

Date: 9 July 2021
Our ref.: KSZHJV/OUT/2021/07/03.01/011620

Environmental Protection Department
EIAO Register Office
27/F, Southorn Centre,
130 Hennessy Road, Wan Chai,
Hong Kong

By Hand

Attn: Mr. Keith Lam – Environmental Protection Officer

Dear Sir,

Contract No. EP/SP/66/12
Integrated Waste Management Facilities, Phase 1
Vessel Travel Details (Rev. I)

Pursuant to Clause 2.14 of the Further Environmental Permit No.: FEP-01/429/2012/A, we would like to submit herewith 3 hard copies and 1 electronic copy of Vessel Travel Details (Rev. I) for your retention.

The Vessel Travel Details (Rev. I) has been certified by the Environmental Team Leader and verified by the Independent Environmental Checker as confirming to the recommendations contained in the approved EIA report (Register No.: AEIAR-163/2012).

Thank you for your kind attention.

Yours faithfully
For and on behalf of
Keppel Seghers – Zhen Hua Joint Venture



Yu Yung Hong, Kenny
Project Manager

Encl.

KY/lc/jw

c.c. EPD – Mr. Michael LUI Hok-leung - Principal Environmental Protection Officer (F: 3529 2991)
AECOM – Mr. Bevis Mak – Supervising Officer (F: 3922 9797)
AECOM – Mr. Henry Chan – Chief Resident Engineer (By Hand)
ASCL – Mr. F. C. Tsang – Environmental Team Leader (F: 2698 9383)
ERM – Ms. Mandy To – Independent Environmental Checker (F: 2723 5600)
AFCD – Mr. Dick Choi – Senior Marine Conservation Officer (By Hand)







吉寶西格斯 - 振華聯營公司
KEPPEL SEGHERS - ZHEN HUA JOINT VENTURE

VESSEL TRAVEL DETAILS

(Clause 2.14, Further Environmental Permit No. FEP-01/429/2012/A)

Document No.

KSZHJV	/	312	/	VTD	/	0001	/	I
Issuer		Project Code		Type of Document		Sequential No.		Revision Index

	Prepared by:	Approved by:	Certified by:	Verified by:
Name	Leo Chow	Kenny Yu	F. C. Tsang	Mandy To
Position	Environmental Monitoring Manager (KSZHJV)	Project Manager (KSZHJV)	ETL (Acuity)	IEC (ERM)
Signature				
Date:	5 July 2021	8.7.2021	8 July 2021	8 July 2021

© This document contains confidential and proprietary information belonging to Keppel Seghers - Zhen Hua Joint Venture and/or its affiliates. The contents of this document shall not be used for any other purpose than that for which they were provided. Any disclosure, copying, distribution or the taking of any action in reliance on the contents of this document is strictly prohibited. This document confers upon the recipient no right or license of whatsoever nature based on the information as described herein. If you have received this document in error, please immediately arrange for the return to Keppel Seghers - Zhen Hua Joint Venture or destruction of this document.

Revision History

I	Revise Section 2, 3, 4, 5, Figures 6, 9	5 July 2021
H	Revise Figure 6	15 August 2019
G	Add the delivery route of Precast Concrete Caisson at Section 4 and Figure 6, renumber to original figures 6 – 8 to figures 7 - 9	6 May 2019
F	Response to EPD comments on 8 August 2018	10 August 2018
E	Response to EPD comment on 28 June 2018	7 July 2018
D	Response to IEC comment on 21 May 2018	21 May 2018
C	Response to IEC comments issued on 15 May 2018	17 May 2018
B	Response to ET and IEC comments issued on 8 May 2018 and 7 May 2018 respectively	14 May 2018
A	First Issue	20 Apr 2018
Rev.	Description of Modification	Date

Table of Contents

1	INTRODUCTION	0
1.1	Background.....	0
1.2	Purpose & Scope	0
2	OUTLINE OF CONSTRUCTION ACTIVITIES DURING CONSTRUCTION STAGE	1
2.1	Land Formation	1
2.2	Dredging	2
2.3	Superstructure Construction	2
2.4	General Activities	2
2.5	Types of Working Vessels (Construction Stage)	2
3	OUTLINE OF OPERATIONAL ACTIVITIES DURING OPERATIONAL STAGE	5
4	REGULAR MARINE TRAVEL ROUTES DURING CONSTRUCTION STAGE	6
5	REGULAR MARINE TRAVEL ROUTES DURING OPERATION STAGE	9
6	VESSEL CAPTAIN TRAINING	10
6.1	Vessel Captain Training	10
6.2	General education on local cetaceans and white-bellied Sea Eagles	10
6.3	Marine Parks and Hotspot Areas of Chinese White Dolphin and Finless Porpoise	10
6.4	Speed Limits and Guidelines for Safe Vessel Operations in the Presence of Chinese White Dolphin / Finless Porpoise	11
6.5	Guideline of Restriction on vessel access and speed limit near the nest of White-bellied Sea Eagle	12
6.6	Required environmental practices / measures	12
7	MONITORING.....	12

FIGURES

1. Existing Traffic Separation Scheme and Fairway Plan
2. Location Plan of Construction Site Area
3. Marine Travel Route to Hei Ling Chau Typhoon Shelter

Integrated Waste Management Facilities, Phase 1

4. Marine Travel Routes to Tuen Mun Area 38 and Tseng Kwan O Area 137 for disposal of C&D materials off site
5. Marine Travel Routes for delivering Sand Fills from Zhongshan / Zhuhai, Guangdong to the construction site
6. Marine Travel Route for delivering Precast Concrete Caisson, Superstructure's, Seawall's and Berth's Precast Units and Prefabricated components of incinerator plant to the construction site
7. Marine Travel Route for connection boats
8. Marine Travel Route for disposal of marine sediment
9. Marine Travel Routes during operational stage

APPENDICES

- A. Photos of different types of vessels
- B. Location Plans of Existing and Proposed Marine Parks and Chinese White Dolphin / Finless Porpoise Hotspot Areas
- C. Code of Conduct for construction and associated vessels in the presence of Chinese White Dolphin / Finless Porpoise
- D. Location plan and the 100m boundary from the nest of White-bellied Sea Eagle
- E. Implementation Schedule for Vessel Travel Details

1 INTRODUCTION

1.1 Background

The Government of Hong Kong SAR will develop the Integrated Waste Management Facilities (IWMF) Phase 1 (hereafter “the Project”) with incineration to achieve substantial bulk reduction of unavoidable municipal solid waste (MSW) and to recover energy from the incineration process. The IWMF will be on an artificial island to be formed by reclamation at the south-western coast of Shek Kwu Chau. Keppel Seghers – Zhen Hua Joint Venture (KSZHJV) was awarded the contract under Contract No. EP/SP/66/12 Integrated Waste Management Facilities Phase 1 to construct and operate the Project.

An environmental impact assessment (EIA) study for the Project have been conducted and the EIA Report was approved under the Environmental Impact Assessment Ordinance on 17 January 2012. An Environmental Permit (EP) (EP No.: EP-429/2012) was granted to EPD on 19 January 2012 for the construction and operation of the Project. Subsequently, the EP was amended (EP No.: EP-429/2012/A) and a further EP (FEP) (EP No.: FEP-01/429/2012/A) was granted to the Keppel Seghers – Zhen Hua Joint Venture (KSZHJV) on 27 December 2017.

Pursuant to Condition 2.14 of the Further Environmental Permit (FEP), the Keppel Seghers – Zhen Hua Joint Venture (KSZHJV) shall prepare a Vessel Travel Details to minimize the chance of vessel collision and disturbance to the Finless Porpoise and White-bellied Sea Eagle arising from frequent vessel traffic.

1.2 Purpose & Scope

As specified in Condition 2.14 of the FEP:

“To minimize the chance of vessel collision and disturbance to the Finless Porpoise and White-bellied Sea Eagle arising from frequent vessel traffic, at least 1 month before the commencement of construction of the Project, 3 hard copies and 1 electronic copy of regular marine travel routes of vessels moving to and from the Project site during construction and operation stages shall be deposited with the Director. Any subsequent changes to the regular routes shall be certified by the ET Leader and verified by the IEC as conforming to the requirements in the approved EIA report (Register No.: AEIAR-163/2012) and deposited with the Director at least 2 weeks before changing the routes.”

This Vessel Travel Details has been prepared in accordance with the FEP requirements and details

the regular marine travel routes of different types of activities during construction and operation stage.

2 OUTLINE OF CONSTRUCTION ACTIVITIES DURING CONSTRUCTION STAGE

For the purposes of this Vessel Travel Details, only those construction activities which are marine based or would utilize construction and associated vessels are described. Relevant activities including land formation, dredging, **superstructure construction** and general activities are described in the following sections.

2.1 Land Formation

The main components of land formation comprise construction of seawall and breakwater, ground improvement of the underlying marine sediments, filling and surcharge. Ground improvement in lieu of dredging will be adopted to minimize any impacts to marine ecology. Marine site investigation works will be conducted regularly as quality control measures during ground improvement and reclamation works.

2.1.1 Geotextile and Sand Blanket Laying

The method of sand blanket laying would include closed grab dredgers and hydraulic pumping with spreader pontoon. A full enclosure cage typed silt curtains shall be installed surrounding the grab of dredger and hydraulic pump of spreader pontoon.

2.1.2 Ground Improvement of the Underlying Marine Sediments

Various ground improvement methods such as Deep Cement Mixing and installation of Prefabricated Vertical Drain have been proposed. A full enclosure cage typed silt curtains shall be installed while conducting Deep Cement Mixing.

2.1.3 Seawall and Breakwater Construction

Seawall and breakwater shall be constructed by using Precast Concrete Caisson. Sand fill or public fill will fill inside the Caisson. The seawalls will cover the entire boundary of the new land formation.

