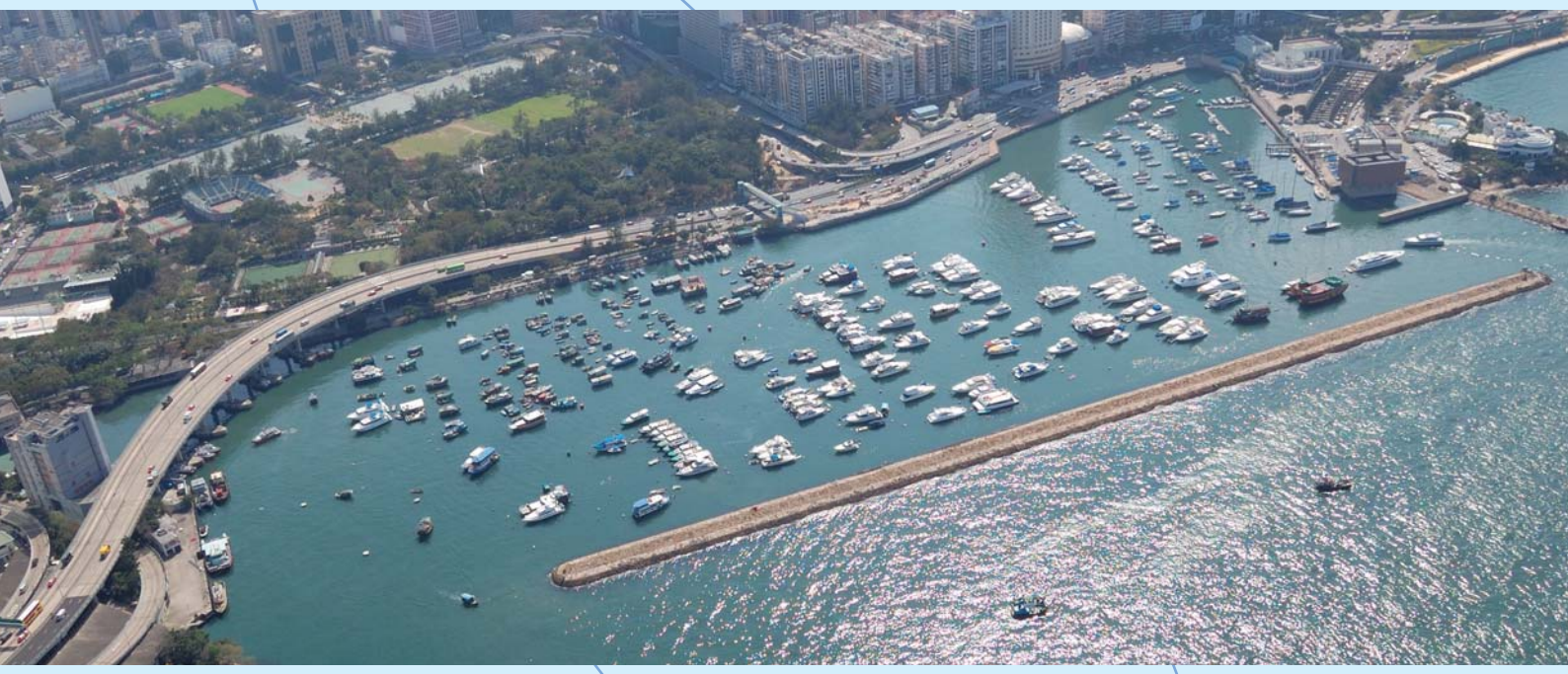
路 政 署
HIGHWAYS DEPARTMENT

Central-Wan Chai Bypass



MAUNSELL | AECOM

Maunsell Consultants Asia Ltd

Information Paper on Reprovisioning Arrangements of Affected Moorings & Anchorage during Trunk Road Construction at the Causeway Bay Typhoon Shelter

1. Introduction

1.1 The proposed Central - Wan Chai Bypass (CWB) is the missing link in the east-west strategic highway running along the northern shoreline of Hong Kong Island. It is of paramount importance to resolving the existing serious traffic congestion in this part of the Island.

1.2 CWB will pass through the Causeway Bay Typhoon Shelter (CBTS) in the form of a tunnel. Certain parts of the mooring and anchorage space in the typhoon shelter will be occupied at times during the construction period. According to the original plan in 2007, a temporary typhoon shelter immediately north of the existing CBTS was proposed to provide sheltered space for the affected vessels.

1.3 The proposed temporary typhoon shelter comprises a temporary breakwater and temporary piled wave walls which will be removed with the seabed reinstated upon completion of the works in the CBTS. This proposal and the road scheme for the CWB were gazetted under the Roads (Works, Use and Compensation) Ordinance on 27 July 2007 (Gazette Notice GN 4767).

1.4 In response to a judicial review, the Court of First Instance (CFI) ruled on 20 March 2008 that the Protection of the Harbour Ordinance (PHO) was applicable to all reclamations whether permanent or temporary, including the reclamations associated with the proposed temporary typhoon shelter and breakwater.

