

Project Title: Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works
(Application No. EIA-246/2016)

Submission of further information pursuant to Section 8(1) of the EIAO

Pursuant to Section 8(1) of the EIA Ordinance, the follow information is requested to provide for deciding whether to approve the EIA Report under Section 8(3) of the EIA Ordinance.

- (1) Information on further elaboration and clarification on the baseline information of birds within the study area gathered from relevant literatures, including but not limited to those cited in the EIA report.

Relevant literature cited in the EIA report (listed in Section 5.3.2 of the EIA report) described a total of 49 bird species from dedicated field surveys in the Study Area. Most species were common in Hong Kong. Seven species were considered as species of conservation importance; these included Greater Coucal *Centropus sinensis*, Great Crested Grebe *Podiceps cristatus* and Red-billed Starling *Spodiopsar sericeus* reported in Pui O, and Little Egret *Egretta garzetta*, Pacific Reef Egret *Egretta sacra*, White-throated Kingfisher *Halcyon smyrnensis* and Black Kite *Milvus migrans* reported in Pui O and Cheung Sha . Five of these seven species are common residents and the other two species are winter visitors and widespread in Hong Kong.

The primary literature on the baseline information of birds within the study area in particular Pui O is the bird list compiled by Hong Kong Bird Watching Society (HKBWS) (<http://www.hkbws.org.hk/BBS/viewthread.php?tid=16725>) (a number of secondary literature cross-referencing bird baseline information from the primary literature is noted). This bird list from 2012 together with other bird sightings reported by HKBWS (2012 onwards) recorded a total of 194 species of birds in Pui O. Most species are common in Hong Kong. 19 species were considered as species of conservation importance. It is important to recognize that this list represents the bird records from almost 20 years of observations, and no specific sighting locations are provided. The statement made in the *Lantau – Hong Kong's Jewel – A Biodiversity Study of Lantau* Report, that “the mixture of topographical and ecological features of Pui O makes the freshwater marsh and adjoining habitats one of the most important sites for visitor and resident water birds on Lantau”, is also noted as an “informed reference” from the respective authors’ perspective.

- (2) Information on further elaboration and clarification of the greening standard stipulated in DSD internal guidelines for sewage treatment facilities.

DSD internal guidelines for greening include the following:

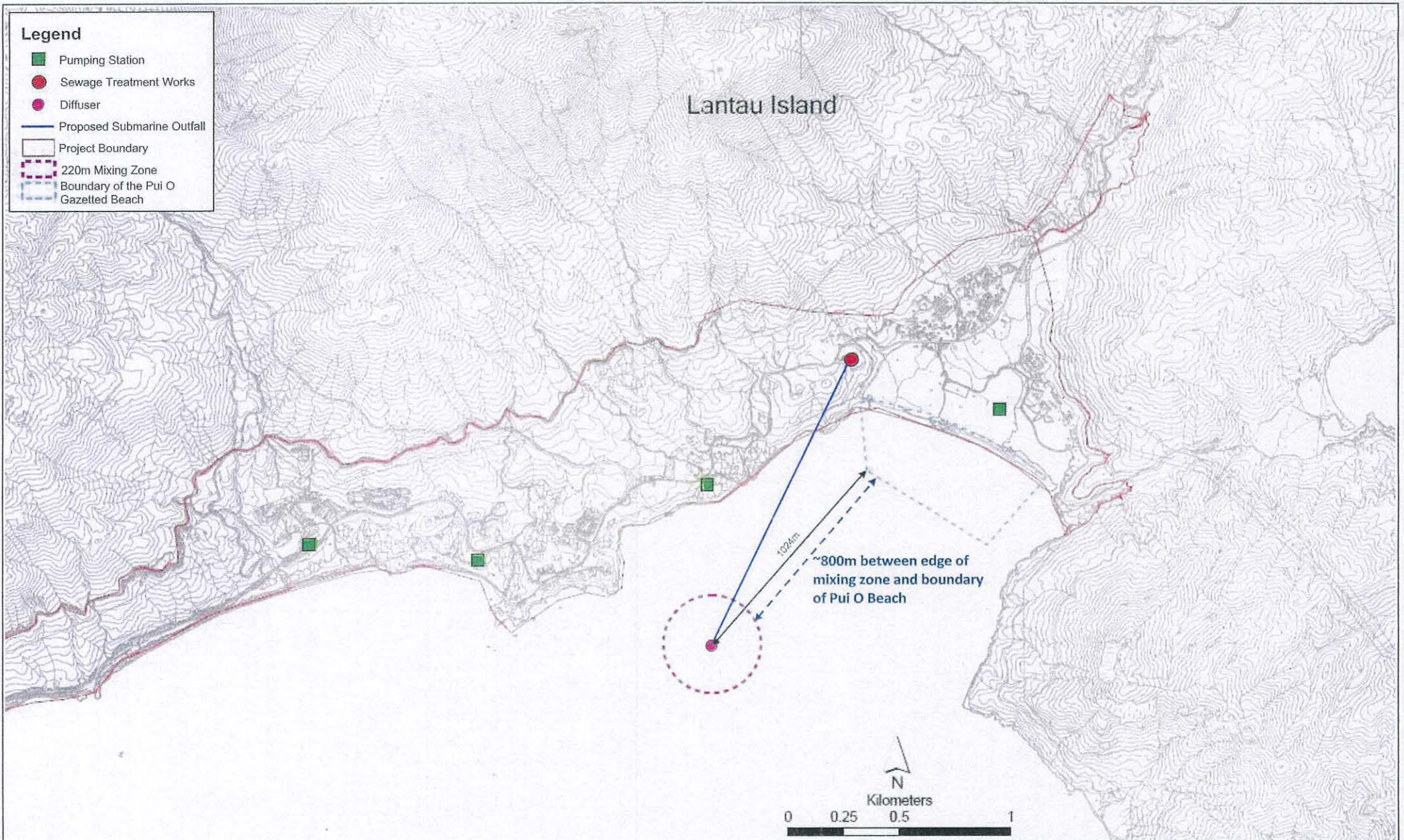
- Drainage Services Department, Technical Circular No. 3/2015, Vetting Committee on Aesthetic Design of Drainage Services Building:
<http://www.dsd.gov.hk/EN/Files/Technical Manual/dsd TechCirculars n PracticeNotes/SD TC3 2015.pdf>
- Guidelines on Aesthetic Design of Pumping Station Buildings:
<http://www.dsd.gov.hk/EN/Files/Technical Manual/dsd guideline/Guidelines on Aesthetic Design of PSSs.pdf>

