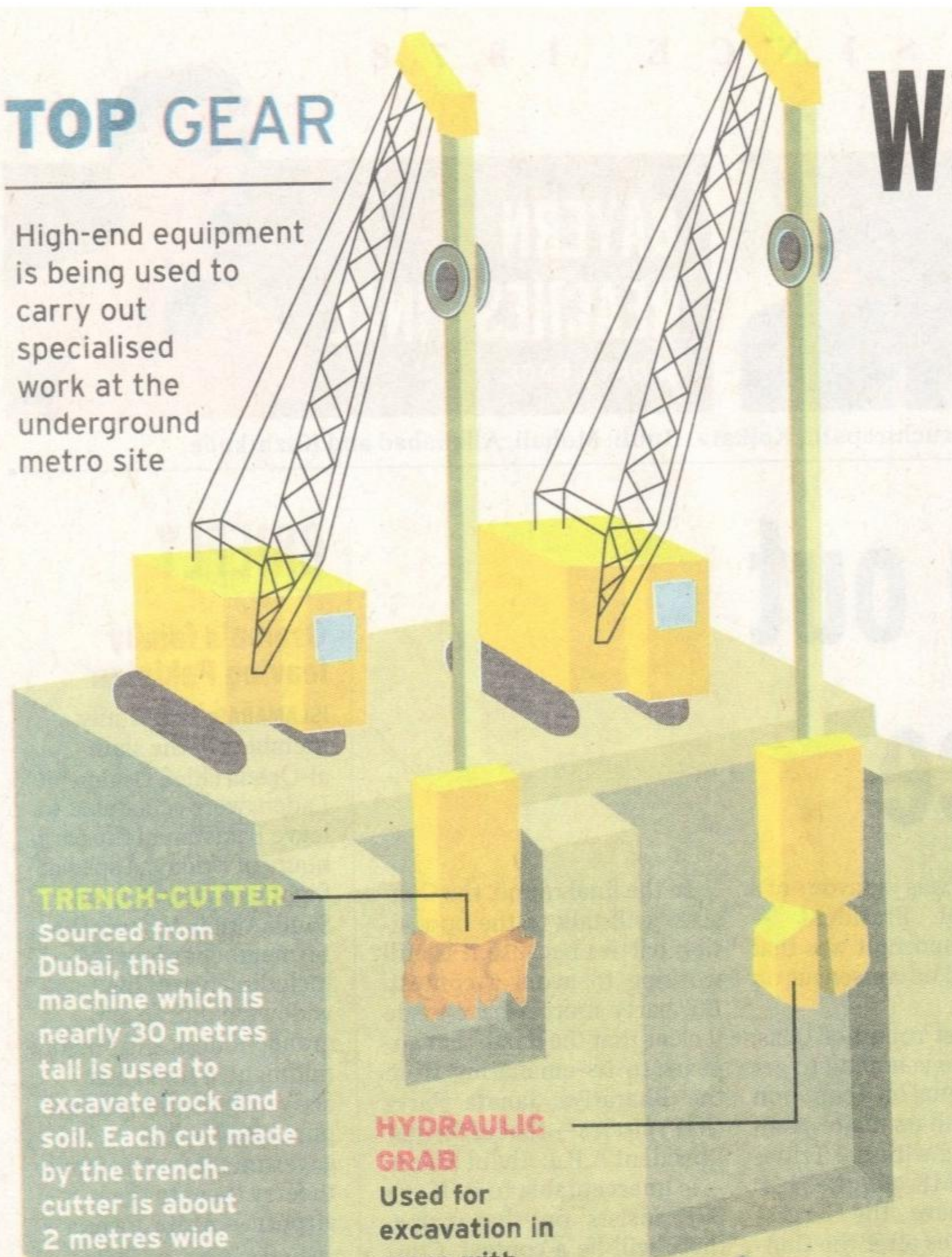


# Witnessing the making of a Metro station

## TOP GEAR

High-end equipment is being used to carry out specialised work at the underground metro site



### TRENCH-CUTTER

Sourced from Dubai, this machine which is nearly 30 metres tall is used to excavate rock and soil. Each cut made by the trench-cutter is about 2 metres wide

### HYDRAULIC GRAB

Used for excavation in areas with less rock and more soil

### INCLINOMETER

Fitted inside diaphragm walls to check if the inclination is right and to detect deviations. (Crack meters have been fitted to the new secretariat complex to detect cracks if any; tilt meters will be used to identify tilts in the constructed portions)