1.5 In line with the CFI's judgment on the application of the PHO to temporary reclamation, it is now necessary to demonstrate

that the reclamations associated with the proposed temporary typhoon shelter and breakwater can meet the 'overriding public need test' laid down by the Court of Final Appeal. Alternative means for reprovisioning of affected moorings and anchorages, including off-site reprovisioning, have to be duly considered. Public views and those of the stakeholders on the reprovisioning arrangements have to be equally considered.

1.6 Since April 2008, the public have been consulted on the method of construction for the CWB tunnel at the CBTS and the associated temporary reclamation. There was general support for the proposed temporary reclamation required for the tunnel construction although there were questions concerning matters of details. The extent of impact, during the construction stage, to the affected vessels within the CBTS and the various reprovisioning options can thus be assessed based on the proposed staging of construction sequence.

2. Existing Situation

2.1 The CBTS occupies a total water area of some 18ha. At present, the CBTS provides shelter for pleasure and business operating vessels together with some dwelling vessels and miscellaneous local crafts. As at April 2008, around 570 vessels use the CBTS as a base.

2.2 An aerial view of the existing typhoon shelter with layout of three distinct mooring/anchorage areas is attached at **Appendix 1**:

- The south-western triangle (**RHKYC Mooring Area**) contains a private mooring area allocated by MD to the Royal Hong Kong Yacht Club (RHKYC) for pleasure vessels. The water area occupied by the RHKYC moorings is around 3 ha holding approximately 152 vessels.

- The northern triangle (**Private Mooring Area**) contains individually licensed moorings allocated by Marine Department (MD) for private vessels. This water area is around 4.4 ha and 152 vessels are permitted to lay mooring within this area.

- The south-eastern triangle (**Anchorage Area**) occupying a water area of approximately 2.6 ha, is mainly used as an anchorage by dwelling vessels, work vessels, floating workshops and various local/miscellaneous crafts. Approximately 200 vessels are anchored in this area.

2.3 In the CBTS, a number of isolated vessels are found moored/anchored outside the above mooring/anchorage areas. There are altogether 12 licensed moorings and some 55 vessels anchored along the Causeway Bay Promenade seawall.

3. Reprovisioning Options

3.1 The CWB tunnel will be constructed by cut-and-cover method using diaphragm walls, which is the only safe, feasible and practicable method of construction. However, this cut-and-cover method requires the construction of a working platform above water level by means of temporary reclamation. These CWB construction works, including the contractor's works area, will impinge upon the anchorage area in the south-eastern corner of the CBTS (Anchorage Area) and upon the northern and south-western licensed moorings areas (Private and RHKYC Mooring Areas). **Appendix 2** shows the full extent of the CWB construction works. In all, roughly 100 vessels in the Anchorage Area and around 180 vessels in the Private and RHKYC Mooring Areas will be directly affected by the CWB construction works.

3.2 To maintain the effective operation of the CBTS and to minimise the number of affected vessels that will be disturbed by the construction works, and to enable water circulation within the typhoon shelter, the CWB tunnel construction works will be carried out in stages, with construction works commencing at both the eastern and western ends of the typhoon shelter and progressing inwards. Vessels in these areas will need to be temporarily relocated in stages to facilitate this staged construction of the CWB tunnel and the associated temporary reclamation. An illustrative construction staging plan for the works and the associated number of vessels affected at the CBTS is attached at **Appendix 3**. The total number of vessels affected in each stage of construction would be different, with the maximum of around 190 vessels (110 mooring vessels and 80 anchorage vessels) being affected at one time.

3.3 In formulating various reprovisioning options, it is necessary to take into consideration the following:

- the PHO implications;
- social impacts;
- disturbance to CBTS users;
- the urgent need for early relief to the existing serious traffic congestion; and
- impacts to the CWB construction programme.

3.4 After investigation, six options are identified to address the reprovisioning requirements. These include both on-site and off-site reprovisioning proposals of the affected mooring and anchorage areas in the CBTS.

3.5 **Option 1: On-Site Reprovisioning Using Temporary Typhoon Shelter**

3.5.1 Option 1 is same as the originally proposed works for the CWB and Island Eastern Corridor Link project published in Gazette Notice 4767 on 27 July 2007. All the vessels within the affected mooring and anchorage areas would be relocated to the temporary typhoon shelter immediately north of the existing CBTS.

3.5.2 With a temporary rubble mound breakwater and two temporary piled wave walls, a sheltered area of 3.9ha would be created as illustrated in **Appendix 4**. This arrangement would provide adequate sheltered mooring/anchorage area to meet the reprovisioning requirement during the construction period. Upon completion of the tunnel construction in around 6 years, the breakwater and the wave walls would be removed and the seabed reinstated.

3.5.3 Pros of this option:

(a) No significant disturbance to the CBTS users in their business and recreational activities. Affected mooring and anchorage vessels would be moved to the temporary typhoon shelter immediately outside the CBTS but still within the Victoria Harbour.

(b) No impact on the planned CWB construction programme.

