

# MASTERPLAN LIMITED

Planning and Development Advisors

領賢規畫顧問有限公司

Appendix V of RNTPC  
Paper No. Y/I-DB/2C

Your Ref: Y/I-DB/2

26 January 2017

The Secretariat  
Town Planning Board  
15/F, North Point Government Offices  
333 Java Road, North Point  
Hong Kong

By Hand

Dear Sir,

## Section 12A Application No.Y/I-DB/2

### For rezoning the permissible use from staff quarters to permit flats at Area 6f, Discovery Bay Response to Comments

I refer to the abovementioned application which is currently being processed, and the departmental comments on the application made available by District Planning Office on 23 and 28 December 2016 and 17 January 2017.

In response to the departmental comments, please find the enclosure and the clarification below for your consideration.

We reiterate the proposed approach to the sewerage treatment for the proposed development at Area 6f.

1. As there are various on-going new developments at North Lantau and the Airport, EPD may consider for expansion of the Siu Ho Wan sewerage treatment facilities in order to provide extra sewage treatment capacity, should the spare capacity for the current facility be not adequate. The Applicant believes that, should EPD plan for infrastructure expansion, all proposed future developments in the vicinity areas, including those in Discovery Bay, should be considered on an equal and fair basis. In addition, as the proposal for Area 6f is for two residential flat buildings in place of approved staff quarters, the increase in demand on the overall Government infrastructure would be insignificant. Therefore, the Applicant requests EPD to take into account the proposed development, should they consider planning for future expansion of the Sui Ho Wan facilities.
2. Nevertheless, the applicant is ready and willing to make their own provision to treat the sewage arising from the development where necessary. There is suitable land area within Area 6f for an on-site Sewerage Treatment Plant. Technical assessments reports have been submitted to demonstrate the adequacy of this approach in terms of the capacity and the capability to meet the relevant standards. The applicant is familiar and experienced in this approach, which has been the case prior to the commissioning and connection to Siu Ho Wan public facilities.

This information clarifies and supplements that previously submitted for this the application, and does not constitute a material change as identified in Town Planning Board's Guideline No.32. It is consistent with the Guideline.

The outstanding departmental comments are technical engineering matters, not planning related, and are capable of being resolved. It is considered that detail technicalities for Area 6f should not prevent an approval for the rezoning application, from staff quarters to residential flat buildings. The application does not rely on the concurrent rezoning application at Area 10b, and can be determined on its own merit. We request the application to be considered by the Town Planning Board on 17 February 2017 as scheduled.

Yours faithfully,



Cynthia Chan  
For and on behalf of  
Masterplan Limited

Enc

cc. DPO/SKI (Attn: Helena Pang)  
Client & Consultants

Email

**MASTERPLAN LIMITED**

Room 3516B, 35/F, China Merchants Tower, Shun Tak Centre, 200 Connaught Road Central, Hong Kong.  
Tel: (852) 2418 2880 Fax: (852) 2587 7068 Email: [info@masterplan.com.hk](mailto:info@masterplan.com.hk)

**Section 12A Application No.Y/I-DB/2 for rezoning the permissible use from staff quarters to flats at Area 6f**  
**Applicant's response to the departmental comments made available by District Planning Office on 23 and 28 December 2016 and 17 January 2017**

<b>H(GEO), CEDD</b>	<b>Applicant's response</b>
The Further Information submitted by the applicant does not include a Geotechnical Planning Preview Report in support of the application and to assess the geotechnical feasibility of the proposed development. Hence our previous comments are still valid.	The current land use zoning for Area 6f has been for development for staff quarters. The proposal seeking to rezone the land use in the same site boundary for flat is not anticipated to encounter more terrain hazard. Geotechnical Planning Preview Report in accordance with the advice note will be submitted, subsequent to approval of this application and prior to implementation of the development.
<b>Water Supplies Department</b>	<b>Applicant's response</b>
If water is supplied for the additional residents by Discovery Bay's own water treatment works and discharged to the existing water supply networks (i.e. their treated water mixed with WSD's treated water), WSD has reservation to the proposal. As WSD has no authority and responsibility to monitor their water treatment works and the quality of the treated water, it would be quite difficult to identify and determine the responsibility of which party's fault if there is any contamination of water affecting the consumers. If the option is adopted, the new water supply network and the existing one must be segregated to avoid cross-contamination. Previous comments remain valid.	Noted. Should water supplies arrangement for Area 6fb be potable water from the proposed on-site water treatment plant, the treated water will be fed to the proposed development by new water mains separated from the existing mains. See <b>Attachment 1</b> for the indicative location of proposed new freshwater reservoirs.  In response to WSD's previous comment concerning the assumption on the average persons per unit, 2.5 is derived from City Management's latest record (property management company of all Discovery Bay residential units) covering all the residential units, and the Working Group on Population Distribution Projections for 2013-2021. Planning Department has not raised objection to this assumption in our previous submission.
<b>AFCD's comment</b>	<b>Applicant's response</b>
Regarding the newly proposed sewage treatment works, the applicant should elaborate on the ecological baseline information on the effluent discharge point (e.g. site description, types of habitat affected such as artificial seawall and coastal waters, evaluation of ecological value of each type of habitat affected, any species of conservation importance recorded there, etc.), and whether there would be any unacceptable ecological impacts on the affected habitats during operation phase in the Revised Environmental Study (Section 7.3.1.4 of Annex C).	The area where effluent discharge point is located encompasses developed area, artificial seawall and coastal waters. It is located to the east of the Discovery Bay Plaza, surrounded by man-made features including the deck of Discovery Bay Ferry Pier to its north, and the artificial seawall of the Discovery Bay Plaza and La Costa to its west and south. The area has been highly disturbed by the historical construction of these features as well as the on-going human activities. The waters near the discharge point are constantly used by local vessels for pickup and drop-off such that the baseline condition of the coastal waters is disturbed. Hence, the ecological value of the artificial seawall and coastal water around the area would be low.  The closest ecological sensitive receiver is the Coastal Protection Area (CPA) in Tai Pak Tsui Peninsula which is located more than 250m away to the east of the discharge point. The coastline of the CPA comprises rocky and sandy shore, with two floating piers protruding from the rocky shore facing the discharge point. As the rocky shore of the CPA is at least 250m from the discharge point, and the rocky shore and coastal waters are constantly affected by the vessels berthing at the floating piers, the discharge is unlikely to cause significant change on the rocky shore. Moreover, preliminary water quality modelling result indicates that the water quality at the CPA will comply with the WQO during operation. Given the discharge concentration will be properly controlled and monitored, the ecological impacts during operational phase would be maintained to acceptable level.  The nearest fish culture zones (FCZs) are Cheung Sha Wan and Ma Wan which are located more than 6.5 km and 6.8 km away respectively. Also, the spawning and nursery ground for fisheries resources in the Southern Waters are located more than 7km away from the discharge point. Since the discharge point is near shore in Tai Pak Wan, the