### INSTRUMENTATION MONITORING SYSTEM

Detects movement/disturbance in nearby areas during excavation

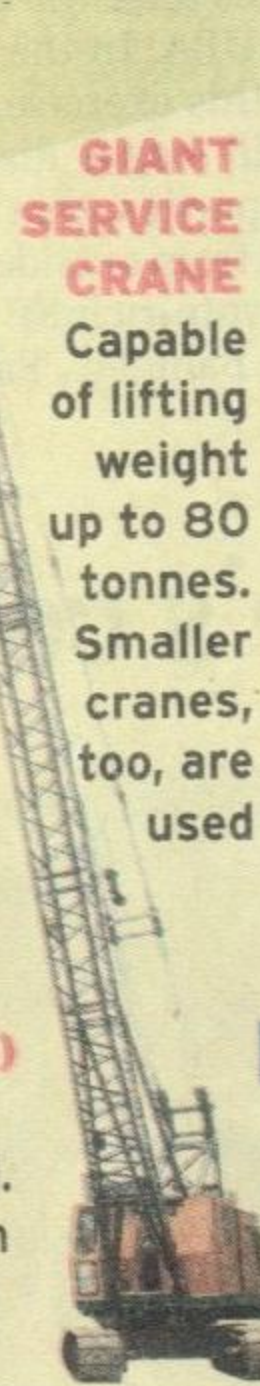


### TUNNEL BORING MACHINE (TBM)

A giant circular device that can bore through hard rock to create a tunnel wall. This expensive machine causes minimum disturbance in adjoining areas and helps complete tunnelling work faster

### GIANT SERVICE CRANE

Capable of lifting weight up to 80 tonnes. Smaller cranes, too, are used



**Meera Srinivasan** hops across the offices of The Hindu on Anna Salai to chat up engineers toiling away at the site

**CHENNAI:** In just a few years, I could be standing at the same spot – 20 metres below the ground – waiting to take a train back home. This thought came to my mind on Thursday morning as I walked into the construction site where Chennai Metro Rail Ltd is building the Government Estate metro station.

Gigantic machines, against the backdrop of the abandoned Secretariat complex, seem to be hard at work with a mind of their own, even as men sporting helmets in different colours walk around like Lilliputians. The engineers insist that the photographer and I wear the necessary 'PPE' (personal protective equipment) – a helmet, safety jacket and shoes before proceeding on a guided tour of the site.

Imposing machinery apart, makeshift tents, canteen, first-aid centre and toilets comprise the space inside the cordoned-off area. It is a town in itself and is inhabited by over a hundred workers, toiling away day and night.

One of the seven underground stations along Anna Salai, the Government Estate station will be connected to Chintadripet MRTS station nearby.

### Engineering marvel

As senior engineers patiently explain the various processes involved in construction, often interrupted by rather basic questions from me, civil engineering suddenly seems like an exotic discipline.

Typically, work on any station begins with the diversion of the various utilities in the area – water pipes, sewer lines and telecom wires. With this work completed for the area under construction, the collective energy of nearly 100 people is

currently focussed on building diaphragm walls.

"The wall, about 1 metre thick, will go as deep as 25 metres. The tracks for the metro will be laid at a depth of around 16 metres. The station, too, will be built at nearly that depth," an engineer said.

To be erected on all four sides, the walls form an outer shell within which the station will be built. A total of 81 concrete panels, each 6.5 metres wide, will be used for the outer structure. So far, 30 panels have been cast underground.

Once the outer shell is complete, excavation work will begin to make way for the station within. The Government Estate station will have four entry-exit points, two on either side of Anna Salai.

