



CONTENTS

1	INTRODUCTION1.1Project Descriptions1.2Purpose of the Plan	1 1 1				
2	DESIGN OF REGULAR MARINE TRAVEL ROUTES 2.1Concerns and Constraints2.2Types of Working Vessels2.3Regular Marine Travel Routes	1 				
3	SURVEILLANCE & MONITORING	3				
4	PRECAUTIONARY MEASURES	4				
5	TRAINING					

APPENDICES

Appendix A	Marine Work Areas under the Contract
Appendix B	Distribution of CWD in Hong Kong
Appendix C	Existing Fairways and Channels
Appendix D	Local Marine Route Constraints & Marine Facilities
Appendix E	Photos of Working Vessels
Appendix F	Marine Routes and Frequency between the Works Areas

TABLES

Table 1	General Information of Working Vessels
Table 2	Information of Regular Travel Routes



1 INTRODUCTION

1.1 Project Descriptions

Gammon Construction Limited (GCL) has been commissioned to design and construct the Contract *No. HY/2012/07 – Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section* (the Contract) for the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSAR). Layout of marine work areas under the Contract (the Site/ Works area) is given in **Appendix A**.

The Works to be executed comprise the construction of a dual 2-lane elevated carriageway between the HZMB HKBCF and North Lantau Highway (NLH) with associated slip roads, as well as modifications and realignment of sections of the NLH and Cheung Tung Road at North Lantau, and associated works.

1.2 Purpose of the Plan

This Regular Marine Travel Routes Plan (RMTRP) has been prepared for the works of Contract No. HY/2012/07 for deposition to the Director of Environmental Protection in accordance with Condition 2.8 of the Environmental Permit (EP-354/2009/D) for the Project of Tuen Mun – Chek Lap Kok Link.

The RMTRP shall describe the regular marine travel routes of vessel moving to and from the Site/ Works areas to minimize the chance of vessel collision and the disturbance to the Chinese White Dolphins (CWD).

2 DESIGN OF REGULAR MARINE TRAVEL ROUTES

2.1 Concerns and Constraints

There are relevant concerns and constraints as described in proceeding sections to be considered in mapping out the marine travel routes.

2.1.1 Distribution of Chinese White Dolphins around Lantau

According to early findings from Agriculture, Fisheries and Conservation Department (AFCD) of relevancy to the Site/ Works Area, the CWD occurs mostly to the north and west of Lantau whereas the CWD uses East and South Lantau seasonally and to a lesser extent. In vicinity of the Site/ Works area, CWDs are also seen at west of the Brothers' Islands. The regular marine travel routes will be selected to avoid the above-mentioned dolphin hotspots and to accord the existing fairways & navigation channels. Appendix B gives the layout of CWD distribution in Hong Kong.

2.1.2 Existing Navigation Channels

In complying with the safe navigation requirement in-law, the existing fairways and channels, including Urmston Road, Tung Chung Navigation Channel, Ma Wan Fairway, Kap Shui Mun Fairway, Traffic Separation Scheme within the West Lamma Channel, Western Fairway and East Lamma Channel will be followed and selected as the major marine travel routes. The Existing Fairway and Channel Plan is shown in **Appendix C**.



2.1.3 Navigation Safe Practices

The marine travel route may be locally adjusted at the judgement of the licensed captain, where necessary in response to any incident. This is to ensure safe navigation pursuant to relevant safe navigation requirement and international practice with navigation aids/ support from marine traffic control team of Marine Department.

Also actual seaworthy conditions such as wind, current, wave, etc. would pose as adhoc constraints whereby the marine travel route may be adjusted locally.

2.1.4 Airport Restricted Areas and Airport Height Restriction

There are seven restricted waters in the vicinity of Hong Kong International Airport where working vessels are not allowed to pass through except with prior authorization. Further the airport height restriction (AHR) limit will dictate the marine travel routes of working vessels for delivery of excessively tall precast/ prefabricated units.

2.1.5 Other Marine Facilities

The local constraints imposed by the purposed South Brother Marine Park in vicinity, Sham Shui Kok Anchorages, contaminated sediment disposal facility at South of Brothers, adjacent projects and other marine facilities shall also be considered in designing marine travel routes. The layout in **Appendix D** depicts the local marine route constraints and relevant marine facilities around the Site/ Works Area.

2.2 Types of Working Vessels

In line with the works progress and serving for different purposes, vessels of various types as listed below will be used during the construction stage. Photos of vessels are provided in **Appendix E**.

- Crane barge
- Derrick lighter
- Flat top barge
- Tug boat
- Hopper barge
- Marine G.I. Vessel
- Inspection boat (incl. passenger ferry/ sampan)

2.3 Regular Marine Travel Routes

The working vessels, i.e. crane barge, derrick lighter, flat top barge, hopper barge and Tug Boat, will mainly be anchored and staying within the Site/ Works Area between HKBCF Project and north Lantau Island. During the adverse weather (e.g. Typhoon), the working vessels will leave the Site/ Works Area and go to Tuen Mun Typhoon Shelter.