	effluent plume would be screened by the headland of Tai Pak Tsui Peninsula and northeast Lantau between the discharge point and the FCZs / spawning and nursery ground for fisheries resources. Given these large separation distance and screening to the fisheries resources, both direct and indirect impacts are considered insignificant.
<b>Environmental Protection Department's comments</b>	<b>Applicant's Response</b>
<b>Air quality</b>	
1. Rtc item 2, Annex A as mentioned in the response has not been provided.	Please refer to <b>Figure 4.1</b> of the previously submitted Environmental Assessment for the required buffer distance.
2. Rtc item 5, S4.2.3.1, please indicate when the chimney information has been reviewed.	The chimney information was further reviewed in Nov 2016 and Jan 2017. All the information in the EA is still valid.
3. Rtc item 6, it is noted that a STW is proposed. Please update S4.2.6. Please indicate the location and address the potential odour nuisance. Besides, please provide information of the proposed STW. To support the conclusion in S4.2.6, further justification is required to demonstrate the odour impact is acceptable. It can be considered to make reference to other similar STW or to provide quantitative assessment/calculation findings.	<p>The STW for Area 6f is located in the basement and ground floor under the proposed buildings. Subject to detailed design, a two stages of nitrification and de-nitrification process in combination of Membrane Bioreactor (MBR) will be implemented for nitrogen removal in the sewage treatment. The STW will be fully enclosed within the basement of the proposed development with design capacity of around 440m<sup>3</sup> per day. Deodorizing unit of 99% removal efficiency is recommended in the proposed sewage treatment works subject to further assessment during detailed design stage.</p> <p>In accordance with the approved EIA <i>Outlying Islands Sewerage Stage 2 – Upgrading of Cheung Chau Sewerage Collection, Treatment and Disposal Facilities</i> (AEIAR-181/2013), the odour level at the 3 closest ASRs to the Cheung Chau Sewage Works (CCSTW) with provision of deodorizing unit of 99% removal efficiency would be:</p> <ul style="list-style-type: none"> <li>• CSH – Cheung Chau Slaughter House (3m from the CCSTW): 3.5 OU</li> <li>• GIC-1 – C/IC Area near Pak Kok Tsui Road (23m from the CCSTW): 2.7OU</li> <li>• CCSTW-DW – North of Cheung Chau Sewage Treatment Plant (18m from the CCSTW): 3.6OU</li> </ul> <p>As the capacity of the proposed sewage treatment work is less than 5% of that of CCSTW (i.e. MBR treatment with design capacity of 9,800m<sup>3</sup>/day), the odour emission from the proposed sewage treatment work would be much lower than that of CCSTW. Therefore, no adverse odour impact from the proposed STW is anticipated by providing deodorizing unit and sufficient buffer distance between the exhaust of the deodorizing unit and ASRs. The exhaust location will also be located at the downwind location of the ASRs. The detail requirement of the deodorizing unit and the location of the exhaust will be determined during the detail design stage.</p>
4. Rtc item 7, S4.2.2.1, please ensure the road type with TD.	<p>All the roads within Discovery Bay are private roads and have no specific road type assigned. There is no specific road buffer requirement in HKPSG for private road. In order to assess the potential air quality impact from vehicular emission, the road buffer requirements in HKPSG of road type in similar nature is referenced.</p> <p>As the Parkvale Drive and Discovery Valley Road provide direct access to the building within the district, the nature of these roads would be the same as “Local Distributor”. Therefore, the buffer requirement of “Local Distributor” (i.e. 5m) is referenced for the purpose of evaluating the potential air quality impact induced by the road traffic activities. Based on the latest layout, all the ASRs would comply with the 5m buffer requirement and therefore no adverse air quality impact is anticipated.</p>
5. Appendix 4.2, page 3, 2015 data is available. Please update Table A4.2d.	<p>The annual monitoring heavy metal concentration at Tung Chung Station from Year 2010 to Year 2015 is summarized as below</p> <p>The background is also summarized for your reference as below.</p>

Year	Heavy Metal Concentration Background (ng/m <sup>3</sup> ) (Tung Chung Station)					
	Aluminum (Al)	Antimony (Sb)	Barium (Ba)	Strontium (Sr)	Copper (Cu)	Titanium (Ti)
2010	196	--	16	--	56	--
2011	226	--	16	--	60	--
2012	171	--	14	--	47	--
2013	208	--	15	--	132	--
2014	179	--	13	--	150	--
2015	163	--	13	--	174	--
Heavy Metal Concentration Background (µg/m <sup>3</sup> ) (Tung Chung Station)						
2010 – 2014 (5 years mean)	0.196	--	0.015	--	0.089	--
2011 - 2015 (5 years mean)	0.189	--	0.014	--	0.113	--

As there is no change on the dispersion model, the contribution of fireworks would be the same as before. Hence, the change of the cumulative impact is caused by the change of the background only.

For Antimony, Strontium and Titanium, zero background is assumed for assessment purpose as there is no monitoring data available. Hence, there is no change on the cumulative concentration. Based on the assessment results, all the ASRs will comply with their corresponding criteria and the conclusion that there is no adverse impact is still valid.

For Aluminum and Barium, the background concentration is reduced after adopting the Year 2015 data. Hence, the cumulative concentration is lower after adopting new background and all ASRs will comply with the assessment criteria. Therefore, the conclusion that there is no adverse impact is still valid.

For Copper, the background concentration increases by 0.024 µg/m<sup>3</sup> after adopting the Year 2015 data. The max cumulative 1-hour, max 8-hour and annual copper at ASRs will become 0.714, 0.188 and 0.113 µg/m<sup>3</sup> after adopting the new background and comply their corresponding assessment criteria respectively (i.e. 100, N/A and 2.4). Therefore, the conclusion that there is no adverse impact is still valid.

6. The air modelling data should also be reviewed and rectified as appropriate when the discrepancies/deficiency are rectified.

The air modelling data has been reviewed and confirmed that the modelling data is still valid.

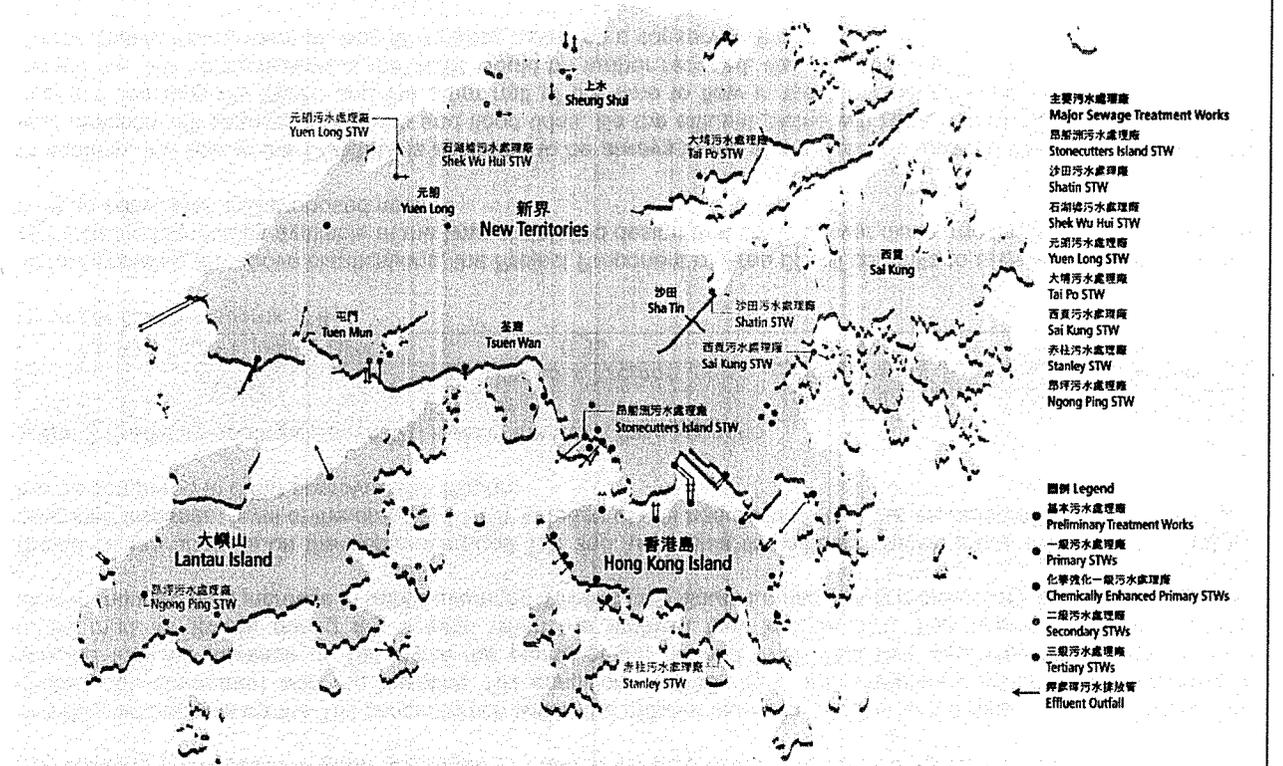
Water Quality	
ES Report	
7. General - The Applicant stated that the treated effluent would comply with the standards for effluent discharge for inshore waters, it is noted that alternative discharge methods during detailed design stage would be proposed. Please further review the standards for effluent discharge.	Noted. The treated effluent will comply with all relevant statutory standards for alternative discharge methods.
8. S.2.1.1.4 - In addition to the residents, other activities such as commercial activities associated with the proposed development that would generate sewage should be included in the flow estimation.	There are no commercial activities within the proposed development for Area 6f and the proposed development is for residential use only.
9. S.2.4 - Please review and supplement if there is cumulative impact on WSRs from the discharge of treated effluent for the development of Area 10b.	<p>The discharge of treated effluent of Area 6f is on another side of Tai Pak Tsui Peninsula which has a length of approximately 700m from that of Area 10b. Hence, it is anticipated the interaction between plume from the STWs would be insignificant.</p> <p>Besides, the shortest displacement from the outfall of the project to the nearest WSR of the outfall of Area 10b (i.e. WSR05) is more than 2 km. Given that the dilution factor of 209 at a distance of 270m according to <b>Table 5.2 of Technical Note on preliminary water quality assessment for the proposed STW</b>, it is considered that the plume will be strongly diluted by the tidal current for a travelling distance more than 2km, thus causing no significant impact to that WSR.</p> <p>Thus, it is considered that the cumulative effect is negligible.</p>
10.S.6.3.2.1 - For the proposed contingency measures of the STW, the Applicant proposed to provide emergency overflow pipe from the STW to divert the raw sewage to the existing Sewage Pumping Station no. 1 then to SHWSTW for treatment. DSD's comments on its technical feasibility should be sought and consent should be obtained from the Authority for accepting the additional sewage from the proposed development during emergency. Please indicate the location of SPS no. 1 and identify the water sensitive receivers nearby. Please also advise any measures to avoid the impact of emergency discharge due to pipe bursting.	<p>The planning application with all the technical reports has already been circulated to DSD, and no adverse comments were received.</p> <p>Please refer to <b>Attachment 2</b> for the locations of SPS No. 1, 2 and 3. All three SPSs have the same design capacity that they all have 2 duty pumps and 1 standby pump with a duty capacity of 32,832 m<sup>3</sup>/day and a standby capacity of 16,416 m<sup>3</sup>/day respectively. Sewage received by SPS No.2 (most upstream) is conveyed to SPS No.1 and eventually enters SPS No.3 (most downstream), which then transfer flow to Siu Ho Wan STW. As the maximum existing flow for SPS No.3 is estimated to be around 27,750 m<sup>3</sup>/day (i.e. 25,000 planned max. residential population + 15% for commercial activities), which is within the capacity of the duty pumps (i.e. 32,832 m<sup>3</sup>/day). Hence, SPS No.1 and No.2 would have enough capacity for the emergency use as the existing flows are less than that in SPS No.3 because SPS No. 1 and No. 2 are upstream of SPS No. 3. The proposed emergency overflow sewers between the proposed STW at Area 6f and the SPS No. 1 will be gravity sewers mainly along the relatively steep Discovery Valley Road so there is no risk of pipe bursting as no pressurize sewage rising main is proposed for the emergency overflow sewer.</p> <p>In addition, in order to demonstrate the capacity of each SPS during emergency situation, the table below summarises the capacity of SPS No. 1, 2 and 3.</p>

