

# Press release

Wednesday, 28 August 2013

## BOUYGUES CONSTRUCTION WINS A CONTRACT WORTH MORE THAN €1 BILLION IN HONG KONG

Through two of its subsidiaries, Dragages Hong Kong and Bouygues Travaux Publics, Bouygues Construction has won a €1.15 billion contract for the construction of a 4.2-kilometre undersea road tunnel in Hong Kong. It is the largest design-build contract ever awarded in Hong Kong.



*North access to the tunnel*

The project consists in constructing an undersea twin-tube tunnel, each tube with two traffic lanes and 14 metres in diameter. The tunnel will link the New Territories, north of Hong Kong, to Lantau Island, where the international airport is located. It will be bored 50 metres below sea level, which will constitute a record depth for Bouygues Construction. Two tunnel boring machines (TBMs) – rotary drilling machines for excavating and building the structure – will be used.

The two tunnel tubes will be connected every 100 metres by 42 cross passages. Ground-freezing technology will be used to provide a watertight environment to enable these passages to be bored.

The project will entail working in an environment in which pressure is high (over 5 bar). Maintenance operations, particularly with respect to the cutting heads of the TBMs, will be carried out by teams of divers who will live in a hyperbaric base camp for four weeks at a time to allow them to deal with any issue that may arise at any time. This new method of organisation avoids them having to undergo decompression too frequently.

The operation also includes the construction of two cut-and-cover approach tunnels of 530 and 670 metres respectively.

The project will be carried out in compliance with strict environmental standards with regard to marine ecology, water quality, noise impact and waste management. The two ventilation buildings powered by wind energy that will be constructed to the north and south of the tunnel have been designed to qualify for BEAM<sup>(1)</sup> Plus Gold rating.

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*(1) BEAM environmental certification is awarded by the Hong Kong authorities.*


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A global player in the building, civil works, energy and services sectors, Bouygues Construction operates at all points of the value chain of projects: finance, design, construction and facilities management (operation and maintenance). On every continent, its 55,400 employees devise and develop solutions that make an improvement to the environment and to everybody's lives. In 2012, Bouygues Construction generated sales of 10.6 billion euros.



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Two innovations developed by the Bouygues Construction Research & Development Department will be used on the project in order to reduce the need for manual operations in hyperbaric conditions. Mobydic, a system of sensors incorporated into the disc cutters in the heads of the TBMs, will make it possible to permanently monitor the state of wear of the cutters while allowing real-time geological mapping of rock faces. Snake, a remote-controlled exploration arm equipped with a high-pressure jet, will clean the TBM heads and eliminate clogging to enable them to be inspected.

The works are scheduled to take more than five years (63 months): handover is scheduled for the end of 2018. More than 1,000 employees will be working on the project at peak periods.

Philippe Bonnavé, Deputy Chief Executive Officer of Bouygues Construction, said: "This contract is a major event for Bouygues Construction, which in the space of a year has won the two largest construction contracts ever awarded in Hong Kong: this one, and the Hong Kong-Zhuhai-Macao bridge. This once again demonstrates our capacity to meet the toughest technical challenges and to carry out increasingly complex infrastructure projects."

Bouygues Construction is enjoying dynamic growth in Hong Kong. Established nearly sixty years ago, the local subsidiary, Dragages Hong Kong, is currently responsible for significant portions of ten major infrastructure projects that have been launched by the government since 2007. It has been working on the Cruise Terminal Building, a major terminal for cruise ships, since 2010, as well as two rail tunnels which will form part of the future high-speed line connecting Hong Kong and Beijing in 2015. It is also constructing the first stretch of the sea bridge linking Hong Kong and the cities of Zhuhai and Macao.

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