2.1.4 Land Filling

Different fill materials including rock fill, public fill, sand fill, rock armour and graded filter layer will be used to form the land. Sand Fill will be adopted as the marine filling materials, when

Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

filling below +2.5mPD. A combination of sand fill and public fill will be adopted for land filling activities, when filling above +2.5mPD.

2.1.5 Temporary Surcharge

Temporary surcharge (primarily public fill) will be applied to facilitate consolidation process in the soft clay layer. The surcharge material will be delivered via hopper barge, pelican barge or trailer suction hopper dredger and off loaded into the dump trucks.

2.2 Dredging

The dredging area is located immediately next to the shoreline of Shek Kwu Chau to facilitate to form the foundation of the seawall closest to the shoreline. A closed grab dredger shall be deployed for dredging. A full enclosure cage typed silt curtains shall be installed while conducting dredging.

2.3 Superstructure Construction

Precast units of Superstructure, Seawall and Berth and Prefabricated components of incineration plant will be delivered to site via marine transport.

2.4 General Activities

General activities include material storage and delivery of other site materials and construction equipment, maneuvering and anchoring of working barges or vessels, transportation of site staff, exportation of surplus fill and / or waste for disposal and Marine Site Investigation Works.

2.5 Types of Working Vessels (Construction Stage)

In line with the works progress and serving for different purposes, the working vessels to be used during the construction stage are summarized in the below table.

Construction Activities	Working Vessels Involved (Numbers of Vessels)	No. of vessel trips estimated per day
Installation of the Geotextile Layer and Sand Blanket •Laying geotextile •Sand Delivery	Derrick Barge (3) Spreader Pontoon (3)	2 round trips

Construction Activities	Working Vessels Involved (Numbers of Vessels)	No. of vessel trips estimated per day
•Placing / Pumping Sand		
Ground Improvement •Deep Cement Mixing (DCM) •Prefabricated Vertical Drains (PVD)	Derrick Barge (1) DCM Barge (3) Cement Silo Barge (1) PVD Barge (1)	2 round trips
Seawall and Breakwater Construction •Formation of seawall core and placement of rock armour •Delivery and installation of rock and precast seawall concrete caisson	Flat Top Barge (3) Derrick Barge (3) Vessels to transport precast concrete caisson (1)	2 round trips
Land and Marine Filling and Temporary Surcharge •Sand Delivery and filling •Public Fill Delivery and filling •Removal of surplus surcharge material	Trailing Suction Hopper Dredger (TSHD) (1) Flat Top Barge (1) Derrick Barge (1) Spreader Pontoon (2) Pelican Barge (2) Hopper Barge (1)	2 round trips
Dredging	Derrick Lighter (1) Hopper Barge (1) Flat Top Barge (1)	2 round trips
Superstructure Construction •Delivery and installation of superstructure's, seawall's and berth's precast units •Delivery and installation of prefabricated components of incineration plant	Vessels to transport precast unit and prefabricated components (2)	2 round trips
General Activities •Material storage and delivery of other site materials including sand and construction equipment	Flat Top Barge (1) Pelican Barge (1) Hopper Barge (1) Tug Boats (3) Anchor Boats (2)	<12 round trips a day

Construction Activities	Working Vessels Involved (Numbers of Vessels)	No. of vessel trips estimated per day
<ul style="list-style-type: none"> •Exportation of surplus fill or waste •Maneuvering and anchoring of working barges or vessels •Transportation of Site Staff •Marine Site Investigation Works as quality control activities during construction phase 	Connection Boats (2) Jack up Barge (1) Marine Site Investigation Barge (1)	

Photos of different types of vessels are shown in **Appendix A**.

The construction and associated vessels are divided into three categories:

2.4.1 Non self-propelled Vessels

This category includes derrick barge, jack up barge, spreader pontoon, hopper barge, DCM barge, PVD barge, Marine Site Investigation barge and vessel to transport precast concrete caisson etc. These types of vessels will be stationary within the construction site area most of the time. The positioning / re-positioning of these vessel types shall be assisted by tug boats and anchor boats at a very low speed, less than 5 knots.

2.4.2 Self-propelled Vessels

This category includes TSHD, pelican barge, tug boat, anchor boat and connection boat. When moving to and from the construction site area, these vessels may be able to travel at slow to intermediate speed (up to around 20 knots). However, within the project site boundary, they mainly operate at slow moving speed (around 5 knots up to maximum of 10 knots). These vessels generally have high maneuverability. The project site boundary is shown in **Figure 2**.

2.4.3 Vessels Delivering Materials to and from the Project Site

This category includes TSHD, pelican barge, derrick barge, hopper barge and flat top barge etc. These are large, slow moving vessels while the last three types of barges are non self-propelled vessels that rely on tug boats for maneuvering. These vessels will be travel at slow moving speed (around 5 knots up to maximum of 10 knots).

3 OUTLINE OF OPERATIONAL ACTIVITIES DURING OPERATIONAL STAGE

During operation stage, the IWMF shall receive all the Municipal Solid Waste (MSW) in containers delivered to the Artificial Island from West Kowloon Transfer Station (WKTS), Island East Transfer Station (IETS) or Island West Transfer Station (IWTS) using marine transportation vessels. WKTS, IETS or IWTS vessels will return the empty and clean containers on their return trip from Artificial Island back to their Refuse Transfer Station (RTS). In the event that the IWMF obtains the consent of the Employer to decline the reception of MSW from the WKTS RTS to the Artificial Island during the Operation Period, the WKTS vessel shall deliver the containers to the loading/unloading area at **WENT Landfill**. The WKTS vessels will return the empty and clean containers on their return trip from **WENT Landfill** back to their RTS. Vessels from IETS and IWTS will arrived to IWMF upon request and approval basis.

It should be noted that the operation of vessels from the different refuse transfer station (RTS) is not covered under the KSZHJV's scope, hence their travelling route will not be part of our study.

Ash and residue containers, accompanied by up to four (4) sludge containers from the grease trap facility of WKTS and the recyclable materials containers shall be transported from the Artificial Island to the loading/unloading area of **WENT Landfill**. Empty containers will be delivered on their return trip from **WENT Landfill** back to Artificial Island.

Non-Dangerous Goods and procurement goods (e.g. Plant auxiliary equipment) will be transported using the Ash and Residue marine transportation vessels.

Additionally, there are other general activities, namely the transportation of visitors and Employer, staff and subcontractors, fuel and chemicals, mobile and plant equipment material delivery etc., for vessels travelling to and from the Artificial Island on a regular basis. The vessels will travel at slow to intermediate speed (up to around 20 knots) outside the footprint of the IWMF. Within the footprint of the IWMF, the vessels will operate at slow moving speed (around 5 knots up to maximum of 10 knots).

Type of Working Vessels (Operational Stage)

Operational Activities	Working Vessels Involved (Numbers of Vessels)	No. of vessel trips
Delivery of ash and residue and recyclable materials	Self-propelling Barge (1) Flat Top Barge (1) Tug Boat (1)	2 round trips per vessel
Transportation of Non-Dangerous Goods and procurement goods (e.g. Plant auxiliary equipment) •Fuel, Chemicals, mobile and plant equipment storage and delivery	Self-propelling Barge (1) Flat Top Barge (1) Tug Boat (1) Derrick Barge (1) Vehicular Ferry (1) Connection Boats (1)	2 round trips per vessel
General Activities •Transportation of Site Staff / Visitor / Employer	Vessel (2)	< 12 round trips a day per vessel

4 REGULAR MARINE TRAVEL ROUTES DURING CONSTRUCTION STAGE

The existing traffic separation scheme and fairways, such as West Lamma Channel, South Cheung Chau Channel and Adamasta Channel, will be followed and selected as the major marine travel routes for mobilization of vessels and delivery of construction materials to the construction site. The existing traffic separation scheme and fairway plan is shown in **Figure 1**.

Most of the non self-propelled vessels expected to be deployed during construction works are barges associated with ground improvement works, seawall and breakwater construction, dredging and reclamation. Most of these vessels and associated tug boats will enter the construction site area during mobilization periods before commencement of the relevant phases of the construction works. They will then stay and work within the construction site area. The associated tug boats will be required to use the predefined and regular marine routes to maneuver all non self-propelled vessels when they travel outside the construction site area.

With reference to updated EM&A Manual Section 6.2.1.11 and Section 6.2.1.12, the regular travel route should avoid areas with high sighting density of Finless Porpoise as much as possible; and a speed limit of ten knots should be strictly enforced within areas with high density of Finless

Porpoise. In accordance with the Marine Parks and Marine Reserves Regulation (Cap. 476A), the same speed limit (10 knots) is required to be enforced within the existing Sha Chau and Lung Kwu Chau Marine Park and the Brothers Marine Park. Same condition will be imposed for the planning Marine Parks (Southwest Lantau Marine Park, South Lantau Marine Park and Marine Park for three runway system) after their designation.

Also according to updated EM&A Manual Section 6.2.3.3, a pre-defined practical route to restrict vessel access near the nest should be adopted to keep vessels and boats as far away from the nest as possible in order to minimize disturbance on the existing WBSE nest. As an additional precautionary measure to minimize disturbance on their nestling stage, the vessel travel route should be adjusted to avoid the foraging ground of the breeding adult birds identified during White Bellied Sea Eagle monitoring programme. If avoidance of foraging ground is not feasible, vessel frequency and speed within their foraging ground near the Project Site should be reduced to minimize any potential impacts. Therefore, it is not recommended for the vessel travel within 100m from the White-bellied Sea Eagle's nest and the vessel travel speed shall less than 10 knots within 100m from the nest of White-bellied Sea Eagle if unavoidable.

Self-propelled vessels and vessels delivering materials to and from the construction site shall also be required to use predefined and regular marine routes to reduce disturbance to cetaceans and White-bellied Sea Eagles due to vessel movement. The construction site area is illustrated in **Figure 2** and separated predefined and regular marine travel routes shall be described in the below parts with due concerns on the relevant requirements as stipulated in Updated EM&A Manual and Marine Parks and Marine Reserves Regulation.