	SPS	Duty Pump m <sup>3</sup> / day	Standby Pump m <sup>3</sup> / day	Total Capacity m <sup>3</sup> / day	Existing Flow m <sup>3</sup> / day	Sewage during Emergency Situation m <sup>3</sup> / day
	SPS No.1				<27,750	440 from Area 6f 1,100 from Area 10b
	SPS No. 2	32,832	16,416	49,248	<27,750	1,100 from Area 10b
	SPS No. 3				27,750	440 from Area 6f 1,100 from Area 10b
	<p>From the above table, SPS No. 1, 2 and 3 can cater additional sewage during emergency situation from the discharge of Area 6f and Area 10b. It should also be noted that the 440m<sup>3</sup> / day sewage from Area 6f would constitute only 1.6% of the existing daily flow of the SPS, while that of 1,100m<sup>3</sup>/day from 10b would constitute only 4%. Hence, even during the very remote case that all the 3 SPSs encounter total power failure, the additional impacts caused by the new sewage from Area 6f and Area 10b would be marginal. In fact, during the operation of Discovery Bay in the last 2 decades, there have never been any cases for total power failure for the SPS.</p> <p>To avoid overflow during normal condition, the following measures are proposed to be adopted subject to detail design:</p> <ol style="list-style-type: none"> <li>1. The overflow pipe is designed at a higher level than the inflow pipe so the overflow will only happen during emergency case when the whole proposed STW at Area 6f is down.</li> <li>2. The valve on the overflow pipe could only be opened under authorization by senior management.</li> <li>3. There will be flow meter device on the normal effluent pipes and the emergency overflow pipes to monitor the flow condition on both pipes as part of the routine operation of the proposed STW at Area 6f. Those data could be submitted to relevant government department to supervise the operation of the proposed STW at Area 6f where required.</li> </ol>					
11.S.6.3.2.1 - For the proposed contingency measures of the STW, the Applicant also proposed the provision of sewage tanker service. The details of tanker arrangement and the response time to resume the STW to operation should be further elaborated.	Noted. Since overflow to existing SPSs would be proposed to avoid emergency discharge, sewage tanker service is no longer required.					
12.S.6.4.1.1 and S.8.1.2.1 - Should "proposed SPSs" be "existing SPS"? Please clarify.	Noted. It should read as "existing SPS".					
<b>Annex E - Technical Note on preliminary water quality assessment for the proposed STW</b>						
13.S.3.1.1.1 and S.5.1.1.4 - The Applicant said the WSR07 (Tai Pak Tsui Peninsula CPA) as ecological sensitive receiver/coral, please clarify if there was any ecological field survey conducted to verify this information. AFCD's comment should be sought for such statement. Also, the statement "irrespective of whether there are corals at WSR 07 or not" may cause misinterpretation.	Please note WSR 07 is identified as ecological sensitive receiver but "coral" mentioned in the technical note should be considered as typo. AFCD's comment has been sought regarding this planning intention and its proposed infrastructure. The response to AFCD's comments can be referred to Page 1 of this response.					