3.5.4 Cons of this option:

In light of the CFI's ruling that the presumption against reclamation does apply to the temporary typhoon shelter and breakwater, it is necessary in compliance with PHO implications to first identify any reasonable alternative to the proposed reclamation (i.e. "no reclamation" option). This option might proceed if no other reasonable alternative involving no/less reclamation is available.

3.6 Option 2: On-Site Reprovisioning within Works Area

3.6.1 In this option, the principle of on-site reprovisioning is retained, but without the temporary typhoon shelter. Instead, the 1.9ha ex-PCWA basin would be used as temporary sheltered mooring area. Moreover, the existing Private Mooring Area would be more efficiently used by filling up the existing vacant space outside the construction works areas with a maximum capacity for around 50 vessels.

3.6.2 However, in using the ex-PCWA basin as mooring space and due to the limited water area available and the presence of the temporary Government helipad at the breakwater of the ex-PCWA, there would be insufficient mooring/anchorage space to accommodate the number of vessels affected under the originally planned construction programme. In view of the capacity constraint, the CWB construction programme would be increased. It would result in a significant delay of at least 2 years.

3.6.3 In addition, the ex-PCWA basin is not designed as a typhoon shelter and would not provide local vessels with the same level of protection as the CBTS during typhoon. Reclamations associated with some form of breakwater would be required to provide the same level of protection to the vessels. This again would have PHO implications and its justification would need to be demonstrated to comply with the 'overriding public need test'.

3.6.4 Pros of this option:

No significant disturbance to the CBTS users in their business and recreational activities. Affected mooring and anchorage vessels would be moved to temporary locations within the CBTS or the adjacent ex-PCWA basin in stages according to the construction sequence. They would be still located within the Victoria Harbour.

3.6.5 Cons of this option:

(a) PHO implications of the temporary breakwater, if the same level of typhoon shelter protection is to be provided.

(b) The revised construction staging for this option would prolong the overall construction programme for at least 2 years. Such delay to the overall CWB construction programme would have significant impact to the society as a whole.

(c) The economic consequences of the 2-year delay to the opening of the CWB, in monetary terms of the continuing traffic delays, would be significantly large.

3.7 Option 3: Staged Off-Site Reprovisioning for Different Groups of Vessels Affected by Different Stages of Construction Works

3.7.1 In general, the construction staging for off-site reprovisioning is similar to that as described in paragraph 3.2 above and Annex C.

3.7.2 Off-site reprovisioning can make up for the decrease in mooring/anchorage area in the CBTS during the CWB construction period. Similar to Option 2, the number of vessels required to be re-located off-site could first be reduced by filling up the existing vacant mooring space outside the works area within the Private Mooring Area which can accommodate a maximum of around 50 vessels. The remaining mooring and anchorage vessels which would be affected by the construction would be temporary re-located to different typhoon shelters in different groups during different stages of construction.

3.7.3 The affected anchorage vessels are proposed to be temporarily relocated to the Aberdeen Typhoon Shelter (West) (ABDTS(W)) or other available sheltered areas. The ABDTS(W) has a spare

capacity of around 3.8ha (this area accounts for the effects of fishing moratoria and during typhoon period), which can readily accommodate all of the 100 affected vessels from the CBTS Anchorage Area.

3.7.4 The affected private and RHKYC moorings are proposed to be temporarily relocated to other existing typhoon shelters and sheltered areas, such as the Aberdeen Typhoon Shelter (South) (ABDTS(S)), Cheung Chau, Middle Island, Tai Tam Bay and Plover Cove (east of Yim Tin Tsai) with a total capacity for around 200 vessels. Details of vacant moorings for pleasure vessels in typhoon shelters and sheltered anchorages are shown in **Appendix 5**. At present, the ABDTS(S) has spare capacity for private moorings which can accommodate about 100 to 130 pleasure vessels (depending on the length of the affected vessels) from the CBTS licensed mooring areas.

3.7.5 Re-locating only those vessels directly affected in each stage of construction may appear to be a fair arrangement. However, this would involve the relocation of both mooring and anchorage vessels in all the three mooring/anchorage areas in the CBTS. During different stages of construction, different groups of affected vessels would have to be relocated to different typhoon shelters for different durations and return back to the CBTS after the next group move out. Different vessels would have to be temporarily relocated to different areas at during times with different durations. Relocating a total of about 180 mooring vessels and 100 anchorage vessels in 4 stages would involve complicated logistical arrangements and disrupt a large numbers of the CBTS users.

3.7.6 Pros of this option:

No temporary reclamation is required. No PHO implications.

3.7.7 Cons of this option:

(a) Cause serious disturbance to part of the CBTS Anchorage Area users (local crafts) and part of the CBTS Private and RHKYC Mooring Area users (pleasure vessels).

(b) Involve complicated logistical arrangements and extensive disruptions to a large numbers of the CBTS users.

(c) Cutting the social and economic ties of some of the anchorage users would create adverse impact on their livelihood.

(d) The use of water space within ABDTS(W) will affect commercial and fishing vessels using this area as their base of operation.

