



ADDING NEW DIMENSIONS

METRO CUBE

A MUMBAI METRO RAIL CORPORATION NEWSLETTER

MD Speaks

Ms. Ashwini Bhide, IAS

First of all I would like to wish all our patrons a very Happy New year 2018. New Year always starts with new aspirations, new goals and renewed enthusiasm!

Team Metro-3 is also geared up to transform this year in to a mile stone in the Transport Infrastructure History of Mumbai. As we have been promising, the ground work is getting ready to receive and deploy the balance of the 17 Tunnel Boring Machines (TBM) latest by May 2018. To keep pace with the project works funding arrangements, especially the Tranche 2 of JICA loan to the tune of ₹100 Billion (approximately around ₹5800 Cores) is getting concluded before 31st March 2018. This would ensure MMRC to keep the pace of project implementation that was set in 2017. By the end of January 2018, the combined progress of TBM initial drives has crossed 500 m. TBMs at Azad Maidan (Vaitarna-1), Nayanagar (Krishna-1) and Pali Ground, Marol (Vaiganga-1) have completed initial drives and are getting ready for final drives.

As part of traffic diversion during construction, a 350 m long road to bypass Dr. E. Moses Road from Rakhangi Chowk to Worli Naka through Mahalaxmi Racecourse was completed. This ensures smooth traffic movement on this important arterial road and this became possible only with support from MCGM, Royal Western India Turf Club and Mumbai Traffic Police. This would now facilitate unhindered construction works for Science Museum Station. Similar cooperation has been extend by MIAL with regard to traffic diversion at CSIA Terminal-1 to facilitate the station works.

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Young Generation Supporting Metro-3 Signature Campaign

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Systems for Metros

The Metro trains on the Metro-3 will be provided with state-of-the-art Communication Based Train Control (CBTC) Signalling & Train Control System to achieve high level of safety and reliability, a de-facto standard worldwide. Before commencement of the metro operation, various systems installation works need to be completed at stations, tunnel sections and Depot.

- 1. Power and Traction** – The alignment of proposed of Metro-3 corridor is mostly underground. Keeping in view the ultimate traffic requirements, uniformity, standardisation and other techno-economic considerations, 25 kV AC overhead traction system has been adopted.
- 2. TVS (Tunnel Ventilation System)** – This will ensure train pressure relief during normal operation, ventilation during maintenance period if required, removal of smoke during emergency conditions, maintenance of smoke free evacuation route and provision of adequate fresh air during fire related emergencies, etc.
- 3. ECS (Environmental Control System)** – Due to platform and concourse area having limited access from outside and do not have natural ventilation, a fair degree of comfort conditions are provided to the passengers and maintenance staff through such system.
- 4. Lifts and Escalators** - To facilitate the people circulation from the entry/exit points at ground level to the concourse and then to the platform level, about 162 lifts and 381 escalators have been planned to be provided.
- 5. CBTC (Communication Based Train Control)** – The proposed CBTC Signalling & Train Control System will be suitable for Unattended Train Operation (UTO) with manning proposed during the initial periods of stabilisation of train operations and will have advantages like minimisation of avoidable delays on account of human action/error for e.g. turn back time at terminal stations, programmable time interval between successive trains to optimize usage of line capacity through adoption of moving block principle, early normalisation of disrupted train operations etc.
- 6. PSD (Platform Screen Doors)** – CBTC/UTO mode of train operations mandates the provision of PSD for safety of passengers as it offers improved comfort & safety of passengers due to improved space utilisation of platforms, energy efficiency in use of environmental control system at stations, ease of 'entraining' into and 'alighting' from trains, etc. Accordingly, Full height PSD at all 26 underground stations and Half Height Platform Edge Doors (PED) at one at-grade station have been planned to be provided.
- 7. Telecommunication** – IP (Internet Protocol) based Fibre Optic Transmission system as a Backbone Telecom network will be provided to support various telecom systems to meet operational and administrative requirements of Metro-3 namely, PAS (Public Address System), PIDS (Passenger Information & Display System), CCTV, TETRA radio, Help point systems, etc.
- 8. AFC (Automatic Fare Collection)** – for enhanced commuter convenience and operational efficiency, a contact less, media based AFC system is planned. Metro-3 being a part of MMR, will also have provision to support common mobility card being implemented by MMRDA. The other AFC supporting sub-systems to be provided are Ticket Office Machine, Ticket Vending Machines and Automatic Gates.
- 9. Station Security System** – will cover provisions of baggage scanners, Door Frame Metal Detector, Hand Held Metal Detectors, adequate numbers of security personnel to ensure the passenger security and access control systems to restrict the entry to authorized personnel.

