

Maroshi-Vakola water tunnel nearing completion

Mumbai, October 01, 2009: HCC has achieved a major breakthrough today by day lighting the Maroshi-Vakola tunnel stretch which is the longest section of the Maroshi to Ruparel College water tunnel. It was witnessed by BMC Commissioner Dr. Jairaj Phatak. Maroshi-Vakola section will now be concrete lined and tunnel excavation will commence in Vakola-Mahim section. The entire project is scheduled to commission by Aug-2012.

HCC has constructed 21 kms of existing 26 kms water tunnels that supply drinking water to Mumbai and is currently constructing 12 kms of tunnels of the 23 kms of water tunnels under construction. The Bhandup Complex to Charkop tunnel of 12 km length was the last tunnel completed by HCC. This tunnel was completed 5 months ahead of schedule, despite difficult geological conditions.

HCC was awarded the Contract of Maroshi-Ruparel College Tunnel Project by the Municipal Corporation of Brihan Mumbai in September 2007 with a Contract value of Rs 415.10 crores. This is a Water Supply Project executed under Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and is funded by The Government of India, Government of Maharashtra & Municipal Corporation of Greater Mumbai.

The Maroshi-Ruparel tunnel work consists of construction of tunnel having 3.60 m diameter and 12.24 km long using Tunnel Boring Machine from Maroshi connecting to Ruparel College. The tunnel is connected with Shafts at Maroshi, Vakola and Mahim. The shafts are 12 m in diameter and about 80.00 m deep.

The tunnel stretch is divided into three sections namely, Maroshi-Vakola (5.83 km long), Vakola-Mahim (4.55 km long) and Mahim-Ruparel College (1.86 km long). The interesting aspect of the Maroshi-Vakola tunnel is that it passes through Mumbai Airport and crosses both the Runways of Mumbai Airport at around 70 meters below the ground level. The tunneling work was carried out without disturbing any operations on the ground level.

The tunnel boring was extremely challenging due to heavy seepages and varying rock strata. During monsoon, the tunnel seepage had increased to about 25,000 m³ per day. Extensive grouting was carried out to control the same. Weak patches of rock necessitated widespread tunnel protection works to ensure safety. The tunnel excavation in this section was completed in schedule.

This project is part of the rehabilitation and improvement of the drinking water conveyance / distribution system from Bhandup Treatment Works to Western Suburbs and Southwest part of the Mumbai city which consists of Vaitarana, Upper Vaitarana, Bhandup, Maroshi, Tansa (East) and Tansa (West) main pipelines. Bhandup-Maroshi main pipeline runs up to Maroshi only and supplies water to the Veravali Group of Reservoirs. Other mains continue to carry water to Dharavi / Mahim and further.

The existing Vaitarana, Tansa (East) and Tansa (West) main pipelines run below runway and pass through airport land and maintenance has become impossible due to security reasons. Moreover, encroachment in other stretches also necessitated rehabilitation of these mains. Under the circumstances, MCBM has decided to construct a tunnel from Maroshi upto Ruparel College, from where a tunnel runs upto Malabar Hill, which is in operation since 2000.

Key highlights:

- Maroshi Ruparel College Tunnel will replace the existing Vaitarana, Tansa (East) and Tansa (West) main pipelines
- The tunnel will have many advantages over existing surface pipeline:
 - It is secured at a depth of 70 meters below ground level and cannot be tampered as it happens in case of surface pipelines. Hence less chances of leakages and pilferage of water.
 - It will require minimum maintenance as the entire tunnel is made of concrete unlike surface pipeline which corrode over a period of time.
- The 12.4 km tunnel will be 3.60 meters in diameter and will have three new shafts at Maroshi, Vakola and Mahim besides the existing shaft at Ruparel College
- The shafts are 12 meters in diameters and around 70 to 80 meters deep which is equivalent to 22 to 26 storied buildings
- Two tunnel boring machines of 100 meters length weighing 150 tons were lowered in the shaft piece by piece and assembled at the bottom of each shaft before commencement of tunneling work
- On an average 20 meters of tunnel was completed in a single day with a record of 40 meters tunneling completed in a single day with one tunnel boring machine

About HCC:

HCC is a leading engineering, construction and infrastructure development company with a rich heritage of experience. The company specializes in large-scale infrastructure development deploying new age construction technologies. The Company has managed and executed several technically complex and high value projects across segments like transportation, hydro & nuclear power generation, marine, irrigation & water supply projects as well as integrated urban development and management.

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