<p>14. Please supplement the effect of sedimentation on the water sensitive receivers as a result of STW operation in the report.</p>	<p>As regards the sedimentation, since the plume according to the model is above the seabed according to <b>Section 5.1.1.2</b> of the previously submitted technical note, there would be no direct deposit of suspended solid to the bottom. Even if it is assumed that the plume can hit the seabed and other conditions remain unchanged, the increase in the concentration of suspended solid would be &lt;0.1 mg/L (=30/209, <b>Table 5.2</b> of the technical note) which is within the natural fluctuation of the annual concentration of suspended solid. It is thus anticipated that the sedimentation due to the treated effluent would be insignificant.</p>																								
<p>15.S.5.1.1.6 - The assessment results indicated that the increase in TIN level at the water surface (i.e. inside the sewage plume) could be up to 27% as compared with baseline level. If this is the case, such increase may have significant impact to the nearby bathing beach (i.e. WSR 04) such as red tides occurrence. The applicant should exhaustively explore and provide all practicable mitigation measures to minimize the residual impact from the proposed STW (e.g. adoption of more advanced treatment technology, review the discharge location, etc.) and update the assessment findings. It is noted that the conclusion was also mentioned in S.7 of the ecological section, AFCD's comment should also be sought.</p>	<p><b>Sewage Treatment Level of Planned and Existing Sewage Treatment Works on South Lantau</b>  The proposed STW for Area 6f has a capacity of 440 m<sup>3</sup>/day and will adopt the MBR technology to treat the sewage generated by the planned population in Area 6f to appropriate level before discharge. <b>Table 1</b> compares the flow rates and discharge limits for the key pollutants from the proposed STW and the STW as adopted in Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works (South Lantau EIA) which also involves a new STW discharging into the water of South Lantau.</p> <p>It can be seen from <b>Table 1</b> below that the proposed STW has adopted the same treatment technology as the South Lantau STW (SLSTW). Although the flow rate for the proposed STW is much lower than that in the SLSTW, the concentration of <i>E. coli</i> has been purposefully reduced to 10 counts/100ml which is significantly lower than that of 1,000 counts/100ml in the SLSTW. In fact, the proposed discharge limit of 10 counts/100mL is even lower than the WQO and hence any risk of human contact has been proactively addressed. In terms of TIN, it can also be noted that the discharge from the proposed STW would reach a concentration of 20mg/L which is also lower than the 30 mg/L as adopted in the SLSTW. It can therefore be seen that the discharge limit in the proposed STW for Area 6f is by all aspects much better than that adopted in the SLSTW which is also discharging into the sea area off South Lantau.</p> <p><b>Table 1 Comparison of Effluent Discharge Standards against South Lantau EIA</b></p> <table border="1" data-bbox="846 826 2085 1345"> <thead> <tr> <th>Parameters</th> <th>Present Study (for Area 6f)</th> <th>South Lantau EIA<sup>(1)</sup></th> </tr> </thead> <tbody> <tr> <td>Treatment technology</td> <td>MBR</td> <td>MBR</td> </tr> <tr> <td>Flow Rate: m<sup>3</sup>/day</td> <td>440</td> <td>5,800</td> </tr> <tr> <td>NH3-N: mg/L</td> <td>8</td> <td>Not provided in EIA</td> </tr> <tr> <td>TIN : mg/L</td> <td>20</td> <td>30</td> </tr> <tr> <td>TP: mg/L</td> <td>2</td> <td>Not provided in EIA</td> </tr> <tr> <td>SS: mg/L</td> <td>30</td> <td>30</td> </tr> <tr> <td><i>E. coli</i>: counts/100ml</td> <td>10</td> <td>1,000</td> </tr> </tbody> </table> <p>[1] Application No.: EIA-247/2016</p>	Parameters	Present Study (for Area 6f)	South Lantau EIA <sup>(1)</sup>	Treatment technology	MBR	MBR	Flow Rate: m <sup>3</sup> /day	440	5,800	NH3-N: mg/L	8	Not provided in EIA	TIN : mg/L	20	30	TP: mg/L	2	Not provided in EIA	SS: mg/L	30	30	<i>E. coli</i> : counts/100ml	10	1,000
Parameters	Present Study (for Area 6f)	South Lantau EIA <sup>(1)</sup>																							
Treatment technology	MBR	MBR																							
Flow Rate: m <sup>3</sup> /day	440	5,800																							
NH3-N: mg/L	8	Not provided in EIA																							
TIN : mg/L	20	30																							
TP: mg/L	2	Not provided in EIA																							
SS: mg/L	30	30																							
<i>E. coli</i> : counts/100ml	10	1,000																							

The proposed STW at Area 6f having adopted the above treatment technology, its MBR technology is also comparable to the existing sewage treatment technology adopted on South Lantau and its surrounding outlying islands. The MBR technology is composed of activated sludge treatment and microfiltration/ultrafiltration which can be classified as secondary treatment level. As shown in **Figure 1** below, the majority of the existing STWs on South Lantau and its surrounding outlying islands are implementing secondary treatment level. Therefore, the adopted MBR is also consistent with the existing sewage treatment technology in South Lantau.

**Figure 1** Sewage Treatment Technology in Hong Kong



Source: DSD Sustainability Report 2015-16

**Comparison of the change of TIN between the current study and South Lantau EIA**

According to the preliminary water quality assessment presented in *Technical Note - Preliminary Water Quality Assessment of Area 6f*, the nearest WSR is the Tai Pak Tsui Peninsula CPA at approximately 270m from the discharge point. The predicted increase in TIN (in depth-averaged as per WQO) between the with and without the proposed STW scenarios is about 0.009 mg/L. Taking into account of the baseline condition of 0.35mg/L, the percentage of increase is only 2.58%. Compared with the relevant WSRs considered in the South Lantau EIA in which the increase in depth-averaged TIN is up to 33% (e.g. Tong Fuk Beach SR11: 33% in dry season and 12.5% in wet season), the increase in depth-averaged TIN due to the project is not significant, as shown in **Table 2**.

Besides, an analysis on the TIN concentration within the effluent plume in addition to the depth-averaged one is also carried out. Compared with the baseline TIN condition of 0.35 mg/L, the preliminary water quality assessment showed that the increase of TIN within the plume at the nearest WSR (Tai Pak Tsui Peninsula CPA) is up to 0.094 mg/L or 26.9% during dry season when the ambient flow is 0.02 m/s. This figure, compared with the aforementioned 33% increase in depth-averaged TIN from the South Lantau EIA is more or less in the same order.

Based on the analysis on the depth-averaged TIN and TIN within the effluent plume, it can thus be seen that the proposed treatment level of the proposed STW in terms of TIN has ensured that the elevation of TIN at WSRs is very low as compared to other approved EIA Report.

**Table 2** Predicted depth-averaged TIN level in the worst case scenario

WSR	TIN (mg/L)		
	Without Project	With Project	% Increase
Tai Pak Tsui Peninsula CPA <sup>[1]</sup>	0.35	0.359	2.58

[1] Water Depth = approx. 2.6 m

Notwithstanding the above clarifications, the Project Proponent of Area 6f still commits to review the effectiveness of any suitable technology available at the time of detailed design that could deliver discharge limits that are as good as or even better than that proposed now.

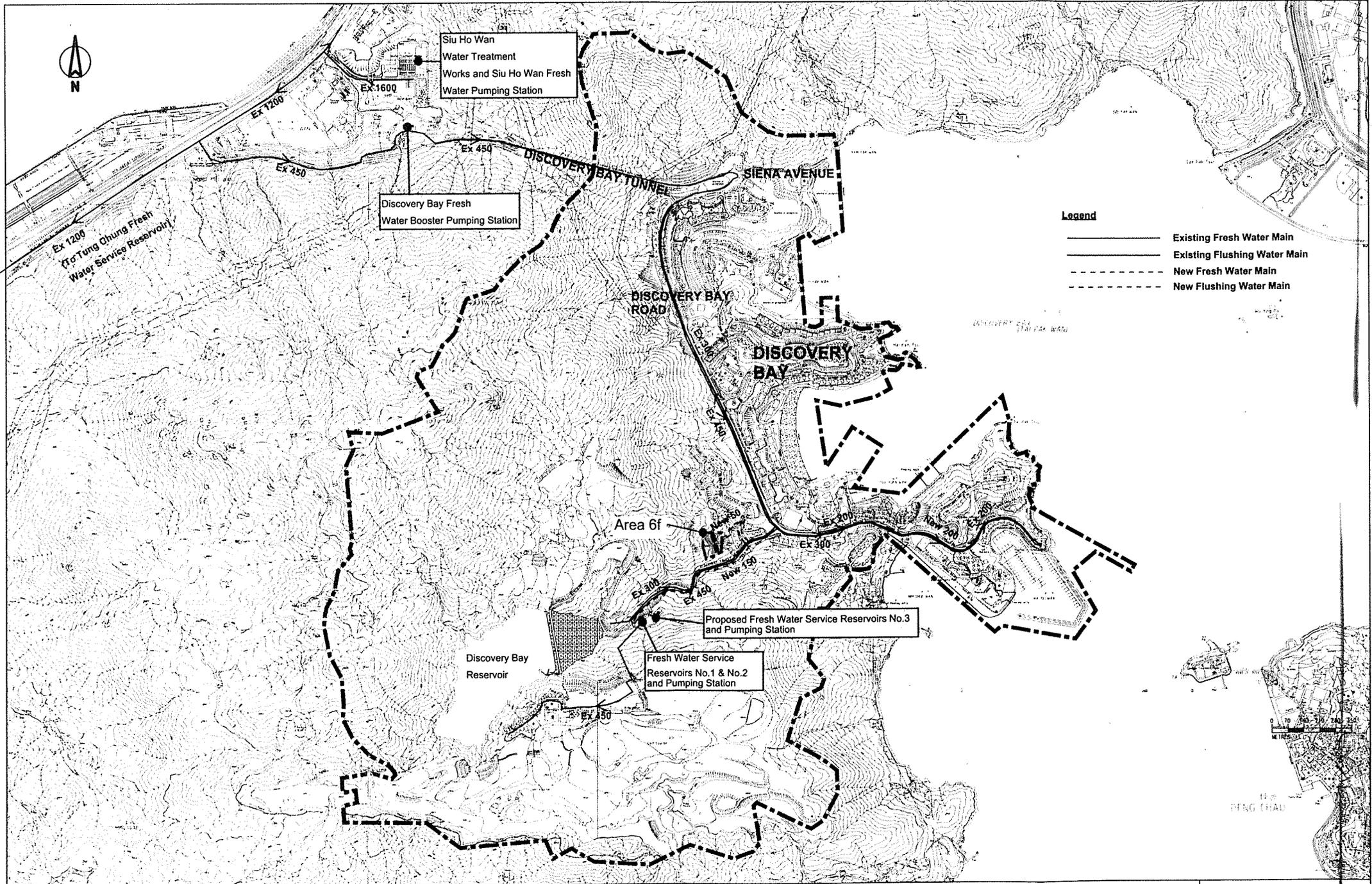
In addition, the flow in the CORMIX is assumed to be always in the same direction towards the WSR. In reality, the flow direction will change during ebb and flood tides. So the effluent plume will have half of the time to flow in one direction reaching the WSR, and the other half of the time to flow in the other direction away from the WSR. So indeed the TIN concentration at the WSR would be further reduced. Results from the *Technical Note - Preliminary Water Quality Assessment of Area 6f* is hence based on a conservative side.