During the inclement weather, the working vessels will go to Hei Ling Chau Typhoon Shelter by passing the southern tip of Cheung Chau. The planned marine route shall not pass through the existing and planning Marine Parks and foraging ground of White-bellied Sea Eagle. The vessels shall travel less than 10 knots at the hotspot areas of Finless Porpoise. Please refer to **Figure 3** for the marine route.

For disposal of C&D materials, KSZHJV will deliver the C&D materials to Tuen Mun Area 38 and Tseung Kwan O Area 137. Derrick Barger shall be used to deliver C&D materials off site. The planned marine route shall not pass through the existing and planning Marine Parks and foraging ground of White-bellied Sea Eagle. The vessels shall travel less than 10 knots at the hotspot areas of Finless Porpoise. The marine route is illustrated in **Figure 4**.

Sand Fill will be delivered to construction site from Zhongshan / Zhuhai, Guangdong. The barge

Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

will first anchor at the immigration anchorage area for immigration check at Tuen Mun, then deliver to the construction site directly. The planned route of working vessels during construction stage shall not travel through the Sha Chau and Lung Kwu Chau Marine Park. When the vessels are traveling inside the hotspot areas of Chinese White Dolphin and Finless Porpoise due to safety / unavoidable reasons, it shall travel less than 10 knots. It is not anticipated for the planned marine route to travel near the foraging ground of White-bellied Sea Eagle. Please refer to **Figure 5** for the detailed marine routing.

Precast concrete caisson will be delivered to construction site from Shatian / Dongguan, Guangdong directly. Superstructure's, Seawall's and Berth's precast units will be delivered to construction site from Xinhui, Guangdong and prefabricated components of incineration plants will be delivered to construction site from Zhuhai, Guangdong directly. The vessels will first travel to anchorage ground in the vicinity of Shekou, Guangdong to go through immigration. The planned route of working vessels during construction stage shall not travel through the Sha Chau and Lung Kwu Chau Marine Park. When the vessels are traveling inside the hotspot areas of Chinese White Dolphin and Finless Porpoise due to safety / unavoidable reasons, it shall travel less than 10 knots. It is not anticipated for the planned marine route to travel near the foraging ground of White-bellied Sea Eagle. Please refer to **Figure 6** for the detailed marine routing.

The connection boats will be used to transport Supervising Officer's staff, KSZHJV's staff and general workers to and from the construction site. The planned route may pass through hotspot areas of Finless Porpoise. When the vessels are traveling inside the hotspot areas of Finless Porpoise, it shall travel less than 10 knots. The planned route is not anticipated to travel through the marine parks, foraging ground of White-bellied Sea Eagle. The marine route is shown in **Figure 7**.

Upon the receipt of Dumping At Sea Ordinance Permit, the dredged Category L marine sediment shall be disposed of at the CEDD's disposal ground at South Cheung Chau. Tug boat and hopper barge shall be used for disposal of the marine sediment off site. The planned route may pass through hotspot areas of Finless Porpoise. When the vessels are traveling inside the hotspot areas of Finless Porpoise, it shall travel less than 10 knots. However, the planned route is not anticipated to travel through the marine parks, foraging ground of White-bellied Sea Eagle and hotspot areas of Chinese White Dolphin. The marine route is shown in **Figure 8**.

5 REGULAR MARINE TRAVEL ROUTES DURING OPERATION STAGE

The existing traffic separation scheme and fairways, such as West Lamma Channel, South Cheung Chau Channel, Adamasta Channel, Western Fairway, Ma Wan Fairway and Urmston Road Fairway, will be followed and selected as the major marine travel routes for delivery of ash and residue between IWMF at Shek Kwu Chau and loading / unloading area at **WENT Landfill**.

With reference to updated EM&A Manual Section 6.2.1.11 and Section 6.2.1.12, the regular travel route should avoid areas with high sighting density of Finless Porpoise as much as possible; and a speed limit of ten knots should be strictly enforced within areas with high density of Finless Porpoise. In accordance with the Marine Parks and Marine Reserves Regulation (Cap. 476A), the same speed limit (10 knots) is required to be enforced within the existing Sha Chau and Lung Kwu Chau Marine Park and The Brothers Marine Park. Same condition will be imposed for the planning Marine Parks (Southwest Lantau Marine Park, South Lantau Marine Park and Marine Park for three runway system) after their designation.

Also according to updated EM&A Manual Section 6.2.3.3, a pre-defined practical route to restrict vessel access near the nest should be adopted to keep vessels and boats as far away from the nest as possible in order to minimize disturbance on the existing WBSE nest. As an additional precautionary measure to minimize disturbance on their nestling stage, the vessel travel route should be adjusted to avoid the foraging ground of the breeding adult birds identified during White Bellied Sea Eagle monitoring programme. If avoidance of foraging ground is not feasible, vessel frequency and speed within their foraging ground near the Project Site should be reduced to minimize any potential impacts. Therefore, it is not recommended for the vessel travel within 100m from the White-bellied Sea Eagle's nest and the vessel travel speed shall less than 10 knots within 100m from the nest of White-bellied Sea Eagle if unavoidable.

The marine travel route is designed with due concerns on the relevant requirements as stipulated in Updated EM&A Manual and Marine Parks and Marine Reserves Regulation.

Several lines of connection boat shall be operated between IWMF at Shek Kwu Chau and Cheung Chau, between Shek Kwu Chau and Central and between Shek Kwu Chau and Tsim Sha Tsui. The planned route of working vessels during operation stage should not travel through the existing marine parks and planned marine parks in the western waters and the vessels shall travel less than 10 knots when travelling inside the hotspot areas of Chinese White Dolphin and Finless Porpoise and foraging ground of White-bellied Sea Eagle due to safety / unavoidable reasons. The marine

route during operational stage is shown in **Figure 9**.

Up to the current moment, the delivery route of Dangerous Goods, Fuel, Vehicular ferry and other consumables transportation route to Shek Kwu Chau is not yet confirmed. Such marine routing will be provided once available to avoid the vessel travel through the existing marine parks and planned marine parks in the western waters.

6 VESSEL CAPTAIN TRAINING

6.1 Vessel Captain Training

KSZHJV shall provide training (e.g. by Environmental Officer/Environmental Supervisor) to vessel captains to ensure vessel operation poses minimal risks to Chinese White Dolphin, Finless Porpoise and minimal disturbance to White-bellied Sea Eagles. The training shall include briefings on predefined routes, general education on local cetaceans and white-bellied sea eagles, the required environmental practices / measures while operating construction and associated vessels under the Project, guideline for operating vessel safely in the presence of Chinese White Dolphin and Finless Porpoise and guideline of restriction on vessel access near the nest of White bellied Sea Eagle. KSZHJV shall also schedule the training with individual marine contractors and shall ensure all marine vessel captains working on the Project are adequately briefed and trained prior to marine construction or prior to operating vessels within the construction site area.

The same arrangement shall be adopted for vessel captains during operation stage. The training record shall be kept on site / office for both construction stage and operation stage. Participant shall sign his name and title on the training record.

6.2 General education on local cetaceans and white-bellied Sea Eagles

The appearance, distribution and hotspots areas, behavior and conservation status of the local cetacean species and White-bellied Sea Eagles will be described in the training sessions. The seasonal variation patterns of the local cetaceans and the location of nest of White-bellied Sea Eagles and the sensitivity of White-bellied Sea Eagles to human disturbance during breeding season will be mentioned in the training sessions.

6.3 Marine Parks and Hotspot Areas of Chinese White Dolphin and Finless Porpoise

The proposed marine travel routes for vessels to be operated during construction and operational

stages shall avoid all existing Marine Parks in the western waters (including Sha Chau and Lung Kwu Chau Marine Park, The Brothers Marine Park) and the proposed Marine Parks in the western waters (including Southwest Lantau Marine Park, South Lantau Marine Park, and Marine Park for three runway system) and the Chinese White Dolphin and Finless Porpoise Hotspot Areas.

The location of Marine Parks in the western waters and Chinese White Dolphins and Finless Porpoise hotspot areas are attached in **Appendix B**.

6.4 Speed Limits and Guidelines for Safe Vessel Operations in the Presence of Chinese White Dolphin / Finless Porpoise

One of the major human-caused threats to Chinese White Dolphins / Finless Porpoise is injury / death due to marine vessel collision. Locations with frequent Chinese White Dolphin / Finless Porpoise sightings near the proposed vessel routes should be traversed with more caution to avoid impact on Chinese White Dolphins / Finless Porpoise. Reference may be made to the “Code of Conduct for Dolphin Watching Activities” published by AFCD and other relevant sources. A code of conduct for construction and associated vessels in the presence of Chinese White Dolphin / Finless Porpoise is provided in **Appendix C**. The following measures are also considered to be helpful to minimize the chance of a vessel striking Chinese White Dolphin / Finless Porpoise and will be covered in training sessions:

- All vessels will travel at a speed no greater than 10 knots in the construction site area, which is demarcated by yellow marker buoys;
- The vessel captain should always remain a vigilant for the presence of Chinese White Dolphin / Finless Porpoise and make sure they slow down prior to passing known Chinese White Dolphin / Finless Porpoise hotspot areas, and take actions, e.g. never chases and cut across the course of Chinese White Dolphin / Finless Porpoise, to avoid disturbance to or collisions with Chinese White Dolphin / Finless Porpoise, the vessel shall travel less than 10 knots within the hotspot areas of Chinese White Dolphin / Finless Porpoise if unavoidable;
- Construction and associated vessels should avoid traversing through all existing Marine Parks in the western waters (including Sha Chau and Lung Kwu Chau Marine Park, The Brothers Marine Park) and the planned Marine Parks in the western waters (including Southwest Lantau Marine Park, South Lantau Marine Park, and the proposed marine park for three runway system);
- All working vessels used for the construction and operational stages (including construction and associated vessels, operation vessels and transportation vessels) shall not anchor or stopover within the existing and all planned Marine Parks, as aforementioned, in the western waters;

6.5 Guideline of Restriction on vessel access and speed limit near the nest of White-bellied Sea Eagle

White bellied Sea Eagle are known to be sensitive to human disturbance during breeding season, and may even desert a nest if disturbed. A pre-defined practical marine route to restrict vessel access near the nest should be adopted to keep vessels and boats as far away from the nest as possible. As an additional precautionary measure to minimize disturbance on their nestling stage, the vessel travel route should be adjusted to avoid the foraging ground of the breeding adult birds identified during White Bellied Sea Eagle monitoring programme. If avoidance of foraging ground is not feasible, vessel frequency and speed within their foraging ground near the Project Site should be reduced to minimize any potential impact. The vessel travel speed should be less than 10 knots within 100m from the nest of White-bellied Sea Eagle, if unavoidable. As the location of White-bellied Sea Eagle's nest is not facing the Project Site, it is not anticipated for the vessels for both construction and operational stages to travel near the nest. Nonetheless, it is still recommended the frequency of vessel within the foraging ground shall be less than 10 numbers of vessels per day.

