

Hong Kong - Shenzhen Western Corridor/ Deep Bay Link Temporary Access Bridge at Deep Bay

After completion, the Hong Kong-Shenzhen Western Corridor will cross Deep Bay from Dongjiaotou, Shekou to land at Ngau Hom Shek. There are 40 pairs of piers to be constructed in HKSAR waters. In view of the ecological sensitivity of Deep Bay, foundation works are to be carried out with special measures. A temporary platform is erected at each pile group location for stationing workers and machinery to enable construction to proceed. The size of the platforms is kept small and plant and materials are only delivered at the appropriate time. Construction of pile-caps is carried out within sheet-pile cofferdams to minimize water contamination.

The temporary platforms are like “small islands” at Deep Bay and access to them for the transportation of workers, materials and equipment is made by barges. The method, however, cannot be used for the pile-caps within the shallow water area (about 1.8km from the shore) where the maximum water depth is 3m which is not enough to accommodate barges. The intertidal zone at Deep Bay is within this shallow water and is a coastal habitat supporting mangroves and mudflat fauna as well as a foraging ground of birds. Dredging of the seabed to create channels for marine access is out of the question as this would affect the ecology of the zone. Without marine access, it was necessary to devise an alternative method to carry out the foundation works there.

In the HK-SWC contract, a temporary access bridge is constructed along the future bridge alignment between the each pair of pile-caps in the shallow water region. The deck branches off the main alignment over each pile-cap location to serve as a platform to accommodate construction workers and plant. The temporary access bridge itself therefore becomes the access route, hence marine access is no longer required.

The bridge is a pre-fabricated modular steel structure. The total length is 1.8km so it traverses the shallow water area while the seaward side functions as a berthing point for barges. It is 9m wide along the main alignment. Totally 9,000t of steel was used and the construction took 4.5 months. The completion of the temporary structure enabled the Contractor to speed up piling progress for this contract under an exceptionally fast-track programme.

深港西部通道／后海灣幹線 位於后海灣的臨時橋通道

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港西部通道將會橫跨后海灣，連接蛇口東角頭和香港鰲磡石。大橋在香港后海灣水域內共有四十對橋墩。為了保障易受破壞的后海灣自然生態，在進行地基工程時均會安排了一些特別工序。承建商在每一組樁柱位置搭建一個臨時平台，安置建造工人及器材。平台的面積會盡量細小，而所需的器材及物料祇在需要使用時才運送到平台。樁帽工程是在鋼板樁圍堰內進行以減輕對水質的影響。

臨時平台就像一羣小島般坐落在后海灣之中，而工人、物類和機械就需要靠躉船運送。這方法卻不適用於該處的淺水區（即離后海灣海岸線約 1.8 公里內的範圍）。此處水深不超過 3 米，躉船不宜航行。此外這淺水區亦包含后海灣的潮澗帶。潮澗帶孕育着紅樹林和泥灘生物，亦是雀鳥的覓食地方。為了保留這一帶的生態特色，局部浚挖海床增加水深作為躉船水路並不可行。在淺水區進行地基工程，唯有另尋方法。

深港西部通道承建商沿大橋定線，在每對樁帽之間，建造了一條臨時橋通道跨過淺水區。臨時橋的橋面在每邊樁帽位置橫向伸建，形成臨時平台以供地基工人和機械作業。臨時橋本身就成為運送物料的通道，免卻水路運輸的問題。

臨時橋由預制鋼組件組合建成。全長 1.8 公里，跨過淺水區之餘，在水深的一端亦可作躉船停泊之用。臨時橋主橋闊 9 米。整條橋用了 9000 公噸鋼材在四個半月內建成。臨時橋完成後，承建商可在淺水區全面展開地基工程，以配合這工程項目緊迫的時間表。



Marine piling using temporary access bridge 在臨時橋上進行海上鑽孔樁工程