3.8 Option 4: Off-Site Reprovisioning of the Anchorage Area

3.8.1 To avoid the disturbance to a large number of CBTS users at different stages, an alternative is to relocate the vessels in only one of the three mooring/anchorage areas throughout the whole construction period.

3.8.2 In Option 4, all vessels in the Anchorage Area are proposed to be temporarily relocated to the ABDTS(W) or other available sheltered areas. The ABDTS(W), with 3.8ha spare capacity, can readily accommodate all of the vessels in the Anchorage Area.

3.8.3 The affected vessels in the Private Mooring Area and RHKYC Mooring Area would then be accommodated in the vacant Anchorage Area and other parts of the CBTS which would not be affected by the CWB staged construction.

3.8.4 Pros of this option:

(a) No temporary reclamation is required. No PHO implications.

(b) No significant disturbance to the affected vessels in the Private and RHKYC Mooring Areas as they could still stay in the CBTS.

3.8.5 Cons of this option:

(a) Cause serious disturbance to the business operation of the Anchorage Area users (local crafts).

(b) Cutting the social and economic ties of the anchorage users would create additional adverse impact on their livelihood.

(c) The relocation of anchorages to the ABDTS(W) will affect the existing commercial and fishing vessels using this area as their base of operations and might generate conflicts between the existing and relocated users, such as conflicting berthing arrangement.

(d) Some of the Anchorage Area users worried that the vessels, in particular the older ones, may not be able to cope with the relocation required at different stages of reclamation.

3.9 Option 5: Off-Site Reprovisioning of the RHKYC Mooring Area

3.9.1 In Option 5, all vessels mooring in the RHKYC Mooring Area are proposed to be temporarily relocated to the ABDTS(S) and other typhoon shelters.

3.9.2 The affected vessels in the Private Mooring Area and Anchorage Area would then be accommodated in the vacated RHKYC Mooring Area and other parts of the CBTS which would not be affected by the CWB staged construction. There are at present 152 private vessels mooring in the RHKYC Mooring Area. Option 5 would disperse all these vessels from the RHKYC Club House on Kellett Island. This would disrupt the operation of the RHKYC and affect their sports and harbour events, such as yacht races and other activities that are held regularly within and outside the Victoria Harbour. In addition, moorings in the ABDTS(S) would need to be re-arranged to make space for the reprovisioning to accommodate the mooring of the RHKYC vessels in one group.

3.9.3 Pros of this option:

(a) No temporary reclamation is required. No PHO implications.

(b) No significant disturbance to the affected vessels in the Private Mooring Area and the Anchorage Area as they could still stay in the CBTS.

3.9.4 Cons of this option:

(a) Private vessels in the RHKYC Mooring area would be relocated to the ABDTS(S) and other typhoon shelters. It would cause serious disruption to the operation of the RHKYC and its sports and harbour events.

(b) Loss of employment for staff of RHKYC as a result of reduced operation and activities of the Club.

(c) Moorings in the ABDTS(S) would need to be rearranged to make space for accommodating the mooring of the RHKYC vessels in one group.

3.10 Option 6: Off-Site Reprovisioning of the Private Mooring Area

3.10.1 In Option 6, all vessels in the Private Mooring Area are proposed to be temporarily located to other existing typhoon shelters. The current spare capacity for private moorings in the ABDTS(S) can accommodate the majority of the pleasure vessels from the Private Mooring Area. The remaining vessels would be temporarily relocated to other typhoon shelters or sheltered areas.

3.10.2 The affected vessels in the RHKYC Mooring Area and the Anchorage Area would then be accommodated in the vacated Private Mooring Area.

3.10.3 Pros of this option:

(a) No temporary reclamation is required. No PHO implications.

(b) No significant disturbance to the affected vessels in the Anchorage Area and the operation of the RHKYC as they could still stay in the CBTS.

3.10.4 Cons of this option:

Pleasure vessels in the Private Mooring Area would be relocated to the ABDTS(S) and other typhoon shelters. It would cause disturbance to their recreational activities.

4 Public Engagement

4.1 Public participation is essential in the process of reaching a lawful, reasonable and viable option for the reprovisioning of the moorings/anchorages. We have carried out a two stages public engagement to invite all CBTS users and the public to express their views on the above six options as well as suggestions of other potential options.

4.2 First Stage Public Engagement

4.2.1 The first stage consultation was held from 6 to 22 September 2008. It included seven discussion sessions and a questionnaire survey. The participants were mainly stakeholders affected by the construction works in the CBTS, including anchorage vessel owners, pleasure vessel owners, and representatives of the RHKYC. On 24 April and 14 October 2008, we consulted the Local Vessel Advisory Committee which consists of experts from various marine related industries operations to seek their views on the reprovisioning arrangements. We also participated in a public forum organized by the Ad-hoc Working Group on Central-Wan Chai Bypass under Eastern District Council (EDC Ad-hoc Working Group) on 22 September 2008 attended by DC members, the CBTS users and residents of the Eastern District.