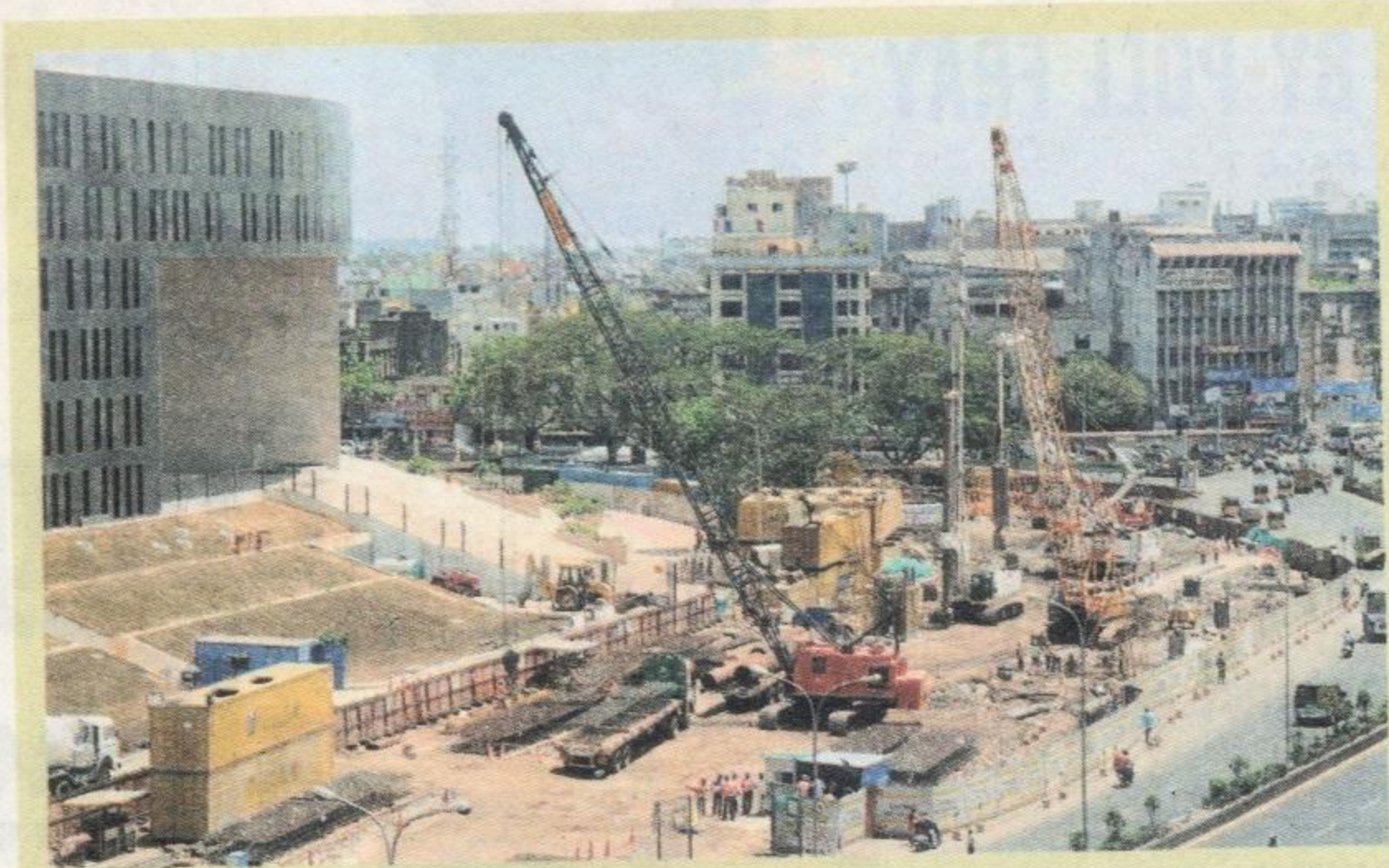


### Tunnelling ahead

Once considerable work on the station is complete, underground tunnelling work will be undertaken to connect different stations. As many as eleven Tunnel Boring Machines (TBMs) will be used to drill through the earth and form tunnels. "Five TBMs have already arrived from China by sea," said the engineer.