The location plan of the nest of White-bellied Sea Eagle and the 100m boundary from the nest is attached in **Appendix D**.

6.6 Required environmental practices / measures

The vessel shall travel less than 10 knots inside the Project Area, inside the hotspots areas of Chinese White Dolphin and Finless Porpoises, within 100m from the nest of White-bellied Sea Eagles and the vessel shall avoid to pass through the existing Marine Parks. Some good environmental practices such as no release of foam, oil grease or other objectionable matter into the waters, minimize wastewater generation and treat all effluent before discharge and no dumping of rubbish, food, oil or chemicals into the waters.

7 MONITORING

KSZHJV will maintain records of the use of the connection boats under control. Such records will include, inter alia, details, times and purpose of journeys including the vessel number. The person using the works boats authorizing the journey will be required to sign his name and title against the entries. KSZHJV will present current log books for inspection by the SOR when required. The following monitoring measures will be adopted.

Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

- Self propelled Vessels including THSD, pelican barge, tug boats, anchor boat and connection boat will be installed with Automatic Identification System (AIS) for the purposes of recording and tracking marine travel routes on website during operation;
- Non self-propelled Vessels including Derrick barges, hopper barge, flat top barges, jack up barges etc. will be steered by the tug boats which are installed with AIS. As such, their travel routes can be followed;
- Administrative control such as AIS system will be taken, one route will be randomly selected and checked once per month; and
- Front End Mobile Units had been installed in the barges for disposing marine sediment in CEDD dump pit at South of Cheung Chau.

KSZHJV will ensure that self propelled vessels involved during construction and operation phases would be equipped with AIS or GPS.

The daily record of marine travel route of offsite working fleets will be collected and filed by the supervising staff for inspection monitoring purposes. Record shall be submitted upon SOR's request. Warning will be noticed to the captain and his shipping company or material suppliers if vessel track log showed the approved marine travel route is not followed.

All vessels used for the construction and operational stages will comply with all the relevant regulations and requirements of the Marine Department, including:

- The Shipping and Port Control Regulation (Cap. 313A)
- The Merchant Shipping (Miscellaneous Craft) Regulations (Cap. 313F)
- The Merchant Shipping (Safety) (Signals of Distress and Prevention of Collisions) Regulations (Cap. 369N)
- The Dangerous Goods (Shipping) Regulations (Cap. 295C)
- The Merchant Shipping (Launches and Ferry Vessels) Regulations (Cap. 313E)
- Merchant Shipping (Local Vessels) Ordinance (Cap. 548)
- Shipping and Port Control (Works) Ordinance (Cap. 313X)