MD Speaks

Continued from page 1

The private land acquisition has progressed significantly and compensation has been awarded to four parties. Remaining land parcels are being processed on fast track. As regards Kalbadevi-Girgaon, eligibility list of tenants is being completed with the help of MHADA Authorities and simultaneously the negotiations with land owners are in advance stage.

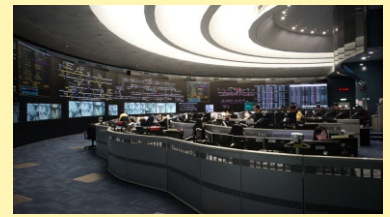
Among the system works Traction and Power supply packages, the bid evaluation/selection reports are awaiting JICA concurrence. This month MMRC initiated a signature campaign at Churchgate Railway Station to make the commuters aware about Metro-3 and how it is going to benefit them. This campaign was supported by the students of Sydenham College with great enthusiasm, demonstrating that the Metro is the choice of transportation for the future generations of Mumbai. As part of our continued dialogue with citizen groups and stake holders, myself and officers of MMRC have made presentations on the Project at various gatherings. This helps us in sharing the project details, process and technology, sensitise them about the developments and dispel their doubts to build the necessary consensus among citizens.

Team MMRC is looking forward to achieve all the milestones with the cooperation from citizens, stakeholders and all the public authorities we are working with.

10. Rolling Stock – To cater to estimated daily ridership of above 12 lacs in the commencement year 2021, procurement of 31 trains of 8 cars each have been planned. During peak hours each train is expected to carry 3,000 passengers.

11. Tracks with crossovers – Twin tube tunnels permit simultaneous bidirectional train operations through underground Metro stations. In order to ensure operational flexibility crossovers to change the track of a train movement have been planned at regular intervals.

12. Metro Car Depot – will ensure stabling of trains when not in operations and their proper cleaning, up-keep and maintenance. The Depot will house OCC (Operations Control Centre) from where the train operations shall be monitored and controlled.



OCC at Hong Kong

Source <https://edition.cnn.com/travel/gallery>



Platform Screen Door at China

Source: <https://upload.wikimedia.org/wikipedia>

The Depot will have classrooms for training. All activities are followed and monitored 24X7 with (BCC) Backup Control Center located in the depot in case of unavailability of OCC.



Obolon Metro Depot, Source: EGIS Rail

Design to Save Environment Station shifted to protect Banyan Tree

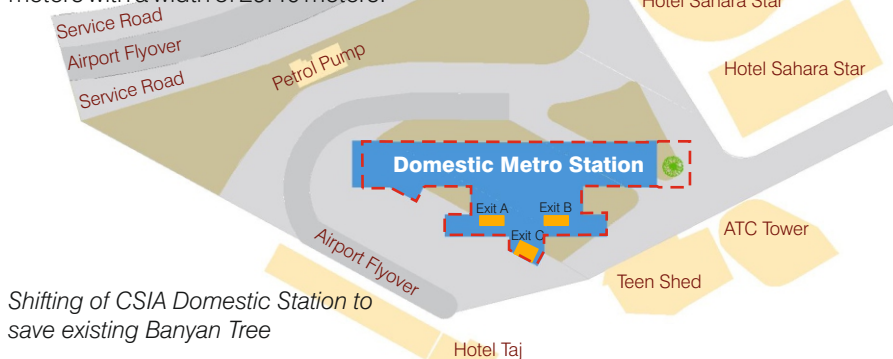
CSIA Domestic Station is located towards the west of ATC tower and between Taj Hotel and Sahara Star hotel. This station is an Intermodal Transport Hub which will be directly connected for passengers travelling to Domestic Airport by means of escalators and walkways. The chainage at C/L of the CSIA Domestic station box is 25307.

CSIA-Domestic Station comprises of three Exits A, B, and C at the Domestic Airport. Fourth exit is located across Western Express Highway which is connected to the station through underground subway. Exit C integrates with the Domestic Terminal through a lobby. This station has an oversite development consisting of three basements of approximate area of 8800 sqm each and a G + 9 above ground paid development of approximate area of 7000 sqm each. The proposed length of the station box was 215.00 meters with a width of 29.40 meters.