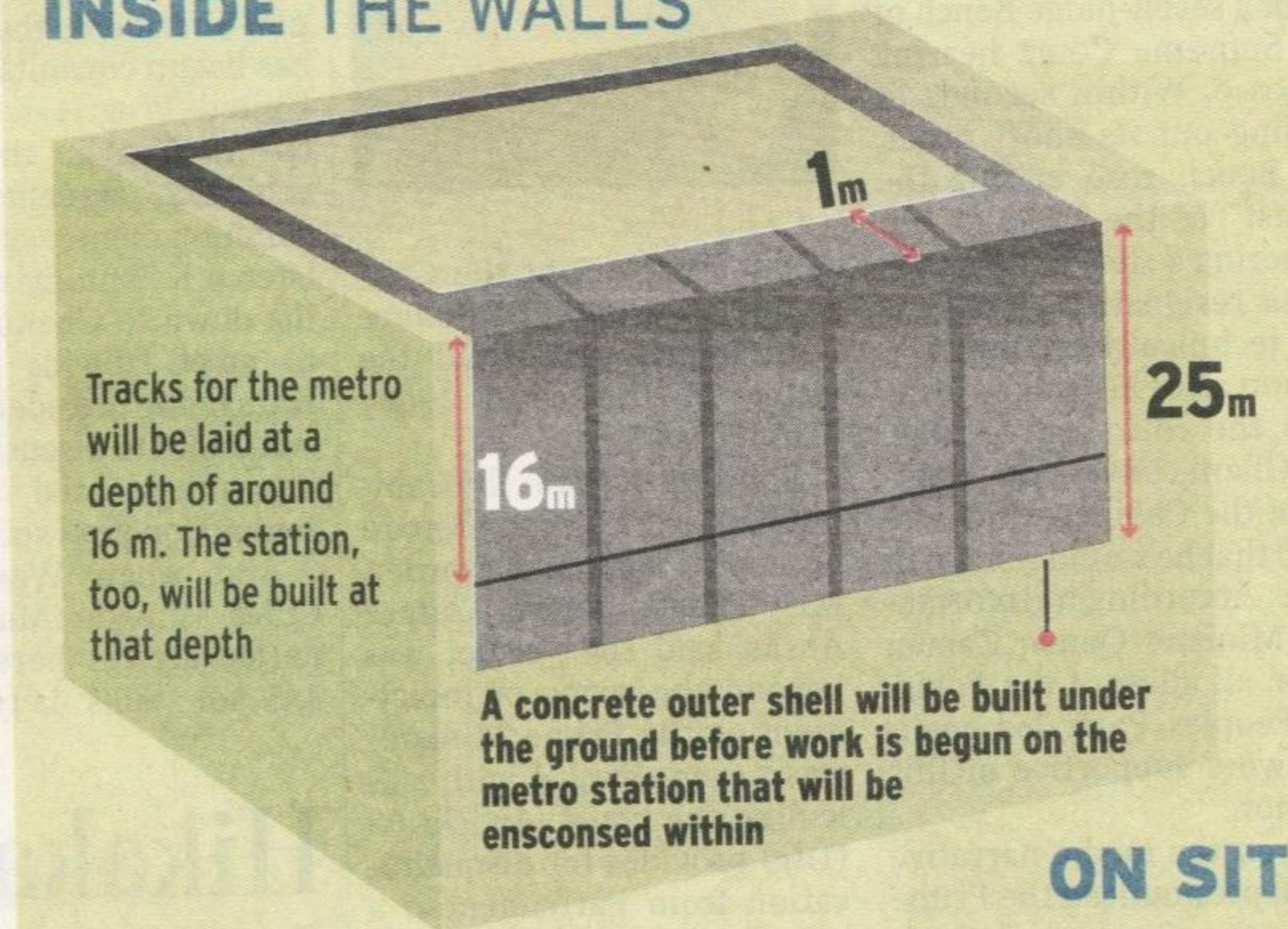
Four TBMs have been allocated for the seven underground stations along Anna Salai. Two of them will be used for the Saidapet to Gemini stretch for the stations at Saidapet, Chamiers Road, Teynampet and Gemini. Two others will be used for the stretch from Gemini to Government Estate tunnelling stations at Thousand Lights, LIC and Government Estate.

Tunnelling work is likely to begin from the site at May Day park in September.



**FAST TRACK** Work is on at full swing at the Government Estate metro station

## INSIDE THE WALLS



Tracks for the metro will be laid at a depth of around 16 m. The station, too, will be built at that depth

A concrete outer shell will be built under the ground before work is begun on the metro station that will be enclosed within

## ON SITE

The fenced area is a mini town in itself, complete with a canteen and a first-aid post

Currently, the site has over 125 people. Once excavation work for the station begins, about 500 workers will be present at the site for each eight-hour shift

## MEN AT WORK

People present on the construction site are given colour-coded helmets as a safety measure and for easy identification



- The walls will consist of 81 concrete panels, each 6.5 m wide. So far, nearly 30 panels have been cast underground
- Once construction of outer shell is complete, excavation work will be taken up in the area within
- The Government Estate underground station will have four entry-exit points, two on either side of Anna Salai
- This is one of seven underground stations along Anna Salai. It will also be connected to Chintadripet MRTS station