Nevertheless, it is noted that some of the existing STWs beyond South Lantau can achieve an even lower total nitrogen concentration, say 10 mg/L in Peng Chau STW. The possibility to reduce the total nitrogen level to similar level will be further explored during the detailed design stage.

16.S.6.1.1.2 - Please further elaborate if assessment results by gravity sewage pipe could be comparable to the proposal for discharging treated effluent into nullah and box culvert.

The current assessment presents the worst case scenario by gravity sewage pipe discharging the treated effluent to the sea compared with the nullah and box culvert scenarios (both will be considered in detail design study) as these may contains water for further dilution. Hence, the current assessment presents worst case scenario.

17. Appendix D - The proposed port diameter (0.08m) appears to be small, please check and ensure the design is engineering feasible.	The velocity for outfall sewer pipe would be around 1m/s under an ADWF of 440 m <sup>3</sup> /d. To achieve this velocity and ADWF in the CORMIX model, it is thus adjusted the diameter of port to 0.08 m for assessment purpose only.
<b>Sewerage Infrastructure</b>	
18. Rtc - The Siu Ho Wan STW has no spare capacity to cater for sewage arising from the proposed developments in Discovery Bay. The applicant should clearly indicate that the developer shall make own provision to treat the sewage to arise from the development.	The additional 440m <sup>3</sup> /day sewage generated by the proposed residential developed would be catered by an onsite sewage treatment facility which would be implemented by the Project Proponent. Yet in view of the fact that there are various on-going new developments at North Lantau and Airport, expansion of the Siu Ho Wan sewerage treatment facilities in order to provide extra sewage treatment capacity is likely to take place. The Project Proponent believes that, should EPD plan for infrastructure expansion, all proposed future developments in the vicinity areas, including those in the Discovery Bay, should be considered on equal and fair basis. In addition, the proposal for Area 6f is moderate in scale, the demand on the overall Government infrastructure would be insignificant. Therefore, the Project Proponent requests EPD to take into account the proposed development should they consider for future expansion of the Sui Ho Wan facilities.
19. For the design of the sewerage system, the applicant should consider the total flow in accordance with "Guidelines for Estimating Sewage Flows" published by EPD.	Yes, the total sewage flow estimation for the sewerage impacts assessments is following the "Guidelines for Estimating Sewage Flows" published by EPD.
<b>Waste Management</b>	
20. For the proposed STW, the applicant is reminded to ensure that consent from Waste Disposal Authority shall be obtained for disposal of the potential sewage screenings and sludge to be produced from the facility.	Noted. Consent from Waste Disposal Authority will be obtained subsequent to approval of this application and prior to the disposal of potential sewage screenings and sludge produced from the proposed STW.
<b>Air Quality</b>	
21. Please clarify if there is any updates on the model runs compare with those submitted in July 2016.	There are no updates on the model runs compared with those submitted in July 2016.
22. Regarding the assessment of STW, the modelling file would subject to further review if air quality modelling is considered necessary.	Refer to RtoC Item 3, a qualitative assessment on the odour impact from the proposed STW was conducted and no odour impact is anticipated. Hence, there is no model file for odour impact assessment.
23. Table A4.2d presented the 5 yr heavy metal concentration at Tung Chung, which would be adopted as the background for heavy metal assessment. Please update the post-modelling analysis of heavy metal concentration should be revised accordingly.	The cumulative heavy metal concentration has been updated by adopting the latest 5 year (i.e. 2011 – 2015) background. Detailed assessment results are presented in RtoC item 5.