Figure 1

Existing Traffic Separation Scheme and Fairway Plan

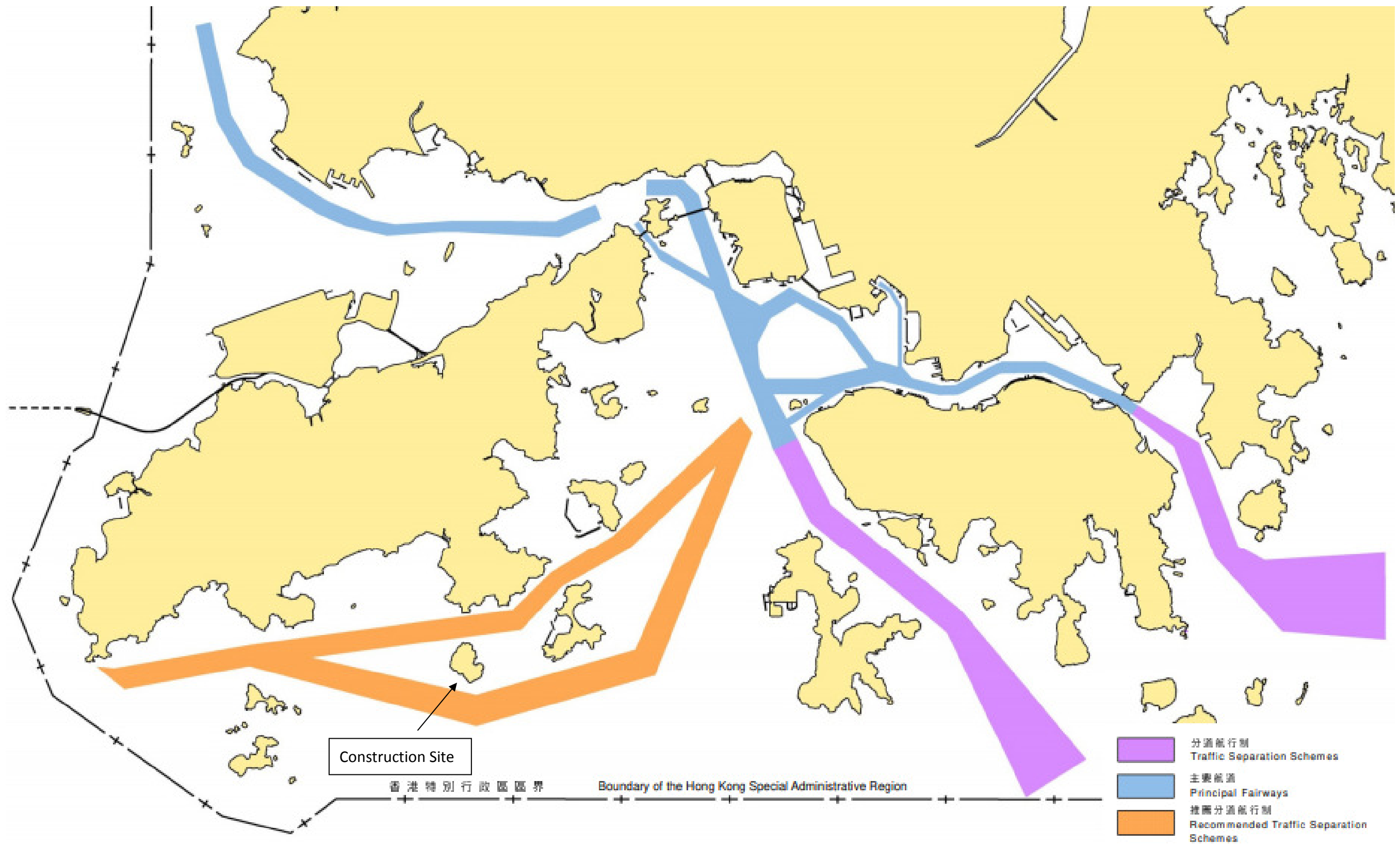


Figure 1a Existing Traffic Separation Scheme



Figure 1b Existing Fairway Plan

Figure 2

Location Plan of Construction Site Area

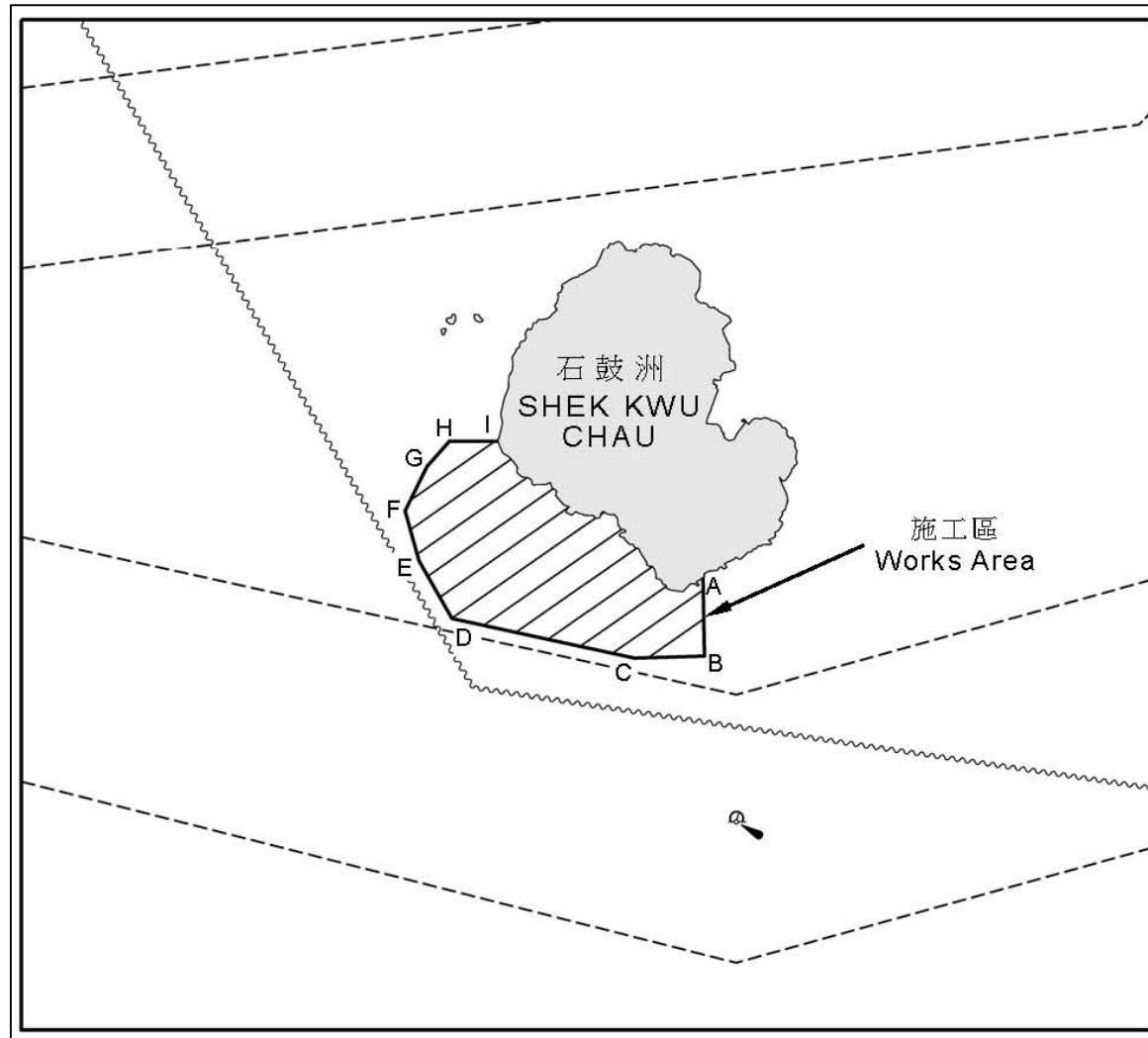


Figure 2 Location Plan of Construction Site Area

Figure 3

Marine Travel Route to Hei Ling Chau Typhoon Shelter

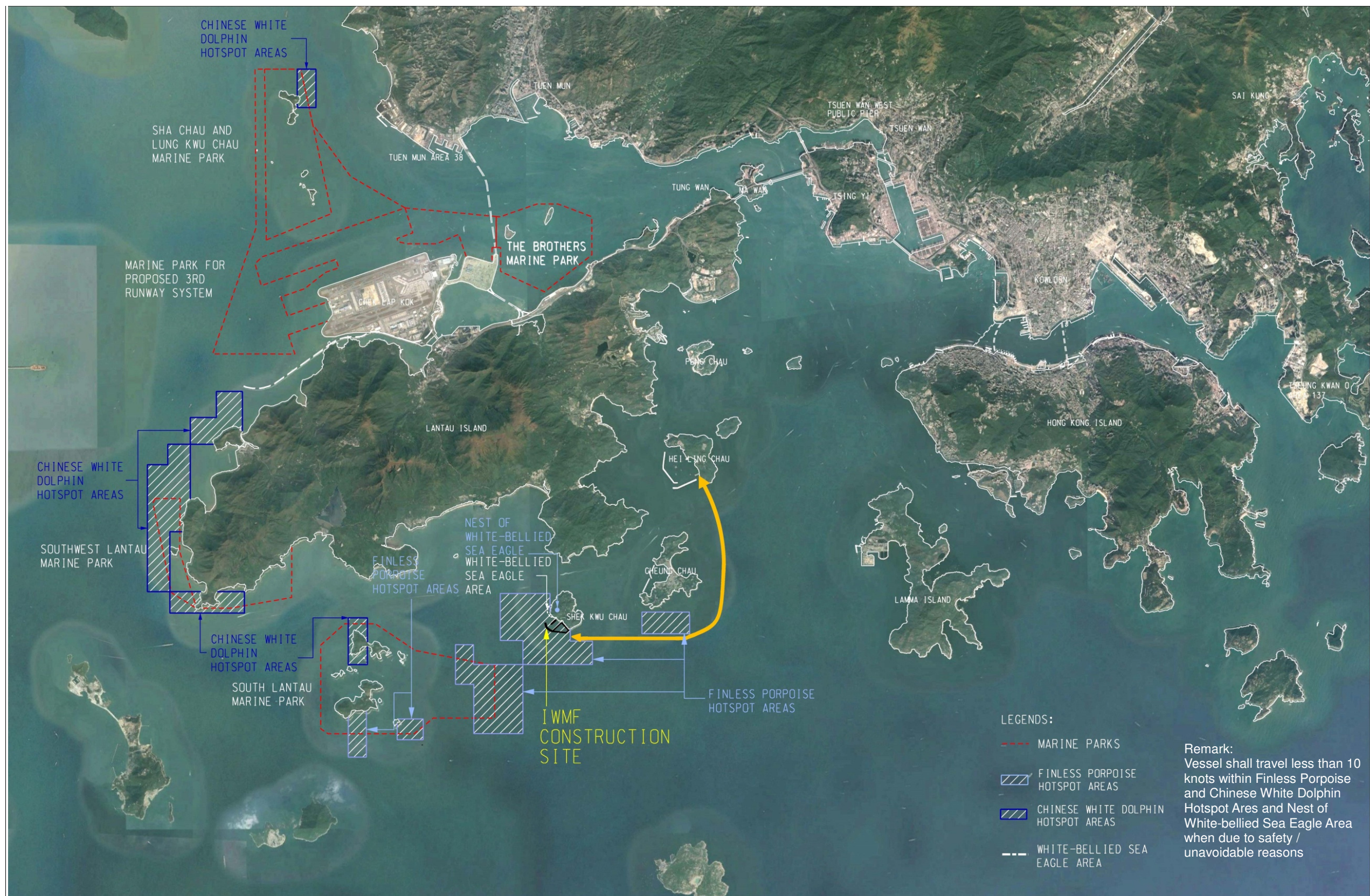


Figure 3 Marine Travel Route to Hei Ling Chau Typhoon Shelter

Figure 4

**Marine Travel Routes to Tuen Mun Area 38 and Tseng Kwan O Area
137 for disposal of C&D materials off site**

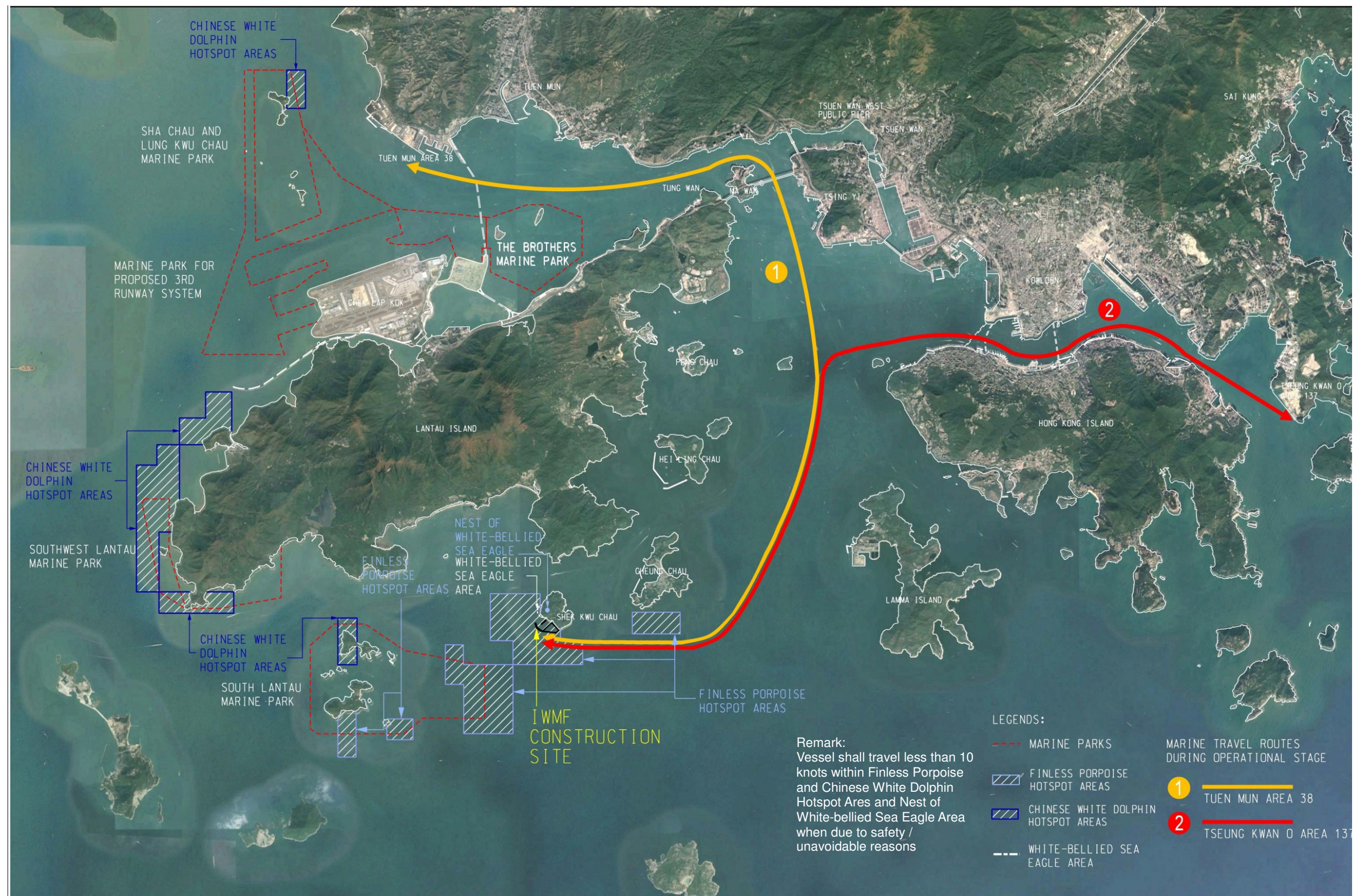


Figure 4 Marine Travel Routes to Tuen Mun Area 38 and Tseng Kwan O Area 137 for disposal of C&D materials off site