Existing Banyan Tree

While reducing the length and shifting the station care has been taken to maintain the entry structures as proposed earlier as any shift in the entry structures will severely hamper the circulation and other activities proposed by MIAL. Great effort has been made to maintain the original required length of platform at 185 meters. The length of the station has been reduced to 196 meters as compared to the earlier proposed length of 215.00 meters. In order to accommodate all platform related activities, the platform width has been increased to 20.3 meters from the earlier proposed width of 17.3 meters. This has been achieved by reducing the distance between the station wall and track center line.



Shifting of CSIA Domestic Station to save existing Banyan Tree

The proposed platform length is 185 meters. Within the earmarked space for the location of station box also existed a Banyan tree with a girth of 14.5 meters. The tree was on the north side of the station. In order to save the banyan tree station was required to be shifted 24 meters towards the south. However, due to the flyover it was not possible to shift the station by 24 meters since the space available was only 5 meters. Hence, the station length was shortened by 19 meters and the station was shifted towards south by 5 meters to save the Banyan tree.

Know Your Station - Siddhivinayak Station



P. L. Deshpande Maharashtra Kala Academy



Prabhadevi Beach



Portuguese Church - Our Lady of Salvation Church



Siddhivinayak Temple



Adv. Balasaheb Apte College of Law



Kirti M. Doongursee College of Arts, Science & Commerce



Map source : <http://www.loginmumbai.org/map.html>

Prabhadevi Temple:

The 300 year old Prabhadevi Mandir, located at the junction of New Prabhadevi Road and Murari Ghag Road in the Prabhadevi area. It is one of the 25 religious and recreational areas, being served by Metro-3. It is within 10 minutes walking distance from proposed Siddhivinayak Metro Station. The temple precinct, free from crowd and queues, has a unique serenity and calmness that stills the wandering mind.

Constructed way back in 1715, the temple has completed 300 years and still withstands the rapid transformations around itself, changing lifestyles and mentalities of people, with its divine simplicity, serenity and peacefulness.



The Siddhivinayak Metro Station is located behind the Siddhivinayak Temple and beneath the Nardulla Tank Maidan. The Station is named after Shree Siddhivinayak Ganapati Mandir, a place of millions of *bhaktas* of Lord Ganapati. 'Siddhivinayak', one who grants your prayers and wishes, is often visited by high profile celebrities – politicians, film makers, sports stars, along with thousands of devotees visiting the temple every Tuesday, on the *Sankashti Chaturthi* (fourth day of *Krishna Paksha* in Lunar Calendar-auspicious day for Lord Ganesha) and during ten days of *Ganesh Utsav*.

Prabhadevi area is known by the Prabhadevi Mandir, an important exhibit of Mumbai's religious-cultural heritage, has history of 300 years. The Mandir is also located off Veer Savarkar Marg, and receives major visitors during the 10 day *atra* (fair) during *Shakambhari Pournima*, in the month of January.

While Metro-3 is providing new connectivity to many unconnected neighbourhoods of Mumbai, speciality of Prabhadevi stretch is the convenience of many Mumbaikars who often visit these places of religious importance with immense faith in spite of all the odds, to seek blessings and well being of all.

So far, Prabhadevi area has been depending on the BEST bus service and Taxi service for connectivity from the nearby Elphinston Road, Dadar and Parel Stations.

Like many other localities in Mumbai, the crowded Prabhadevi area is also changing demographically, with smaller buildings, chawls replaced by high rises and banks, offices and enterprises changing this into a residential-commercial mix. The proximity to the sea face adds value to the property along Swatantrya Veer Savarkar Road. There are multiple schools and colleges in the vicinity of the Metro Station.