4.2.2 In order to achieve better understanding of the operation of the CBTS, a questionnaire was also distributed to the CBTS users to collect supplementary information on vessels, vessel owners and their preferred reprovisioning options, etc.

4.2.3 The Public Policy Research Institute (PPRI) of the Hong Kong Polytechnic University was engaged to facilitate the discussion sessions and to analyze the stakeholders' comments expressed in both the discussion sessions and the completed questionnaires.

4.2.4 Views of the stakeholders expressed at the seven discussion sessions, the EDC Ad-hoc Working Group and the questionnaires are summarized as follows:

(a) Anchorage vessels: Most anchorage users strongly opposed to off-site reprovisioning due to disruption to their daily living and business and the cost implications. They strongly requested to stay in the CBTS. Owners of the Tin Hau temple boat requested the Government to allow them to relocate on land to avoid affecting their worshipers. Some users expressed that the Government should re-house the affected boat dwellers, especially senior citizens. Some would like to be relocated to the southeast corner of the CBTS. Launch & ferry representatives in the area expressed that they were unwilling to be reprovisioned to Aberdeen.

(b) RHKYC vessels: Since the RHKYC's club house on land and its mooring area are mutually dependent, the Club expressed that any off-site reprovisioning arrangements would substantially cut off the access of the Club to the harbour. Due to the increased physical distance between the vessels and the club house, it would be more difficult for the members to gain access to the Club's services and facilities. Off-site reprovisioning would therefore severely affect the operation of the Club. Should RHKYC's moorings be reprovisioned off-site, their water sports operation would inevitably be scaled down, resulting in loss of business of the Club and to their contractors currently providing various services to the Club and their members. Inevitably, there would be loss of employment for the staff of the RHKYC.

(c) Private Mooring Area vessels: From the discussion sessions, we understand that there are both pleasure vessels and commercial vessels mooring within the Area. In general, the owners of the pleasure vessels who have replied in response to the questionnaire have no strong objection to moor outside the CBTS, such as Aberdeen Typhoon Shelter (South) (ABDTS(S)). As for the commercial vessels, there are about 20 vessels mooring within the Private Mooring Area. These vessels mainly

provide cruising service for tourists in the Harbour in short notice, usually 15 – 20 minutes. The owners expressed concerns about the time and cost implications and requested for temporary re-location within the Harbour in order to maintain their business operation. At further meetings between these owners, Highways Department and Marine Department, a consensus was reached that they can moor within the ex-PCWA basin to maintain their operation.

4.2.4 To formulate the recommended reprovisioning scheme, the views expressed by the stakeholders and the subsequent analysis carried out by PPRI were carefully reviewed. The recommended scheme was worked out with the aim to minimize the possible impacts and hardship on the livelihood of the CBTS users. In general, we recommend to adopt Option 6, that is to re-locate only the pleasure vessels in the Private Mooring Area to make space for accommodating the affected vessels in the RHKYC Mooring Area and the Anchorage Area. For vessels currently mooring within the Private Mooring Area which have business operation in the Victoria Harbour, they would be allowed to moor within the ex-PCWA during non-typhoon periods and other typhoon shelters during typhoon periods.

4.3 Second Stage Public Engagement

4.3.1 During the second stage public engagement exercise, the recommended reprovisioning arrangements were presented to the CBTS users at a discussion session held on 18 October 2008 and a public forum subsequently held on 25 October 2008. The recommended scheme received general support from the participants.

4.3.2. During further meetings with the CBTS users, some raised the question on the entitlement of the affected CBTS users for compensation of temporary occupation of water areas by construction works.

4.3.3 Some users also expressed concerns on the safety of the aged vessels during vessel relocation and the cost of relocation. We advised them that a condition survey would be carried out by competent surveyors to verify that the vessels would be suitable

for relocation. Assistance would be provided to repair vessels to ensure its suitability for re-location. Both Marine Department and the vessel owners would be fully consulted and their agreement would be sought prior to the relocation. If necessary, the contractor would provide assistance for the relocation as well as the required relocation equipments. The contractor would be responsible for compensation for any damage caused to the vessels during relocation. The access and utility services within the CBTS such as water supply would also be maintained during whole period of construction.

4.3.4 During public consultation, vessel operators from the Mariners Club expressed concern about the operation of their vessels. Noting the frequent operation of their vessel within the Harbour, their vessels would be allowed to moor at ex-PCWA basin during non-typhoon periods and in ABDTS(S) during typhoon periods.

4.3.5 Representative of the Hong Kong & Kowloon Motor Boats and Tug Boats Association Ltd also raised concern whether there would be sufficient spaces at ex-PCWA to accommodate the business vessels. Our finding is that there would be sufficient mooring spaces to accommodate these vessels either at ex-PCWA or temporary anchorage space in the CBTS during construction.

4.3.6 A few individual users requested for special treatments to their vessels at the public forum. We would maintain a close dialogue with the CBTS users with a view to refining the recommended reprovisioning arrangements to accommodate their needs as far as possible.

