

Hong Kong West Drainage Tunnel Newsletter Issue 7 July 2011

**Together We Build the Drainage Tunnel
Together We Alleviate Flooding**

To alleviate the flooding problem of Northern Hong Kong Island, we are constructing a drainage tunnel of about 11km long and with 34 intakes to intercept stormwater and discharge it directly to the sea. For details, please visit the Project website at www.dsd.gov.hk/HKWDT.

Milestone Celebration for the Hong Kong West Drainage Tunnel

The construction of Hong Kong West Drainage Tunnel (HKWDT) completed an important milestone when the tunnel boring machine (TBM) "Oshin" successfully broke through the main drainage tunnel in January 2011.

To commemorate this important milestone, Secretary for Development, Mrs Carrie Lam, officiated at the Tunnel Breakthrough Ceremony on Stubbs Road in Wan Chai on 17 February 2011. Mrs Lam said that with the completion of HKWDT in 2012, it is expected that about 30% of the stormwater from Northern Hong Kong Island could be effectively diverted and discharged. She also commended the state-of-the-art scheme for flood prevention, the professional delivery of the Project and the contribution of the Project Team.

Also speaking at the ceremony, Mr Chan Chi Chiu, Director of Drainage Services, said that the primary task of the Project Team during construction was to minimise the impact on the environment as well as on the daily lives of the public. This Project adopted the approach of stormwater interception by building a drainage tunnel to reduce the extent of traditional drainage upgrading works that would involve extensive excavation in the urban area. Raise boring method is used to construct most of the intake dropshafts to contain the construction impact below ground.



The TBM, Oshin, successfully broke through the rock face on 17 January 2011



Representatives from Government Departments, Incorporated Owners, Schools and Property Management Offices attend the ceremony

Mrs Carrie Lam (centre), with other guests, breaks the Japanese Sake Barrel at the ceremony to commemorate the successful tunnel breakthrough



Upon completion of the whole Project in 2012, the existing flood protection level in most areas of Northern Hong Kong Island will generally be able to withstand rainstorms with a return period of 1 in 50 years, and will greatly alleviate the risk of flooding in commercial and residential areas in Central, Western and Wan Chai Districts.

Other officiating guests in the ceremony included Mr Suen Kai Cheong, Chairman of Wan Chai District Council, Mr Chan Tak Chor, Chairman of Central & Western Council, Ms Mar Yuet Har, Chairlady of Southern District Council, Mr Tsui Wai, Deputy Director of Drainage Services, Mr Nicolas Borit, Managing Director of Dragages Hong Kong, Mr Harusada Kondo, President of Nishimatsu Construction and Dr. Daman Lee, Director of Arup. The event was well attended with more than 250 guests and various media outlets, making the ceremony more delightful.

FIRSTS IN HONG KONG



HKWDT HAS SET A NUMBER OF RECORDS FOR HONG KONG'S CONSTRUCTION INDUSTRY



1) LONGEST DRAINAGE TUNNEL ★

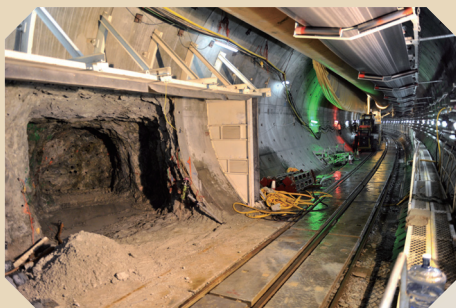
HKWDT, of 11km long running across Wan Chai, Central and Western and Southern Districts, is the longest drainage tunnel in Hong Kong upon completion. It also has the largest number of adits and intakes. The 8 km long of adits and 34 intakes will be constructed to intercept existing streams and drainage systems from Mid-Levels. The collected runoff will be discharged into the sea directly.

2) LARGEST TBM ★

Two TBMs, namely "Nuwa" and "Oshin", were adopted to excavate from both ends of the main tunnel simultaneously and met at 300m below ground near Stubbs Road in Wan Chai. They are the largest TBMs with diameters of the cutter head of 7.2m and 8.3m for rock tunnel construction ever used in Hong Kong.



★ 3) CONCURRENT TBM BORING AND ADIT BLASTING



It has been the first time in Hong Kong that TBM boring and adits excavation by drill and blast method are being carried out concurrently within the same tunnel. It is a great challenge in terms of safety and logistics, especially there may be upto 16 adits excavation works taking place simultaneously. The logistics involving the delivery of explosives, removal of spoil generated by TBM and blasting operations, and arrangement of working and supervisory staff working inside the tunnel were indeed the most complicated processes ever experienced for the Hong Kong construction industry.

4) RAISE BORING MACHINES EXTENSIVELY USED ★

HKWDT is the first project in Hong Kong in which raise boring machines (RBM) are extensively deployed to excavate dropshafts. During shaft boring by RBM, excavated spoils fall down to the bottom of dropshaft and are removed through the main tunnel via Eastern and Western Portals. As such, the number of construction vehicles for spoil removal are much reduced and therefore the traffic impact to the surroundings can be minimised.



HKWDT IS ALSO THE BIGGEST FLOOD PREVENTION PROJECT IMPLEMENTED BY DSD SO FAR.