Job Title  
**DISCOVERY BAY - OPTIMIZATION OF LAND USE**

ATTACHMENT 1

Date  
 Jan 2017

Scale  
 1:15000

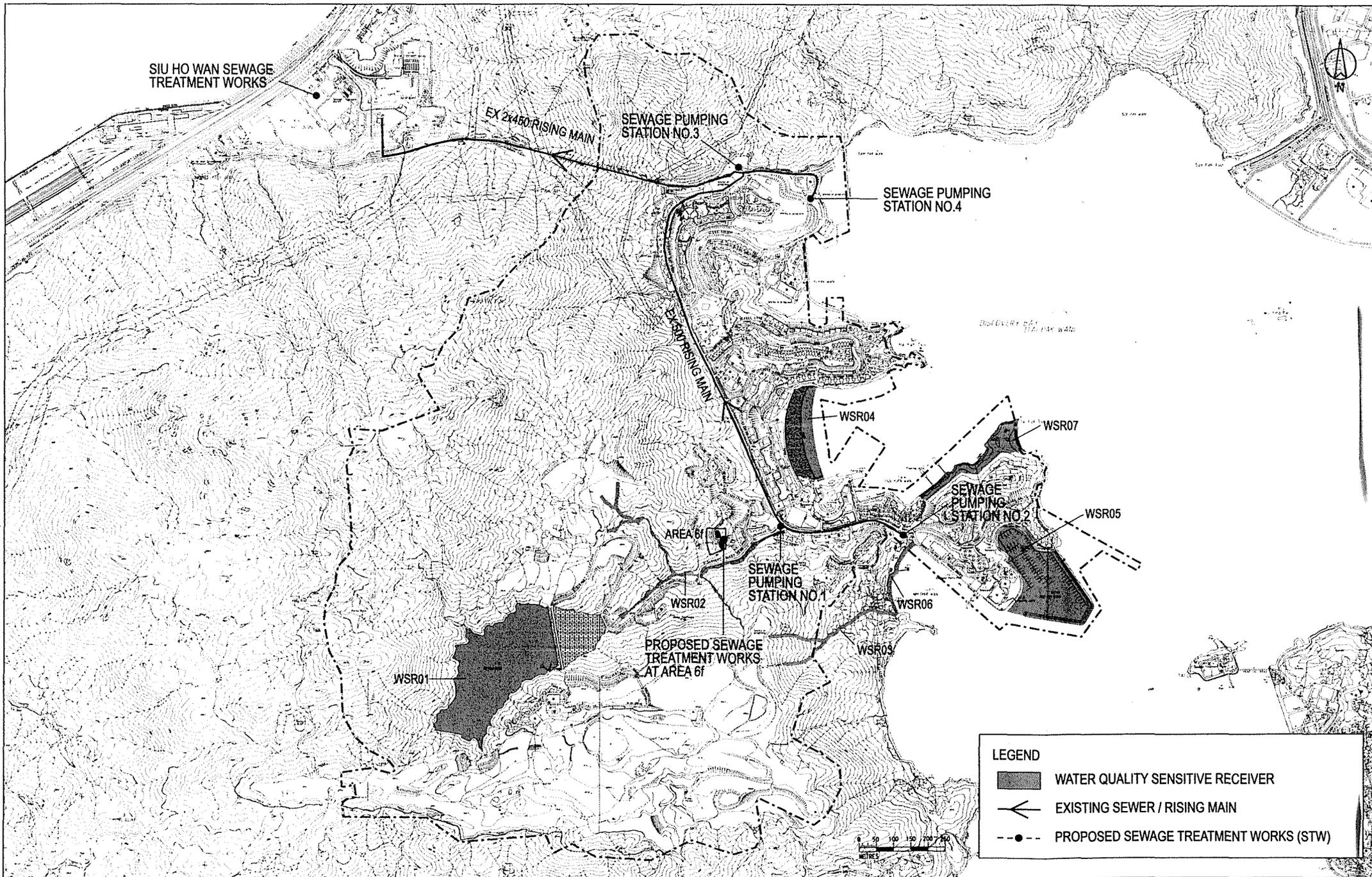
Drawing Title

Drawn  
 SY

Job No.  
 236078

**EXISTING AND PROPOSED WATER SUPPLY LAYOUT PLAN**

**ARUP**



**LEGEND**

- WATER QUALITY SENSITIVE RECEIVER
- EXISTING SEWER / RISING MAIN
- PROPOSED SEWAGE TREATMENT WORKS (STW)

Job Title			ATTACHMENT 2
DISCOVERY BAY - OPTIMIZATION OF LAND USE			
Date	Scale	Drawing Title	
JAN 17	AS SHOWN	EXISTING AND PROPOSED SEWERAGE LAYOUT PLAN	ARUP
Drawn	Job No.		
GL	235928		

G:\env\project\235928\13 Drawing Deliverables\06-28170113\_WSRV\figure 6-1 - Major Quality Sensitive Receivers\_060617.dwg

EPD's Specific Comments on Environmental Study

Water quality

The applicant conducted a quantitative assessment to address the potential water quality impact arising from the proposed sewage treatment works (STW) to the water sensitive receivers during operational phase. The assessment results indicated an exceedance of Total Inorganic Nitrogen (TIN). As such, the applicant should explore and exhaust all practicable mitigation measures to further reduce the pollution loading on TIN level to the surrounding receiving water body, such as adoption of more advanced treatment technology, review the discharge location, continued to liaise with department concerned to convey the additional sewage generated from the development to the existing facilities, etc. Not until the applicant has demonstrated that all practicable mitigation measures are exhausted, we have reservation on the acceptability of the proposed development from water quality assessment point of view.

Air quality

The applicant clarified that the STW (with design capacity of around 440 cu.m per day) for Area 6f will be fully enclosed and installed with deodourizing unit of 99% removal efficiency with sufficient buffer distance between the exhaust of the deodourizing unit and air sensitive receivers (ASRs). The detailed requirement of the deodourizing unit and the location of the exhaust will be determined during the detailed design stage. We consider that the recommended control measures can adequately control the odour emissions from the STW with acceptable residual odour impact to the surrounding ASRs by detailed engineering design, thus we have no adverse comment from air quality planning point of view. Nevertheless, please advise the applicant to consider adopting deodourizing unit with higher removal efficiency, say 99.5% or even higher, which has been proven to be technically achievable in the market, and locate the exhaust as far away from the ASRs as practicable, so as to further avoid any potential odour nuisance.

GEO ADVICE NOTE FOR PLANNING APPLICATIONS  
UNDER TOWN PLANNING ORDINANCE (CAP. 131)

Requirements for a Geotechnical Planning Review Report  
in support of planning applications

1. For developments that may affect, or be affected by, natural terrain or man-made slopes or retaining walls, applicants should submit a Geotechnical Planning Review Report with their planning application. In general, a Geotechnical Planning Review Report will be required if any of the following criteria apply :-

- (i) where the maximum gradient across a site from boundary to boundary, or for a large site across any 50m long strip, is greater than 15°,
- (ii) where a slope steeper than 30°, or retaining wall, or combination of the two with a height greater than 6m exists on the site or within 6m of the site, or
- (iii) where there is ground outside the site but in the same catchment that is at an angular elevation of more than 20° from the site and there is ground sloping at more than 15° within 50m upslope of the site.

2. The essential contents of a Geotechnical Planning Review Report are :-

- (i) The appropriate portion of the published 1:5000-scale topographical map or maps marked up to show the site boundary, the location of the features referred to in paragraph 1 above, and details of the proposed development including any site formation and the layout of any structures,
- (ii) a review of how the retaining walls and/or slopes, including natural terrain, shown on the plan may affect, or be affected by, the proposed development and in relation to this, an assessment of the geotechnical feasibility of the proposed development including an outline of any further studies that may be required, and
- (iii) a list of data sources used in compiling the Report. Common data sources normally include the GEO's Slope Information System, the Natural Terrain Landslide Inventory maps, the published 1:20,000-scale geological maps and the relevant Geotechnical Area Studies Programme (GASP) Report, all of which are available in the Civil Engineering Library which is situated within the Civil Engineering and Development Building.

3. Applications will not normally be accepted if there is very steeply sloping ground next to the site. For guidance, this should be taken as ground outside the site which is at an angular elevation of greater than 35° from the site and which is also more than 50m higher than the site. Sites subject to major past instability will also not generally be accepted for development.

4. Further information can be obtained from the Geotechnical Engineering Office, Civil Engineering and Development Building, 101 Princess Margaret Road, Homantin, Kowloon, fax 2714 0247.

根據城市規劃條例(第 131 章)  
提出規劃申請的土力工程處指引  
提交岩土規劃檢討報告的要求

1. 凡可能對天然斜坡，人造斜坡或擋土牆構成影響或受其影響的發展項目，申請人在根據城市規劃條例作出申請時，須一併提交一份岩土規劃檢討報告。一般而言，凡屬以下情況，均須提供岩土規劃報告：