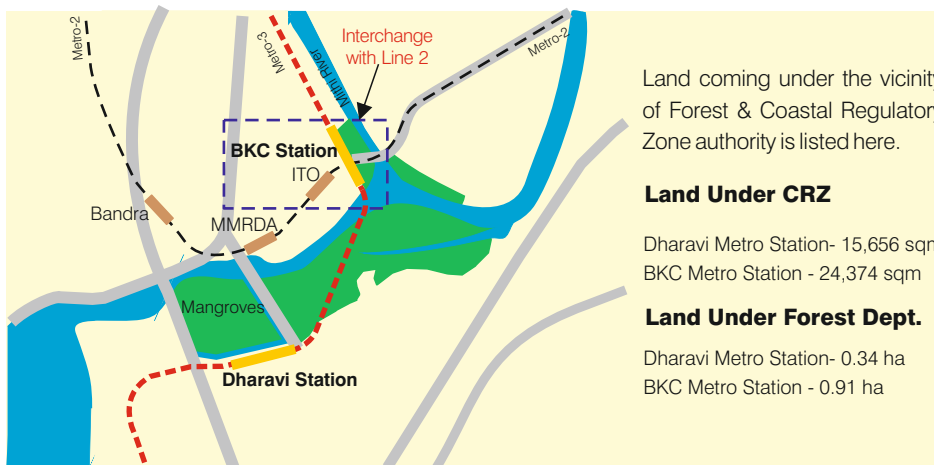
Metro-3 will add new dimensions to this transformation as it will serve the areas which are not connected directly to Western and Central Railways. The station will cater to important institutes and workplaces like Kirti College of Arts, Science & Commerce, Textile Committee of India, Bandra Beach and RBI staff quarters, which are far off from the direct reach of Western and Central Railway..

Enabling Works at Mithi River

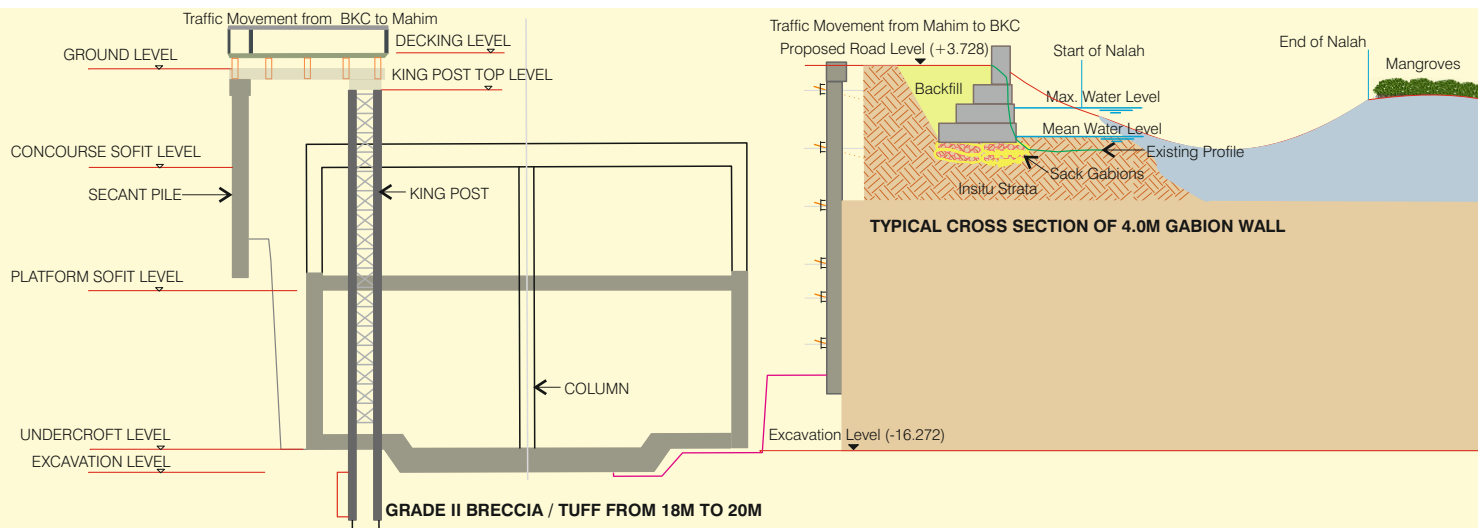
Dharavi and BKC are major stations on Metro-3 with an interchange with proposed Metro Line 2 at BKC. MMRC has obtained all necessary clearances and NOCs from various agencies such as:

- 1- MCZMA (Maharashtra Coastal Zone Management Authority)
- 2- SEIAA (State Environment Impact Assessment Authority)
- 3- Special work permit from state forest department, NOCs from local governing bodies like Collector office MSD & City, MCGM/Tree Authority.
- 4- Hon'ble High Court has also granted its permission for removal of mangroves on 13 June 2017.