Figure 5

**Marine Travel Routes for delivering Sand Fills from Zhongshan /
Zhuhai, Gunagdong to the construction site**



Figure 5 Marine Travel Routes for delivering Sand Fills from Zhongshan / Zhuhai, Guangdong to the construction site

Figure 6

**Marine Travel Route for delivering Precast Concrete Caisson,
Superstructure's, Seawall's and Berth's Precast Unit and
Prefabricated components of incinerator plant to the construction
site**



Figure 6 Marine Travel Route for delivering Precast Concrete Caisson, Superstructure's, Seawall's and Berth's Precast Unit and Prefabricated components of incineration plant to the construction site

Figure 7

Marine Travel Route for connection boats



Figure 7 Marine Travel Route for connection boats

Figure 8

Marine Travel Route for disposal of marine sediment



Figure 8 Marine Travel Route for disposal of marine sediment

Figure 9

Marine Travel Routes during operational stage

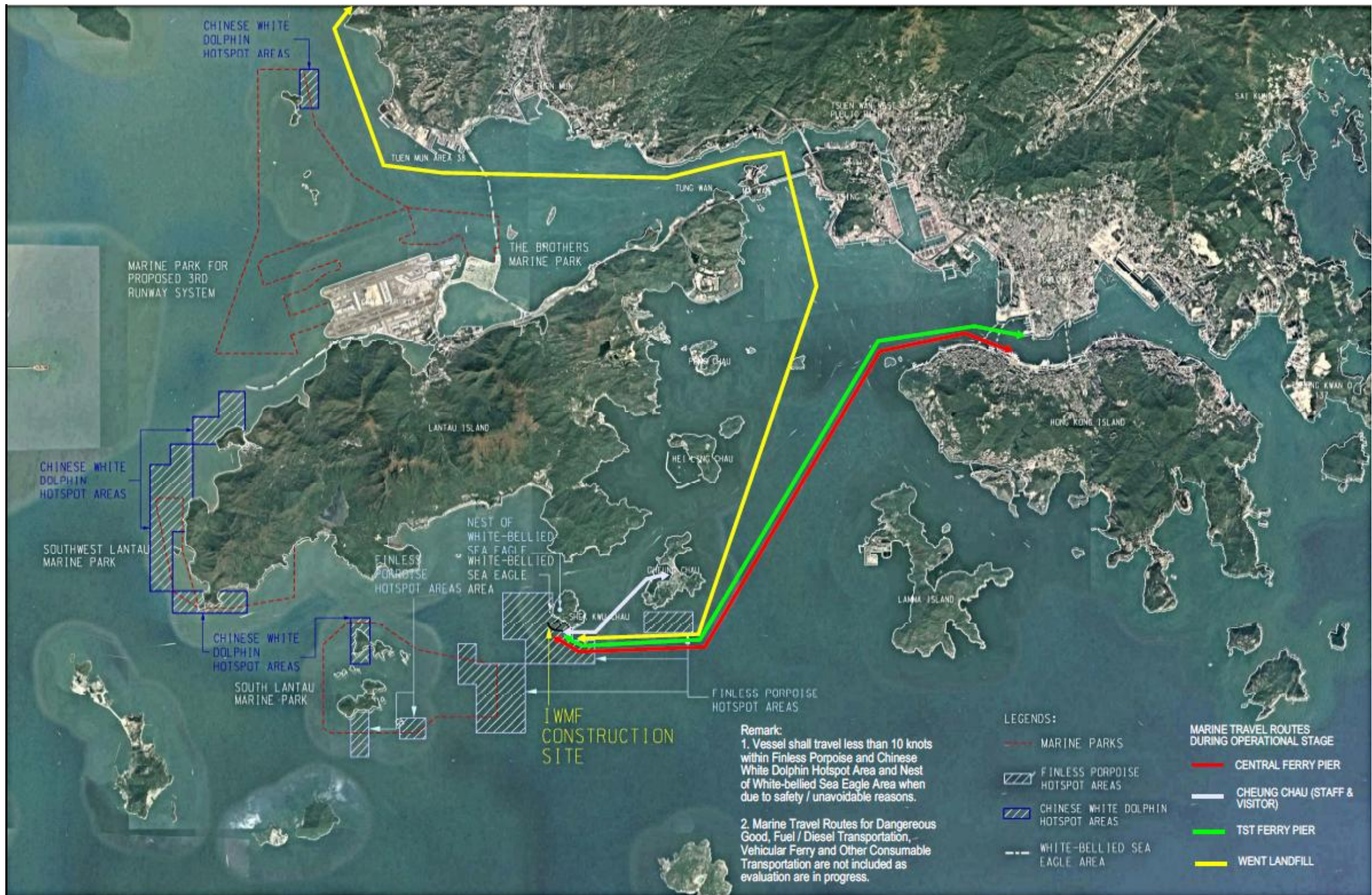


Figure 9 Marine Travel Routes during operational stage