Hopper barges shall be used for delivering to the marine dumping grounds, namely South of Danggan Liedao, South Cheung Chau and the confined marine sediment disposal facilities at East Sha Chau & to South of the Brothers subject to SOR's instruction or CEDD Marine Fill Committee's allocations on marine sediment category respectively.



Wherever practicable subject to SOR's approval, GCL will pursue for diverting suitable C&D materials to the preferred disposal grounds at neighbouring sites of Contracts HY/2010/02 HKBCF Reclamation, HY/2011/03 HZMB Section from Scenic Hill to HKBCF and HY/2012/08 TMCLKL Subsea Tunnel Section or other alternative receptor contracts for filling purposes. In this regard, the RMTRP will be updated, certified by Environmental Team Leader before verified by the Independent Environmental Checker prior to depositing with the Director of Environmental Protection.

There would be for the Contract a prefabrication yard in Zhong Shan, Guangdong from where the precast and prefabricated unit will be delivered to Hong Kong.

WA23 at Tsing Yi would be the storage area for precast/ prefabricated units and piling construction materials which would be routinely delivered to the Site/ Works Area.

Concrete in concrete lorry mixer will be delivered to the Site/ Works Area with flat top barges set off from the seafront of Project area of North Lantau.

Flat top barges with drilling rigs on board (namely marine G.I. vessels) or crane mounted would remain stationary most of the time for the site investigation work or heavy lifting in vicinity of the Site/ Works Area.

The inspection boats will be employed for general usage and workers/ project staff transportation between boarding jetties along North Lantau coastline, Tung Chung, etc. and the Site/ Works Area on an as-need basis.

In case of tropical cyclone signal No. 3 to be hoisted or other design adverse weather conditions, the working vessels will move or be towed to the nearest available Typhoon Shelter, e.g. Tuen Mun Typhoon Shelter, Yau Ma Tei Typhoon Shelter or Hei Ling Chau Typhoon Shelter, subject to the occupancy.

The marine routes and frequency between the works areas are illustrated in Appendix F.

3 SURVEILLANCE & MONITORING

GCL will maintain records of their usage of the inspection boats, such as passenger ferry, sampan, etc., Such records will include, inter alia, details, times and purpose of journeys. The person using the works boats authorizing the journey will be required to sign his name and title against the entries. GCL will present current log books for inspection by the SOR when so required. The following monitoring measures will be adopted.

- 1. Barges such as derrick lighters or flat top barges for transporting public fill or sediment will be equipped with Automatic Identification System (AIS) for track logging of vessels.
- 2. Hopper barges will be installed Real Time Tracking & Monitoring of Vessel (RTTMV) System for the purposes of recording the marine travel route during operation.
- 3. For inspection boats, e.g. passenger ferry and sampan which have the short voyage distance at the North Lantau coastal area with minimal or nil dolphin sightings, administrative control will be implemented by a random check to either one of marine travel routings on monthly basis.



GCL will search to deploy much suitable working fleets which are equipped with AIS or RTTMV as practicable as possible.

The daily record of marine travel route of offsite working fleets, such as barges, derrick lighters, flat top barges and hopper barges, can be downloaded from the AIS & RTTMV systems, collected and filed by the marine work supervisor for inspection and monitoring purposes. Records with graphical presentation/ plots shall be submitted to SOR, ETL and IEC/ ENPO on a month basis for the purpose of auditing the compliance with the approved routes. Warning will be served to the captain and his shipping company or material suppliers if vessel track records showed the approved marine travel route is not followed.

All vessels used for the construction of the marine works will comply with all the relevant regulations and requirements of the Authorities, including:-

- (a) The Shipping and Port Control Regulations (Cap.313A);
- (b) The Merchant Shipping (Miscellaneous Craft) Regulations (Cap.313F);
- (c) The Merchant Shipping (Safety) (Signals of Distress and Prevention of Collisions) Regulations (Cap.369N);
- (d) The Dangerous Goods (Shipping) Regulations (Cap 295C);
- (e) The Merchant Shipping (Launches and Ferry Vessels) Regulations (Cap 313E);
- (f) Merchant Shipping (Local Vessels) Ordinance (Cap.548);
- (g) Shipping and Port Control (Works) Ordinance (Cap.313X); and
- (h) Marine Parks and Marine Reserves Regulation (Cap. 476A).

4 PRECAUTIONARY MEASURES

The main issue with the Chinese White Dolphin is a moving vessel striking and injuring an animal during the period of travel. Information regarding the locations of frequent sighting near the proposed vessel routes indicated that the following would also be needed to minimize the chance of a vessel striking a dolphin.

- (a) When entering into the work areas, all vessels will travel at a speed no greater than 10 knots.
- (b) Barges for delivering will be selected as large sizes as possible to reduce the number of delivering trips.
- (c) In an unavoidable circumstance where the vessel has to travel through the South Brothers Marine Park, the speed of the vessel would be lowered down to 10 knots within the Marine Park boundary in accordance with the Marine Parks and Marine Reserves Regulation (Cap. 476A).
- (d) Should the captain of vessel observe with naked eyes any dolphin on the line of travelling, he/she would as practical as possible lower the vessel speed until the dolphin has left out of his/her sight.