Traffic diversion work is in progress at Dharavi station. Existing traffic from BKC to Mahim is proposed to be diverted with the help of decking system on Mahim-Sion Link Road. Traffic from Mahim to BKC is diverted through a proposed road supported by means of Gabion walls along the bank of Mithi River. Though, Dharavi has no Mangrooves, MMRC is still encouraging the compensatory afforestation of 4,400 trees for BKC & 4,400 tree for Dharavi on 1 ha land at Kopar Khairane, through forest department. However, MMRC will carry the in-situ afforestation on 0.28 ha & 0.7 ha of land for Dharavi & BKC metro station respectively, through state Mangroves department.



Using cut-and-cover method the engineering structure can also be built in sloping working pit, however, this is not possible under urban conditions. In such an environment only working pits with vertical walls are conceivable, such as supported by sheet-piles, diaphragm wall and secant pile.



JICA Update

MMRC is a Joint Venture Company of Govt. of India & Govt. of Maharashtra (50:50). MMRC is implementing Metro-3 with the financial assistance from Japan International Corporation Agency (JICA), Equity support and subordinate debt from Govt. of India & Govt. of Maharashtra, which is amounting to Rs. 23,136 Crores as per Detailed Project Report prepared on 2011. JICA is contributing 57.2% of the total Project cost, which is amounting to Rs. 13,235 Crores. JICA has sanctioned 1st tranche of loan amounting to 71 billion JPY, which is approximately around Rs. 4150 crore.

JICA has conducted appraisal meeting on 21st to 24th November 2017 for 2nd tranche of loan processing. During the appraisal meeting JICA confirmed that, financial internal rate of return (FIRR) and Economic internal rate of return (EIRR) are calculated to be 2.7% and 10.1% respectively and project is found to be financially and economically viable. Based on the appraisal, JICA has sanctioned 100 billion JPY on 15th December 2017, which is approximately around Rs. 5800 Cr.

L&T-STEC JV inaugurated the mining of TBM named “WAINGANGA 1” at Mid shaft in Pali Ground, Marol for Package UGC07 on 08th January 2018, in presence of Ms. Ashwini Bhide, other senior management of MMRC and GC officials. L&T STEC JV achieved their milestone on 08th January 2018, which is much ahead as it was schedule to be launched by 26th January 2018. The first tunnel drive will be towards CSIA International Airport.



MMRC conducted a signature campaign at Churchgate station to spread awareness amongst Mumbai’s citizens on the significance of an underground metro line for the city on 23rd January, 2018. The campaign was aimed at calling upon commuters to showcase their support towards Metro-3. Over 450 commuters, including students of Sydenham College, participated in the campaign. MMRC has setup an information kiosk at Churchgate station for educating commuters on the economical and ecological benefits of Metro-3.



MMRC & Mumbai Traffic Police organised one day road safety awareness drive at CST Station. To mark the road safety the team formed a human chain at CST Station and distributed roses, pamphlets & crash helmet to public who were driving without wearing helmet.



Mr. R Ramana (Executive Director, Planning, MMRC) spoke about Metro-3, a major mobility project, while inaugurating Concord '18, an initiative of Sydenham College, Mumbai.



Ms. Ashwini Bhide, MD, MMRC along with other senior officials from MMRC made a detailed presentation to the Chira Bazaar, Girgaon, Grant Road Rahivasi Kruti Samiti on benefits and construction methodology of Metro-3



MMRC team successfully participated in Dream Run on 21st January, 2018, for second year in succession at Tata Mumbai Marathon setting the pace for 'Run for a Better Mumbai'.



MMRC team reviewed the progress of civil construction works for Package 7 (Marol Naka to SEEPZ) and car depot of Metro-3 on 22nd January, 2018.



Apprising senior citizens of Bandra neighborhood on various aspects of Metro-3 project at a recent programme organised by Somwar Mandal, a senior citizen group in Bandra.



MMRC prepares to operate fifth tunnel boring machine

WE ARE EXTREMELY SENSITIVE TO ENVIRONMENTAL ISSUES
SAYS ASHWINI BHIDE, MANAGING DIRECTOR, MMRC

For a project like Metro-3, assessments of environmental impact is the most critical and mandatory step in the project. The Environmental Impact Assessment was completed in the year 2011 as per AIA guidelines with a special emphasis on identification of environmental impacts on climate, ecology, including the water bodies, vegetation, etc. (Forest, natural habitats for birds, flora and fauna, etc.) and the decision of going underground itself was a significant step towards avoiding environmental impacts.