Appendix A

Photos of different types of vessels

Appendix A Key vessels to be used during construction and operational stages

Derrick Barge



Flat Top Barge



Hopper Barge



Jack up Barge



Tug Boat



Connection Boat



Marine Site
Investigation
Barge



Pelican Barge



DCM Barge



PVD Barge



Vessel for Vertical Seawall, Breakwater and Superstructure Construction



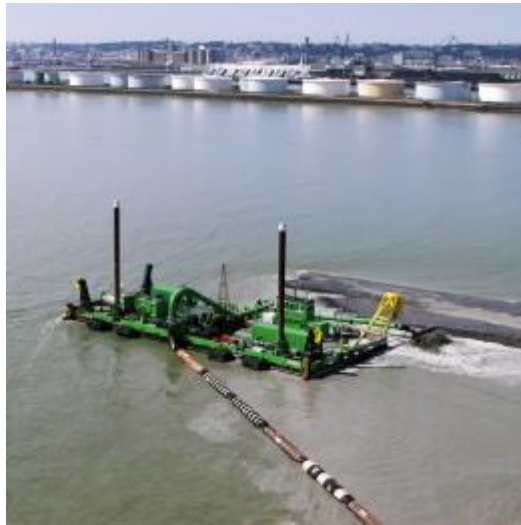
Cement Silo Barge



Trailing Suction
Hopper Dredger



Spreader
Pontoon

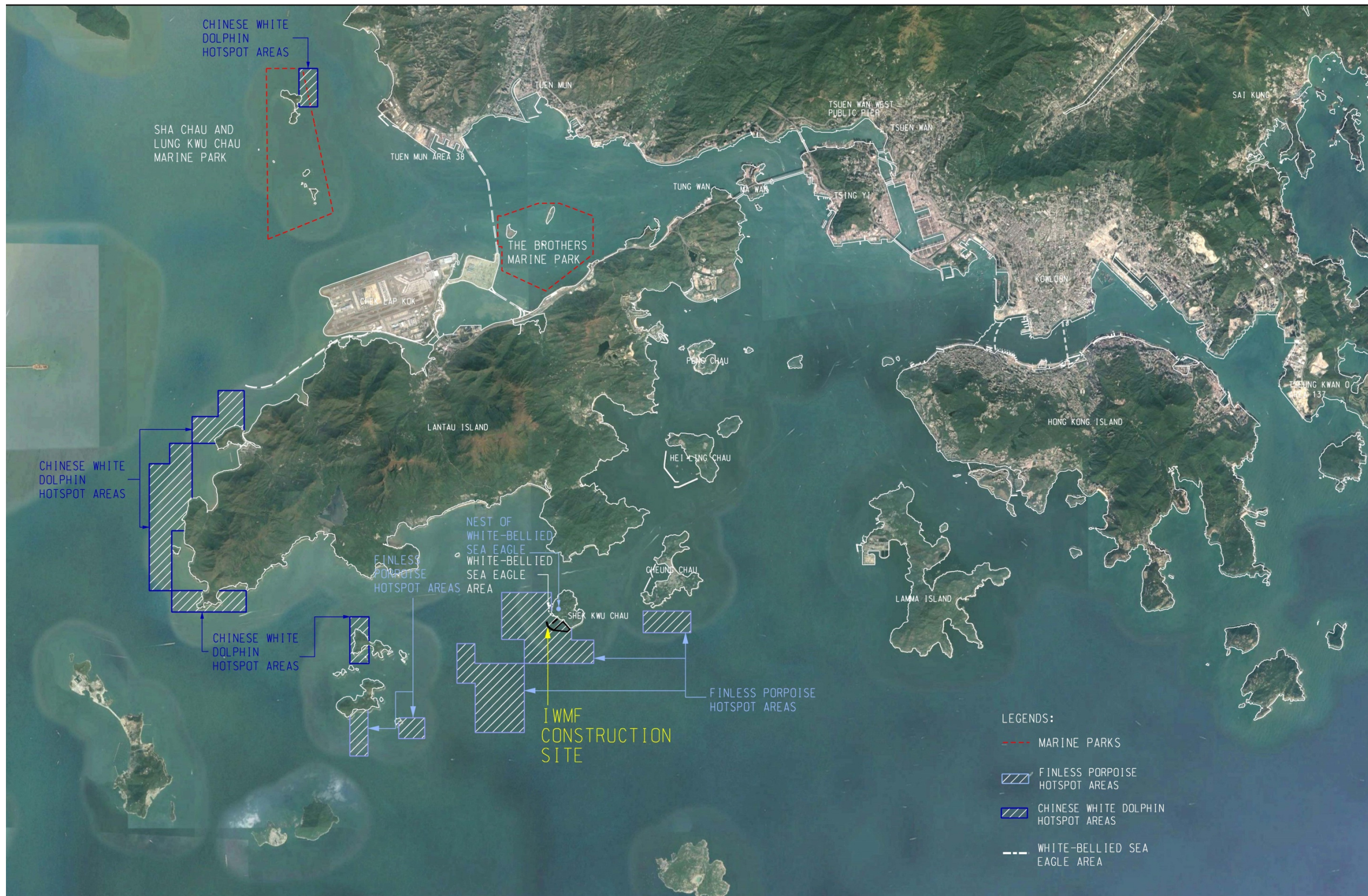




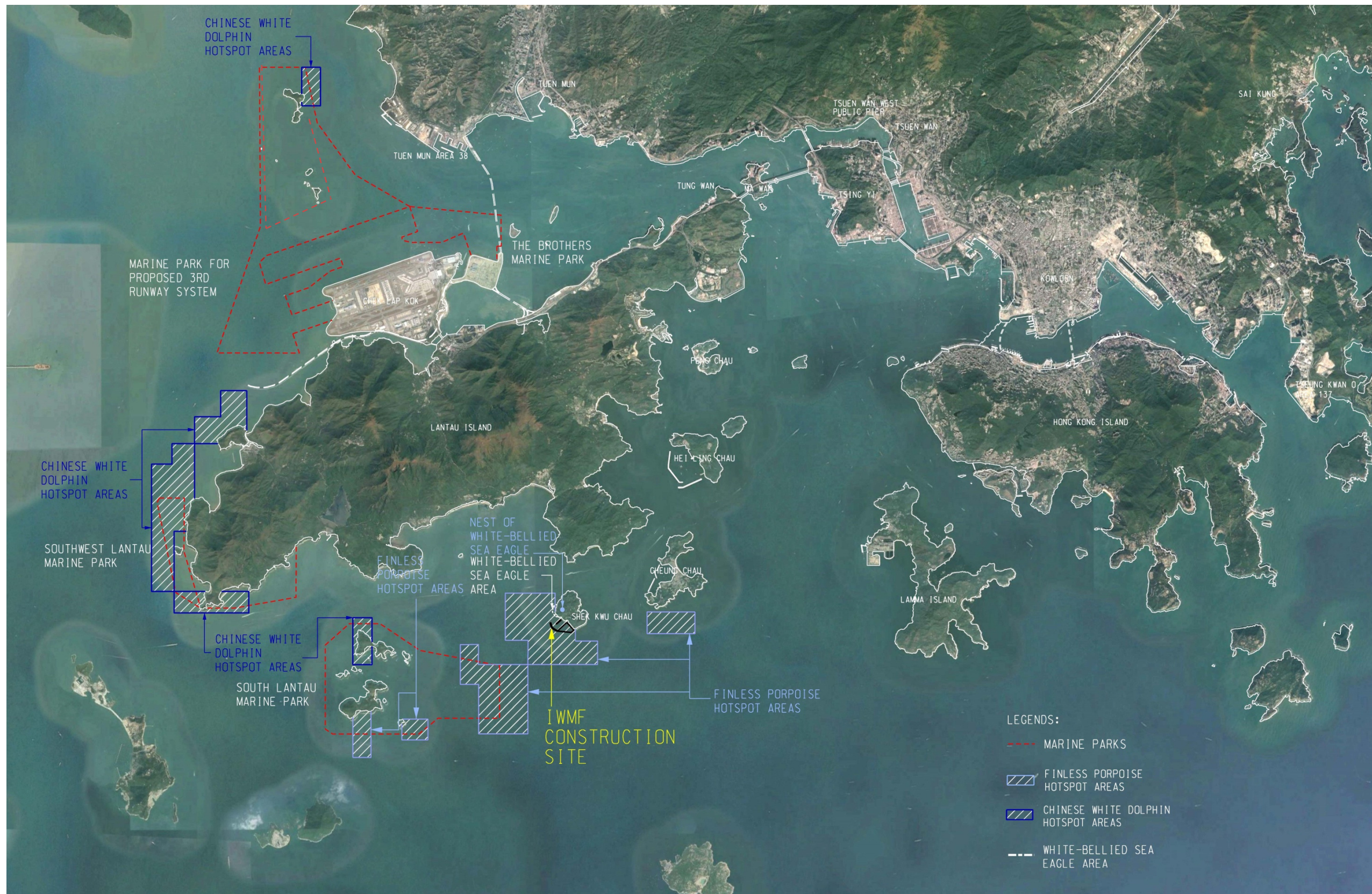
Contract No. EP/SP/66/12
Integrated Waste Management Facilities, Phase 1

Appendix B

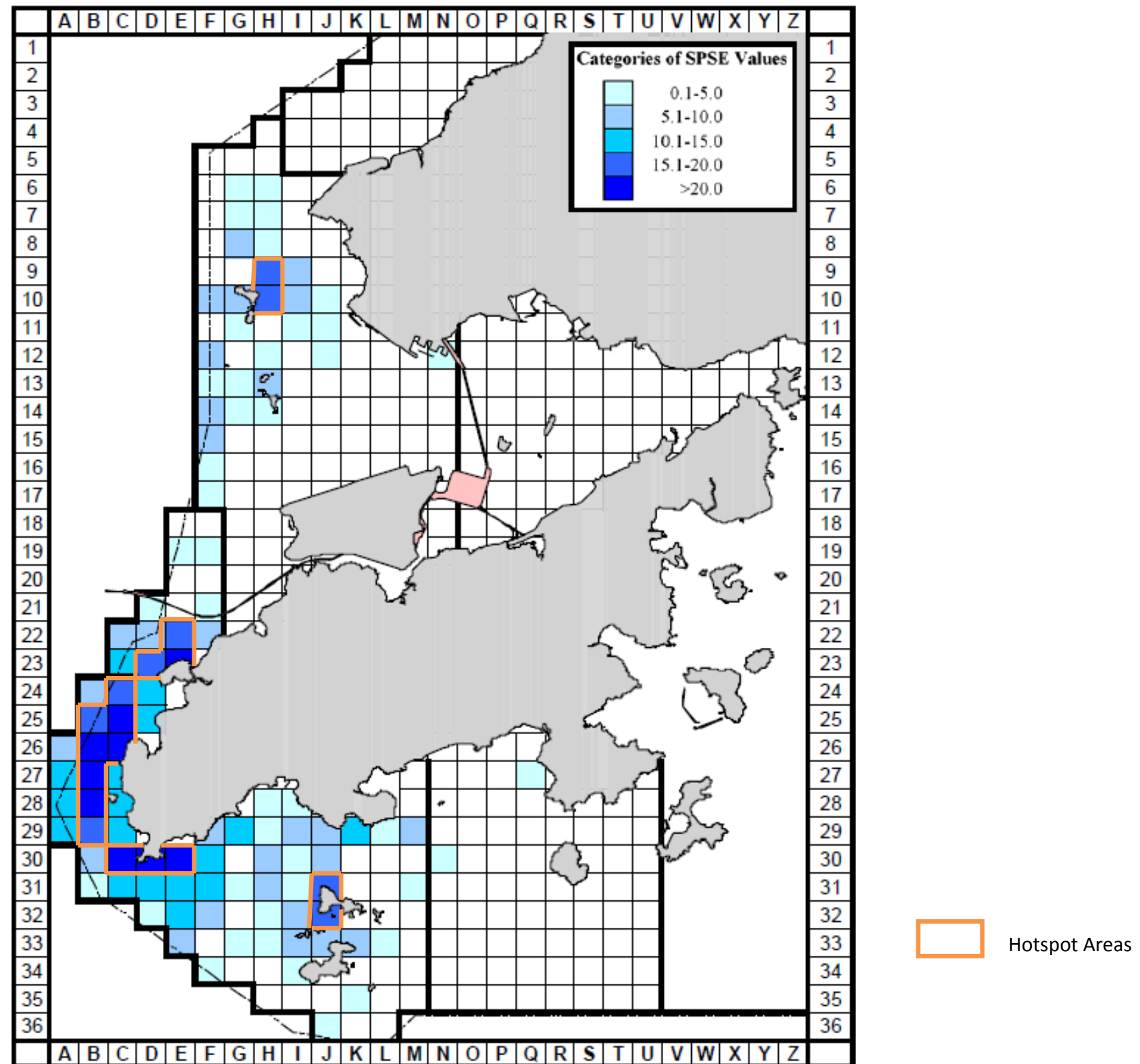
Location Plans of Existing and Proposed Marine Parks and Chinese White Dolphin / Finless Porpoise Hotspot Areas



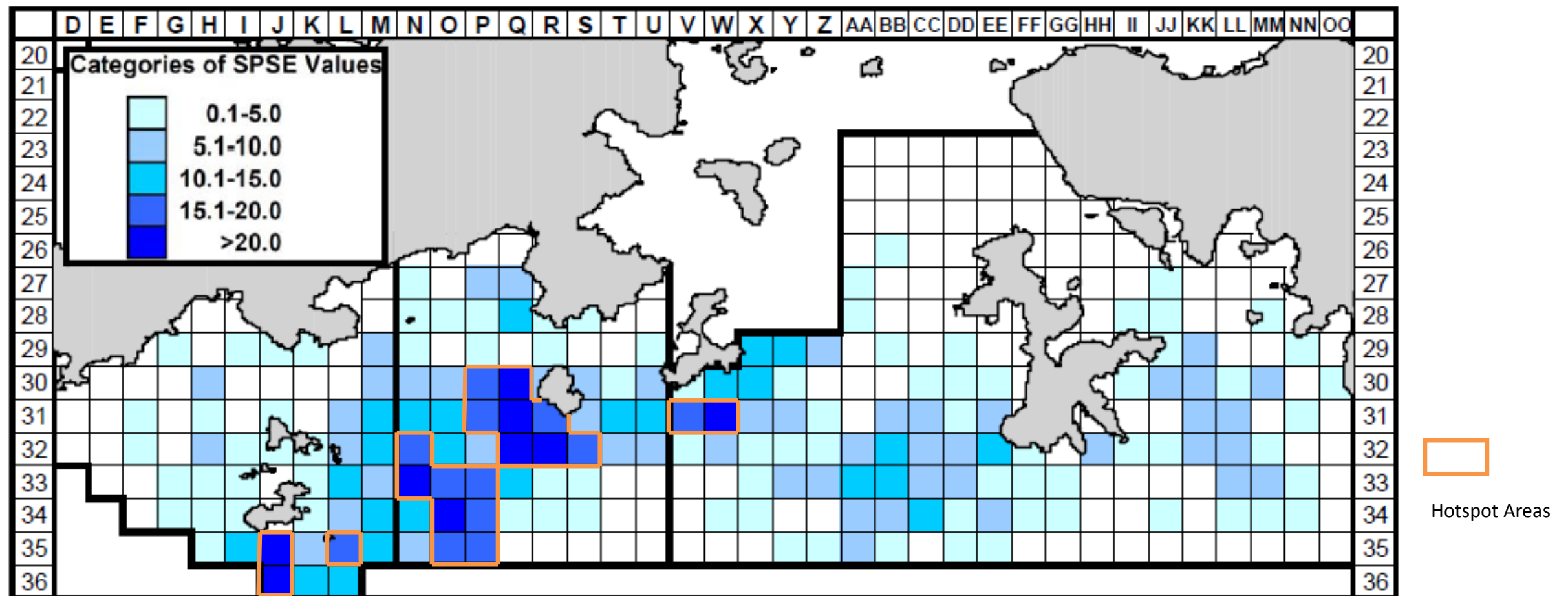
Appendix B(1) Existing Marine Parks in Hong Kong and hotspot areas for Chinese White Dolphin and Finless Porpoise



