

Design & Construction of Setiawangsa – Pantai Expressway (SPE - DUKE Ph3) – Section 3 from Pandan to Setiawangsa in Kuala Lumpur

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Abstract

The Setiawangsa – Pantai Expressway (SPE - DUKE Phase 3) is an infrastructure development under transformation programmes undertaken by the Government of Malaysia through Concessionaire Lebuhraya DUKE Fasa 3 (LDF3) Sdn. Bhd. The total length of SPE mainline is 32Km besides 7 interchanges, 2 mainline toll plazas, 3 ramp toll plazas and is divided in to 4 sections [1]. The proposed Section 3 from Pandan to Setiawangsa of SPE project involves design, construction, operation and maintenance of 5km long elevated dual 2-Lane highway with 24.9m wide mainline deck besides an interchange and ramp toll plaza at AKLEH interface in Kuala Lumpur. The project alignment is located in densely developed urban environment and mainly traverses over existing arterial roads, storm water tunnel (SMART) underneath, crosses urban arterials, expressway, LRT line, river and acts as a city bypass for effective traffic dispersal system in order to alleviate traffic congestion on local at-grade roads. The project is completely on an elevated structure in the form of double deck and single deck arrangement in order to minimise the land acquisition, least disturbance to road users, adjoining developments and utilities. Various types of super structure viz., precast T-beams, U-Beams, cast in-situ / precast box girders are adopted besides different types of foundation & substructure with longest span being 62m. This paper aims at presenting an insight of various types of designs, innovative methods adopted to suit the site constraints and interfacing issues to meet project timeline, cost effective design approach during the construction of Section 3 of Setiawangsa – Pantai Expressway.

Keywords: traffic dispersal; design development, geometry; bored pile, precast / cast in-situ crossheads; precast / cast in-situ box girders; double deck, single deck, DBKL underpass, LRT interfacing; utilities.

1 General

The economic reforms and transformation programmes envisaged by Government of Malaysia resulted in rapid growth in Kuala Lumpur City Centre and other central business districts in the surrounding vicinity. This rapid spur in various infrastructure developmental activities in the region triggered increased vehicular population to/from the Kuala Lumpur City Centre causing