Residents of Cuffe Parade 'blast' MMRC's latest move

A CORRESPONDENT
RESIDENTS of Cuffe Parade are having something to blast with the latest announcement the Metro III line has been extended to the area. On one stretch of the Colaba-Bandra-SEEPZ Metro III, the Cuffe Parade station has been identified as a key station. The station is planned to be built on a 1.5-acre plot in the area. The station will be built on a 1.5-acre plot in the area. The station will be built on a 1.5-acre plot in the area.

'What is loss to environment? Metro will stop 10,000 metric tonnes of emissions'

By city introducing a flurry of projects for the construction of the Metro III, it is a very big underground project. The Metro III will stop 10,000 metric tonnes of emissions. The Metro III will stop 10,000 metric tonnes of emissions. The Metro III will stop 10,000 metric tonnes of emissions.

MMRC conducts awareness drive for citizens on Metro III

BENITA CHACKO
MUMBAI, JANUARY 10

MMRC officials want to continue to build the controlled building for Metro III. The Metro III will stop 10,000 metric tonnes of emissions. The Metro III will stop 10,000 metric tonnes of emissions.

First 10m of underground Metro III path almost ready

RAJENDRA ARAJKA
The Metro III project is almost ready. The Metro III project is almost ready. The Metro III project is almost ready.

'Boring beasts' have their task cut out: Fewer shafts & longer tunnels

TRINITY TO SEEPZ
The Metro III project is almost ready. The Metro III project is almost ready. The Metro III project is almost ready.

मेट्रो-३ला कडक सुरक्षा

केंद्रीय औद्योगिक सुरक्षा बल तैनात होण्याची शक्यता

केंद्रीय औद्योगिक सुरक्षा बल तैनात होण्याची शक्यता. केंद्रीय औद्योगिक सुरक्षा बल तैनात होण्याची शक्यता.

Mumbai needs another mode of transport

MUNDAJI
Mumbai needs another mode of transport. Mumbai needs another mode of transport. Mumbai needs another mode of transport.

कुलाबा-सीएन मेट्रोच्या भुयारी मार्गाचा शुभारंभ

मुंबईच्या व अर्धवृत्तीय क्षेत्राच्या नव्या युगाची सुरुवात - मुख्यमंत्री फडणवीस

कुलाबा-सीएन मेट्रोच्या भुयारी मार्गाचा शुभारंभ. मुंबईच्या व अर्धवृत्तीय क्षेत्राच्या नव्या युगाची सुरुवात.

मेट्रो ३च्या २०० मीटर बोगद्याचे काम पूर्ण!

लोमानत न्यून वेदक

मेट्रो ३च्या २०० मीटर बोगद्याचे काम पूर्ण. लोमानत न्यून वेदक. लोमानत न्यून वेदक.

25M BELOW THE CITY

Massive drill as Metro takes shape

Massive drill as Metro takes shape. Massive drill as Metro takes shape.

Rehab for 2,000 slums and 19 buildings is underway

MUMBAI SET FOR AN UNDERGROUND CORRIDOR

Rehab for 2,000 slums and 19 buildings is underway. Mumbai set for an underground corridor.

Signature drive for underground Metro-III

Mumbai Metro Rail Corporation
on Tuesday held a signature campaign at Churchgate station seeking commuter support for the underground Colaba-BKC-SEEPZ Metro-III. Over 450 commuters participated in the drive.

GIANT MACHINES WILL DIG 12 METRES DAILY

Control room inside machine
The machine is operated from inside. The machine is operated from inside.

Metro 3: First TBM put on the job

Setting up the tunnel boring machine will take 45 days, after which it is likely to complete the 2.5 km tunnel between Nayanagar and Dadar in a year

Metro 3: First TBM put on the job. Setting up the tunnel boring machine will take 45 days.

Rehab for 2,000 slums and 19 buildings is underway

MUMBAI
The plan is to rehabilitate slums at the same location after carrying out the work. The plan is to rehabilitate slums at the same location.

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MMRC Control Room

Contact us @ 8291751545 to report monsoon related grievances pertaining to Metro-3 construction work.

Website Link

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