

Machines Will Start Boring Through The Earth In December

Underground work on Metro from Egmore

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When tunnel boring machines reach the city in December, they'll start eating through the earth at Egmore to create the first of the Metro Rail's underground sections. The tunnel will be part of the underground line from Central station to Tirumangalam, which is part of corridor II (Central to St Thomas Mount).

Chennai Metro Rail is making arrangements at the second entrance of Egmore railway station, near Poonamallee High Road, so that the tunnel boring machines can be deployed. Once the machines arrive, they will be taken underground through a giant shaft that is being created there.

The corporation has started preliminary work. Huge cranes and other equipment have been moved to the land between the railway tracks and the main road. A couple of buildings that housed government quarters have been demolished to make space for the machines.

"We have started soil investigations and ground leveling work. A huge trench will be dug and diaphragm walls and shoring walls will be installed. The machines will be taken down through the trench into the shaft underground. The ground preparation work will be completed by the time the machines arrive," said a senior Metro Rail official.

Two parallel tunnels, 14.05 metres apart, will be dug un-

EARLY START: Equipment whirrs away at Egmore railway station, preparing the ground for tunnel boring machines

derneath Poonamallee High Road.

The depth of the tunnels will vary from 15 metres to 17 metres from the ground. The tunnel will have an outer diameter of 6.2 metres and inner diameter of 5.8 metres. It will start at a depth of nine metres from the surface.

Metro Rail is planning to use more than one boring machine to create the tunnels. The machines may bore tunnels simultaneously from both ends. The pattern of work — one machine boring the whole length of a tunnel or multiple machines boring one tunnel — will depend on the contractor.

Once launched, the machine will create stretches of a tunnel and seal them before proceeding further. The sealed area will contain high pressure air or have diaphragm walls to prevent the tunnel from caving in. The boring machines will be

deployed underground from Egmore because a large tract of land is available at the second entrance of the railway station.

In Delhi, where a considerable portion of the Metro runs underground, an access shaft was created for the

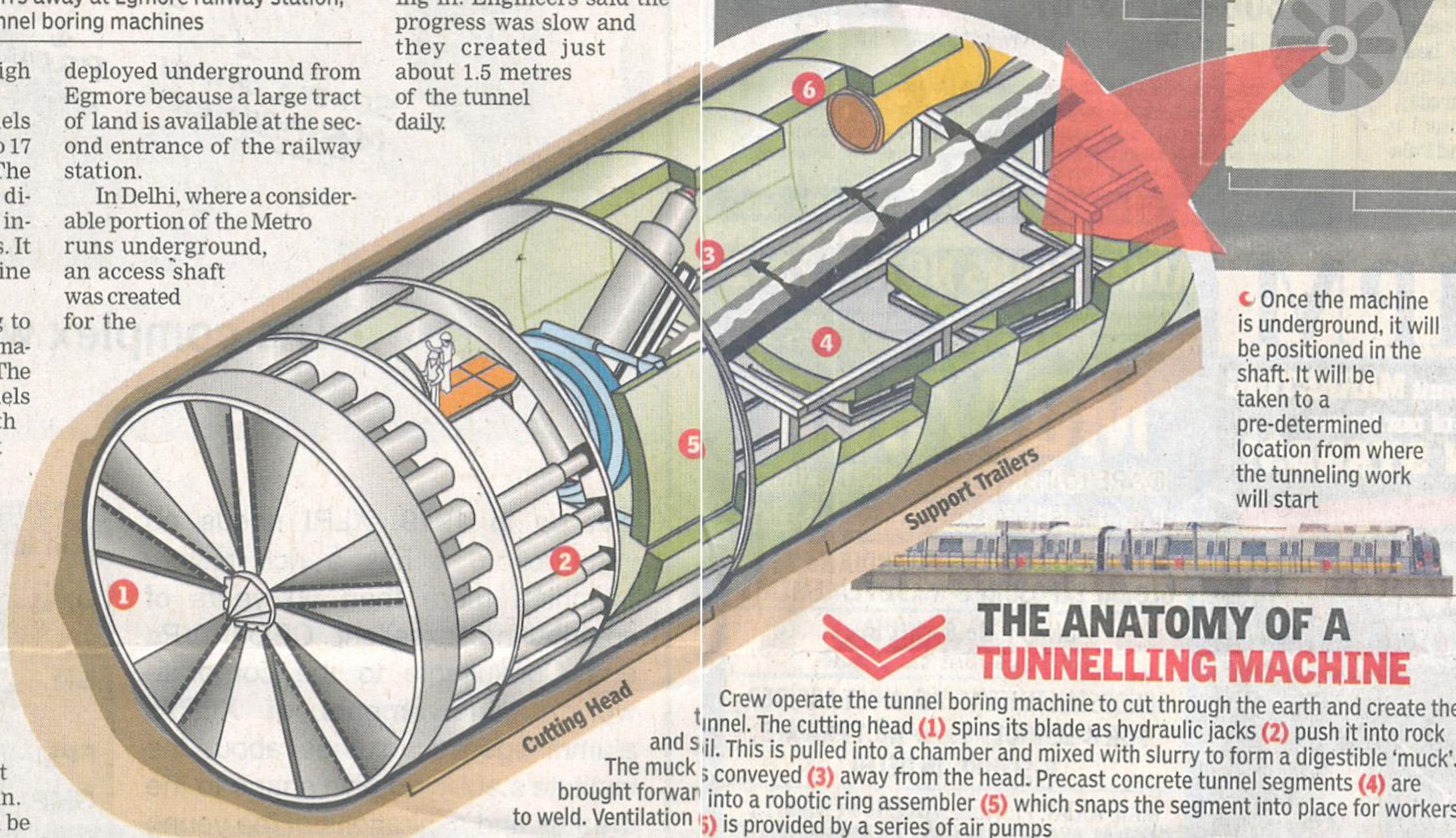
boring machines. The shaft was as deep as the required depth of the tunnel at the point of entry. Then, the coordinates of the tunnel were identified using sophisticated gadgets and a foundation of special pipes filled with concrete created to support the earth above as the tunnel was carved out.

The tunnel was constructed by dispersing rock or soil with controlled explosions. A final layer of thick concrete was put on the inside for the foundation and to keep the earth from caving in. Engineers said the progress was slow and they created just about 1.5 metres of the tunnel daily.

DIGGING DEEP

IN TWO MONTHS' TIME, WORK ON THE FIRST SECTIONS OF METRO RAIL'S UNDERGROUND TUNNELS FOR THE CENTRAL-TIRUMANGALAM LINE WILL BEGIN AT EGMORE RAILWAY STATION

- Metro Rail is preparing land for tunnel work at Egmore railway station. The tunnel boring machines, which will arrive in December, will be inserted here. The two-wheeler parking lot has been cordoned off to prepare the ground for the machines
- A giant trench with shoring walls is being dug. It will have shafts through which the tunnel boring machines will be inserted. The shafts will guide the machine to its position. Two parallel tunnels will be built under Poonamallee High Road. The number of shafts will depend on the type of machine
- The machines will tunnel underground and reach Poonamallee High road. The tunnel will be 12m beneath the surface of the road so that utility lines are not disturbed
- A diaphragm wall will be constructed around the trench and shafts at a depth of 9m. This will act as a support to prevent soil from falling back into the freshly-dug trench
- The tunnel boring machines will arrive at Chennai port. The machines will be transported to Egmore by road. A crane will hoist the machine and lower it into the trench



• Once the machine is underground, it will be positioned in the shaft. It will be taken to a pre-determined location from where the tunneling work will start