5. Recommendation and Conclusion

5.1 Since Options 1 and 2 involve temporary reclamation, according to the requirements of the PHO, they can only be implemented unless there are no other technically feasible and acceptable reprovisioning alternatives available. After the formulation of reprovisioning Options 3 to 6 and the completion of the public engagement exercise, we conclude that there are technically feasible and acceptable reprovisioning alternatives and thus Option 1 to 2 should not be pursued. Options 3 and 4 would cause major impacts on the daily

operation and hardship on the livelihood of the local vessels. Option 5 would cause major disturbance to the operation of the RHKYC. After careful consideration of the views expressed by the CBTS users and all other relevant factors, Option 6 which involves the least disruption to the CBTS users is recommended as the preferred reprovisioning arrangements.

5.2 In conclusion, Option 6 is considered to be the technically feasible and more acceptable reprovisioning arrangements not involving any temporary reclamation. The originally proposed temporary breakwater to the north of the CBTS as shown in the gazetted CWB scheme will no longer be required and can be deleted from the scheme. This will result in a reduction of about 2.4 ha of temporary reclamation.

Highways Department
November 2008

Appendix

Appendix 1 An aerial view of CBTS with layout of three distinct mooring/anchorage areas

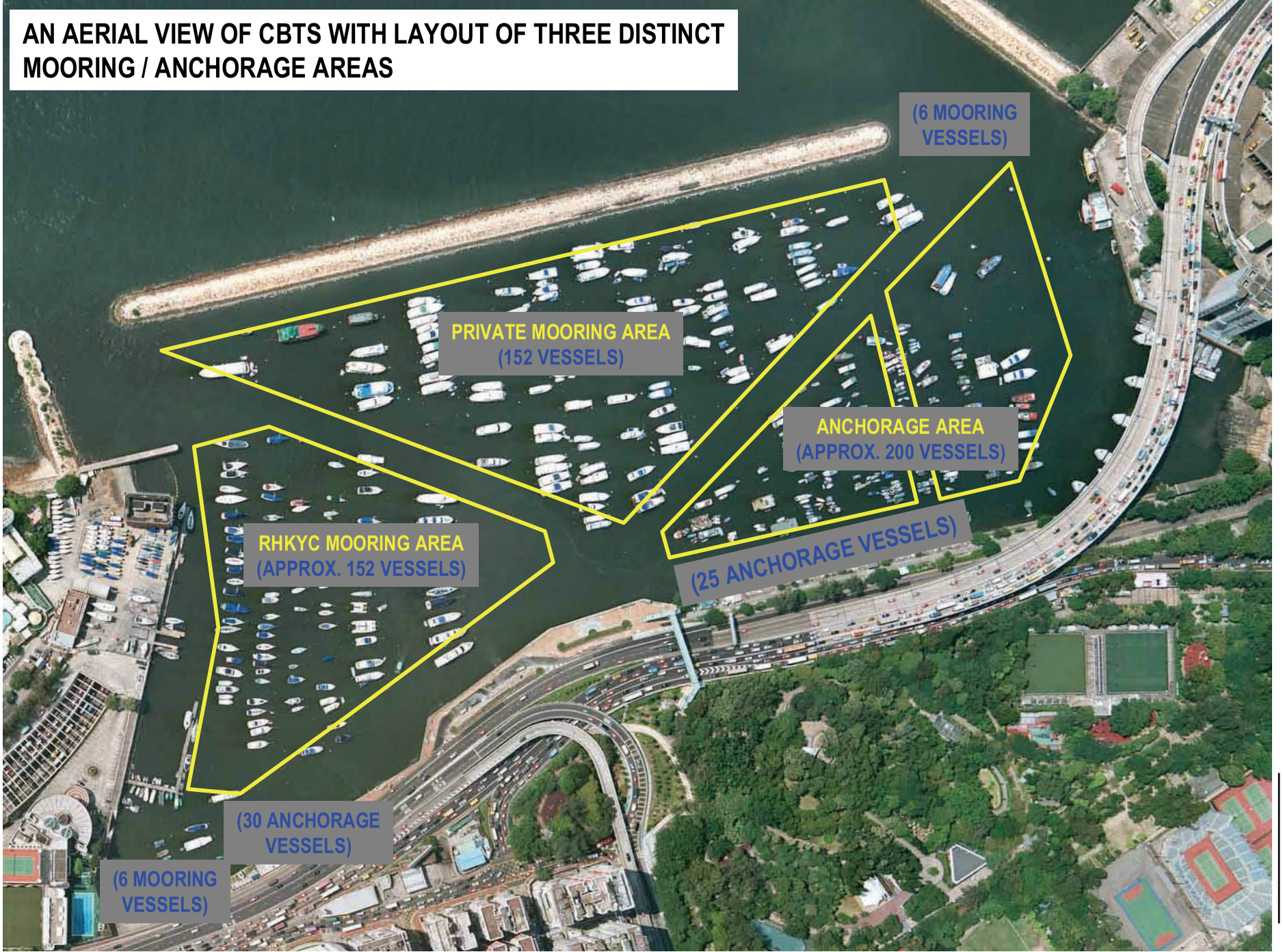
Appendix 2 Mooring/anchorage areas directly affected by construction works