- (3) Information on further elaboration and clarification on the water quality impact arising from the discharge of the outfall diffuser and the possible benefits of further extending the discharge point away from the Pui O Beach.

The water quality impact assessment has assessed construction and operation phase impacts of the Project in accordance with the criteria and guidelines stated in the EIAO-TM Annexes 6 and 14, and applicable assessment standards/ criteria. The assessment, utilising water quality and hydrodynamic computational models, has examined the potential impacts caused by marine dredging works and land-based activities during construction phase of SPSs and STW, and effluent discharge from the operation of SPSs and STW during operation phase.

At the currently proposed location for the outfall diffuser, it will discharge effluent at depth of about 5m below water surface (at mean low tide), and so the STW is designed to follow a more stringent set of effluent discharge standards for inshore waters of SWCZ described in the *Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters under the Water Pollution Control Ordinance*. The modelling exercise estimates that when the water quality parameters of relevance to beach users (*E. coli* with a WQO of 180 cfu/ 100mL in the wet season and suspended solids with a WQO of within 30% increase from natural ambient level) are considered, the extent of the initial mixing zone is < 220 m which is small in extent and over 800 m away from the Pui O Beach (as shown in Figure A). Please be clarified that the initial mixing zone of around 400 m mentioned in the EIASC Meeting held on 20 February 2017 refers to the maximum size of the mixing zones modelled under all scenarios for various water quality parameters. The size of mixing zone is different for individual water quality parameter. Also it predicts that there is no change in all modelled water quality parameters at Pui O Beach during the wet season (bathing season), and no adverse water quality impact to the beach is predicted. Therefore further extension of the outfall away from Pui O Beach appears unlikely to result in detectable merits in the water quality at Pui O Beach because no change in water quality could be

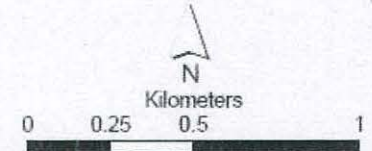
predicted. On the contrary, further extension might affect the water quality of other bathing beaches close by on the west. Further extension may also result in other environmental dis-benefits such as an increase in excavated materials, longer project construction duration, increase in marine dredging extent and duration (if HDD is technically feasible), larger project footprint to accommodate potentially higher effluent pumping requirement and effluent pipe on land, etc.. Adjustment in the alignment and length of the STW outfall therefore needs to take into account the locations of different sensitive receivers as well as a range of environmental aspects and considerations to confirm its environmental benefits/ dis-benefits.



- Legend**
- Pumping Station
 - Sewage Treatment Works
 - Diffuser
 - Proposed Submarine Outfall
 - Project Boundary
 - 220m Mixing Zone
 - Boundary of the Pui O Gazetted Beach

Lantau Island

~800m between edge of mixing zone and boundary of Pui O Beach



Title Size of Mixing Zone near Pui O Beach	OUTLYING ISLANDS SEWERAGE STAGE 2 SOUTH LANTAU SEWERAGE WORKS - INVESTIGATION		Figure no. Figure A	
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	 BLACK & VEATCH HONG KONG LIMITED		Date Feb 2017	Scale -