Work Progress

Intake



Raise Boring Machine is excavating the dropshaft at Intake M3 on May Road



Dropshaft excavation is underway at Intake BR6 on Kennedy Road



Intake MB16 is expected to be completed in the last quarter of 2011

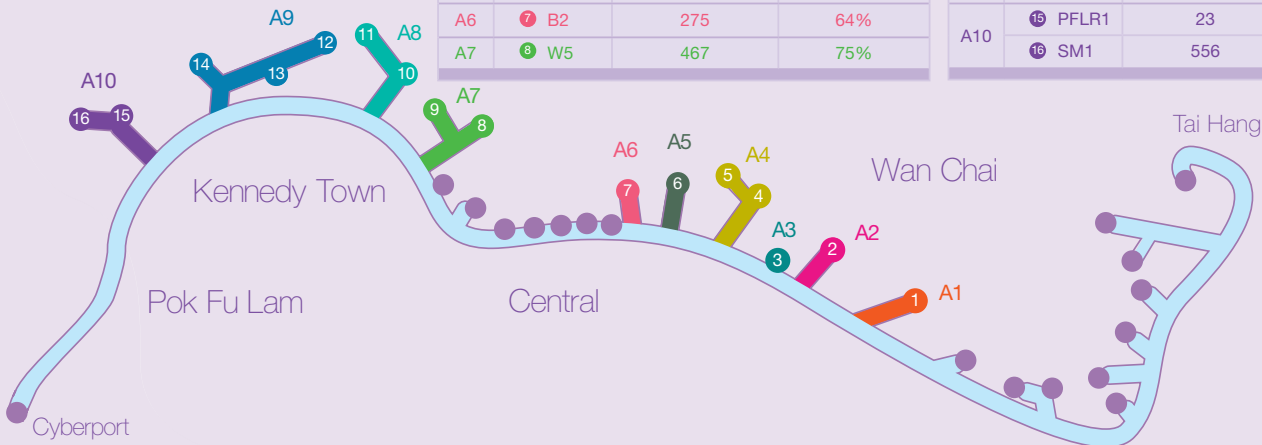
Intake MB16 at the junction of Mount Butler Road and Henderson Road is now in its final stage of reinstatement, and will be the next intake to be completed following Intake SM1. The construction of other intakes has made good progress. About 12 intakes are anticipated to be completed in the second half of 2011.

Excavation Works of Adits Completed

16 adits were completely excavated as at June 2011. The excavation of the following adits is still in progress.

Adit Tunnel		Total Length (m)	Completion (%)
A1	1 W0	464	72%
A2	2 BR4	401	12%
A3	3 W1	179	40%
A4	4 BR5	26	0%
	5 BR6	549	29%
A5	6 W3	321	32%
A6	7 B2	275	64%
A7	8 W5	467	75%

Adit Tunnel		Total Length (m)	Completion (%)
A7	9 CR1	265	25%
A8	10 RR1	336	97%
	11 W8	263	53%
	12 P5	804	74%
A9	13 W10	14	81%
	14 HKU1	267	100%
A10	15 PFLR1	23	84%
	16 SM1	556	99%



First Intake about to be Completed

Construction works for Intake SM1 near Smithfield is expected to be completed in August 2011. The overall landscaping works and trees replant are in progress at the intake location.

Upon completion, a ventilation pipe will be installed adjacent to each intake structure to release the air when rain water flows into the dropshaft. The air released through the ventilation pipe is odourless without causing any impact to the neighborhood. The location and colour of the ventilation pipe are carefully designed in order to blend with the surrounding environment.

After commencing operation, Drainage Services Department (DSD) maintenance teams will conduct regular inspections, clearance and maintenance of each intake in order to ensure its smooth operation and discharge of intended functions.



Intake SM1 construction was completed. Landscaping works and tree replants are in progress

A ventilation pipe has been installed near Intake SM1 to release the air when rain water flows into the dropshaft



Media Visit to Adit Tunnel

A media briefing was held at Lingnan Primary School on 17 February 2011 after the Tunnel Breakthrough Ceremony, to enlighten the media about the benefits and the progress of HKWDT as well as other flood prevention projects on Hong Kong Island to be undertaken by DSD. Following the briefing, about 20 media representatives joined the site visit to the adit E5A near Tai Hang Road.



Chief Engineer of DSD, Mr Ip Wing Cheung, gives a presentation to the media



Media representatives join the site visit at adit E5A



We Care We Connect



Strong Connection with the Community

Since the commencement of the Project in November 2007, we have been in close contact with the community and kept them informed of the progress of our works. The Project Team meets with Wan Chai District Councilor, Ms Lee Pik Yee, Peggy regarding the construction arrangement of Intake BR6 on 26 January 2011.



Heart-Warming Visit

The Project Team visited the Heung Hoi Ching Kok Lin Association Buddhist Li Ka Shing Care and Attention Home for the Elderly adjacent to Intake E5A on Tai Hang Road, Wan Chai in January 2011 to celebrate Chinese New Year in advance.

Site Visits

Hong Kong Geological Society visited Intake TP789 near Tregunter Path (right) in February 2011 and Hong Kong University Postgraduate Students in Science Engineering visited the main tunnel (left) in March 2011.



Key Facts

The Employer	: Drainage Services Department
Consultant	: Ove Arup & Partners Hong Kong Ltd.
Contractor	: Dragages - Nishimatsu Joint Venture
Project Commencement Date	: November 2007
Anticipated Completion Date	: 2012

Contact Us

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**We value your views on the Project.
Please feel free to contact us.**

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