Appendix 3 Illustration of anticipated construction stages and associated number of vessels affected

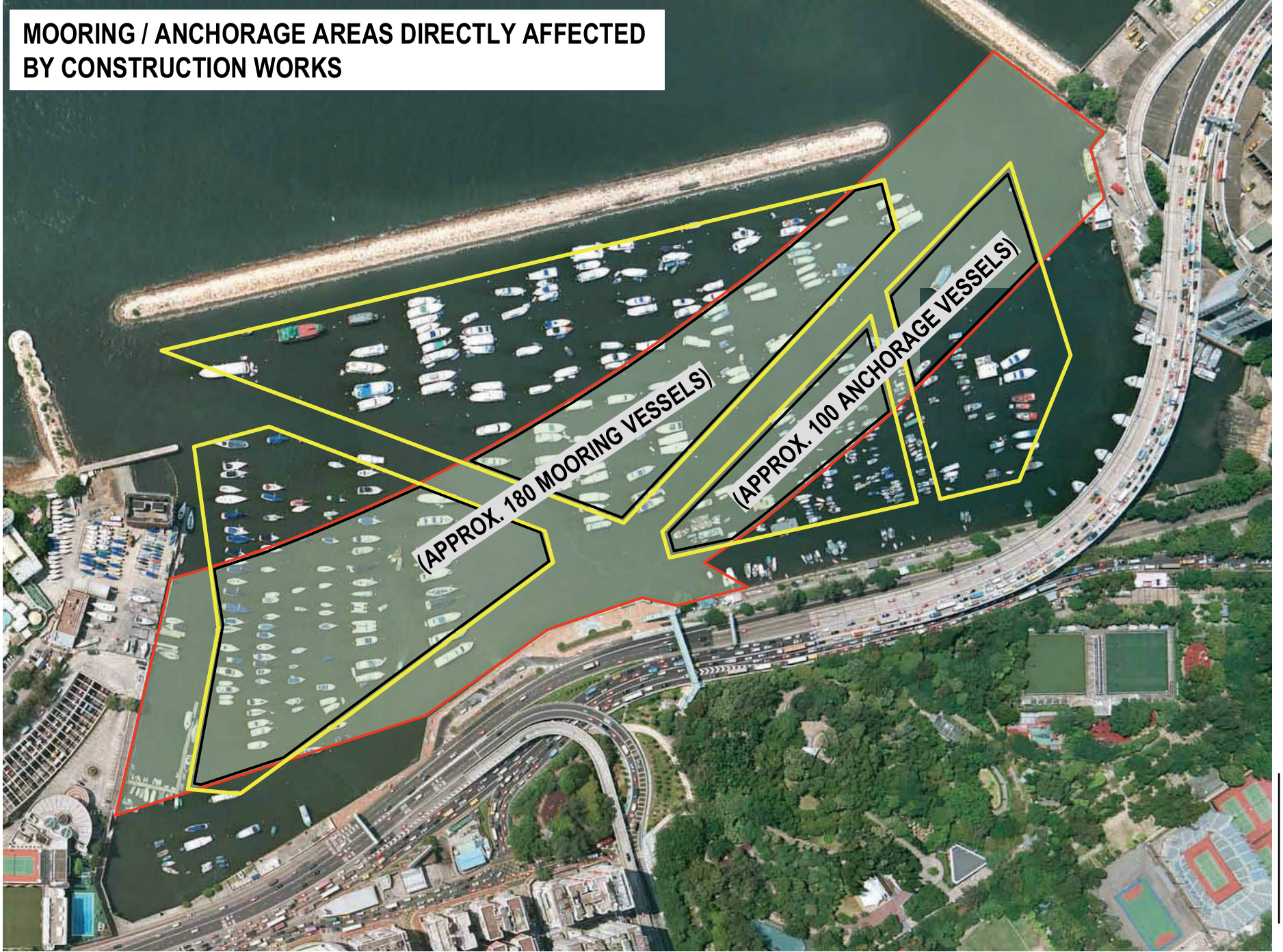
Appendix 4 Originally proposed temporary typhoon shelter/breakwater

Appendix 5 Schedule of vacant moorings for pleasure vessels in typhoon shelters and sheltered anchorages