Appendix B(2) Proposed Marine Parks in Hong Kong and hotspot areas for Chinese White Dolphin / Finless Porpoise



Appendix B(3) Hotspots Area of Chinese White Dolphin (Data from January – December 2016, Monitoring of Marine Mammals in Hong Kong Waters (2016-2017))



Appendix B(4) Hotspot Areas of Finless Porpoise (Data collected during 2007-16 during dry season (December to May), Monitoring of Marine Mammals in Hong Kong Waters (2016-2017))



Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

Appendix C

Code of Conduct for construction and associated vessels in the presence of Chinese White Dolphin / Finless Porpoise

Appendix C Code of Conduct for construction and associated vessels in the Presence of Chinese White Dolphins / Finless Porpoises

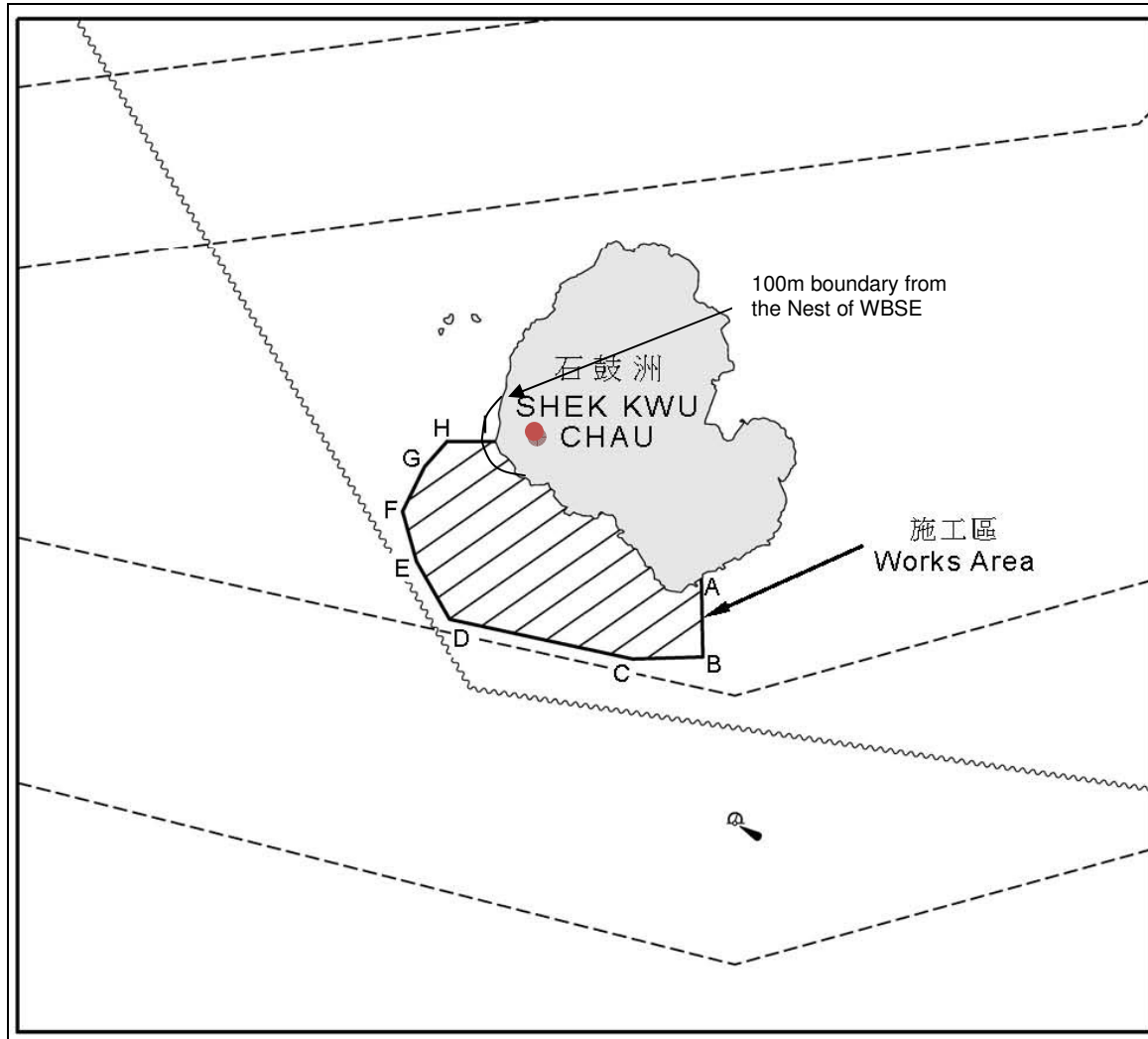
1. Maintain forward progress at a slow, steady speed or stop with no sudden course changes. Vessel speed should not exceed 10 knots;
2. Always slow down to no-wake speed, or stop if animals appear directly ahead within 100 meters;
3. Never approach the Chinese White Dolphins / Finless Porpoises head on;
4. Never conduct reverse throttling in the vicinity of Chinese White Dolphins / Finless Porpoises;
5. Never chase or cut across the course of Chinese White Dolphins / Finless Porpoises, separate mothers and calves, split up groups or “corner” Chinese White Dolphins / Finless Porpoises between boats, nets or shore;
6. Never attempt to touch, swim with, feed or harm the Chinese White Dolphins / Finless Porpoises;
7. Do not litter or dispose of any fuel, oil or other pollutants in the waters;
8. Respect the Chinese White Dolphins / Finless Porpoises and let them make the choice to continue their course or flee, do not attempt to force the Chinese White Dolphins / Finless Porpoises to change course and avoid your vessel;
9. When it is observed that the Chinese White Dolphins / Finless Porpoises are following pair trawlers in the area:
 - a. Change the vessel position relative to the marker buoy of the trawl net as slowly as possible;
 - b. Do not pass by at high speed after trawlers have hauled up the net;
 - c. Move away from the area at low speed very cautiously and only after the Chinese White Dolphins / Finless Porpoises have dispersed



Contract No. EP/SP/66/12
Integrated Waste Management Facilities, Phase 1

Appendix D

Location Plan and the 100m boundary from the nest of White-bellied Sea Eagle



Legend
 ● Location of WBSE nest

Appendix D Location Plan and the 100m boundary from the Nest of White-bellied Sea Eagle



Contract No. EP/SP/66/12
Integrated Waste Management Facilities, Phase 1

Appendix E

Implementation Schedule for Vessel Travel Details

Appendix E Implementation Schedule for Vessel Travel Details

EIA Ref.	Current Plan Ref. No.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*			
					Des	C	O	Dec
7b.8.3.25 - 30	Section 4 - 6	<p><u>Measures to minimize disturbance on Finless Porpoise</u></p> <p><u>Adoption of regular travel route</u></p> <ul style="list-style-type: none"> During construction and operation, captains of all vessels should adopt regular travel route, in order to minimize the chance of vessel collision with marine mammals, which may otherwise result in damage to health or mortality. The regular travel route should avoid areas with high density of Finless Porpoise. <p><u>Vessel speed limit</u></p> <ul style="list-style-type: none"> The frequent vessel traffic in the vicinity of works area may increase the chance of marine mammals being killed or seriously injured by vessel collision. A speed limit of ten knots should be strictly enforced within areas with high density of Finless Porpoise. Passive acoustic monitoring and land based theodolite monitoring surveys should be adopted to verify the predicted impacts and effectiveness of the proposed mitigation measures. 	IWMF Site	KSZHJV		√	√	

		<p><u>Training of Staff</u></p> <ul style="list-style-type: none"> Staff, including captains of vessels, should be aware of the guidelines for safe vessel operations in the presence of cetaceans during construction and operation phases. Adequate training should be provided. 						
7b.8.3.37, 7b.8.3.40	Section 4 - 6	<p><u>Specific measures to minimize disturbance on breeding White-bellied Sea Eagles</u></p> <p><u>Restriction on vessel access near the nest of White-bellied Sea Eagle</u></p> <ul style="list-style-type: none"> During construction and operation, in order to minimize disturbance on the existing WBSE nest, a pre-defined practical route to restrict vessel access near the nest should be adopted to keep vessels and boats as far away from the nest as possible. <p><u>Education of staff</u></p> <ul style="list-style-type: none"> Staff, including captains of all vessels during construction and operation phases, should be aware of the ecological importance of WBSE. Awareness should be raised among staff to minimize any intentional or unintentional disturbance to the nest. 	IWMF	KSZHJV		√	√	

Note: * - Des – Design; C – Construction; O – Operation; Dec - Decommissioning