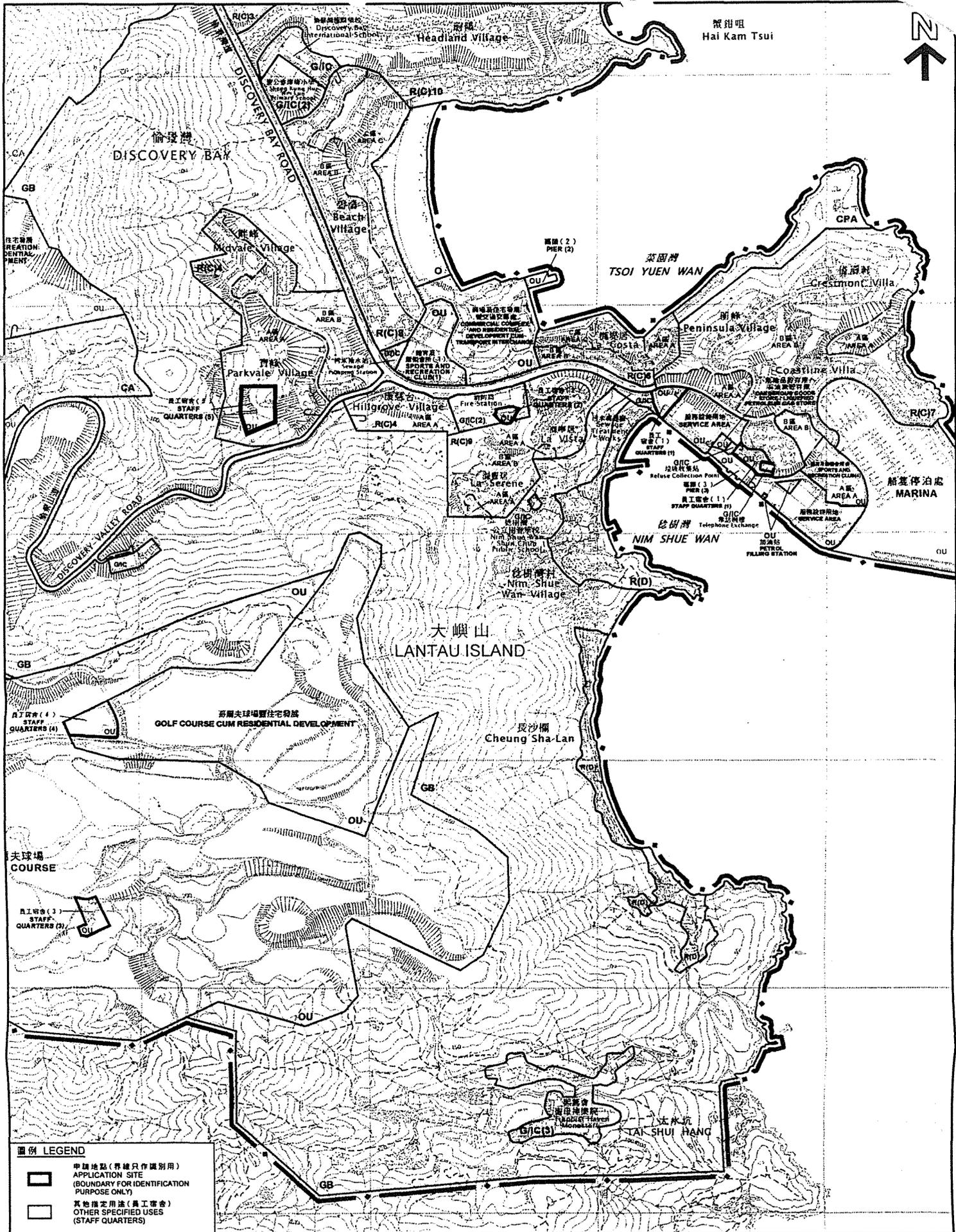
- (a) 如地盤界綫範圍內，或大型地盤內每 50 米長的地帶，其最大坡度超逾 15 度；
- (b) 如在地盤內或距地盤 6 米範圍內，有斜坡超逾 30 度，或有擋土牆，或有擋土牆與斜坡的共同高度超逾 6 米；
- (c) 如在地盤外的毗連土地與該地盤處於同一集水區，構成超逾 20 度仰角，及距地盤 50 米範圍內的向上地面斜度超逾 15 度。

2. 岩土規劃檢討報告的主要內容必須包括：

- (a) 已出版比例為 1:5000 的地形圖或地圖的相關部分，上面標明有關地盤的界綫、本文第 1 段所述斜坡或擋土牆的位置，以及擬議發展的詳情，包括地盤平整工程及任何建築物的分佈圖；
- (b) 檢討圖則上所示擋土牆及/或斜坡，包括天然斜坡，可能會影響該擬議發展項目或受到該發展的影響；因應以上事項，評估該擬議發展項目在岩土工程上的可行性，包括任何可能需進一步研究的提綱；及
- (c) 用以編製該報告的資料來源清單。一般資料來源通常包括土力工程處的斜坡資訊系統、天然斜坡山泥傾瀉目錄圖、已出版比例為 1:20 000 的地質圖及相關的地區岩土研究計劃報告。這些資料均可在土木工程拓展署大樓的土木工程圖書館內找到。

3. 如地盤毗鄰為非常陡峭的斜坡，則申請一般不會獲得接納。原則上，非常陡峭的斜坡是指位於地盤範圍外，與地盤構成超逾 35 度仰角，及高度超逾地盤 50 米以上者。此外，曾有重大不穩定紀錄的地盤，發展項目的申請通常亦不會獲接納。

4. 如欲獲得進一步資料，可向九龍何文田公主道 101 號土木工程拓展署大樓土力工程處索取(傳真號碼：2714 0247)。

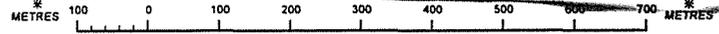


圖例 LEGEND	
	申請地點 (界線只作識別用) APPLICATION SITE (BOUNDARY FOR IDENTIFICATION PURPOSE ONLY)
	其他指定用途 (員工宿舍) OTHER SPECIFIED USES (STAFF QUARTERS)

本繪圖於2017年1月25日製備，  
所根據的資料為於2005年2月1日  
核准的分區計劃大綱圖編號S/1-DB/4  
EXTRACT PLAN PREPARED ON 26.1.2017  
BASED ON OUTLINE ZONING PLAN No.  
S/DB/4 APPROVED ON 1.2.2005

**位置圖 LOCATION PLAN**

把「其他指定用途」註明「員工宿舍(5)」地帶  
改劃為「住宅(丙類)12」地帶  
愉景灣第6區丈量約份第352約地段第385號餘段及增批部分(部分)  
TO REZONE THE APPLICATION SITE FROM  
"OTHER SPECIFIED USES" ANNOTATED "STAFF QUARTERS (5)" TO  
"RESIDENTIAL (GROUP C) 12"  
AREA 6f, LOT 385 RP & EXT. (PART) IN D.D. 352, DISCOVERY BAY  
SCALE 1:7,500 比例尺

