



Excavation of the cavern at Pymont Station.

Tunnelling progress at Pymont Station

The NSW Government is delivering Sydney Metro West – a new underground metro railway which will double rail capacity between Parramatta and the Sydney CBD, transforming Sydney for generations to come.

This once-in-a-century infrastructure investment will provide fast, reliable turn-up-and-go metro services with fully accessible stations, link new communities to rail services and support employment growth and housing supply.

Stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pymont 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.

Sydney Metro West will target an opening date of 2032.

John Holland CPB Contractors Ghella Joint Venture (JCG) has been awarded the contract to deliver 3.5 kilometres of twin metro rail tunnels between The Bays and Hunter

Street and excavate the Pymont and Hunter Street metro stations. This work is part of the Eastern Tunnelling Package (ETP) for Sydney Metro West.

Pymont construction activities

Tunnelling is well underway at Pymont, with three roadheaders currently excavating the underground cavern, crossover cavern and adits (pedestrian tunnels) for the future station.

Construction activities include surface works, shaft excavation, installing ground support (rock bolting) and shotcreting (sprayed concrete works), tunnelling support activities such as spoil removal and use of ventilation, use of a water treatment plant, groundwater and building monitoring, and delivering machinery and equipment to site.

Above ground, two acoustic sheds have been constructed at the Pymont East and West sites to support excavation of the permanent shafts.

What's happening in Pymont

Cavern excavation

The Pymont Station site welcomed its third and final roadheader last month, to join the digging effort for the future station. Station cavern excavation began in July, while the pedestrian tunnels (adits) and crossover cavern started to be carved out in November. All three roadheaders are working approximately 20–25 metres underneath Pymont and are expected to continue until early–mid 2025.



A total of 312,000 tonnes of spoil will be excavated in the cavern and associated tunnels at Pymont Station.

Shaft excavation

At Pymont East, excavation of the permanent shaft is underway and will continue until the team reaches an approximate depth of 30 metres. At Pymont West, installation of the acoustic shed and ground support works are now complete. Site establishment works are continuing at Pymont West, which has allowed shaft excavation to begin.



Excavators are used to remove spoil in the station shaft.

Roadheader tunnelling approach

Excavation of the Pymont Station underground cavern will be completed in three stages:

Heading

The first stage is the heading, which will involve cutting the cavern roof using a roadheader. The machine advances in stages, grinding rock and progressively installing ground support which includes rock bolts (metal rods), and shotcrete (sprayed concrete). Due to the size of the cavern, the heading is split into three smaller sections which will be advanced separately. This allows support to be installed progressively, and the width of the tunnel is supported before the cavern is fully widened.



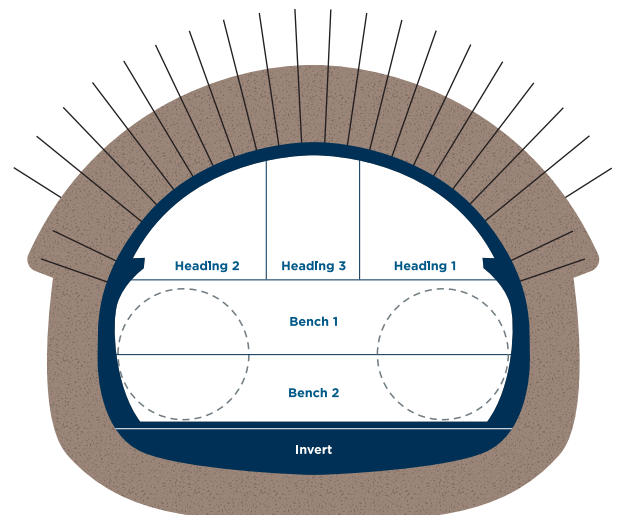
The station cavern will be 18 metres high, 24 metres wide and 170 metres long.