AN AERIAL VIEW OF CBTS WITH LAYOUT OF THREE DISTINCT MOORING / ANCHORAGE AREAS

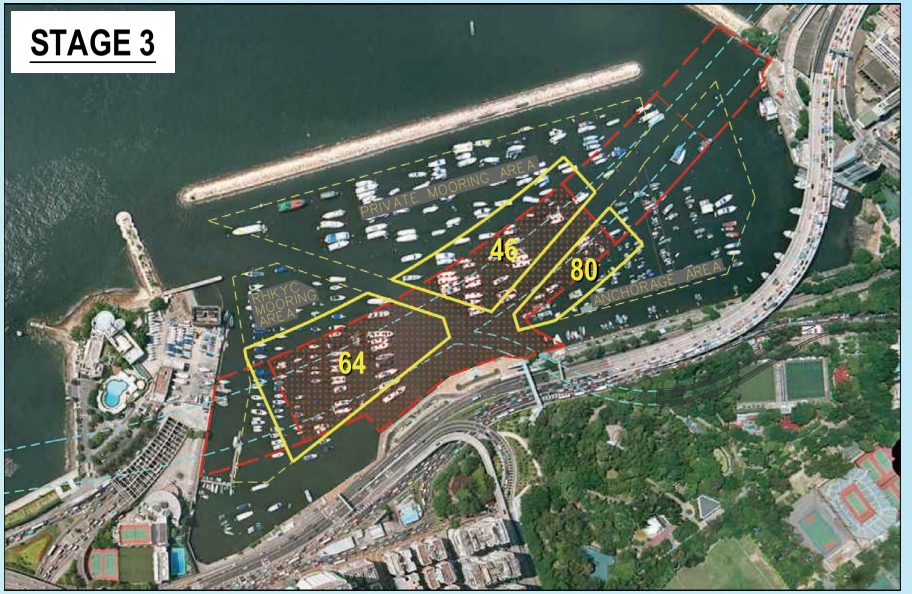


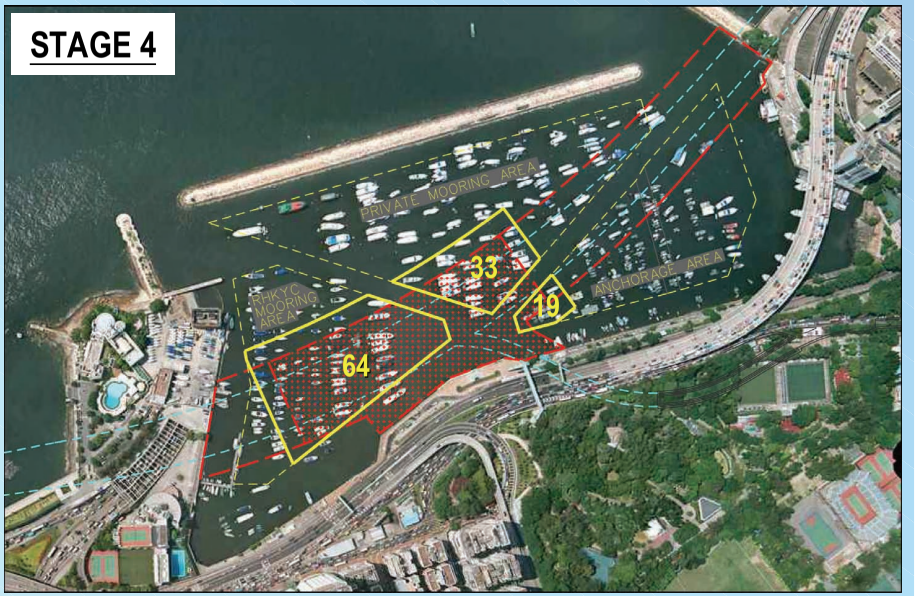
APPENDIX 1


MOORING / ANCHORAGE AREAS DIRECTLY AFFECTED BY CONSTRUCTION WORKS
(APPROX. 180 MOORING VESSELS)
(APPROX. 100 ANCHORAGE VESSELS)

APPENDIX 2

ILLUSTRATION OF ANTICIPATED CONSTRUCTION STAGES AND ASSOCIATED NUMBER OF VESSELS AFFECTED





TEMPORARY RECLAMATION REQUIRED FOR TUNNEL CONSTRUCTION

EXTENT OF AFFECTED VESSELS

73 APPROX. NO. OF VESSELS AFFECTED

APPENDIX 3


ORIGINALLY PROPOSED TEMPORARY TYPHOON SHELTER / BREAKWATER
PROPOSED TEMPORARY BREAKWATER
PROPOSED TEMPORARY PILED WAVE WALL
AREA OF TEMPORARY TYPHOON SHELTER
PROPOSED TEMPORARY PILED WAVE WALL
AREA AFFECTED BY CWB CONSTRUCTION

APPENDIX 4

APPENDIX 5

Schedule of Vacant Moorings for Pleasure Vessels in Typhoon Shelters and Sheltered Anchorages

Location	**No. of Vacant Moorings**		**Type of Mooring**
	Long boats (>8m LOA)	**Short boats (<8m LOA)**	
Typhoon Shelters			
Aberdeen South (Po Chong Wan)	100	130	Fore & Aft Moorings
Cheung Chau	20	20	Fore & Aft Moorings
Sheltered Anchorages			
Middle Island	5	11	Single Mooring
Plover Cove (East of Yim Tin Tsai)	53	88	Single Mooring
Tai Tam	5	5	Single Mooring
TOTAL	183	254	

Note: Maximum no. of CBTS moorings to be re-located off-site approximately
= 190 – 50*
= 140

* 50 vacant mooring spaces are available outside the contractor's works area within the Private Mooring Area of the CBTS.