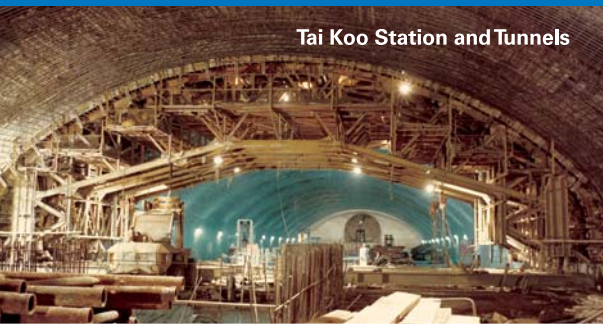


## RAILWAY

Every day, some four million trips are made on Hong Kong's Mass Transit Railway (MTR), making it a transportation lifeline for passengers and tourists travelling around the territory.

Dragages has partnered with the MTR Corporation for more than 30 years, bringing international tunnelling technology and innovative design solutions to every project.

As renowned tunnelling experts, Dragages brings an in-depth understanding of construction issues and pulls together international expertise and construction methods to meet these challenges head-on.



Tai Koo Station and Tunnels



Hang Hau Station and Tunnels



Lok Ma Chau Spur Line Tunnels

### 2009 West Island Line - Sheung Wan to Sai Ying Pun Tunnels

**Construction of two access shafts, two tunnels and dismantling of an existing overrun tunnel under a densely populated area.**

Cutter head monitoring system and stringent safety features are key aspects of the tailor-made slurry Tunnel Boring Machine (TBM), while a specially designed Tunnel Dismantling Machine (TDM) will demolish the existing overrun tunnel.

### 2002 Lok Ma Chau Spur Line Tunnels

**Design and build of a 5,200 m twin rail tunnel, with access shafts, ventilation buildings and a provisional station across an environmentally sensitive area.**

To tunnel safely and to protect the heritage agricultural and wetland areas above, Dragages commissioned a specially designed Earth Pressure Balanced Tunnel Boring Machine (EPBTBM) to perform excavation works.

### 1999 Hang Hau Station and Tunnels

**Top-down construction method to maximise efficiency and minimise disruption in the construction of the station, associated building and 1,200 m of tunnelling work.**

In partnership with the client, Dragages proposed design alternatives to minimise noise and dust pollution, reduce costs and shorten construction time. The result was completion of the project two months ahead of schedule.

### 1998 Kwai Tsing Tunnels

**Varying ground conditions require engineers to adopt three different construction methods to complete two 3.6 km railway tunnels.**

Drill and blast, cut-and-cover and Hong Kong's first mixed ground EPBTBM were used to overcome complex tunnelling conditions, while minimising disruption to residents and road networks.

### 1998 Tai Lam Tunnel

**Alternative design proposal, combining two tunnels into a single tube with a partition wall, offered substantial cost efficiency and reduced construction time.**

A powerful conveyor system capable of removing 800 tonnes of waste per hour over an 18-month excavation period offered a faster and cleaner alternative to using trucks.

### 1982 Wan Chai Station

**Construction of a station concourse 26 m below street level, linking the MTR network with a pedestrian subway in a busy urban and residential area.**

Building on its proven record of success with the MTR Corporation, Dragages was again commissioned to construct a pivotal station. Dragages used a top-down construction method to create this vital pedestrian link.

### 1982 Tai Koo Station and Tunnels

**Construction of 1,600 m of twin tunnels and cavern enlargements to accommodate station facilities.**

Essential to meet the transportation needs of Hong Kong's growing population, this station and tunnel project comprised twin tunnels and a station built in a 24-metre span rock cavern.

### 1979 Tsuen Wan Station and Depot

**Site formation and construction of an MTR depot including twin 350 m railway tunnels and a 350 m two-lane bridge above the station.**

Preparation for the project included extensive site clearance and excavation to remove some two million cubic metres of rock and debris, as well as special structural design to protect an on-site heritage temple.

### 1979 Kwai Fong & Kwai Hing Stations

**Construction of two elevated stations and a 1,200 m viaduct.**

The viaduct was designed using a continuous pre-stressed structure, with each span averaging more than 30 m in length. Both stations were designed with a passenger concourse below an elevated platform deck.

### 1976 Admiralty & Central Stations

**Design and build of two stations beneath Hong Kong's busy commercial centre, and some of the city's most prestigious buildings.**

Precision excavation was key to the project. The top-down method allowed excavation to continue below ground, while building works began above. This method minimised disruption and cut construction time.

### 1975 Lok Fu Station and Tunnels

**Construction of the station and twin track tunnels.**

The challenges of dealing with both hard and soft ground demanded various tunnelling techniques to best work with the ground conditions.