



Station box excavation at Parramatta Metro Station site

# Station box excavation is underway at Parramatta

The NSW Government is delivering Sydney Metro West – a new underground metro railway which will double rail capacity between Parramatta and the Sydney CBD, link new communities to rail services and support employment growth and housing supply.

Sydney Metro West stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont, and Hunter Street in the Sydney CBD. Two potential station locations are being investigated west of Sydney Olympic Park, including one at Rosehill Gardens which could support a significant increase in housing.

The Gamuda and Laing O'Rourke Consortium (GLC) is delivering the Western Tunnelling Package. The project involves nine kilometres of twin metro rail tunnels between Westmead and Sydney Olympic Park, excavation for two new metro stations, a stabling and maintenance facility at Clyde and a precast facility at Eastern Creek.

## Parramatta construction update

Major construction continues at the Parramatta Metro Station site with station box excavation on the eastern side.

Excavators, rock hammers and front-end loaders are being used to excavate the station box, which is 15 per cent complete, and over 42,920 tonnes of spoil (excavated material) has been removed from the station box to date. All of the re-usable spoil from site has been re-purposed across projects in the Sydney metropolitan area.

Following completion of the diaphragm wall (D-wall) in early 2024, archaeological investigations in this location will recommence in mid-2024 within site boundaries. In line with the completion of the D-wall, excavation of the western side of the station box will also commence in mid-2024.

Station box excavation is expected to be completed in late 2025.

# What are the stages of station box construction?

The station box is a large, open excavation that forms the shell of an underground metro station. It serves as the primary structure where the station platform, tracks, and other facilities are constructed. Excavation of the Parramatta station box will be completed in stages.

When complete, the station box will be around 192 metres long, 25 metres wide and 28 metres deep. Approximately 300,000 tonnes of material will be removed. Tunnel boring machines (TBMs) Betty and Dorothy are expected to reach Parramatta in 2025.

## Stage 1 – Diaphragm wall (D-wall) construction

Construction of the D-wall is now complete and will support the excavation of the station box.

## Stage 2 – Station box and tunnel nozzle excavation

During station box excavation, prefabricated steel frames are temporarily installed to support the structure. The steel frames are installed at varying points during excavation. The first is installed at a depth of 4.5 metres, then at depths of 9.5 metres and 18 metres to ensure support of the D-wall is maintained. Once the final frame has been installed, excavation will continue to the bottom of the station box.

Construction of the tunnel nozzles are completed in stages during station box excavation to account for ground conditions and spatial constraints on site. Nozzles are an enlarged tunnel profile adjacent to the main station box. At Parramatta, the tunnel nozzles facilitate ventilation for the twin metro tunnels.

Tunnel nozzles are excavated horizontally. The first stage of tunnel nozzle excavation commences once the station box excavation has reached a depth of 21 metres. Excavation in the shape of an arch will take place close to the top of the natural rock level which transitions to softer soil and requires ground stabilisation to excavate.

Canopy tubes are then installed around the outside of the arch and embedded into the rock behind the future headwall. Excavation continues in short advances and is stabilised with additional shotcrete and steel frames.

Once completed, excavation and stabilisation of the headwall commences until the final depth has been excavated.

The nozzles are then waterproofed, and a permanent concrete lining is installed to form a structural reinforced concrete arch.

## Final stage – Temporary base slab

A temporary concrete base slab is installed, ready for the next stage of construction to commence at Parramatta.

## What is a tunnel nozzle?



Tunnel nozzle excavation at Sydney Olympic Park Metro Station site

Tunnel nozzle excavation involves the construction of two 16-metre-long, 14-metre-high and 8-metre-wide caverns, otherwise known as nozzles. Tunnel boring machines (TBMs) Betty and Dorothy will breakthrough into the Parramatta Metro Station box via the nozzles.

## Indicative construction timeline

			We are here		
2021 to 2022	Mid 2022 to early 2023	Early 2023 to mid 2024	Late 2023 to late 2025	Mid 2024 to 2025	2025 onwards
Site investigations and demolition	Site establishment	Construction of D-wall	Station box excavation	Construction of twin TBM tunnels	Site handover and WTP tunnelling complete





Parramatta site before major excavation (March 2023)

Station box excavation in progress (May 2024)

### Six-month look ahead and out-of-hours work activities

Activity	Noise impact	July	August	September	October	November	December
Station box excavation, including removal of excavated material	Low to medium	●	●	●	●	●	●
Tunnel nozzle excavation	Low to medium	●	●	●	●	●	●
Delivery of machinery, materials and equipment	Low	●	●	●	●	●	●
Archaeological investigations	Low	●	●	●	●	●	●
Geotechnical and utility investigations and upgrades within and around site	Low	●	●	●	●	●	●
Ongoing surveying within and around site	Low	●	●	●	●	●	●

● Standard construction hours ● 24 hour work activities ● Out of hours work

### Out-of-hours work

Majority of GLC construction is completed within standard construction hours. Some activities such as the excavation of the station box and tunnel nozzle excavation are carried out at night.

The project team provides regular communications and aims to minimise impacts to the local community during out-of-of-hours work as much as possible. Mitigation measures such as completing the noisiest work before midnight and installing noise blankets around the worksite are carried out to minimise community impact.

To learn more about out-of-hours work or to provide feedback about the work, please contact the project community team using the details overleaf.



# Step inside the box: construction progress unveiled at Parramatta



Work on the future Parramatta Metro Station has been powering ahead. On Sunday 21 April 2024, locals living and working in the Parramatta area were invited to see the major construction progress on site at a community open day.

Over 200 community members attended the event, which included behind-the-scenes guided tours of the construction site, where they were invited to explore historical artefacts uncovered to date, and to enter the 15-metre-deep station box to see the excavation progress.

Leading the way: the Parramatta site team ushering groups on a guided tour



Visitors learning about the artefacts found during archaeological investigations



Going in depth: guided tours provided key details on station box construction

## Archaeological investigations to recommence at Parramatta

Parramatta Metro Station provides a unique opportunity to investigate multiple phases of archaeology associated with thousands of years of Aboriginal occupation and Parramatta's colonial development from an agricultural and convict settlement to free-market town and then urban centre.

After discovering many thousands of artefacts and the presence of convict hut allotments, houses, businesses,

and horse stables, archaeologists paused their investigations in late 2023 to allow for construction activities to continue. Archaeological investigations are scheduled to recommence in mid-2024.

Archaeologists onsite are expecting to uncover Aboriginal archaeology, ironworks and convict huts within site boundaries that will give vital clues to the history of Parramatta and the daily life of those who lived here.



1830's stables found during early archaeological investigations

### Contact us

If you have any questions or would like more information please contact our project team:

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### Translating and interpreting service

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