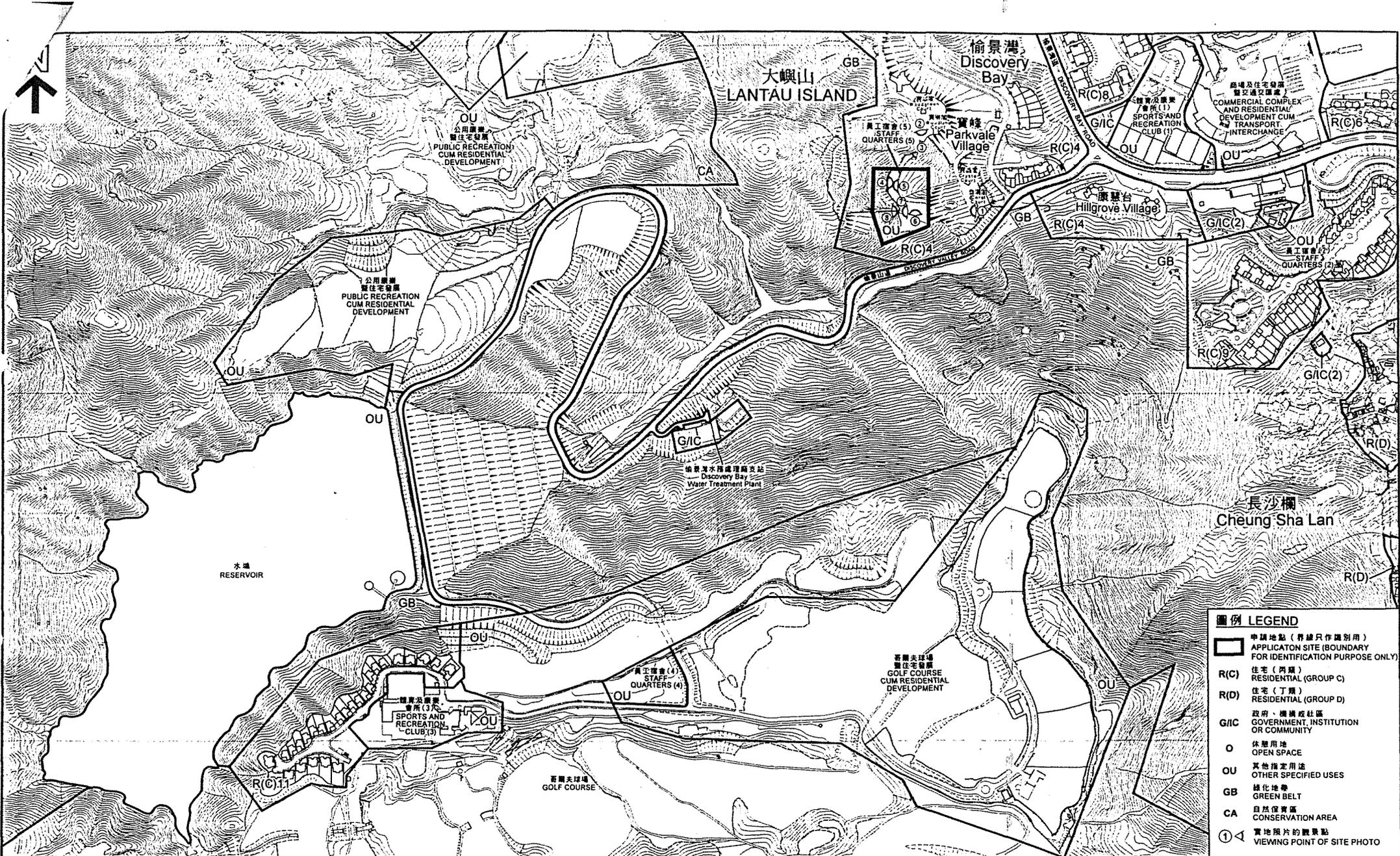


規劃署  
PLANNING  
DEPARTMENT



參考編號  
REFERENCE No.  
Y/1-DB/2

圖 PLAN  
Z - 7

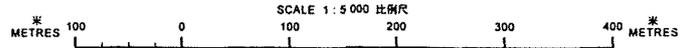


**圖例 LEGEND**

	申請地點 (界線只作識別用) APPLICATION SITE (BOUNDARY FOR IDENTIFICATION PURPOSE ONLY)
R(C)	住宅 (丙類) RESIDENTIAL (GROUP C)
R(D)	住宅 (丁類) RESIDENTIAL (GROUP D)
G/C	政府、機構或社區 GOVERNMENT, INSTITUTION OR COMMUNITY
O	休憩用地 OPEN SPACE
OU	其他指定用途 OTHER SPECIFIED USES
GB	綠化地帶 GREEN BELT
CA	自然保育區 CONSERVATION AREA
	實地照片的觀景點 VIEWING POINT OF SITE PHOTO

**平面圖 SITE PLAN**

把「其他指定用途」註明「員工宿舍(5)」地帶  
改劃為「住宅(丙類)12」地帶  
愉景灣第6區文意約份第352約地段第385號餘段及增批部分(部分)  
TO REZONE THE APPLICATION SITE FROM  
"OTHER SPECIFIED USES" ANNOTATED "STAFF QUARTERS (5)" TO  
RESIDENTIAL (GROUP C) 12  
AREA 6f, LOT 385 RP & EXT. (PART) IN D.D. 352, DISCOVERY BAY



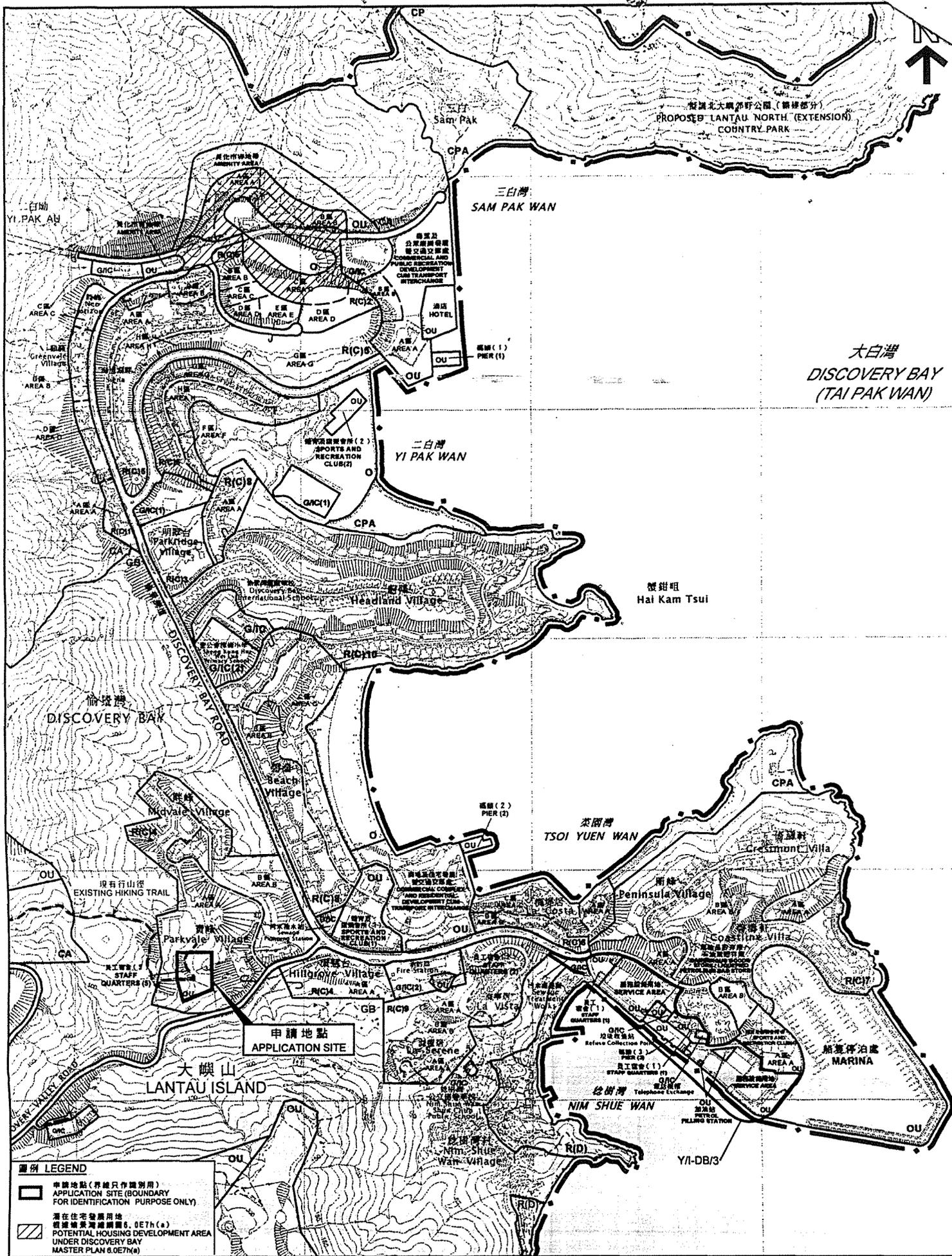
本摘要圖於2017年2月1日製備。  
所根據的資料為測量編號  
10-SW-3B、3D、4A及4C  
EXTRACT PLAN PREPARED ON 1.2.2017  
BASED ON SURVEY SHEETS No.  
10-SW-3B, 3D, 4A & 4C

**規劃署**  
**PLANNING DEPARTMENT**



參考編號  
REFERENCE No.  
Y/I-DB/2

圖 PLAN  
Z - 2



- 圖例 LEGEND**
- 申請地點(界線只作識別用)  
APPLICATION SITE (BOUNDARY FOR IDENTIFICATION PURPOSE ONLY)
  - 潛在住宅發展用地  
根據建築條例第6.0E7h(a)  
POTENTIAL HOUSING DEVELOPMENT AREA  
UNDER DISCOVERY BAY  
MASTER PLAN 6.0E7h(a)

**位置圖 LOCATION PLAN(1)**

把「其他指定用途」註明「員工宿舍(5)」地帶  
改劃為「住宅(丙類)12」地帶  
愉景灣第6(區)文量約的3 5 2約地段第3 8 5號地段及增批部分(部分)

TO REZONE THE APPLICATION SITE FROM  
"OTHER SPECIFIED USES" ANNOTATED "STAFF QUARTERS (5)" TO  
"RESIDENTIAL (GROUP C) 12"  
AREA 6f, LOT 385 RP & EXT. (PART) IN D.D. 352, DISCOVERY BAY

SCALE 1:7 500 比例尺

METRES 100 0 100 200 300 400 500 600 700 METRES

**規劃署**  
**PLANNING DEPARTMENT**

參考編號  
REFERENCE No.  
Y/I-DB/2

**圖 PLAN**  
Z - 1a

本摘要圖於2017年1月26日發備，  
所根據的資料為於2005年2月1日  
核准的分區計劃大綱圖編號S/I-DB/4  
EXTRACT PLAN PREPARED ON 26.1.2017  
BASED ON OUTLINE ZONING PLAN No.  
S/I-DB/4 APPROVED ON 1.2.2005