

HONG KONG: TSUEN WAN BYPASS

- **Client:**
New Territories Development
Department
Hong Kong Government
- **SWK appointment:**
1976 - 1987
- **Scope of work:**
2km dual three-lane elevated
highway
- **Construction cost (1987):**
£40 million

Tsuen Wan Bypass is a 2km long high capacity road which skirts the new town of Tsuen Wan. It has been built to meet the traffic demands of the rapidly growing new towns in the western New Territories.

Engineering and transport planning studies into route options, carried out by SWK in 1976, resulted in a 30 hectare reclamation in Tsuen Wan Bay, south of the town centre. The bypass was designed as a continuous, elevated structure to ensure that maximum use could be made of the new land.

Design and construction

Detailed engineering and construction under SWK supervision began only a year after the first area of land was

formed. The bypass comprises dual three-lane carriageways, reduced to two lanes between ramps at interchanges and at the western approach. Hard shoulders are provided on each side of the carriageways.

Each carriageway is elevated on a 56-span structure with side cantilevers. The phasing of future reclamation meant that nine of the spans of the bridge were built over water. Most of the foundations were located on reclaimed land with driven steel tubular and cast in-situ concrete bored vertical piles. The deck of the bypass is supported primarily on single reinforced concrete columns with pot bearings, although columns are paired under the wider, tapering deck sections. A 3 km at-grade network of two and three-lane carriageways connects the bypass to the existing road system. The construction of the bypass and its associated roads and interchanges was completed within six years ■

JP McCafferty involved in preparation of the Preliminary Report for TWBP and was Independent scrutineer and checker for the structures that formed the major part of the project.





HONG KONG: TSUEN WAN BYPASS AND RELATED DEVELOPMENT

- **Client:**
New Territories Development
Department,
Hong Kong Government
- **SWK appointment:**
1976-1987
- **Scope of work:**
5km of roads on 30ha of reclaimed
land, passenger ferry terminal and
pumping station
- **Construction cost (1987):**
HK\$ 900 million

Tsuen Wan is one of Hong Kong's rapidly growing new towns. The 1971 population of 300,000 people is expected to reach one million by 1991. SWK were commissioned to plan, design and oversee the construction of much of the town's infrastructure.

High traffic growth in what has become a heavy industrial area led to the design of the 2km long Tsuen Wan Bypass, which crosses a 30 ha reclamation south of the town centre on a continuous high-level structure. The elevation of the bypass ensured that optimum use would be made of the reclamation.

The bypass is a dual three-lane carriageway, reducing to two lanes at access ramps. Each carriageway is carried on a 56-span bridge of post-tensioned cast in-situ concrete box beams with side cantilevers. The bypass is linked to the existing road system by a series of ramps and 3km of ground-level carriageways.

Both the land reclamation and bypass construction forced the relocation of many existing waterfront facilities in Tsuen Wan. They included the cargo wharf and working area and a large pumping station. A ferry pier, bus and public transport terminal were integrated into a single transport complex. The double-deck ferry terminal is linked by an elevated



walkway to the transport complex which contains 25 bus and maxi-cab bays at ground level, a taxi rank on the first floor and parking for 1000 cars on the remaining five floors.

Planning for the project was expanded to include the town centre. A network of walkways links the complex to the central areas of Tsuen Wan.

Construction works were phased and closely coordinated to ensure that tight development deadlines were met, since new facilities needed to be in operation before the old ones could be closed ■

Tsuen Wan Bypass curves on to Tsuen Wan Road in the distance.

JPW Cofferty



