

Construction of the Victoria Park Tunnel

Bryce Irving / Kirsty McVicar – Project Engineer, Victoria Park Alliance, Auckland

The \$340 million Victoria Park Tunnel (VPT) project in central Auckland will address the last major bottleneck on the central motorway network between the Auckland Harbour Bridge and Newmarket.

The project will increase traffic capacity over the 2.2km of State Highway 1 between the Wellington Street over bridge and the Auckland Harbour Bridge. This is one of the busiest sections of road in New Zealand, and its increased capacity will deliver significant economic benefits.

VPT involves the construction of a 450m cut and cover tunnel adjacent to the existing viaduct through Victoria Park and motorway widening through St Marys Bay. The tunnel will carry 3 lanes of northbound traffic, while the existing viaduct will be converted to carry 4 lanes of southbound traffic.

The Victoria Park Tunnel project is being delivered by an Alliance comprising the NZ Transport Agency, Fletcher Construction, Beca, Higgins and Parsons Brinckenhoff. Its delivery team also includes a host of suppliers and subcontractors.

The tunnel design employs a conventional top down cut and cover configuration. The tunnel walls comprise a mixture of diaphragm and secant piling. The roof utilizes prestressed precast double hollow core beams with a cast insitu topping. An 800mm thick base slab is supported on bored tension piles to complete the tunnel shell. Precast concrete components complete the fit out including barriers, partition walls and the like.

This paper describes the construction techniques being used to construct the tunnel, with particular focus on the use of the concrete.