5 TRAINING

Skipper of all working vessels should be required to use regular travel routes, in order to minimize the chance of vessel collision. Skippers shall be briefed by the marine work supervisors of the approved marine travel routes in the first week of deployment. Refreshment briefings shall be arranged on annual basis or in the event that the marine travel route is updated along the work progress.

Skipper of construction vessels working in the North Lantau waters should undergo training to learn about local dolphins and porpoises. They should be trained to be aware of the protocol for "dolphin friendly" vessel operation by the marine work supervisor, environmental supervisor and environmental officer/ engineer of the Contractor in conjunction with the Environmental Team. Reference will be made to Code of Conduct for Dolphin Watching Activities available from Agriculture, Fisheries and Conservation Department.

APPENDIX A

Marine Work Areas under the Contract



APPENDIX B

Distribution of CWD in Hong Kong



Distribution of Chinese White Dolphins in Hong Kong (Source : AFCD 2000, *The Conservation Programme for the Chinese White Dolphin in Hong Kong*)

APPENDIX C

Existing Fairways and Channels



APPENDIX D

Local Marine Route Constraints & Marine Facilities



APPENDIX E

Photos of Working Vessels



Crane barge



Derrick Lighter

HY/2012/07 Tuen Mun Chek Lap Kok Link Southern Connection Viaduct Section



Flat Top Barge



Tug Boat



Hopper Barge



Marine G.I. Vessel

HY/2012/07 Tuen Mun Chek Lap Kok Link Southern Connection Viaduct Section



Inspection boat (e.g. Passenger ferry/ Sampan)

Crane Barge										
Item	Type of Marine Vessel	Owner	Lifting Capacity (ton)	Lifting height	(m)	Outreach (m)	Sea-draft under full load (m)		Length (m)	Breath (m)
1	冠工 8-Guan Gon 8	FB	500	47.4	47.4 18.4			2.8	61.2	21.3
Derrick Lighter										
Item	Type of Marine Vessel	Owner	Lifting Capacity (ton)	Carrying Capa (ton)	city	Outreach &lifting height(m)	Sea-draft under full load (m)		Length (m)	Breath (m)
2	德基-Tak Kee	Yun Lee	45t	2,400	20			4.36	47	20
Flat Top	o Barge									
Item	Type of Marine Vessel	Owner	Carrying Capacity (ton) Length (m)		Breath (m)					
3	Humber River	Tung Shun	1,800			47.73			15.24	
Tug Boat										
Item	Type of Marine Vessel	Owner	Horse Power (Bhp)		Length (m)	th)		Breath (m)		
4	1280hp Tugboat	UDL	1,280		23.4				7.2	
Hopper Barge										
Item	Type of Marine Vessel	Owner	Volume (m³)	Net Reg.	Tonnage	Depth (m)	Depth (m) Dra		Length (m)	Breadth (m)
5	1000cu.m Spilt Hopper Barge	UDL	1,000	76	4.1	4.7		4.04	49.91	12.4
Marine G.I. Vessel										
Item	Type of Marine Vessel	Owner	Length (m)				Breath (m)			
6	Flat top barge	Gammon	25 or 32.5				12			

Table 1 – General Information of Working Vessels

APPENDIX F

Marine Routes and Frequency between the Works Areas



Figure 1 - Regular Marine Travel Routes of Working Vessels



Route No.	Regular Travel Routes	Purpose	Vessels Particulars	Period	Anticipated Frequency of Travel (round trip)
1	Fabrication Yard ↔ Site Area	Delivery of precast & pre-fabricated units	 Flat top barge Tug boat 	30 Jun 2014 – TBA	4 times/day
2	Works Area WA23 ↔Site Area	Delivery of precast & pre-fabricated units and piling materials	 Derrick lighter Crane barge Flat top barge Tug boat 	1 Mar 2014 – TBA	4 times/week
3	Site Area ↔ South of Dangan Liedao	Disposal of Cat. L & Mp marine deposits	 Hopper barge Tug boat 	Subject to instruction from SOR	As-need basis
4a	Site Area ↔ East Sha Chau exhausted CMP	Disposal of Cat. L marine deposits	 Hopper barge Tug boat 	1 Mar 2014 – 31 Dec 2017	2 times/month
4b	Site Area ↔ South Cheung Chau				
5	Site Area ↔ East Sha Chau CMP	Disposal of Cat. Mp, Mf & H marine deposits	 Hopper barge Tug boat 	1 Mar 2014 – 31 Dec 2017	2 times/month
6	Fabrication Yard ↔ WA23	Delivery of precast & pre-fabricated units for storage	 Flat top barge Tug boat 	30 Jun 2014 – TBA	1 time/week
7	Site Area ↔ boarding jetties along North Lantau, Tung Chung, etc.	Workers/ project staff transportation	1) Inspection boats	Throughout the Contract period	As-need basis

Table 2 – Information of Regular Travel Routes

HY/2012/07 Tuen Mun Chek Lap Kok Link Southern Connection Viaduct Section



Annex 1 - Emergency Marine Routes for Working Vessel to the Typhoon Shelter during Adverse Weather