Benching

The second stage is called benching and involves removing the rock below the heading using a roadheader and rock hammer. For the station cavern, two bench levels are required. This stage is generally quicker than the heading and is completed to the full width of the cavern.

Invert

The final stage is the invert, which involves cutting the floor of the cavern. This stage involves careful trimming of the curved tunnel floor with a roadheader. This stage also progresses quickly to the full width of cavern.



JCG tunnelling approach.

Six-month construction lookahead

Activity (subject to change)	Jan	Feb	Mar	Apr	May	Jun
Shaft excavation	●●●	●●●	●●●	●●●		
Station cavern excavation (roadheader tunnelling)	●●	●●	●●	●●	●●	●●
Cross over cavern excavation (roadheader tunnelling)	●●	●●	●●	●●	●●	●●
Pedestrian and services tunnels excavation (roadheader tunnelling)	●●	●●	●●	●●	●●	●●
Cavern permanent lining works			●●	●●	●●	●●

Pymont East ● Pymont West ● Some out of hours works required ●

TBM tunnelling update

TBMs Jessie and Ruby have been tunnelling east from The Bays Station site towards Pymont, expecting to break through into the Pymont Station cavern next year. TBM Jessie reached Pymont in October, while TBM Ruby is currently under Glebe Island heading towards Johnstons Bay.

Our mixed shield TBMs use slurry technology to balance the pressure inside and outside of the machine as it moves through different ground conditions. Pipes and fluid control the pressure in the machine by turning the excavated material into a slurry mixture, which is pumped out of the TBM and back to The Bays station site.

Tunnelling and associated support activities occur 24 hours a day, 7 days a week.



TBM Ruby launched from The Bays Station site and is now on its way to Pymont.

Heritage highlights

Archaeological investigations undertaken at the Pymont East site revealed part of a cellar of the Grocer built by Josiah White in 1896, including three alcoves (sections of a room).

It's likely the alcoves served as light wells, however given their size, they could have also been used as chutes to deliver produce to the cellar of the grocer. A raised rectangular concrete feature was also identified in the northwestern corner of the cellar, which is believed to be the base of either a stairwell to the cellar or a lift to the basement.

All archaeological investigations are being overseen by qualified excavation directors and JCG has measures in place to appropriately manage any items which are found.



Union Street near the corner of Harwood Street Pymont, 1911. City of Sydney Archives: A-00038960



Parts of a cellar found at Pymont East during archaeological investigations.

Work hours

Pyrmont East and West

Standard construction hours are 7am –6pm, Monday to Friday and 8am –6pm, Saturdays. Out of hours will be required and notified prior to work starting.

Tunnelling from Pyrmont East

Tunnelling and associated support activities will occur 24 hours per day, seven days per week.

The Eastern Tunnelling Package team wishes you a safe and happy holiday season. Pyrmont construction sites will be closed between Monday 23 December 2024 and Friday 3 January 2025 for the holiday period.

Our community team

JCG has a team committed to working with the community as it delivers the project. The team has played an active role in getting to know and understand the local community to ensure that impacts on residents and local businesses are minimised.

Please contact the JCG community team on **1800 612 173** if you have any questions or would like to provide feedback about the ETP works at Pyrmont. We will continue to keep you updated on the progress of work in your area.



Excavated material is removed from the cavern and loaded into trucks to be taken offsite.

Sydney Metro Connect - another way to stay informed

Download Sydney Metro Connect onto your smart device to stay informed about current work, project milestones and receive notifications for upcoming work in your area –all in one place. Sydney Metro Connect is available from the App Store or Google Play.

Weekly email updates

Weekly email updates provide the latest information about upcoming work including roadheader excavation progress. If you'd like to receive these email updates, please send a request to MetroTunnelsJCGJV@transport.nsw.gov.au and we will add you to the distribution list.



Installing rock bolts in the cavern roof to stabilise the ground.

Contact us

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

1800 612 173 Community infoline open 24 hours

MetroTunnelsJCGJV@transport.nsw.gov.au

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