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淺談金門大橋深槽區基礎型式研選、分析與設計

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摘　要

金門大橋為跨越金門港道銜接金門與烈嶼之跨海大橋，其橋梁型式考量海域水深區分為主橋段、邊橋段及引橋段，其中跨越深槽區之水域寬度達約1.6km，此間主要配置主橋及部份的邊橋單元，深槽區橋墩所處位置之中潮系統下之水深為自15m變化至20m不等，設計時需考量各海象條件下於海上施工之施工性。由於金門地區屬花崗岩地質且覆土深度變化甚劇，大大增加工程困難度，台灣本島並無該等經驗，故於分析及設計上亦參考具花崗岩地質經驗之香港規範作為分析設計之依據。本研究為基於上構型式、海象條件、地質、防蝕、景觀、施工條件、施工性、工期、經費等因素綜合研選其深槽區之基礎型式。

關鍵字：主橋、深槽區、海象、花崗岩。

Brief Study on the Foundation Selection, Analysis and Design of Kinmen Bridge Rested on the Deep Trench Area

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Abstract

Kinmen Bridge is a cross-sea bridge going across the Kinmen channel and then linking Kinmen and Lieh-yu island. Taking into account the water depth, the bridge is divided into three sections which are main section, side section and approach section, respectively. The road corridor, configuring the main section and side section of bridge, will cross over the widest trench area of about 1.6km in length. In the deep trench area, the middle tide water level depth at bridge pier ranges from 15m to 20m. In consideration of the influence factors, such as structure type, marine conditions, geology, corrosion, landscape, construction conditions, workability, working period and budget, the comprehensive study has been done to select the most appropriate foundation type at the deep trench area. In addition, Kinmen is located at the geology of granite and the depth of overburden is dramatically changed which has greatly increased the difficulties in the engineering practice. Taiwan has no such experience before so that Hong Kong specifications possessing the experience with granite geology have been taken as the basis for the reference in the analysis and design.

Key Words：Main Bridge, Deep Trench Area, Marine Condition, Granite.

一、前　言

金門大橋西起烈嶼（小金門）后頭地區、東迄於金門金寧鄉慈湖地區，路線全長約5.4公里，其中約4.7公里位於海上，大橋兩端與烈嶼鄉湖埔路、金寧鄉慈湖路垂直平交，提供烈嶼與金門地區全天候的交通聯繫，並肩負提升觀光的效益，其橋址相關位置如圖一所示。