



The Eternity Arch section being tugged into Junk Bay last week.

NEW LIFE CYCLE BECKONS AS BRIDGE TAKES SHAPE

Some of you may have spotted a giant structure floating across the eastern waterfront last week. Shaped like the mathematical

symbol for infinity (a figure eight laid on the side), it adds some visual delight to the stark and square landscape in that area.

The steel structure is the Eternity Arch of the Cross Bay Link, which is scheduled for completion next year.

It links southeast Tseung Kwan O with the TKO-Lam Tin Road Tunnel and the main part of Tseung Kwan O city center and connects the eastern end of Route 6 from West Kowloon through the Central Kowloon Route – Route T2 in southeast Kowloon – for an additional route to TKO.

Hopefully, this new link will relieve congestion at TKO Tunnel that commuters from Tseung Kwan O, Sai Kung, Clearwater Bay and adjacent areas have long endured.

The Cross Bay Link alignment follows the southern waterfront of Tseung Kwan O New Town. The seabed is not too deep, so a viaduct system built on concrete stilts is perfectly adequate as a structure, significantly cutting down on construction costs and time.

To allow marine navigation to the southeast TKO waterfront, the Link has a long section with taller clearance. The project team took this opportunity to design an arch structure – mainly to provide the necessary headroom and span under the road bridge, as well as to add an eye-catching feature to the otherwise monotonous viaduct bridge.

The use of a steel arch structure to cater for a long span between two column supports is not new. Some 25 years ago, a similar structural form was used to link the new extension of the Hong Kong Convention and Exhibition Centre across the new Expo Avenue.

The giant steel arch, made in Nantong, near Shanghai, was towed to the site as a complete structure of 200 meters in length. The arduous journey took eight days and



Nuts and bolts

Edmund Leung

required special navigation skills and a purposefully designed barge, as the tall and slim structure, weighing 10,000 tonnes, must be kept upright to prevent it from toppling, even in adverse weather.

Upon arrival at the site, the barge will be partially submerged and a system of jacks will allow fine adjustments to ensure the safe and accurate final positioning of the giant structure.

Construction of this 1.8km Cross Bay Link follows modern construction methods, using V-shaped piers resting on the pile caps over the pile foundations that have been driven into the seabed. These piers support a series of precast box girders providing a twin dual-lane highway.

A footpath and cycle track are additional features of this link and will allow citizens to enjoy the sea breeze and breathtaking view as they stroll or cycle along the bridge. This is a unique feature for a bridge connection in Hong Kong and a positive response to requests from the community.

Transport infrastructure in Hong Kong had previously been designed for function over form, and we have seen a lot of utilitarian highway flyovers and pedestrian footbridges that solely serve the purpose of transport connection and do very little to please the eye.

As people increasingly expect more scenic landscapes, the government has responded to community demands by setting up an Advisory Committee on the Appearance of Bridges and Associated Structures to vet structural designs to ensure new facilities blend in with existing landscapes and provide aesthetically pleasing architectural forms, adding to their visual appeal.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure