would be at risk of damage from ship impact from ferries and local craft in the inshore water area and from ocean going vessels in the adjacent navigation fairways. The consequences of structural damage to the road tunnel would be severe and not tolerable.

4.2.5 Immersed tube tunnel form of construction may be used where the tunnel lies just below seabed level; reclamation would not be required for this form of tunnel construction. However, this form of construction is not suitable where the tunnel level rises above seabed level, as the exposed tunnel section would then be at risk of damage from ship impact, anchors, etc, the tunnel structure would be more susceptible to degradation in the aggressive marine environment, and the protrusion of the tunnel structure above the seabed would restrict marine access to the shoreline. Also, even where the tunnel lies below seabed level, the soft seabed material would need to be excavated so that the immersed tube units lie in a trench on a firm foundation. Along the Wan Chai shoreline, this would involve excavating a deep trench immediately adjacent to the existing seawalls, which would undermine these seawalls. Use of immersed tube is therefore considered not feasible in this instance, and the most practical and reasonable form of construction for the Trunk Road tunnel along the Wan Chai shoreline is cut-and-cover, constructed through reclaimed land.

4.2.6 Through the ex-PCWA basin and the Causeway Bay Typhoon Shelter, where the Trunk Road tunnel lies below seabed level, immersed tube or cut-and-cover tunnel construction may be considered. For both forms of construction, permanent reclamation is not required. In the case of cut-and-cover tunnel, temporary reclamation may be formed to facilitate the tunnel construction, but this can be removed on completion of construction so that the finished product, ie retention of the existing seabed condition, is the same for both methods. (Alternative methods of construction may be proposed by the future contractor, however, any such alternative method must not result in permanent reclamation.) Factors to be considered in selecting an appropriate construction method include: whether the tunnel alignment runs wholly through seabed or partly in existing seabed and partly under existing seawalls and

land formation, the latter making cut-and-cover construction more practically feasible (more efficient and cost effective construction with less disruption to existing shoreline facilities and infrastructure) than use of precast immersed tunnel sections that need to be placed in open trenches; the depth of the tunnel (where the tunnel lies at a significant depth below the seabed, for example near the Cross Harbour Tunnel crossing, at –30mPD, major deep and wide trenches will need to be excavated, making immersed tube construction more disruptive with greater impacts); or the tunnel length available for immersed tube construction (short lengths will not be cost effective for the precast fabrication of tunnel units). The form of tunnel construction is an important consideration in respect of avoiding conflict with the SCL, as Trunk Road cut-and-cover tunnel can be constructed across the future SCL alignment with much closer separation allowance. Because the Trunk Road tunnel is on diaphragm wall (piled) supports, it will not be structurally adversely affected by the construction of the SCL tunnels.

4.2.7 Where the Trunk Road tunnel rises up above the seabed to ground level, for the connection with the IEC at the eastern end of the Causeway Bay Typhoon Shelter, cut-and-cover tunnel in reclamation will again be the feasible form of construction.

4.2.8 In summary, cut-and-cover tunnel construction is considered to be the practical and feasible form of construction for implementation of the Trunk Road at the west of the HKCEC, through the HKCEC water channel, along the Wan Chai shoreline and through the Causeway Bay Typhoon Shelter. Permanent reclamation will be required at the HKCEC, along the Wan Chai shoreline and at the eastern end of the Causeway Bay Typhoon Shelter, for the cut-and-cover tunnel, where it lies above the seabed level.

4.3 Trunk Road Tunnel Variations

4.3.1 Three feasible Trunk Road tunnel variations have been developed that will meet the overriding public need for the Trunk Road are presented. Chapter 4 of the HEC Report on Trunk Road Alignments and Harbour-front Enhancement