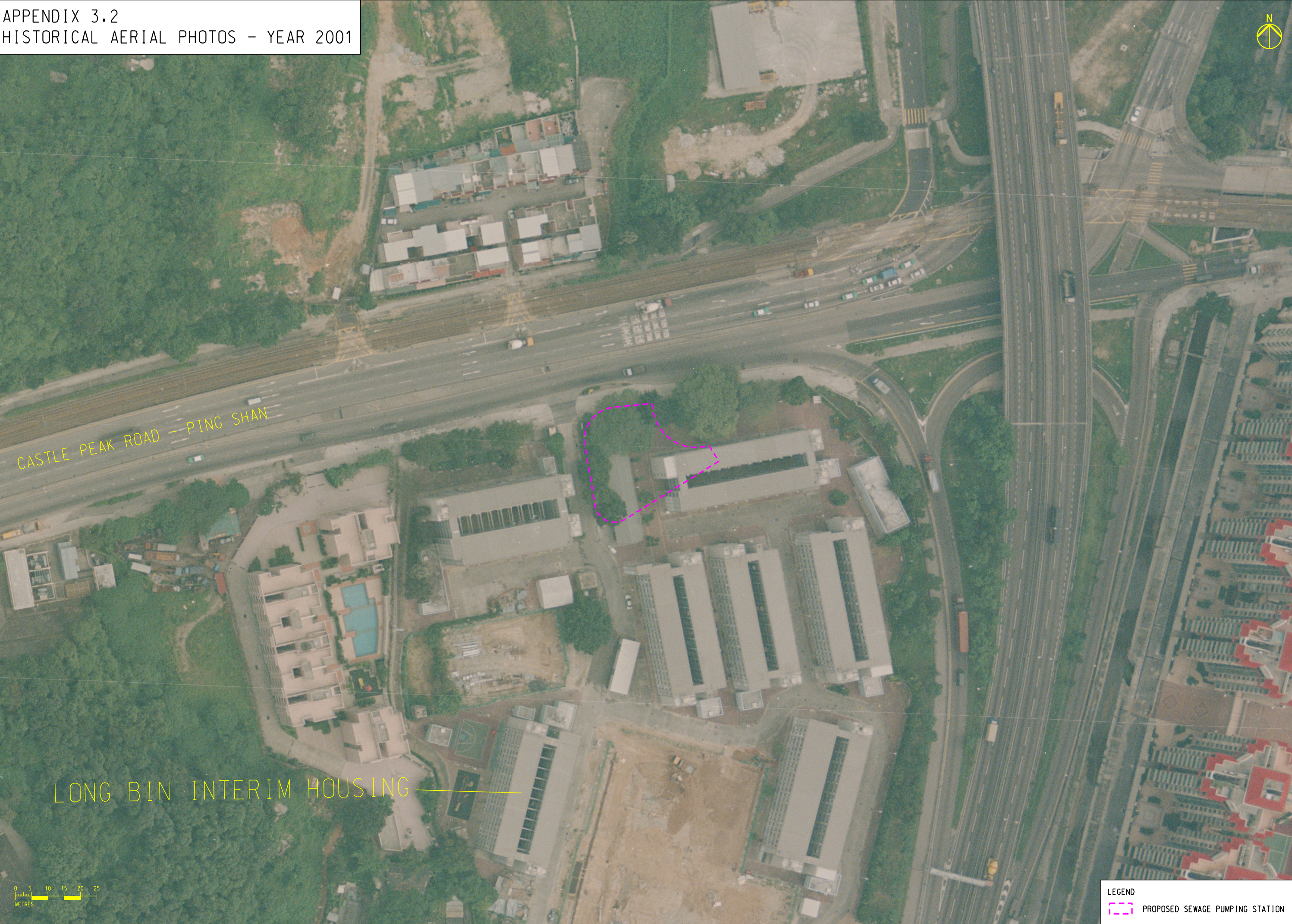
APPENDIX 3.2
HISTORICAL AERIAL PHOTOS - YEAR 1982



APPENDIX 3.2
HISTORICAL AERIAL PHOTOS – YEAR 1993



APPENDIX 3.2
HISTORICAL AERIAL PHOTOS - YEAR 2001



APPENDIX 3.2
HISTORICAL AERIAL PHOTOS – YEAR 2011



APPENDIX 3.2
HISTORICAL AERIAL PHOTOS - YEAR 2017

